



## ABSTRACT

### A GENERATIVE-TRANSFORMATIONAL STUDY OF NEGATION: A CONTRASTIVE ANALYSIS OF JAPANESE AND ENGLISH

By

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The present thesis is an attempt to formulate an analysis of negation that is applicable to both Japanese and English within the framework of the theory of generative-transformational grammar. To date, this remains to be done in that neither the interpretive nor the generative-semantic analysis of negation is satisfactory, viewed from the standpoint of its applicability to both Japanese and English.

This work starts with a brief review of the recent transformational works on negation in English such as Jackendoff (1969), (1971), Partee (1970), G. Lakoff (1969), (1970a), (1970b), (1971a), and Carden (1970a), (1970b), noting that they leave a number of problems unsolved. Thus, their analyses are far from satisfactory, apart from their inapplicability to Japanese.

In Chapter II, the interrelations of negation and quantifiers are discussed in detail, based on the two putative universals regarding the scope of negation and that of quantifiers: (1) the scope of negation is the whole sentence in which it occurs, (2) the scope of a quantifier is the whole sentence in which it occurs. In particular,



an analysis of negation and quantifiers is proposed first for Japanese and then it is applied to English to test its validity. The proposed analysis involves several transformations such as Sentence-raising, Negative-attachment, Quantifier-attachment, Adverbial-movement in both Japanese and English, and Contrastive wa-attachment in Japanese, which are all shown to be independently motivated transformations. Moreover, a twofold distinction is made for negation, sentential and verb-phrase, and also for quantifiers, sentential and nominal. Justification for the twofold distinctions is given in a number of ways. In addition, the proposed analysis is tested against a number of remaining problems to demonstrate that it can solve those problems.

In Chapter III, the interrelations of negation and four classes of adverbials are discussed in detail. Noting similar behaviors of these adverbials to quantifiers with respect to negation, we apply the analysis proposed in Chapter II to these adverbials. This application confirms the validity of the analysis. Additionally, another candidate for a language universal is proposed regarding manner adverbials with respect to negation: manner adverbials cannot co-occur with verb-phrase negation.

In Chapter IV, the topic of Negative-raising is discussed and it is demonstrated that a minor rule such as Negative-raising may be dispensed with, or, to be more

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exact, it may be incorporated into the general rule of Negative-attachment in our analysis. Furthermore, it is shown that the proposed analysis can account for a number of cases that cannot be explained in terms of Negative-raising, namely, those cases where sentences of the type "NP think(s) [ X - not - Y ]<sub>S</sub>" and their counterparts of the type "NP do(es) not think [ X - Y ]<sub>S</sub>" are different in meaning or grammaticality: this analysis can explain them in the same way as those cases where sentences of the two types are synonymous, in terms of the twofold distinction of negation. Thus, the proposed analysis is shown to have several advantages over the Negative-raising analysis.

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## ABBREVIATIONS

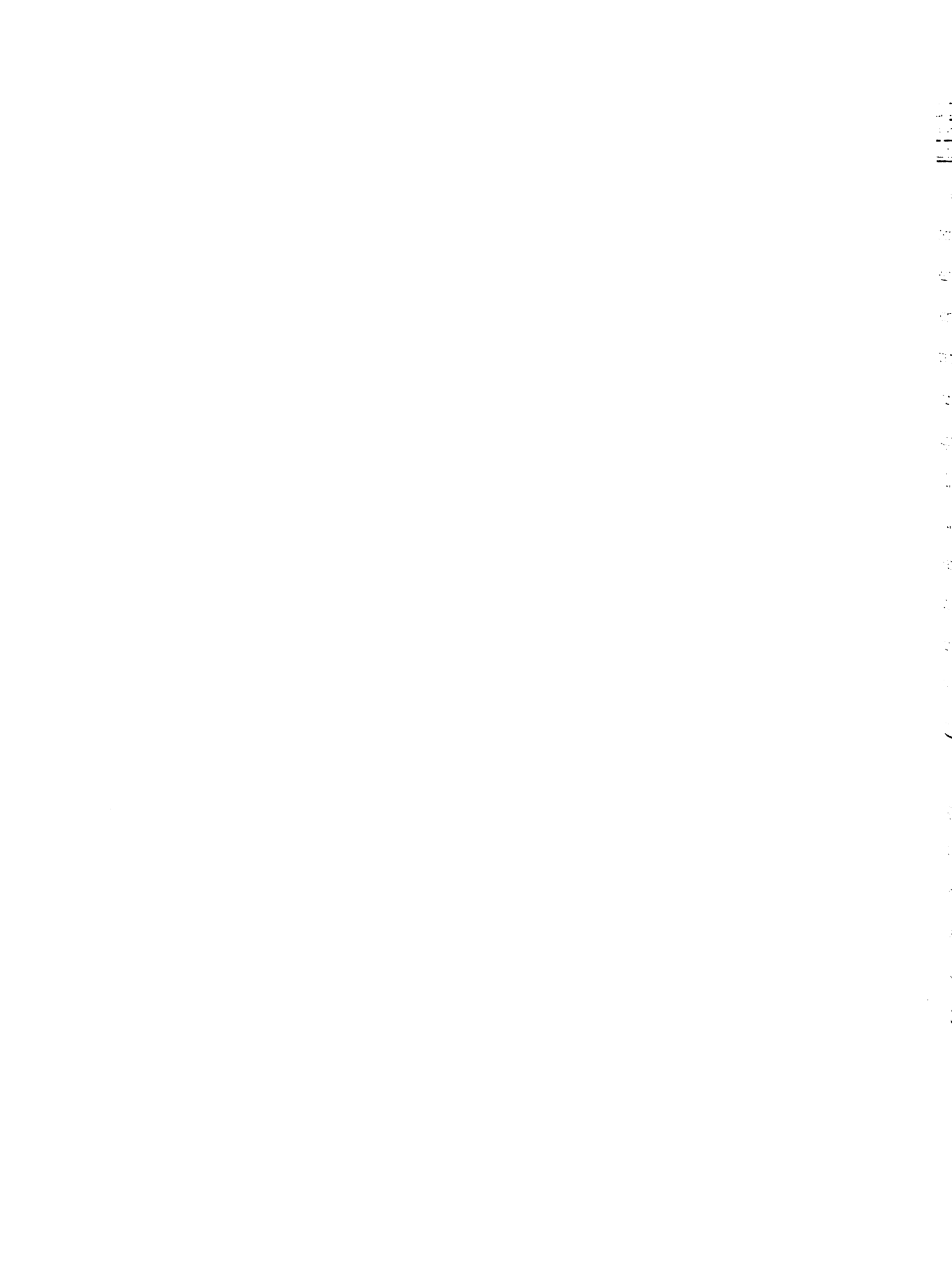
Adj	Adjective
Adj <sub>S</sub>	Sentential Adjective
Adv	Adverbial
Adv <sub>D</sub>	Degree Adverbial
Adv <sub>F</sub>	Adverbial of Frequency
Adv <sub>L</sub>	Location Adverbial
Adv <sub>M</sub>	Manner Adverbial
Adv <sub>N</sub>	Nominal Adverbial
Adv <sub>R.P</sub>	Adverbial of Reason and Purpose
Adv <sub>T</sub>	Time Adverbial
Aux	Auxiliary
Det	Determiner
N	Noun
Neg	Negative
NP	Noun Phrase
Quant	Quantifier
S	Sentence
V	Verb
V <sub>S.T</sub>	Verb of Saying and Thinking
V <sub>Th</sub>	Verb of Thinking
VP	Verb Phrase

## CHAPTER I

### INTRODUCTION

There have been a number of transformational works done in the topic of negation and quantifiers in English, notably, Jackendoff (1969), (1971), Partee (1970), G. Lakoff (1969), (1970a), (1970b), (1971a) and Carden (1970a), (1970b). These recent works have established that interrelations of negation and quantifiers are related significantly to the semantic interpretation of a sentence in which they occur. These discussions result in part from the controversies between the interpretive (e.g. Jackendoff, Partee) and the generative semanticists (e.g. G. Lakoff, Carden).

In this thesis we will discuss the same topic from a different viewpoint and with the aim of formulating an analysis of negation that is applicable to both Japanese and English. To date, this remains to be done in that neither the interpretive nor the generative-semantic analysis of negation is satisfactory, viewed from the standpoint of its applicability to both Japanese and English. To clarify the point, let us review briefly the recent transformational works on negation and quantifiers.



1.1. The Interpretive Versus the Generative-Semantic Analysis

Jackendoff and Partee try to account for the semantic interrelation of negation and quantifiers in terms of semantic interpretation rules. Jackendoff, in particular, resorts to the surface order of negatives and quantifiers to give the semantic interpretation of a sentence in which they occur. To cite an example from Jackendoff (1969) with a slight change, consider the following:

(1.1) Not many arrows hit the target.

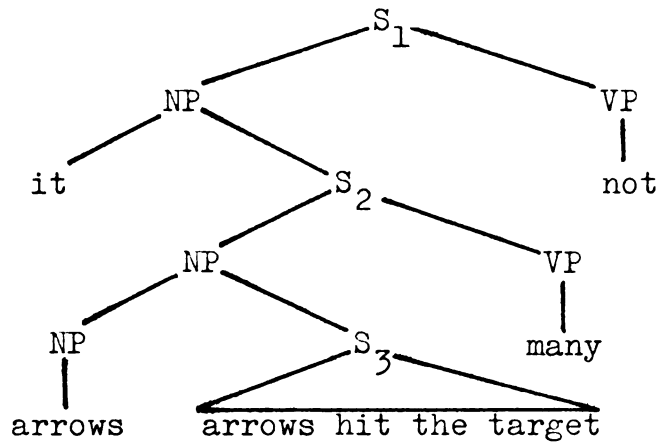
(1.2) Many arrows did not hit the target.

He argues that sentence (1.1), but not (1.2), is synonymous with "It is not so that many arrows hit the target," and that this semantic difference is due to the difference in the surface order of not and many: in (1.1) not precedes many, while in (1.2) many precedes not.

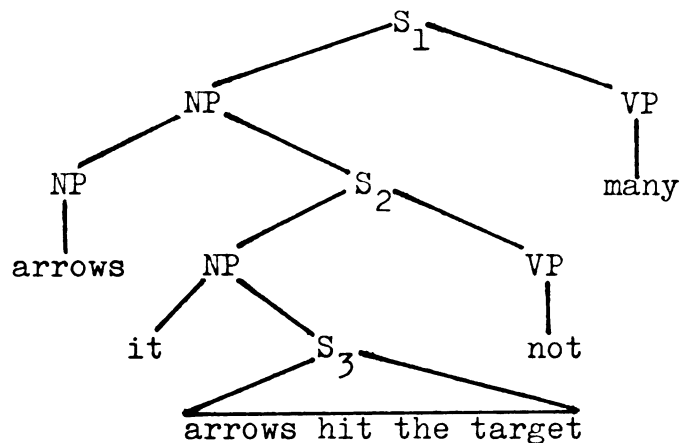
On the other hand, G. Lakoff and Carden argue that negation and quantifiers are generated in the base as verbs of higher sentences, and that the semantic difference between (1.1) and (1.2) may be explained in terms of the hierarchical difference between not and many in the underlying structure: in the structure underlying (1.1), not occurs in a higher sentence than many, while the opposite is the case with that underlying (1.2). According to them, therefore, sentences (1.1) and (1.2) are derived from distinct underlying structures such as (1.3) and (1.4), respectively:



(1.3)



(1.4)



The derivation of sentence (1.1) from (1.3) or (1.2) from (1.4) requires the application of what G. Lakoff calls Quantifier-lowering. This transformation inserts quantifiers (probably negatives as well)<sup>1</sup> into a lower sentence, for instance, many and not of (1.3) into  $S_3$ , one at a time.

### 1.2. Problems of the Interpretive and the Generative-Semantic Analyses

Considering their analyses, we note that there are several problems yet to be solved in both of the analyses. The analysis in terms of the surface order of negatives and

quantifiers must face the following problems:

A. If one adopts the interpretive analysis based on the surface order of negatives and quantifiers, then moving transformations such as Passivization and Topicalization cannot remain meaning-preserving. For instance, observe the following sentences cited from Jackendoff (1969) with a slight change:

(1.5)(=1.1) Not many arrows hit the target.

(1.6)(=1.2) Many arrows did not hit the target.

(1.7) The target was not hit by many arrows.

We note that there is no reason to block the application of Passivization to the structure underlying sentence (1.6) to derive sentence (1.7). But the trouble is that sentence (1.7) is not synonymous with (1.6), so Passivization in this case is not meaning-preserving.

In turn, consider the following sentences cited again from Jackendoff (1969):

(1.8) The police did not arrest many demonstrators.

(1.9) Many demonstrators were not arrested by the police.

(1.10) Not many demonstrators were arrested by the police.

If Passivization applies to the structure underlying (1.8), the resulting sentence is (1.9), not (1.10), in spite of the fact that (1.8) is synonymous with (1.10), not (1.9). Thus, Passivization in this case is not meaning-preserving, either. Furthermore, one cannot



derive the active counterpart of (1.10): if (1.8) and (1.9) are related by the Passivization transformation, what active sentence is related to (1.10)? One might argue, following Klima (1964), that (1.10) is derived from (1.9) by the application of what Klima (1964) calls Negative-incorporation which incorporates not in (1.9) into many. But the trouble is that Negative-incorporation is not a meaning-preserving transformation since sentences (1.9) and (1.10) are not synonymous.

To give up the meaning-preserving condition on transformations is clearly to increase the descriptive power of transformations, which only contributes to making more serious the defect of the theory of transformational grammar.<sup>2</sup>

- B. There are several types of counter-examples, as G. Lakoff (1969) notes, to the interpretive analysis in terms of the surface order of negatives and quantifiers. The first major type follows:

(1.11) The arrows that did not hit the target were  
many.

In sentence (1.11), G. Lakoff argues, not precedes many but (1.11) is synonymous with (1.6), not with (1.5).

G. Lakoff notes that in (1.11) many follows not but is in a higher sentence than not, and this "asymmetric command relationship" between not and many marks the difference in scope.

The second major type involves extra heavy stress,

as in (1.12):

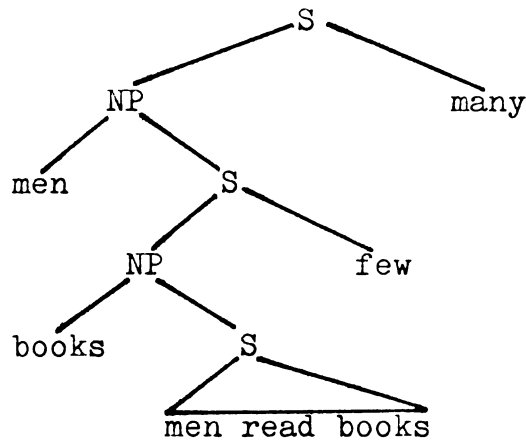
(1.12) The students did not read many books.

In sentence (1.12) not precedes many, but the semantic interpretation of (1.12) is that in which many includes not in its scope. Therefore, the analysis in terms of the surface order of negation and quantifiers must be revised to account for these counter-examples.

On the other hand, the analysis in terms of the Quantifier-lowering rule proposed by G. Lakoff (1969) still leaves the following problems unsolved.

- C. Quantifier-lowering, as criticized by Chomsky (1972:184-185), violates the presumably universal constraint that no rule may introduce an item into a phrase of an embedded sentence from outside of that sentence.
- D. The underlying structures in which negatives and quantifiers occur as verbs of higher sentences, such as (1.3) and (1.4), are not well-motivated but rather ad hoc, as noted by Chomsky (1972). For instance, the sentence "Many men read few books" will have the following underlying structure with unnecessary details aside:

(1.13)



Chomsky (1972, 183), in particular, notes:

Notice first that the structures in which quantifiers appear as predicates have unique properties. For example, the structure (79) [i.e. (1.13) with the most deeply embedded S missing] is admissible only if the embedded NP books has a relative clause attached to it; furthermore, this relative clause must contain both of the NP's that appear in (79). These conditions are without parallel among syntactically motivated structures. Furthermore, although (79) appears to involve a "relative clause", this structure is unique in that its antecedent, men, does not appear within the "relative clause" of which it is the antecedent.

### 1.3. Aims of the Present Thesis

From the brief review of the recent transformational works on negation and quantifiers, we see that both the interpretive and the generative-semantic analyses are far from satisfactory in that they leave several problems unsolved.

Moreover, from the viewpoint of its applicability to Japanese as well as English, we may point out one more disadvantage of the interpretive analysis in terms of the surface order of negatives and quantifiers. In Japanese,

negation occurs in the final position of a sentence, as will be discussed in the subsequent chapters, with the result that negation must always follow quantifiers in their surface order. Now, the point is clear: the interpretive analysis in terms of the surface order of negation and quantifiers is completely inapplicable to Japanese negation and quantifiers. Our aim in this connection is, therefore, to explore and propose an analysis of negation that will be applicable to both Japanese and English negation, in addition to being free from the above criticisms.

What is the significance, then, of the applicability of our analysis to both Japanese and English? In the theory of transformational grammar, one of the fundamental goals is to construct a linguistic theory of explanatory adequacy which makes it possible to select a descriptively adequate grammar for each language. The problem is, therefore, to construct a general theory of language which is so richly structured that it can sufficiently narrow the class of possible grammars so that the problem of selecting a grammar can be approached. Our research should be, therefore, along the lines of enriching the general theory and simplifying particular grammars. Viewed from this standpoint, a rule applicable to two languages is more significant than a rule applicable to a particular language. The reason is obvious: a rule applicable to two languages is more likely to be a language universal which may contribute to enriching the general linguistic theory and simplifying particular

grammars. Moreover, if a rule is applicable to two languages which are genetically unrelated, it is more likely to be a language universal than a rule applicable to two genetically related languages. Here lies the significance of the applicability of our analysis to both Japanese and English. Japanese and English are genetically as unrelated as any two languages in the world. Thus, an analysis applicable to both Japanese and English is very likely or at least more likely to be applicable to other languages than an analysis applicable to English alone. Furthermore, some of the rules or constraints contained in such an analysis are very likely to be language universals.

To repeat, the aim of the present dissertation is to discuss several aspects of negation and present an analysis of negation that is applicable to both Japanese and English.

#### 1.4. The Outline of the Present Thesis

The outline of this thesis is as follows. In Chapter II, I discuss the interrelations of negation and quantifiers. The discussion is based on an observation which seems to be a linguistic universal regarding the scope of negation: the scope of negation is the whole sentence in which it occurs. Then, I argue that if a constituent is not included in the scope of negation, it must be outside the sentence containing the negation in the underlying structure. Based on the scope of negation, I also make a twofold distinction of negation, sentential and verb-phrase; only



sentential negation can include quantifiers in its scope. Next, noting the similar behaviors of quantifiers to negatives, I go on to argue that the scope of quantifiers is the whole sentence in which they occur. Then, if a constituent is outside the scope of a quantifier, it must be outside the sentence containing the quantifier in the underlying structure. Additionally, I make a twofold distinction of quantifiers, sentential and nominal, parallel to that of negation. Thus, the proposed analysis incorporates two putative universals regarding the scope of negation and that of quantifiers along with the twofold distinction of negation and that of quantifiers. It also involves several transformations which are shown to be independently motivated in both Japanese and English. Next, I demonstrate that the proposed analysis can account for a number of facts concerning the interrelations of negation and quantifiers in both Japanese and English, in addition to solving the above-noted problems.

In Chapter III, I discuss the interrelations of negation and four classes of adverbials. I note first that those adverbials behave quite similarly to quantifiers in that, depending upon whether they co-occur with sentential or verb-phrase negation, they show semantic differences like quantifiers. Then, applying the analysis proposed in Chapter II to these adverbials with respect to negation, I demonstrate that the proposed analysis is general enough to cover these adverbials. In addition, I propose a presumably

universal constraint regarding manner adverbials: manner adverbials cannot co-occur with verb-phrase negation. If this constraint is correct, I argue, it gives additional motivation to the twofold distinction of negation.

In Chapter IV, the topic of Negative-raising is discussed within the proposed framework. I attempt to demonstrate that a minor rule such as Negative-raising can be dispensed with, or put differently, it can be incorporated into the more general rule of Negative-attachment in our analysis. In addition, it is shown that the proposed analysis can account for a number of cases that cannot be explained in terms of the Negative-raising rule, namely, those cases where sentences of the two types--the type "NP think(s) [ X - not - Y ]<sub>S</sub>" and the type "NP do(es) not think [ X - Y ]<sub>S</sub>"--are different in meaning or grammaticality. Furthermore, it can explain them in the same way as those cases where sentences of the two types are synonymous, in terms of the twofold distinction of negation. Thus, the proposed analysis is shown to have several advantages over the Negative-raising analysis.

Chapter V is a brief recapitulation of the results of the thesis.

## CHAPTER I

### FOOTNOTES

1. G. Lakoff (1969), (1970b), (1971a) does not seem to claim explicitly that Quantifier-lowering inserts negatives as well into lower embedded sentences. If the application of Quantifier-lowering is restricted to quantifiers, some other transformation is necessary to insert negatives into lower embedded sentences.

2. In this connection, see Chomsky (1972:124-125) who, in particular, notes:

The gravest defect of the theory of transformational grammar is its enormous latitude and descriptive power. . . . Virtually any imaginable rule can be described in transformational terms. Therefore a critical problem in making transformational grammar a substantive theory with explanatory force is to restrict the category of admissible phrase markers, admissible transformations, and admissible derivations.

## CHAPTER II

### INTERRELATIONS OF NEGATION AND QUANTIFIERS

Recent researchers, notably, Jackendoff (1969), (1971) and G. Lakoff (1969), (1970b), (1971a) have established that interrelations of negation and quantifiers are related significantly to the semantic interpretation of a sentence in which they occur. In this chapter we will discuss the same topic from a different viewpoint and with the aim of formulating an analysis of negation that is applicable to both Japanese and English negation with respect to quantifiers.

We start by discussing Japanese negation and propose an analysis that may take care of a number of facts about Japanese negation. Then, we will go on to apply this analysis to English negation to test and to show its validity. Our arguments in this chapter involve, among others, the discussion of the following hypotheses about Japanese and English:

1. The scope of negation is the whole sentence in which it occurs.
2. The constituents that are outside the scope of negation occur outside the sentence containing the negation in the underlying structure.

3. There are two types of negation, sentential and verb-phrase: sentential negation, but not verb-phrase negation, "commands" the sentence it negates in the underlying structure.
4. There is a striking parallel observed between negation and quantifiers, and the latter may be treated in a way similar to negation.
5. The scope of a quantifier is the whole sentence in which it occurs.
6. The constituents that are outside the scope of a quantifier occur outside the sentence containing the quantifier in the underlying structure.
7. There are two types of quantifiers, sentential and nominal: they will be derived by the rule that rewrites VP and the rule that rewrites NP, respectively.
8. Both Japanese and English contain transformations such as Sentence-raising, Negative-attachment and Quantifier-attachment. In addition, Japanese grammar has a Contrastive wa-attachment transformation.

### 2.1. Differences between Japanese and English Negation

Before we start our major discussion, it will not be unfit to note several striking differences between Japanese and English negation. Our interest is not in these differences themselves but to show that in spite of these differences the analysis which we will propose later is

applicable to both Japanese and English negation. Some relevant differences between Japanese and English negation are as follows:

A. Japanese has no NP negation, nor what Klima (1964) calls Negative-incorporation by which the negative is incorporated into quantifiers such as anything + neg → nothing. In Japanese, therefore, we cannot isolate NP negation such as "no student in the class" in the sentence "No student in the class can answer the question." Its Japanese correspondent may be given only as a discontinuous string:

(2.1) sono kurasu no dono gakusei mo . . . nai<sup>1</sup>  
           the class in any student not

The correspondent of the whole sentence "No student in the class can answer the question" will be as follows:

(2.2) sono kurasu no dono gakusei mo sono situmon ni  
           the class in any student the question  
           kotaerare nai.  
           can-answer not

Furthermore, we note that a more exact English correspondent of (2.2) is (2.3) rather than "No student in the class can answer the question" in that "any . . . not" corresponds to "dono . . . nai":

(2.3) \*Any student in the class cannot answer the question.

Similarly, Japanese has no exact correspondent of (2.4) but only of (2.5):

(2.4) I know nothing about it.

(2.5) I do not know anything about it.

The Japanese equivalent of (2.5) will be given as:

(2.6) watasi wa sore ni tuite nanimo sira nai.

I            it            about anything know not

B. Japanese has no incomplete negatives corresponding to the English few, little, hardly, scarcely, seldom and rarely. Klima (1964) assumes that they contain a negative, noting that they show a number of syntactic similarities to complete negatives such as not, never and nothing, especially with respect to tag-question formation, subject-auxiliary inversion and others. The validity of his assumption is partly confirmed in the Japanese counterparts of few, little, hardly, scarcely, seldom and rarely, which consist of "adverbial + negative." For instance, the Japanese counterpart of few is "hotondono . . . nai": notice that there is no English counterpart of hotondono in this sense, since "hotondono . . . nai" as a unit corresponds to the English few. The same is true of the other adverbials in question. To clarify the point, let us consider the following examples, in which "hotondono . . . nai," "hotondo . . . nai" and "mettani . . . nai" as units correspond to few, little and seldom, respectively, with the result that there is no English correspondent of hotondono, hotondo or mettani:

(2.7) nihon de wa hotondono gakusei ga ratengo o  
 Japan in student Latin  
 benkyoosi nai.  
 study not

'Few students study Latin in Japan.'

(2.8) sono mondai ni wa hotondo tyuui ga haraware  
 the matter to attention paid  
nakatta.  
 not-was

'Little attention was paid to the matter.'

(2.9) kare wa mettani eiga ni ika nai.  
 he movies to go not

'He seldom goes to the movies.'

Moreover, Klima (1964) has observed that only has a number of properties in common with a negative and this observation is confirmed by one of its Japanese correspondents composed of "adverbial + negative." For example:

(2.10) sono syoonen sika kareno hahaoya o  
 that boy his mother  
 settoku-deki nai.<sup>2</sup>  
 persuade can not

'Only that boy can persuade his mother.'

In sentence (2.10), since "sika . . . nai" as a unit corresponds to only, there is no English equivalent of sika.

C. If Japanese has verb-phrase negation like that in English, that is, negation which is associated with the verb or the verb phrase of a sentence, there is a striking difference between them: the negative precedes the verb in English, while in Japanese it follows the verb which



occurs sentence-finally in a simplex sentence. To illustrate with a concrete example, compare the following:

- (2.11) a. sono huzin wa sinsoo o sira nai.  
           the lady      truth      know not  
           'The lady does not know the truth.'
- b. The lady does not know the truth.

In (2.11b) not precedes the main verb know, while in its Japanese equivalent the negative nai follows the verb siru<sup>3</sup> which usually occurs sentence-finally in an affirmative simplex sentence. The difference in the position where the negative occurs in a sentence is an important factor to be considered in the contrastive analysis of Japanese and English negation with respect to quantifiers, as will be discussed in sections 2.8, 2.9 and 2.10.

## 2.2. Negation and Sentential Hierarchy in Japanese

In Japanese, negation occurs sentence-finally immediately following a verb in a simplex sentence. This position of negation in a sentence has much to do with the scope of negation in Japanese. To illustrate with a concrete example, consider the following:

- (2.12) kare wa kinoo tosyokan de benkyoosi nakatta.  
           he      yesterday library in study not-did  
           'He did not study in the library yesterday.'

First, we observe that sentence (2.12) may be synonymous with (2.13) in spite of the clear difference between them: in (2.12) the negative occurs in a simplex sentence, while

in (2.13) the negative occurs in a higher sentence:

(2.13) [[kare wa kinoo tosyokan de benkyoosita wake]<sub>S</sub>  
 he yesterday library in studied that  
 de wa nai]<sub>S</sub><sup>4</sup>  
 is not

'It is not so that he studied in the library  
 yesterday.'

Second, we observe that the negation in (2.13) may negate  
 any of the following:

- (2.14) a. kare wa kinoo tosyokan de benkyoosita.  
 he yesterday library in studied  
 'He studied in the library yesterday.'
- b. kare  
 he
- c. kinoo  
 yesterday
- d. tosyokan de  
 library in
- e. benkyoosita  
 studied

Accordingly, any of the following sentences may occur  
 following sentence (2.13):

- (2.15) a. kare wa nanimo si nakatta.  
 he anything do not-did  
 'He did nothing.'
- b. Mary ga benkyoosita.  
 studied  
 'Mary studied.'



From the foregoing discussion we see that verb-phrase negation, though it occurs sentence-finally, may include in its scope the preceding whole sentence as in (2.12). But this is not always the case: there are some constituents which are not included in the scope of verb-phrase negation in Japanese. To illustrate with an example, let us consider the following:

- (2.19) kore wa mattaku tadasiku nai.  
 this altogether correct not

'Lit. This is altogether not correct.'

Since verbs and adjectives occur sentence-finally (followed by negatives in negative sentences), adverbials must precede them. Incidentally, it is generally observed that Japanese word order with respect to a verb and various kinds of adverbials is the mirror image of the corresponding English word order. To illustrate the point, compare the following:

- (2.20) a. kanozyo wa [ototui [tosyokan de  
 she the day before yesterday library in  
 [issyookanmei [benkyoosita]]]  
 hard studied

- b. She [[[[studied] hard] in the library] the day  
before yesterday]

Correspondingly, in (2.19) the adverbial mattaku "altogether" precedes the negative nai. The relevant difference between (2.19) and (2.12) is as follows: (2.12) may be synonymous with (2.13), whereas (2.19) is not synonymous with (2.21), though the grammatical relationship between (2.19) and (2.21) is parallel to that between (2.12) and

(2.13):

(2.21) [[kore wa mattaku tadasii wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 this altogether correct that is not

'It is not so that this is altogether correct.'

We see that in sentence (2.21), the negative nai in the higher sentence includes in its scope the relevant remainder of the sentence, including mattaku "altogether." The non-synonymy of (2.19) with (2.21) indicates that the negative in (2.19) does not include mattaku in its scope. Thus, the adverbial mattaku is one of the constituents which are not included in the scope of verb-phrase negation.

Continuing this discussion, let us proceed to consider:

(2.22) sono siyoonin wa taihen syooziki de nai.  
 the employee very honest is not

'The employee is not very honest.' or

'The employee is very dishonest.'

In sentence (2.22) the negative nai may or may not include the whole sentence in its scope: that is, sentence (2.22) is ambiguous. If the rest of the sentence is included in the scope of negation, it will be synonymous with (2.23), in which the negative in the higher sentence includes the remainder of the sentence in its scope:

(2.23) [[sono siyoonin wa taihen syooziki na wake]<sub>S</sub>  
 the employee very honest is that

de wa nai]<sub>S</sub>

is not

'It is not so that the employee is very honest.'

On the other hand, if the negative does not include the adverbial taihen "very" in its scope, the reading of (2.22) will be synonymous with that of (2.24) in which the adverbial taihen includes the negative prefix hu "dis-, non-, un-" in its scope:

- (2.24) sono siyoonin wa taihen husyooziki da.  
           the employee       very dishonest is  
           'The employee is very dishonest.'

Let us cite another example which is similarly ambiguous, depending on whether the negative includes the whole sentence in its scope or not:

- (2.25) sono siyoonin wa kimi yoru syooziki de nai.  
           the employee       you more-than honest is not  
           'The employee is not more honest than you.' or  
           'The employee is more dishonest than you.'

When the negative in (2.25) includes the remainder of the sentence, (2.25) is synonymous with (2.26):

- (2.26) [[sono siyoonin wa kimi yoru syooziki na  
           the employee       you more-than honest is  
           wake]<sub>S</sub> de wa nai]<sub>S</sub>  
           that is not  
           'It is not so that the employee is more honest  
           than you.'

Otherwise, (2.24) is synonymous with (2.27):

- (2.27) sono siyoonin wa kimi yoru husyooziki da.  
           the employee       you more-than dishonest is  
           'The employee is more dishonest than you.'

From the foregoing discussion, it should be clear that:

1. Verb-phrase negation may not include in its scope certain kinds of adverbials such as mattaku "altogether," taihen "very" and . . . yori "more than . . . ."
2. Sentential hierarchy is used in Japanese so that negation may include these adverbials in its scope: in (2.21), (2.23) and (2.26), the negation in a higher sentence can include in its scope the lower sentence containing the adverbial in question.

However, there are some cases in which the use of sentential hierarchy is unnecessary to avoid the ambiguity of sentences involving those adverbials in question. To illustrate the point, observe the following sentence:

(2.28) sono siyoonin wa taihen husyooziki de nai.  
           the employee       very dishonest is not  
           'The employee is not very dishonest.'

As contrasted with (2.22), sentence (2.28) is unambiguous: its reading is that in which the adverbial taihen "very" is included in the scope of negation. Thus, sentence (2.28) is synonymous with (2.29), in which the negation in the higher sentence contains the adverbial in its scope:

(2.29) [[sono siyoonin wa taihen husyooziki na wake]<sub>S</sub>  
           the employee       very dishonest is that  
           de wa nai]<sub>S</sub>  
           is       not  
           'It is not so that the employee is very  
           dishonest.'

The same is true of the following:

(2.30) sono siyoonin wa kimi yori husyooziki de nai.  
 the employee you more-than dishonest is not  
 'The employee is not more dishonest than you.'

That is to say, (2.30) is synonymous with (2.31), in which the negation includes the whole sentence in its scope:

(2.31) [[sono siyoonin wa kimi yori husyooziki na  
 the employee you more-than dishonest is  
 wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 that is not

'It is not so that the employee is more dishonest than you.'

Comparing (2.28) with (2.22), and (2.30) with (2.25), we note that the relevant difference is the occurrence of husyooziki "dishonest" in (2.28) and (2.30) versus syooziki "honest" in (2.22) and (2.25). Thus, this must be the cause of the above-observed difference that both (2.28) and (2.30) are unambiguous, while (2.22) and (2.25) are ambiguous. A closer comparison of husyooziki "dishonest" with syooziki "honest" shows that husyooziki "dishonest" contains the negative prefix hu "dis-, non-, un-." Yet, even if they include no negative affix, certain adjectives show behaviors similar to those of husyooziki "dishonest" and other negative adjectives. For instance, consider the following:

(2.32) kareno ie wa taihen tiisaku nai.  
 his house very small not  
 'His house is not very small.'



(2.33) kanozyo wa taihen minikuku nai.  
 she very ugly not  
 'She is not very ugly.'

We observe that both (2.32) and (2.33) are unambiguous and synonymous with (2.34) and (2.35), respectively:

(2.34) [[kareno ie wa taihen tiisai wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 his house very small that is not  
 'It is not so that his house is very small.'

(2.35) [[kanozyo wa taihen minikui wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 she very ugly that is not  
 'It is not so that she is very ugly.'

In (2.34) and (2.35) the negation clearly includes the adverbial taihen "very" in its scope. The synonymy of (2.32) and (2.33) with (2.34) and (2.35), respectively, indicates that the negation in (2.32) and (2.33) also includes the adverbial in its scope. Now, the relevant difference between (2.32) and (2.33) on the one hand and (2.22) on the other is the occurrence of tiisaku "small" and minikuku "ugly" versus syooziki "honest." Owing to this difference, (2.32) and (2.33) are unambiguous, while (2.22) is ambiguous.

From the above observations we see that in (2.28), (2.30), (2.32) and (2.33) expected ambiguity is not materialized owing to some factor. This factor must be reduced to some property common to husyooziki "dishonest," tiisai "small" and minikui "ugly" which is not found in syooziki "honest" and other positive adjectives. It is important to note here that we can talk of the degrees of being, for

instance, syooziki de nai "not honest," and the higher degree of being syooziki de nai "not honest" may be equal to being husyooziki "dishonest." This is confirmed by the fact that other degree adverbials such as sukosi "a little" and kanari "rather" as well as taihen "very" and . . . yori "more than . . ." may co-occur with syooziki de nai "not honest." For instance, observe the following:

- (2.36) sono siyoonin wa sukosi [syooziki de nai]  
 the employee a little honest is not  
 tokoro ga aru.  
 something exist

'The employee has something a little dishonest about him.'

In contrast, there is no such degree of being husyooziki de nai "not dishonest," tiisaku nai "not small" or minikuku nai "not ugly"; one cannot say someone is very not dishonest or somewhat not dishonest. Thus, they cannot co-occur with degree adverbials, as is shown by the ungrammaticality of the following:

- (2.37) \*sono siyoonin wa sukosi [husyooziki de nai]  
 the employee a little dishonest is not  
 tokoro ga aru.  
 something exist

'Lit. The employee has something a little not-dishonest about him.'

- (2.38) \*kareno ie wa sukosi [tiisaku nai]  
 his house a little small not

'Lit. His house is a little not-small.'

(2.39) \*kanozyo wa sukosi [minikuku nai]  
 she a little ugly not  
 'Lit. She is a little not-ugly.'

In this way, we see that compound adjectives such as husyooziki de nai "not dishonest," tiisaku nai "not small" and minikuku nai "not ugly" cannot co-occur with degree adverbials.<sup>5</sup> This is the factor that makes sentences (2.28), (2.30), (2.32) and (2.33) unambiguous, since this factor automatically excludes one of their two interpretations in which the adverbial in question is not included in the scope of negation: notice that if the negation does not include the adverbial in its scope, sentences (2.28), (2.30), (2.32) and (2.33) must be as ungrammatical as sentences (2.37), (2.38) and (2.39).<sup>6</sup> In other words, sentences such as (2.28), (2.30), (2.32) and (2.33) are unambiguous since grammatical anomalies result for one of their two interpretations.

From the foregoing discussion, it seems clear that if some factor excludes the interpretation in which degree adverbials are not included in the scope of negation, negation can include these adverbials in its scope without involving sentential hierarchy.

Amplifying this discussion, let us consider next the following sentence:

(2.40) kanozyo wa koohukuni sina nakatta.  
 she happily die not-did  
 'She did not die happily.'

We observe that in this sentence the negative naku<sup>7</sup> includes

the adverbial koohukuni "happily" in its scope. This observation is confirmed by the fact that (2.40) is synonymous with (2.41), in which the negation in the higher sentence includes the adverbial in its scope:

- (2.41) [[kanozyo wa koohukuni sinda wake]<sub>S</sub> de wa nai]<sub>S</sub>  
           she          happily died that is not  
           'It is not so that she died happily.'

On the basis of this observation, sentence (2.40) may be semantically analyzed into:

- (2.42) [[kanozyo wa koohukuni sina] nakatta]  
           she          happily die not-did

Now, let us consider what factor makes sentence (2.40) unambiguous. Adverbials such as koohukuni "happily" are called manner adverbials and they are used to describe the way one performs an action in the broad sense of the word in that "one dies" is "one performs an action of dying." Naturally, if an action is not performed, one cannot describe the way the action is performed. This very nature of manner adverbials has much to do with the factor that makes sentence (2.40) unambiguous. If the negative in (2.40) does not include the adverbial in its scope, the adverbial must occur outside the sentence containing the negative, since the scope of the negative is the whole sentence in which it occurs. In this case, therefore, sentence (2.40) will be semantically analyzed into:

- (2.43) [kanozyo wa koohukuni [sina nakatta]]  
           she          happily die not-did

In (2.43) the manner adverbial includes the negative in its

scope and is meant to describe the action sina nakatta "did not die." But we see that sina nakatta is not an action which may be described by a manner adverbial since sina nakatta indicates that no action of dying happened. More generally, manner adverbials cannot describe the contents expressed by the "verb + negative" or put differently, manner adverbials cannot co-occur with a negated verb. This very nature of manner adverbials is the factor that excludes the interpretation of (2.40) in which the manner adverbial is not included in the scope of negation. Thus, sentence (2.40) is another example in which some factor excludes one of the two interpretations so that negation may include certain adverbials in its scope without involving sentential hierarchy.

Summarizing the preceding discussion, we have demonstrated that negation in Japanese may not always include certain kinds of adverbials in its scope unless (1) it involves sentential hierarchy, or, (2) some factor excludes one of the two interpretations in which the adverbials in question are not included in the scope of negation.

### 2.3. Negation and Contrastive wa in Japanese

There are two kinds of wa in Japanese, topic wa and contrastive wa. To illustrate with an example, consider the following:

(2.44) Bill wa benkyoosite iru.  
                   studying is

'As for Bill, he is studying.' or

'Bill (in contrast with someone else) is studying.'

In (2.44) wa may be interpreted as a topic wa or as a contrastive wa. Thus, sentence (2.44) is ambiguous, depending on which wa is involved. If wa in (2.44) is a topic wa, the reading of (2.44) will be "As for Bill, he is studying" and this is clearly the primary reading of (2.44). On the other hand, if wa in (2.44) is taken to be a contrastive wa, (2.44) can mean "Bill (in contrast with someone else) is studying." In this case, sentence (2.44) implies that someone else relevant in the context is not studying. What concerns our discussion in this section is the latter wa, namely, the contrastive one in connection with negation.

To start with, consider the following sentence:

(2.45) kore wa mattaku tadasiku wa nai.  
                   this altogether correct not

'This is not altogether correct.'

We observe that in sentence (2.45) the negative nai includes the adverbial mattaku "altogether" in its scope and so it is synonymous with (2.46) involving sentential hierarchy:

(2.46) (=2.21) [[kore wa mattaku tadasii wake]<sub>S</sub> de wa  
                   this altogether correct that is

nai]<sub>S</sub>  
 not

'It is not so that this is altogether correct.'

In (2.46) the negative nai occurs in the higher sentence, thus including the adverbial in its scope.

Comparing (2.45) with (2.19), we note that the only difference is the presence of wa in (2.45) and its absence in (2.19), and this minor difference causes a clear semantic difference between them: sentence (2.45) is synonymous with (2.46), whereas (2.19) is not.

Continuing the discussion, let us consider next the following:

(2.47) sono siyoonin wa taihen syooziki de wa nai.  
 the employee very honest is not  
 'The employee is not very honest.'

We observe that sentence (2.47) has only one interpretation in which the negative includes the adverbial taihen "very" in its scope. This observation is confirmed by the fact that (2.47) is synonymous with sentence (2.48), in which the negative in the higher sentence includes the adverbial in its scope:

(2.48)(=2.23) [[sono siyoonin wa taihen syooziki na  
 the employee very honest  
 wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 that is not  
 'It is not so that the employee is very honest.'

Let us cite another related example:

(2.49) sono siyoonin wa kimi yori syooziki de wa nai.  
 the employee you more-than honest is not  
 'The employee is not more honest than you.'

Similarly, sentence (2.49) is unambiguous and is synonymous with (2.50), in which the adverbial is included in the scope of negation:

(2.50)(=2.26) [[sono siyoonin wa kimi yori syooziki  
the employee you more-than honest  
na wake]<sub>S</sub> de wa nai]<sub>S</sub>  
is that is not

'It is not so that the employee is more honest than you.'

We further note that the contrastive wa may be attached<sup>8</sup> to the adverbial . . . yori "more than . . ." itself as in (2.51):

(2.51) sono siyoonin wa kimi yori wa syooziki de nai.  
the employee you more-than honest is not

'The employee is not more honest than you.'

That is to say, sentence (2.51) may be synonymous with both (2.49) and (2.50).

To take another similar example, consider the following:

(2.52) sono siyoonin wa taihen husyooziki de wa nai.  
the employee very dishonest is not

'The employee is not very dishonest.'

As expected, sentence (2.52) is also unambiguous. In this connection, recall that sentence (2.52), even without the contrastive wa, is unambiguous, as discussed in the preceding section.

A similar argument holds for the following sentence involving a manner adverbial:



(2.53) kanozyo wa koohukuni sini wa si nakatta.  
 she happily die do not-did

'She did not die happily.'

Sentence (2.53) has only one reading synonymous with that of (2.54) involving sentential hierarchy:

(2.54)(=2.41) [[kanozyo wa koohukuni sinda wake]<sub>S</sub> de  
 she happily died that is  
 wa nai]<sub>S</sub>  
 not

'It is not so that she died happily.'

Furthermore, it should be mentioned that the contrastive wa can be attached to the manner adverbial itself as in:

(2.55) kanozyo wa koohukuni wa sina nakatta.  
 she happily die not-did

'She did not die happily.'

Sentence (2.55) is synonymous, as expected, with both (2.53) and (2.54).

The foregoing discussion demonstrates that the contrastive wa is used in Japanese so that negation may include in its scope certain kinds of adverbials which are otherwise not included in the scope of negation. Recall that sentential hierarchy, as discussed in the preceding section, is another means for this purpose. It will be of interest if these two means, namely, the contrastive wa and sentential hierarchy with respect to negation, may be related to each other by a general principle. If they turn out to be so related, the synonymy of (2.45) with (2.46), (2.47) with (2.48), (2.49) and (2.51) with (2.50), and (2.53)

and (2.55) with (2.54) will be accounted for in a general way. We will discuss this topic in section 2.5.

#### 2.4. Quantifiers and Sentential Hierarchy in Japanese

Japanese quantifiers show significant similarities to those adverbials previously cited in that they are not included in the scope of the negation which appears no higher than the quantifiers.

To illustrate with a concrete example, consider first the following:

(2.56) ookuno hito ga sono sensoo o nozoma nakatta.  
           many people the war want not-did

'Many people did not want the war.'

We observe that in (2.56) the negative naku does not include the quantifier ookuno "many" in its scope; on the contrary, the quantifier includes the negative in its scope.

Accordingly, (2.56) is not synonymous with (2.57), in which the negative in the higher sentence includes the quantifier in its scope:

(2.57) [[ookuno hito ga sono sensoo o nozonda wake]<sub>S</sub> de  
           many people the war wanted that is  
           wa nai]<sub>S</sub>  
           not

'It is not so that many people wanted the war.'

Quite **to** the contrary, (2.56) is synonymous with (2.58), in which **the** quantifier in the higher sentence contains the **negative** in its scope:

- (2.58) [[ [sono sensoo o nozoma nakatta]<sub>S</sub> hito]<sub>NP</sub> ga  
           the war           want not-did   people  
           ooku ita]<sub>S</sub>  
           many were

'There were many people who did not want the war.'

It is important to note that sentence (2.57) is an example showing that negation occurs in a higher sentence so that it may include in its scope a quantifier that is otherwise not included in the scope of negation.

Consider next the following:

- (2.59) sono gakuseitai wa ookuno hon o yoma nakatta.  
           the students           many book read not-did  
           'Many books, the students did not read.' or  
           'The students did not read many books.'

We note that sentence (2.59) is ambiguous with two readings, depending on whether the quantifier ookuno "many" is included in the scope of negation or not. More specifically, it may be synonymous with either of the following:

- (2.60) [[ [sono gakuseitai ga yoma nakatta]<sub>S</sub> hon]<sub>NP</sub> ga  
           the students           read not-did   book  
           ooku atta]<sub>S</sub>  
           many were

'There were many books that the students did not read.'

- (2.61) [[ [sono gakuseitai wa ookuno hon o yonda wake]<sub>S</sub>  
           the students           many book read that  
           de wa nai]<sub>S</sub>  
           is       not

'It is not so that the students read many books.  
 (= The students did not read many books.)'

It may be observed that in (2.61) the negative in the higher sentence includes the quantifier in its scope, while the opposite is the case with (2.60).

Thus, sentence (2.59) may occur in either of the following contexts:

(2.62) sono gakuseitati wa ookuno hon o yoma nakatta,  
 the students many book read not-did  
 nazenara izuremo muzukasikatta node.  
 the reason-was all difficult-were because  
 'Many books, the students did not read, the  
 reason was that all of them were difficult.'

(2.63) sono gakuseitati wa ookuno hon o yoma nakatta  
 the students many book read not-did  
 ga sukunakutomo nansatukano hon o yonda.  
 but at least some book read  
 'The students did not read many books but read  
 at least some books.'

The point here is that sentence (2.61) is another example in which negation occurs in a higher sentence so that it may include a quantifier in its scope.

Amplifying this discussion, we may go on to examine the following:

(2.64) sono kurasu no subeteno gakusei ga sono sensei  
 the class in all student that teacher  
 o sonkeisi nakatta.  
 respect not-did

'All the students in the class did not respect that teacher.'

We observe that in (2.64) the quantifier subeteno "all" is outside the scope of negation. This observation is

confirmed by the fact that (2.64) is not synonymous with (2.65), in which the quantifier is inside the scope of the negative in a higher sentence:

- (2.65) [[sono kurasu no subeteno gakusei ga sono  
           the class in all student that  
           sensei o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
           teacher respected that is not  
           'It is not so that all the students in the class  
           respected that teacher.'

Thus, sentence (2.65) is still another example demonstrating that negation must occur in a higher sentence to include a quantifier in its scope.

Let us cite another related example:

- (2.66) sono gakuseitati wa sono daigaku no subeteno  
           the students the college in all  
           sensei o sonkeisi nakatta.  
           teacher respect not-did  
           'All the teachers in the college, the students  
           did not respect. (= The students did not respect  
           any teacher in the college.)' or  
           'The students did not respect all the teachers in  
           the college.'

Sentence (2.66) may be ambiguous, but its primary meaning is that in which the quantifier is not included in the scope of negation; in this reading it is synonymous with the following:

(2.67) sono gakuseitati wa sono daigaku no dono sensei  
 the students the college in any teacher  
 mo sonkeisi nakatta.  
 respect not-did

'The students did not respect any teacher in the college.'

The secondary meaning of (2.66) is that in which the negative includes the quantifier in its scope, and in that case it is **synonymous** with (2.68):

(2.68) [[sono gakuseitati wa sono daigaku no subeteno  
 the students the college in all  
 sensei o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 teacher respected that is not

'It is not so that the students respected all the teachers in the college.'

But the secondary meaning of (2.66) is presumably marginal and it seems to have this meaning only when it is supplemented by the accompanying context as in the following:

(2.69) sono gakuseitati wa sono daigaku no subeteno  
 the students the college in all  
 sensei o sonkeisi nakatta ga nanninkano sensei  
 teacher respect not-did but some teacher  
 o sonkeisita.  
 respected

'The students did not respect all the teachers in the college but respected some of them.'

The acceptability of (2.69) indicates that sentence (2.66) may have the secondary meaning, though marginal, in certain contexts such as (2.69). The point here is that sentence (2.68) is still another example that involves sentential

hierarchy so that negation can include a quantifier in its scope.

From the foregoing discussion, it should now be clear that sentential hierarchy is used in Japanese so that negation may include in its scope quantifiers that are otherwise not included in the scope of negation.

### 2.5. Quantifiers and Contrastive wa in Japanese

Taking the preceding argument one step further, we may go on to discuss sentences such as (2.70) in connection with (2.71):

(2.70) sono kurasu no gakusei ga minna wa sono sensei  
 the class in student all that teacher  
 o sonkeisi nakatta.  
 respect not-did

'Not all the students in the class respected that teacher.'

(2.71) sono kurasu no gakusei ga minna sono sensei o  
 the class in student all that teacher  
 sonkeisi nakatta.  
 respect not-did

'All the students in the class did not respect that teacher.'

Comparing these two sentences, we note that the only difference is the presence of the contrastive wa in (2.70) and its absence in (2.71). This apparently slight difference causes a semantic difference between them: (2.70) is synonymous with (2.72), while (2.71) is not:

(2.72) [[sono kurasu no gakusei ga minna sono sensei  
 the class in student all that teacher  
 o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 respected that is not

'It is not so that all the students in the class  
 respected that teacher.'

It is observed that in (2.72) the negative nai is in a  
 higher sentence than the quantifier and, as expected from  
 this structure, the former includes the latter in its scope.  
 The synonymy of (2.70) with (2.72) suggests that the  
 quantifier of (2.70) is also included in the scope of  
 negation.

In turn, sentence (2.71), but not (2.70), has a  
 meaning synonymous with (2.73):<sup>9</sup>

(2.73) sono kurasu no dono gakusei mo sono sensei o  
 the class in any student that teacher  
 sonkeisi nakatta.  
 respect not-did

'Lit. \*Any student in the class did not respect  
 that teacher. (= No student in the class  
 respected that teacher.)'

How can one account for this semantic difference between  
 (2.70) and (2.71)? Moreover, how can the synonymy of  
 (2.70) with (2.72) be explained? A natural solution to this  
 problem is in terms of certain transformations which are by  
 definition meaning-preserving. A fuller discussion of this  
 topic will be given in the following section.



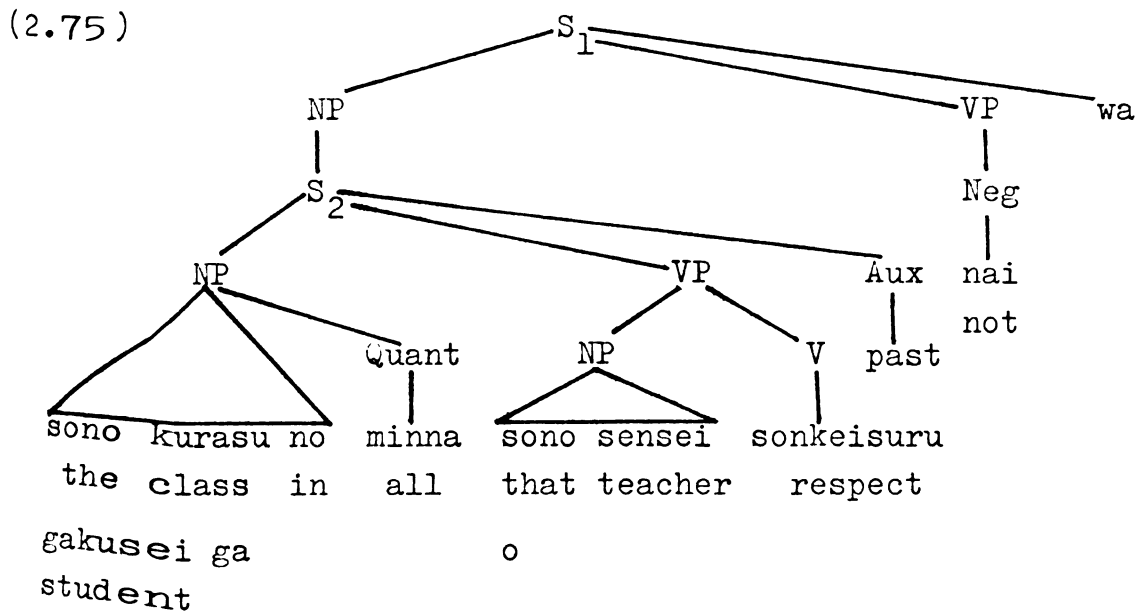
## 2.6. A Proposed Analysis of Negation in Japanese

Our suggestion concerning the above-observed problem is as follows:

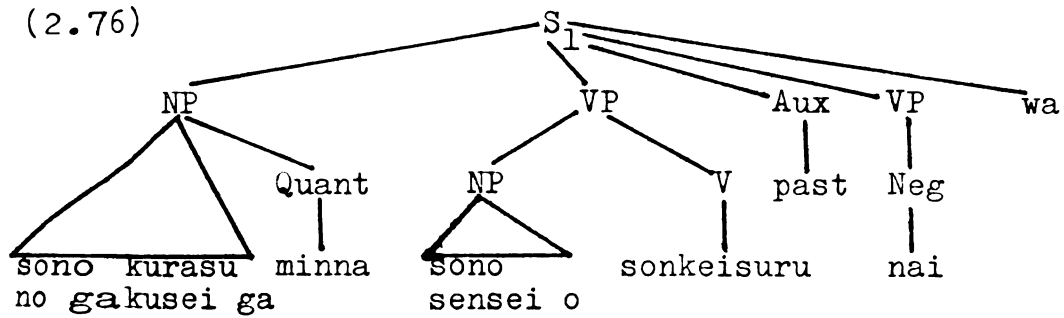
(2.74) Sentences (2.70) and (2.72) are derived from the same underlying structure that is significantly different from that underlying sentence (2.71).

More specifically, we derive sentences (2.70) and (2.72) from the underlying structure (2.75) in terms of the following transformations whose operations are shown stage by stage as follows:

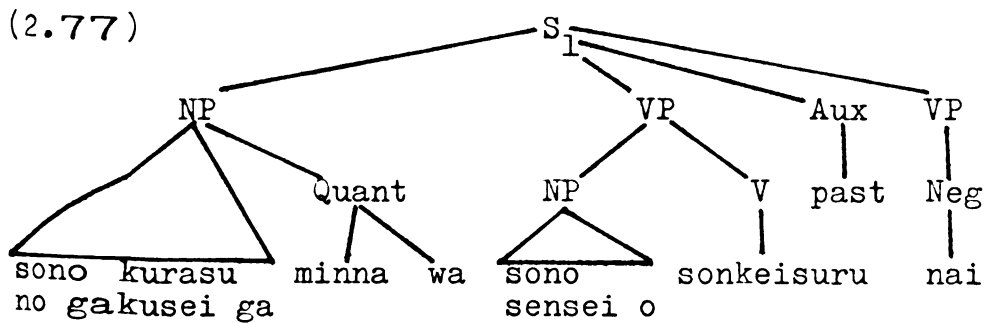
i. Underlying structure (with unrelated details aside):<sup>10</sup>



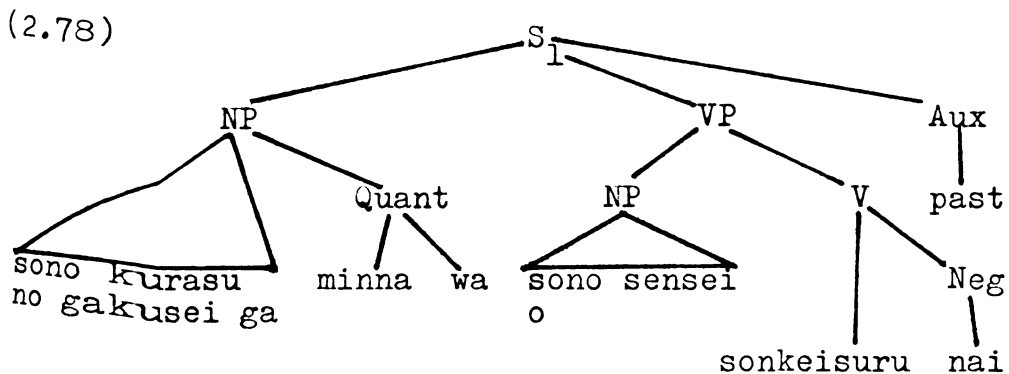
ii. Application of Sentence-raising which raises an embedded sentence into the immediately higher sentence:



iii. Application of Contrastive wa-attachment which attaches wa in (2.76) to the quantifier minna "all":



iv. Application of Negative-attachment which attaches the negative nai to the verb, after the attachment of wa to the quantifier:



The structure (2.78) becomes sentence (2.70), as proposed here. The generation of sentence (2.72) from (2.75) will be discussed later at the end of this section.

The point here is that these transformations must not be ad hoc; if they are, the above derivation based on these transformations becomes ad hoc as well. The next step is, therefore, to demonstrate that these transformations are not ad hoc in Japanese.

Let us take up Sentence-raising first. Compare the following pair of sentences:

- (2.79) a. [watasi ga omou ni, sono sensyu wa sonna  
I think that player such  
bakana koto o si nai daroo]<sub>S</sub>  
foolish thing do not will  
'That player, I think, will not do such a  
foolish thing.'
- b. [watasi wa [sono sensyu ga sonna bakana koto  
I that player such foolish thing  
o si nai daroo to]<sub>S</sub> omou]<sub>S</sub>  
do not will that think  
'I think that that player will not do such a  
foolish thing.'

First, we observe that sentences (2.79a) and (2.79b) are synonymous.<sup>11</sup> Second, a simple test can show that they have the surface structures shown here: if we insert the complementizer to "that" in the end of (2.79a) or delete to "that" in (2.79b), the resulting sentence is ungrammatical in either case:

- (2.80) a. \*watasi ga omou ni, sono sensyu wa sonna  
I think that player such  
bakana koto o si nai daroo to.  
foolish thing do not will that

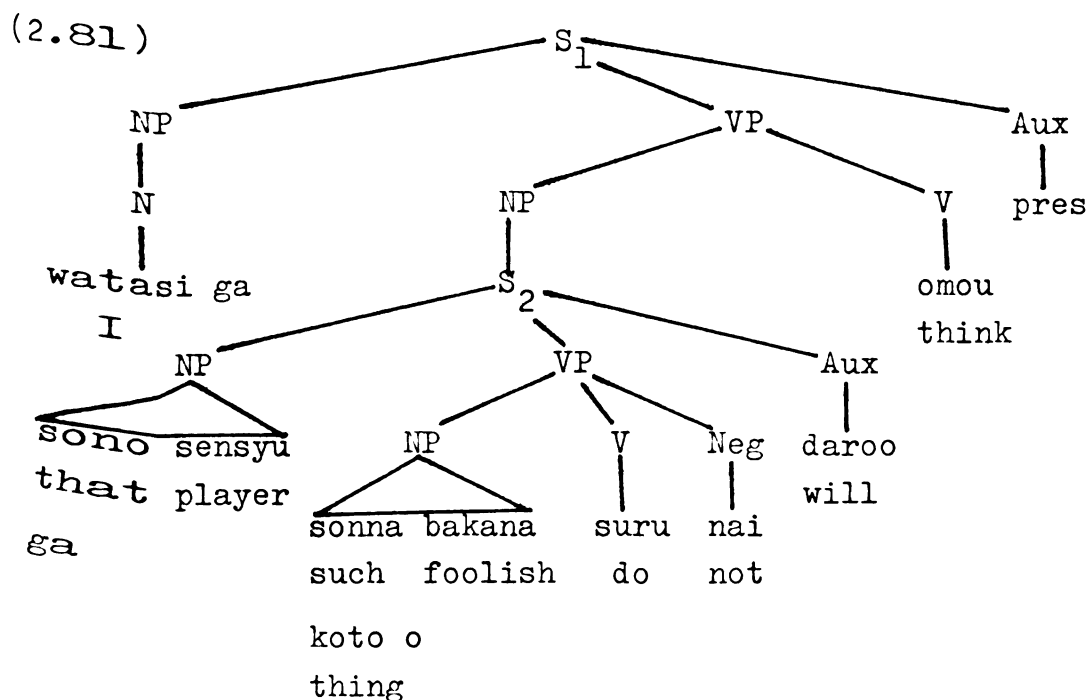
'Lit. That that player, I think, will not do such a foolish thing.'

- b. \*watasi wa sono sensyu ga sonna bakana koto  
 I that player such foolish thing  
 o si nai daroo omou.  
 do not will think

'Lit. That player will not do such a foolish thing, I think.'

It must be noticed here that in Japanese no NP complement sentence can occur without a complementizer. The ungrammaticality of (2.80a) and (2.80b), therefore, demonstrates that they have the surface structures shown in (2.79).

Now, considering the synonymy of (2.79a) and (2.79b), we maintain that they are derived from the same underlying structure:



This underlying structure may be given some further support, in addition to the above considerations. Recall that the

discussion in section 2.2 establishes that the scope of negation is the whole sentence in which it occurs. On the basis of this constraint, the structure (2.81) indicates that since the scope of the negative is  $S_2$ , watasi ga omou "I think" is outside of its scope. If (2.81) is an acceptable underlying structure for sentences (2.79a) and (2.79b), these sentences must be in accord with (2.81) regarding the scope of the negative nai. This is exactly the case here: observe the grammaticality of the sentences in (2.82) and the ungrammaticality of the sentences in (2.83):

(2.82) a. watasi ga omou ni, sono sensyu wa sonna  
 I think that player such  
 bakana koto o si nai daroo, sukunakutomo  
 foolish thing do not will at least  
watasi wa soo omou.  
 I so think

'That player, I think, will not do such a foolish thing, at least, I think so.'

b. watasi wa sono sensyu ga sonna bakana koto o  
 I that player such foolish thing  
 si nai daroo to omou, sukunakutomo watasi wa  
 do not will that think at least I  
soo omou.  
 so think

'I think that that player will not do such a foolish thing, at least, I think so.'

(2.83) a. \*watasi ga omou ni, sono sensyu wa sonna  
 I think that player such  
 bakana koto o si nai daroo, sukunakutomo  
 foolish thing do not will at least  
watasi wa soo omowa nai.  
 I so think not

'That player, I think, will not do such a  
 foolish thing, at least, I don't think so.'

b. \*watasi wa sono sensyu ga sonna bakana koto o  
 I that player such foolish thing  
 si nai daroo to omou, sukunakutomo watasi wa  
 do not will that think at least I  
soo omowa nai.  
 so think not

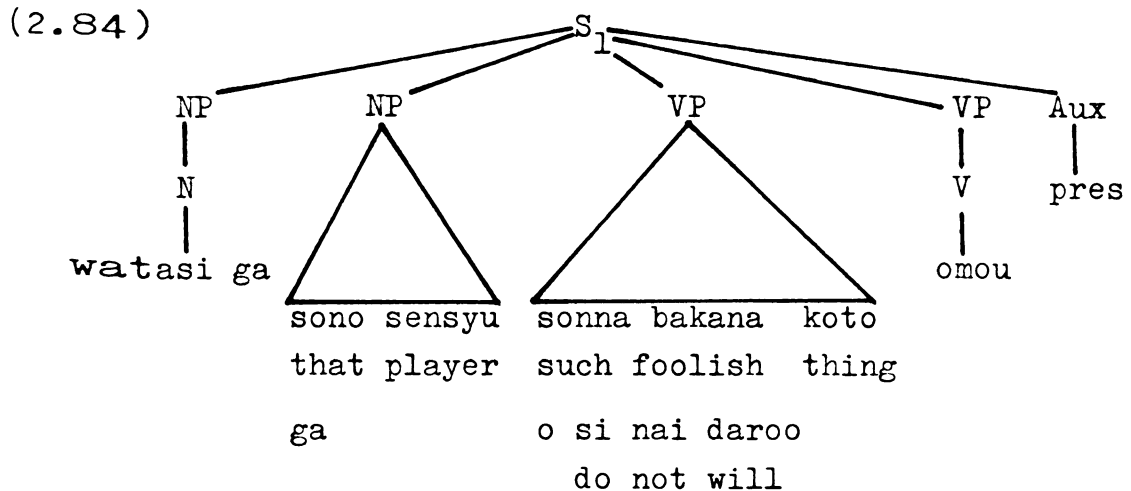
'I think that that player will not do such a  
 foolish thing, at least, I don't think so.'

As mentioned in section 2.2, a constituent, if it is in the  
 scope of negation, may be negated by the negation.

Therefore, if watasi ga omou ni in (2.79a) and watasi wa  
 omou in (2.79b) are inside the scope of negation, they can  
 be negated and so the sentences in (2.83) should be  
 grammatical. The ungrammaticality of the sentences in  
 (2.83) and the grammaticality of the sentences in (2.82)  
 demonstrate that watasi ga omou ni in (2.79a) and watasi wa  
 omou in (2.79b) are outside the scope of negation, and this  
 is correctly predicted by the structure (2.81). These  
 observations will be sufficient support for the underlying  
 structure (2.81).

Now, let us consider the derivation of sentences  
 (2.79a) and (2.79b) from (2.81). The derivation of (2.79b)

requires the insertion of the complementizer to "that" into  $S_2$ .<sup>12</sup> In turn, the derivation of (2.79a) involves the raising of  $S_2$  into  $S_1$ . Applying Sentence-raising after the application of the relevant transformations in the  $S_2$ -cycle, we derive the intermediate structure (2.84):



Since (2.84) contains no embedded complement sentence, the complementizer-insertion rule cannot apply. Moreover, if no further relevant transformation applies to (2.84), an ungrammatical sentence, (2.85), is derived:

(2.85)(=2.80b) \*watasi wa sono sensyu ga sonna bakana  
 I            that player      such foolish  
 koto o si nai daroo omou.  
 thing do not will think

'Lit. That player will not do such a  
 foolish thing, I think.'

If, on the other hand, the adverbial marker ni is attached to the verb omou "think" in (2.84) and it is moved to precede the subject noun phrase sono sensyu ga "that player," it ultimately<sup>13</sup> yields sentence (2.79a).

The foregoing discussion indicates that Sentence-raising is necessary to relate the synonymous pair of sentences such as (2.79a) and (2.79b) and similar others such as the following:

(2.86) a. [watasi ga sinzuru ni, Tom wa kessite tomodati  
I believe ever friend  
o uragira nai]<sub>S</sub>  
betray not

'Tom, I believe, never betrays his friends.'

b. [watasi wa [Tom ga kessite tomodati o uragira  
I ever friend betray  
nai to]<sub>S</sub> sinzuru]<sub>S</sub>  
not that believe

'I believe that Tom never betrays his friends.'

(2.87) a. [watasi ga handansuru ni, ano otoko wa saiban  
I judge that man suit  
ni makeru daroo]<sub>S</sub>  
lose will

'That man, I judge, will lose his suit.'

b. [watasi wa [ano otoko ga saiban ni makeru  
I that man suit lose  
daroo to]<sub>S</sub> handansuru]<sub>S</sub>  
will that judge

'I judge that that man will lose his suit.'

(2.88) a. [watasi ga soozosuru ni, zitai wa issoo  
I imagine situation still  
akkasuru daroo]<sub>S</sub>  
get worse will

'The situation, I imagine, will get still worse.'



- b. [watasi wa [zitai ga issou akkasuru daroo  
I situation still get worse will  
to]<sub>S</sub> soozoosuru]<sub>S</sub>  
that imagine  
'I imagine that the situation will get still  
worse.'

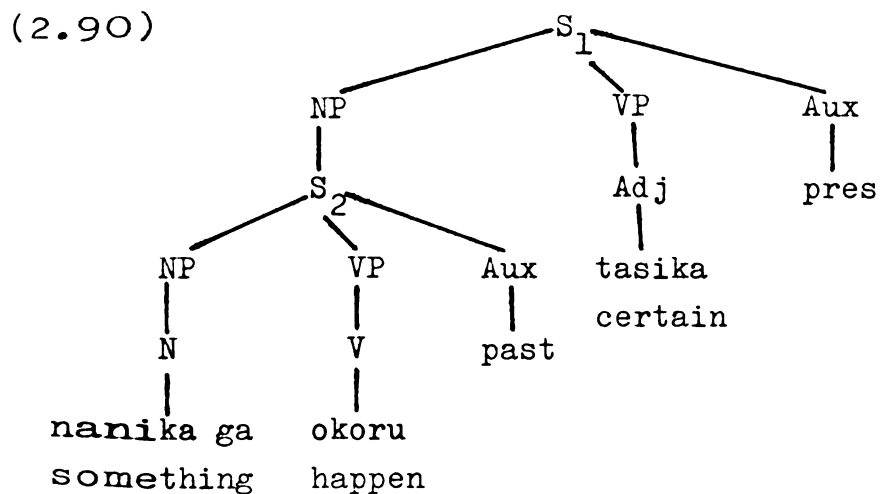
It should be observed that in these examples all the verbs belong to the class often called "verbs of saying and thinking" which are typically characterized in Japanese by the fact that they take the complementizer to "that." But the Sentence-raising transformation is not restricted to this class of examples.

Another major class involving the application of Sentence-raising contains so-called sentential adverbials. To take a concrete example, consider the following:

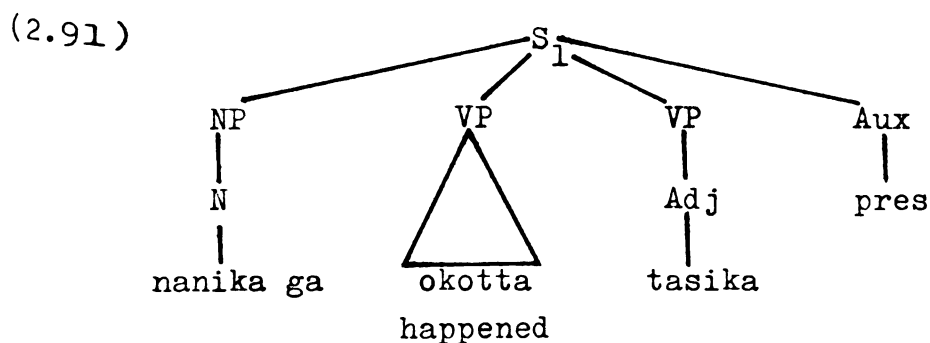
- (2.89) a. [tasikani nanika ga okotta]<sub>S</sub>  
certainly something happened  
'Certainly something happened.'
- b. [[nanika ga okotta koto]<sub>S</sub> wa tasika da]<sub>S</sub>  
something happened that certain is  
'It is certain that something happened.'

If tasikani "certainly" in (2.89a) is called a sentential adverbial, tasika "certain" in (2.89b) may be called a sentential adjective. A similar test used in connection with (2.79) can easily prove that sentences (2.89a) and (2.89b) have the surface structures shown here. Now, observing that sentences (2.89a) and (2.89b) are synonymous, we may propose that they be derived from the same

underlying structure:



The validity of this underlying structure is confirmed in a way quite similar to that of (2.81). Now, let us consider the derivation of sentences (2.89a) and (2.89b) from (2.90). If Sentence-raising does not apply to (2.90), the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively, will generate sentence (2.89b). On the other hand, the application of Sentence-raising to (2.90) gives the intermediate structure (2.91):



Then, applying the same adverbial formation as used in deriving (2.79a) from (2.84) to attach ni to tasika and

moving it to precede the subject noun phrase, we get sentence (2.89a). In Japanese, adverbials usually occur sentence-initially or following the subject noun phrase rather than sentence-finally. If this adverbial formation does not apply to (2.91), the resulting sentence is ungrammatical as follows:

- (2.92) \**nanika ga okotta tasika.*  
 something happened certain

Other related examples may be cited in the following:

- (2.93) a. [akirakani kare wa wareware o damasita]<sub>S</sub>  
 clearly he us deceived  
 'Clearly he deceived us.'
- b. [[kare ga wareware o damasita koto]<sub>S</sub> wa  
 he us deceived that  
akiraka da]<sub>S</sub>  
 clear is  
 'It is clear that he deceived us.'
- (2.94) a. [kanozyo wa matigainaku siken ni gookakusuru]<sub>S</sub>  
 she no doubt examination pass  
 'She will undoubtedly pass the examination.'
- b. [[kanozyo ga siken ni gookakusuru no]<sub>S</sub> wa  
 she examination pass that  
matigainai]<sub>S</sub>  
 no doubt  
 'Lit. It is no doubt that she will pass the examination. (= There is no doubt that she will pass the examination.)'
- (2.95) a. [koounnimo kare wa si o manugareta]<sub>S</sub>  
 fortunately he death escaped  
 'Fortunately he escaped death.'

- b. [[kare ga si o manugareta no]<sub>S</sub> wa kooun da]<sub>S</sub>  
 he death escaped that fortunate is  
 'It is fortunate that he escaped death.'

- (2.96) a. [osikumo kare wa annani wakakusite sinda]<sub>S</sub>  
 regrettably he so young died  
 'Lit. Regrettably he died so young.'

- b. [[kare ga annani wakakusite sinda no]<sub>S</sub> wa  
 he so young died that  
osii]<sub>S</sub>  
 regrettable  
 'It is regrettable that he died so young.'

The derivations of these examples containing sentential adjectives require, as shown above, the application of Sentence-raising as well as Adverbial-formation used in the derivations of (2.79a), (2.86a), (2.87a) and (2.88a): in particular, they indicate that Sentence-raising in Japanese is not restricted to examples containing verbs of saying and thinking.

The third major class involving the application of Sentence-raising includes several classes of adverbials such as adverbials of frequency, nominal adverbials, and adverbials of reason and purpose. A detailed discussion of these adverbials will be given in the next chapter and it will be demonstrated there that the derivation of sentences involving these adverbials requires the application of Sentence-raising.

The foregoing discussion regarding three major classes involving the application of Sentence-raising will be

sufficient to show that Sentence-raising is not an ad hoc transformation in Japanese.

Taking the above discussion into consideration, we may give Sentence-raising as:

$$(2.97) \text{ OPT } [ M [ X ]_{S_2} N ]_{S_1} \longrightarrow [ M X N ]_{S_1}$$

where M, N and X are variables, and M or N dominates  $V_{S.T}$  or exhaustively dominates  $\text{Adj}_S$ ,  $\text{Adv}_N$ ,  $\text{Adv}_F$ ,  $\text{Adv}_{R.P}$  or Neg

Notice that Sentence-raising is an optional transformation.

Our second and third transformations are Contrastive wa-attachment and Negative-attachment. These two transformations are closely related to each other in that Negative-attachment must obligatorily apply after the application of Contrastive wa-attachment to derive grammatical sentences. This reflects the fact that all the examples cited in sections 2.3 and 2.5 contain both a contrastive wa and a negative. Consequently, it will be more suitable to examine these two transformations together, rather than separately. To show that these transformations are not ad hoc in Japanese, let us consider the following:

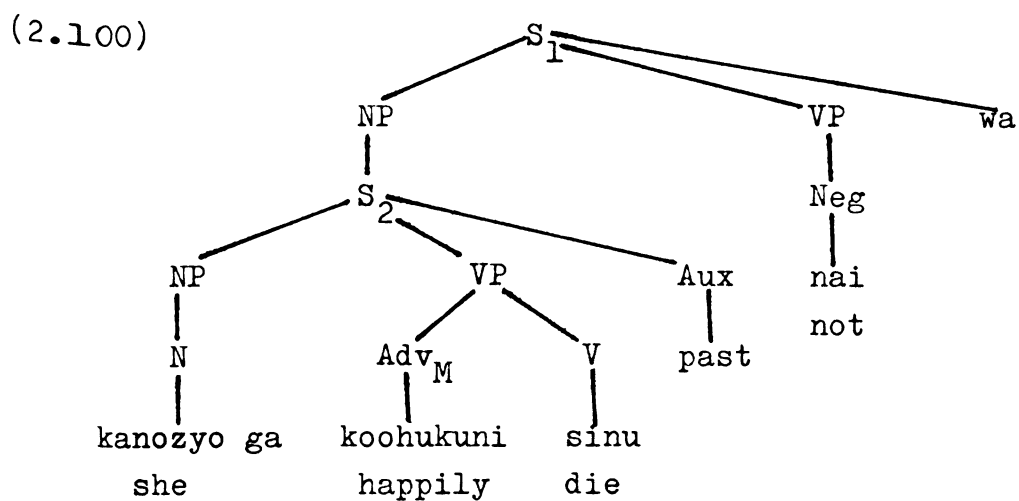
(2.98) a.(=2.53) kanozyo wa koohukuni sini wa si nakatta.  
                   she                  happily die          do not-did  
                   'She did not die happily.'

b.(=2.55) kanozyo wa koohukuni wa sina nakatta.  
                   she                  happily          die not-did  
                   'She did not die happily.'

(2.99)(=2.54) [[kanozyo wa koohukuni sinda wake]<sub>S</sub> de  
 she happily died that is  
 wa nai]<sub>S</sub>  
 not

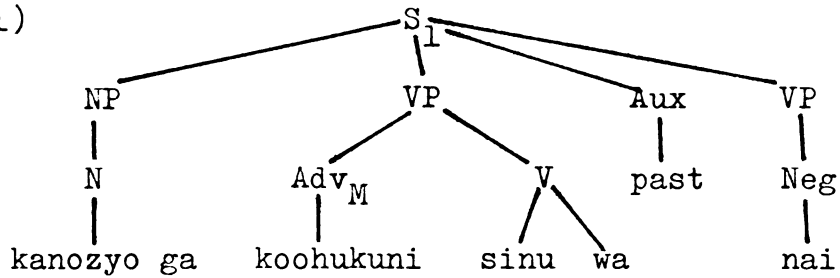
'It is not so that she died happily.'

It should be recalled that sentences (2.98a) and (2.98b) are synonymous with (2.99), as discussed in section 2.3. Thus, both (2.98) and (2.99) may be assumed to derive from the same underlying structure:

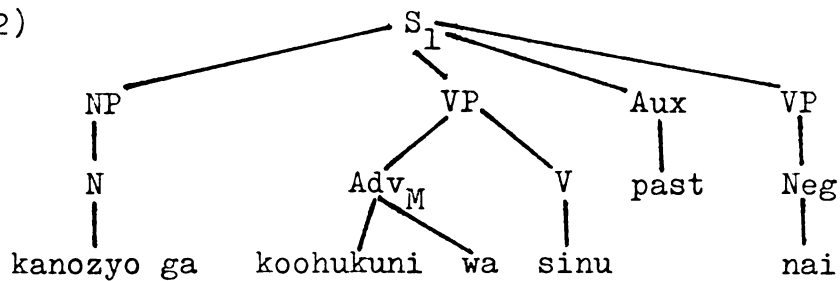


The derivation of (2.99) from (2.100) involves the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively. In turn, the derivation of (2.98) from (2.100) requires the raising of  $S_2$  into  $S_1$ . Next, the contrastive wa is attached to the verb as in (2.101) or to the adverbial as in (2.102):

(2.101)



(2.102)



Then, the Negative-attachment rule applies to attach the negative to the verb, yielding sentences (2.98a) and (2.98b), respectively. The application of Negative-attachment is obligatory, since if this transformation is not applied, the resulting sentences are ungrammatical as follows:

(2.103) a. \*kanozyo wa koohukuni sini wa sita nai.  
           she          happily die      did not

b. \*kanozyo wa koohukuni wa sinda nai.  
           she          happily      died not

Moreover, notice that when a contrastive wa or a negative is attached to a verb, it causes the following morphological changes:

(2.104) a. sinu+wa past → sini wa sita  
           die                  die      did

cf. sinu past → sinda  
       die          died





- b. sinu+nai past → sina nakatta  
 die not                      die not-past
- cf. sinu past nai → \*sinda nai  
 die            not            died not
- c. sinu+wa+nai past → sini wa si nakatta  
 die            not            die            do not-past
- cf. sinu+wa past nai → \*sini wa sita nai  
 die                    not            die            did not

The morphological changes indicate that wa and a negative are not just shifted to follow a verb but are attached to a verb.

From the above derivation it is clear that Negative-attachment in Japanese is closely related to Contrastive wa-attachment, namely, it can apply only after Contrastive wa-attachment has been applied. Furthermore, examples such as (2.98) indicate that Contrastive wa-attachment and Negative-attachment are not restricted to the derivation of sentences containing a quantifier and negation.

Incidentally, notice that the derivation of (2.98) from (2.100) also involves the application of Sentence-raising, thus providing additional support for this transformation.

In connection with Contrastive wa-attachment and Negative-attachment, we may further cite the following:

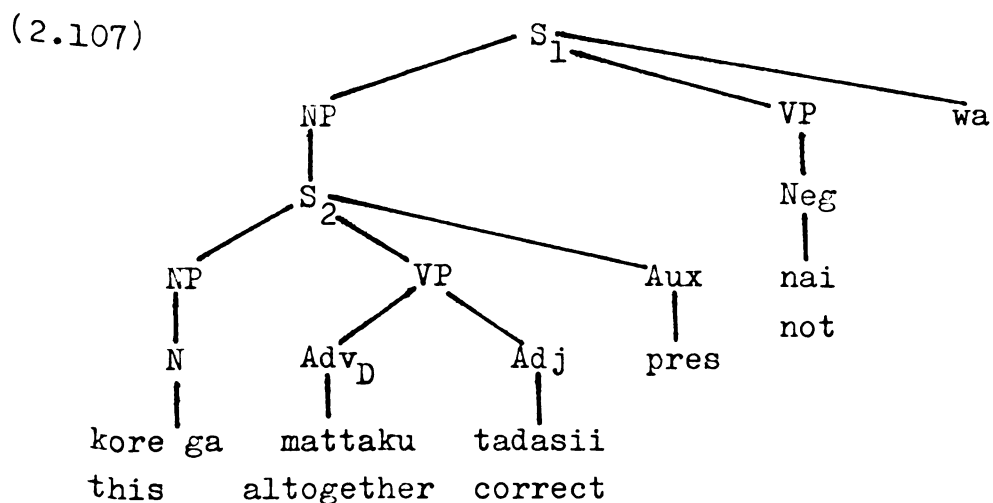
- (2.105)(=2.45) [kore wa mattaku tadasiku wa nai]<sub>S</sub>  
 this altogether correct not  
 'This is not altogether correct.'

(2.106)(=2.46) [[kore wa mattaku tadasii wake]<sub>S</sub> de  
 this altogether correct that is  
wa nai]<sub>S</sub>  
 not

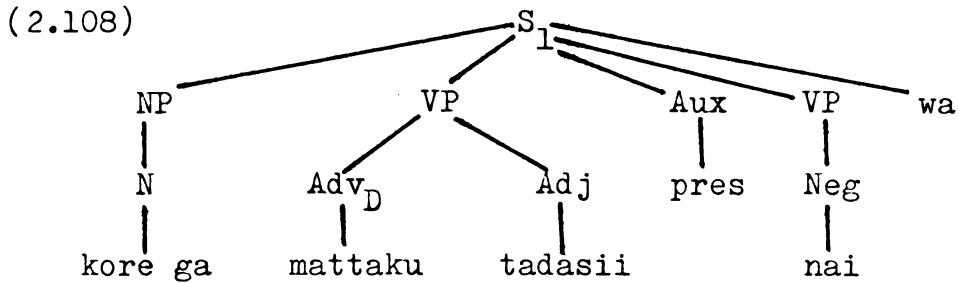
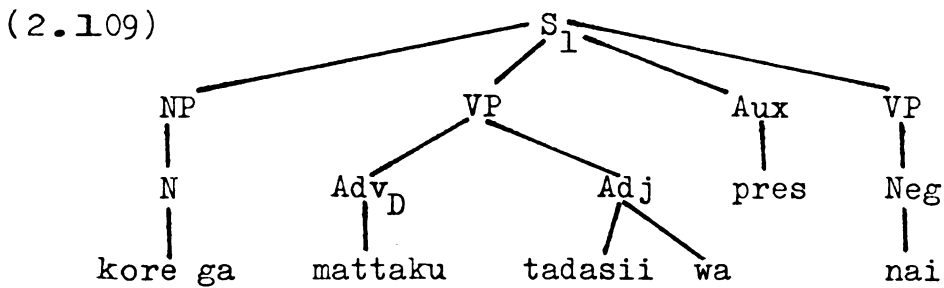
'It is not so that this is altogether correct.'

As noted in section 2.3, sentence (2.105) is synonymous with (2.106). Observe that neither (2.105) nor (2.106) contains a quantifier but the adverbial mattaku "altogether" instead. If we adopt the above analysis in terms of Contrastive wa-attachment and Negative-attachment as well as Sentence-raising, the synonymy of sentences (2.105) and (2.106) involving no quantifier can be explained in a way quite similar to that of (2.70) and (2.72) involving a quantifier. Under this analysis, sentences (2.105) and (2.106) will be derived from the same underlying structure in the following way:

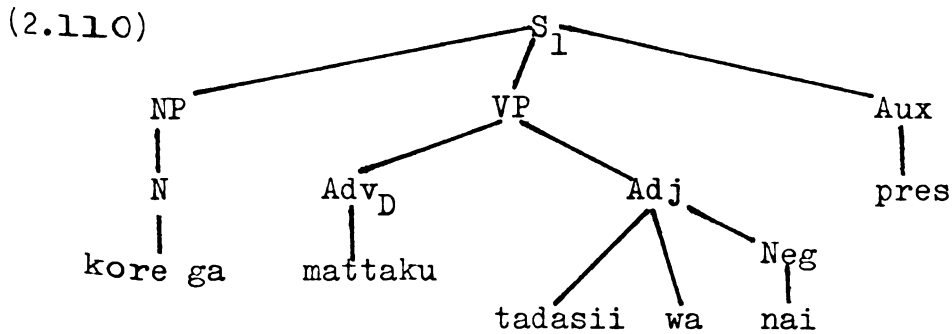
i. Underlying structure:



## ii. Application of Sentence-raising:

iii. Application of Contrastive wa-attachment:

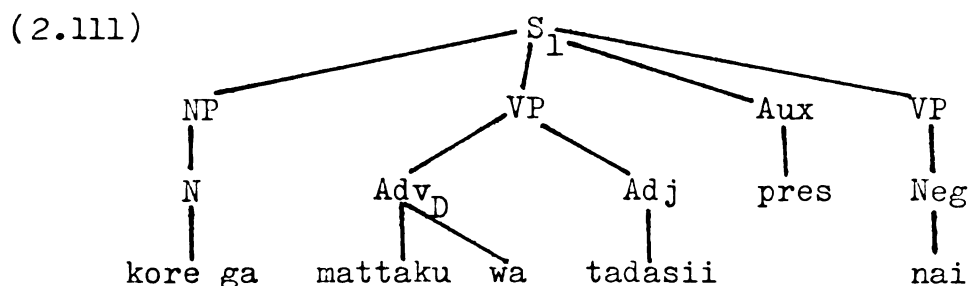
## iv. Application of Negative-attachment:



The structure (2.110) yields sentence (2.105). The relevant difference between (2.70) and (2.105) is that the contrastive wa is attached to the quantifier in (2.70), while in (2.105) it is attached to the adjective modified by the adverbial, not to the adverbial itself. But this difference dissolves when Contrastive wa-attachment applies to



(2.108) in such a way as to attach wa to the adverbial mattaku "altogether," giving (2.111) instead of (2.109):



The structure (2.111) gives sentence (2.112), which is synonymous with (2.105):

(2.112) kore wa mattaku wa tadasiku nai.  
 this altogether correct not  
 'This is not altogether correct.'

It should be noted that in (2.112) the contrastive wa is attached immediately to the adverbial, just as wa is attached to the quantifier in (2.70).

Turning to the derivation of sentence (2.106) from (2.107), the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively, gives sentence (2.106).

From the above discussion it will be clear that Contrastive wa-attachment and Negative-attachment are independently motivated transformations in that they are necessary to account for the synonymy of (2.98) with (2.99) and that of (2.105) and (2.112) with (2.106).

Taking into consideration the foregoing discussion, Contrastive wa-attachment will be given informally as (2.113):

- (2.113) Contrastive wa-attachment in Japanese attaches a contrastive wa to a quantifier, a manner adverbial, a verb modified by a manner adverbial, a degree adverbial or an adjective modified by a degree adverbial.

This can be formalized into:

$$(2.114) \quad X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_M \\ [\text{Adv}_M \dots V]_{VP} \\ \text{Adv}_D \\ [\text{Adv}_D \dots \text{Adj}]_{VP} \end{array} \right\} Y \text{ wa } Z \longrightarrow$$

$$X \left\{ \begin{array}{l} \text{Quant+wa} \\ \text{Adv}_M+\text{wa} \\ [\text{Adv}_M \dots V+\text{wa}]_{VP} \\ \text{Adv}_D+\text{wa} \\ [\text{Adv}_D \dots \text{Adj+wa}]_{VP} \end{array} \right\} Y \text{ Z}$$

where X, Y and Z are variables

Turning next to Negative-attachment, it will be given informally as (2.115), to cover the derivation of (2.98a) and (2.98b) from (2.101) and (2.102), respectively, and that of (2.105) and (2.112) from (2.109) and (2.111), respectively:

- (2.115) Negative-attachment in Japanese attaches a negative to the verb or the adjective that is combined with a contrastive wa or is preceded by a constituent combined with a contrastive wa.

This will be formalized as:

$$(2.116) \quad X \left\{ \begin{array}{l} P \quad Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + wa \\ Q + wa \quad Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} \end{array} \right\} Z \quad \text{Neg} \longrightarrow$$

$$X \left\{ \begin{array}{l} P \quad Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + wa + \text{Neg} \\ Q + wa \quad Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + \text{Neg} \end{array} \right\} Z$$

where P, Q, X, Y and Z are variables, Z contains no Neg, P includes Adv<sub>M</sub> or Adv<sub>D</sub> and Q includes Quant, Adv<sub>M</sub> or Adv<sub>D</sub>

Observe that (2.116) requires the presence of a constituent combined with a contrastive wa, reflecting the fact that Negative-attachment can apply only after the application of Contrastive wa-attachment. Furthermore, Negative-attachment is not a rule that inserts some element in a higher sentence into a lower embedded sentence. Notice, in this regard, that the application of Sentence-raising, preceding that of Negative-attachment, has moved the verb to be combined with a negative up into the sentence in which the negative occurs.

The above arguments will be sufficient to demonstrate that Contrastive wa-attachment and Negative-attachment, as well as Sentence-raising, are, in any case, necessary in Japanese grammar. In particular, examples such as (2.98), (2.105) and (2.112) are extremely significant, since they serve to demonstrate the independent motivation of not only Contrastive wa-attachment and Negative-attachment but also Sentence-raising. Other similar examples may be cited

in the following:

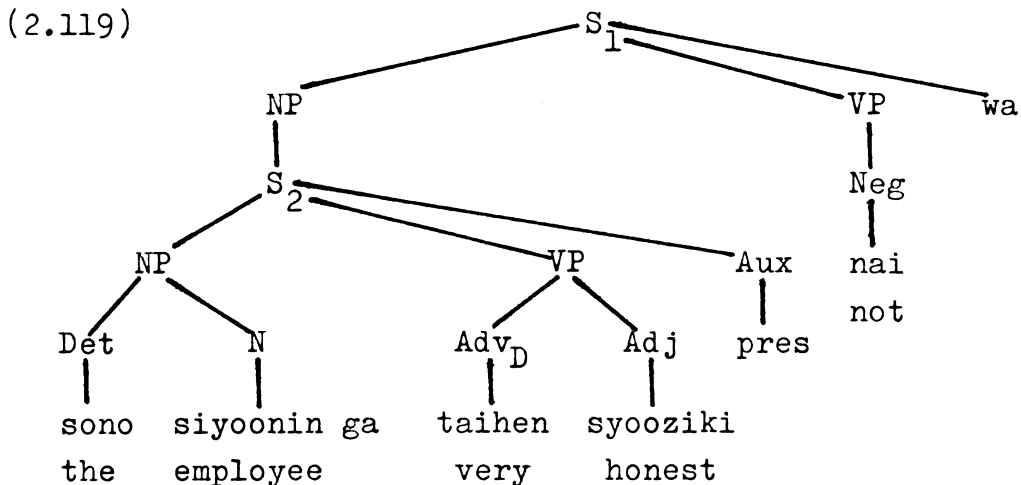
(2.117)(=2.47) [sono siyoonin wa taihen syooziki de wa  
 the employee very honest is  
nai]<sub>S</sub><sup>14</sup>  
 not

'The employee is not very honest.'

(2.118)(=2.48) [[sono siyoonin wa taihen syooziki na  
 the employee very honest is  
 wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 that is not

'It is not so that the employee is very honest.'

Both (2.117) and (2.118) will be derived from (2.119) under our analysis:



Another example is:

(2.120) a.(=2.49) [sono siyoonin wa kimi yori  
 the employee you more-than  
 syooziki de wa nai]<sub>S</sub>  
 honest is not

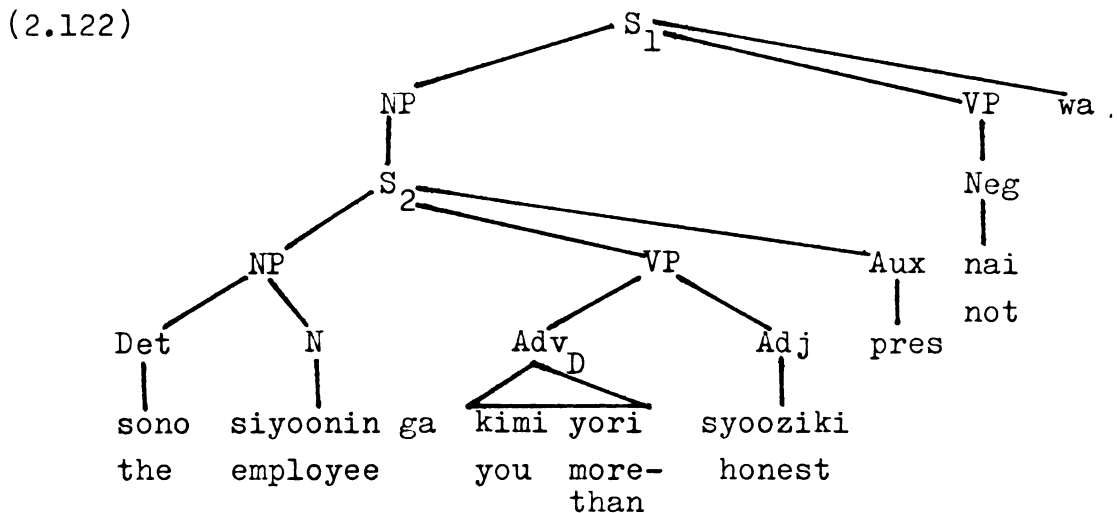
'The employee is not more honest than you.'



- b.(=2.51) [sono siyoonin wa kimi yori wa  
 the employee you more-than  
 syooziki de nai]S  
 honest is not  
 'The employee is not more honest than  
 you.'

- (2.121)(=2.50) [[sono siyoonin wa kimi yori syooziki  
 the employee you more-than honest  
 na wake]S de wa nai]S  
 is that is not  
 'It is not so that the employee is more  
 honest than you.'

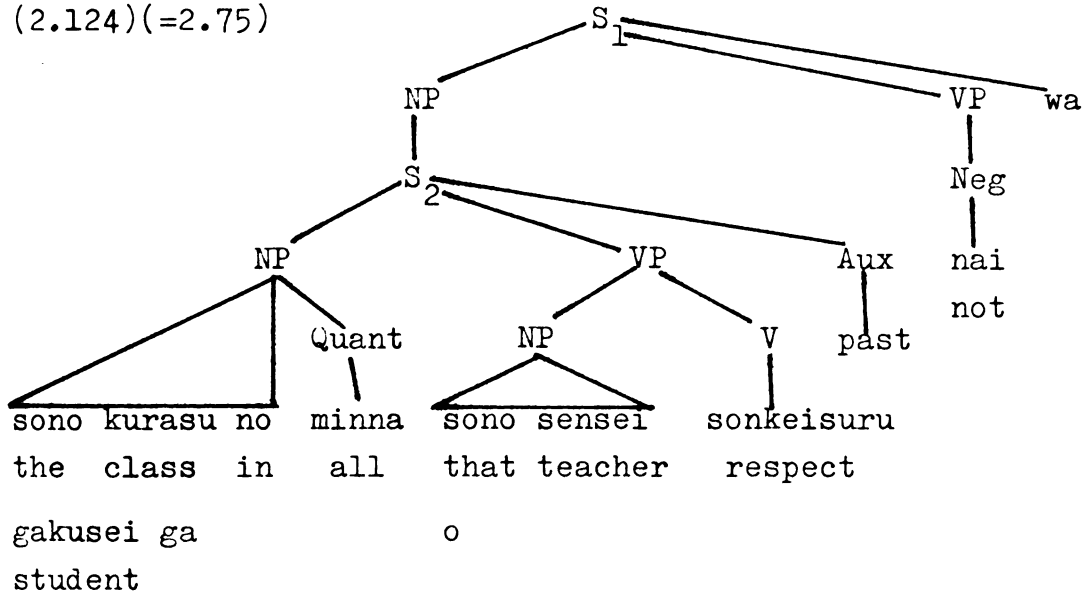
Sentences (2.120) and (2.121) will be derived from the same  
 underlying structure, (2.122) with unnecessary details  
 aside:



Now, it is time to consider the derivation of sentence  
 (2.72) from the underlying structure (2.75). They will be  
 repeated here for convenience:

- (2.123)(=2.72) [[sono kurasu no gakusei ga minna sono  
 the class in student all that  
 sensei o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 teacher respected that is not  
 'It is not so that all the students in  
 the class respected that teacher.'

(2.124)(=2.75)



When Sentence-raising does not apply to (2.124), the complementizer wake "that" is inserted into  $S_2$ . Then, the contrastive wa in  $S_1$  cannot be attached to a constituent in  $S_2$  because of a universal condition stated by Chomsky (1965, 146), namely, that no transformation can insert morphological material into lower sentences. Thus, this wa remains unchanged. Next, the insertion of a copula will derive the following structure:

- (2.125) [[sono kurasu no gakusei ga minna sono sensei o  
 the class in student all that teacher  
 sonkeisita wake]<sub>S<sub>2</sub></sub> da [[nai]<sub>Neg</sub>]<sub>VP</sub> wa]<sub>S<sub>1</sub></sub>  
 respected that is not

Then, attaching wa to the copula da "is,"<sup>15</sup> we get sentence (2.123). It should be mentioned here that the underlying structure (2.124) is based on the assumption given in G. Lakoff (1965), Fillmore (1968) and others that a copula is not present in underlying structure but is transformationally inserted as a kind of tense-carrier. In this connection, we may point out one linguistic fact observed in Japanese: a copula does not appear with ordinary predicate adjectives.<sup>16</sup> To illustrate the point, let us consider the following:

- (2.126) a. kareno ie wa ookii.  
           his house big  
           'His house is big.'
- a . \*kareno ie wa ookii da.  
           his house big is  
           'His house is big.'
- b. ano huzin wa utukusii.  
           that lady beautiful  
           'That lady is beautiful.'
- b . \*ano huzin wa utukusii da.  
           that lady beautiful is  
           'That lady is beautiful.'

Quite similarly, the negative nai may function as a predicate adjective in Japanese, as in:

- (2.127) a. kono atari ni wa mizu ga nai.  
           this neighborhood in water not  
           'Lit. Water is not in this neighborhood.  
           (= There is no water in this  
           neighborhood.)'

a .\*kono atari ni mizu ga nai da.  
 this neighborhood in water not is

'Lit. Water is not in this neighborhood.  
 (= There is no water in this  
 neighborhood.)'

Furthermore, we may mention that in traditional Japanese grammar the negative nai is included in the same class as ordinary adjectives on the basis of their similar inflectional behaviors.

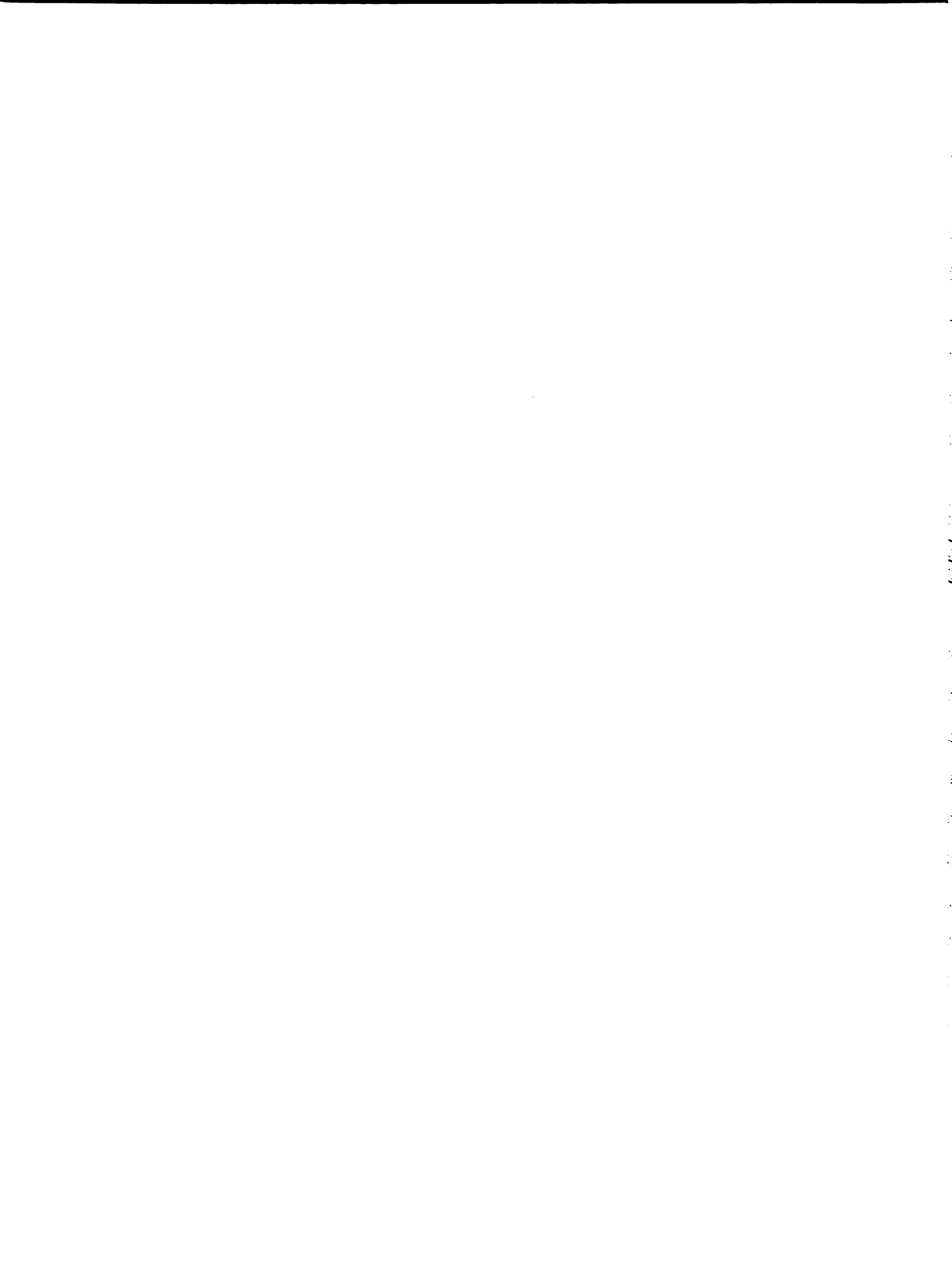
These considerations together provide some support for the underlying structure (2.124) in which the copula da "is" is not present.

In order to derive underlying structures such as (2.124) we need the following base rules:

- (2.128) a.  $S \rightarrow NP VP (Aux) (wa)$   
 b.  $VP \rightarrow Neg$   
 c.  $VP \rightarrow (NP) V (Neg)$

We may call the negation in (2.124) sentential negation which is derived by the base rule (2.128b), as opposed to verb-phrase negation that is derived by the rule (2.128c). The relevant difference between them is that sentential negation is exhaustively dominated by a verb phrase, commanding the sentence it negates in underlying structure, whereas verb-phrase negation is an optional constituent of a verb phrase.

To summarize, we have demonstrated that Sentence-raising, Contrastive wa-attachment and Negative-attachment are all independently motivated transformations in Japanese



grammar and that they may relate in a general way sentential hierarchy to a contrastive wa with respect to negation. Moreover, we have distinguished two types of negation, sentential and verb-phrase, in a rather formal way: the former type is derived by the rule (2.128b), while the latter is derived by the rule (2.128c). The necessity and the motivation for this twofold distinction of negation will be further discussed later in connection with the scope of negation and quantifiers.

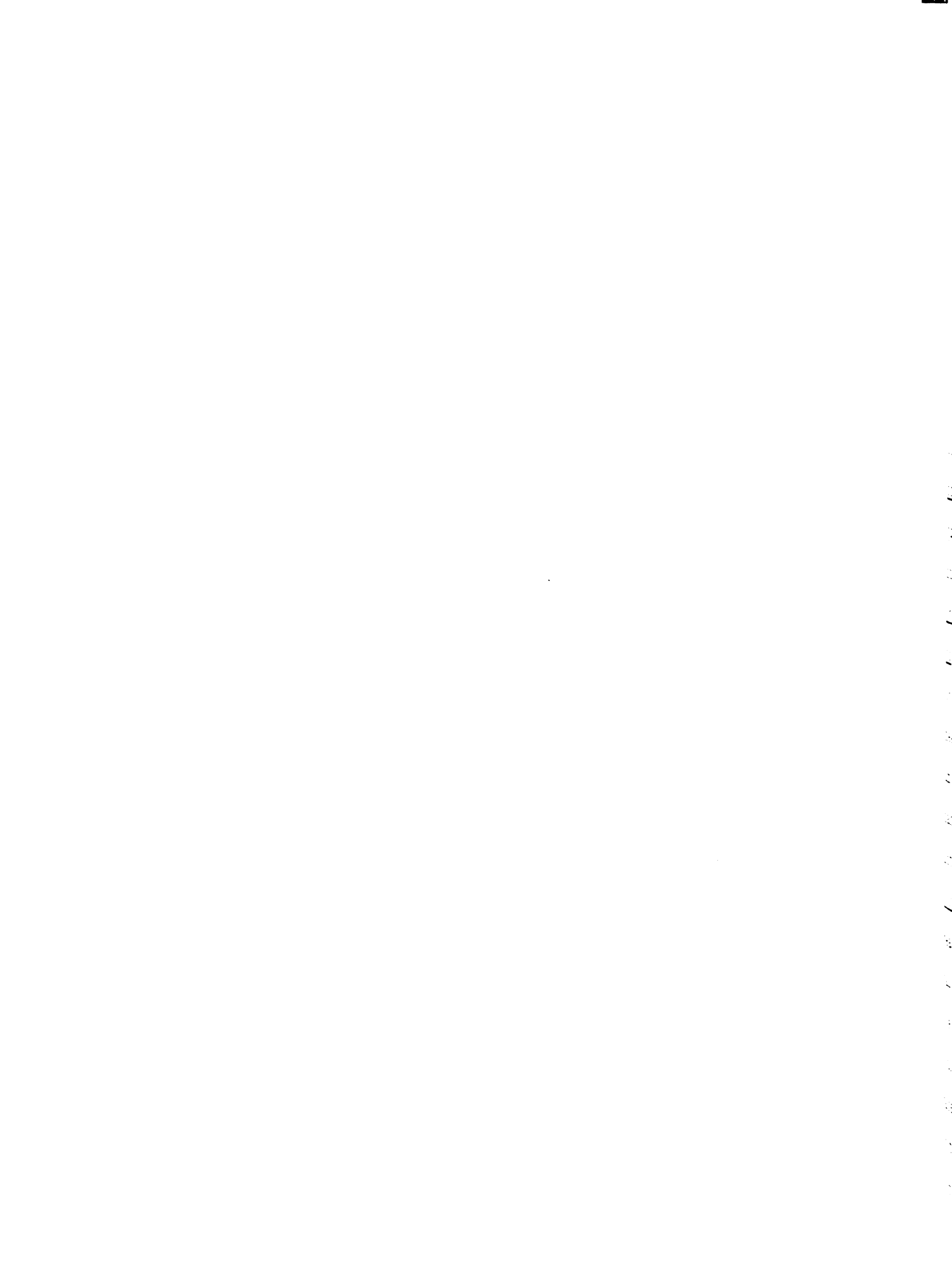
### 2.7. The Contrastive wa Versus the Topic wa Attached to Quan- tifiers

Negative-attachment given in (2.116) indicates that it requires the preceding application of Contrastive wa-attachment. As regards Contrastive wa-attachment, when adverbials such as koohukuni "happily" and mattaku "altogether" are involved, the contrastive wa may be attached not only to the adverbials but also to a verb modified by koohukuni or an adjective modified by mattaku. With quantifiers, however, the contrastive wa can be attached only to the quantifier itself, not to a noun modified by the quantifier. What causes this discrepancy in the case of quantifiers?

To start with, compare the following sentences:

(2.129) John wa ookuno syoosetu wa yoma nakatta.  
                  many      novel          read not-did

'Many novels, John did not read.' or



'John did not read many novels.'

(2.130) John wa syoosetu o ooku wa yoma nakatta.  
                   novel       many       read not-did

'John did not read many novels.'

(2.131) [[John wa ookuno syoosetu o yonda wake]<sub>S</sub> de  
                   many       novel       read that is  
                   wa nai]<sub>S</sub>  
                   not

'It is not so that John read many novels.'

Observe the morphological difference between the quantifier ookuno in (2.129) and ooku in (2.130). In (2.129) the quantifier is used attributively, preceding the noun, while in (2.130) it follows the noun, and so it takes the form ooku, not ookuno; in Japanese quantifiers and numerals drop no when they follow the nouns which they modify. Now, we observe that sentence (2.130) is unambiguous and has the meaning of (2.131). In contrast, sentence (2.129) may be ambiguous with two readings. The primary reading is that many novels, John did not read, with the second wa being interpreted as a topic wa, combined with the noun phrase ookuno syoosetu "many novels" as a unit. The secondary reading is that of (2.131): in this reading the same wa is taken to be a contrastive wa, semantically associated with the quantifier, though it is structurally attached to the noun modified by the quantifier. One relevant factor that makes the primary reading, "Many novels, John did not read," is that a topic wa is more common and general than a contrastive wa. In this connection, consider the following:



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(2.132) John wa syoosetu o yonde iru.  
                   novel     reading is

'As for John, he is reading a novel.' or

'John (in contrast with someone else) is reading  
 a novel.'

Sentence (2.132) may be ambiguous, as noted in section 2.3, but the primary reading is that as for John, he is reading a novel, with the wa being interpreted as a topic wa rather than a contrastive wa. Only when it is accompanied by the context which requires a contrastive wa interpretation may sentence (2.132) have the reading of "John (in contrast with someone else) is reading a novel," as in the following:

(2.133) John wa syoosetu o yonde iru ga Mary wa terebi  
                   novel     reading is but     television  
                   o mite     iru.  
                   watching is

'John is reading a novel, but Mary is watching  
 television.'

The primacy of a topic wa over a contrastive wa may be further observed in so-called topicless sentences. For instance, consider the following:

(2.134) ginkoo e     ike     nakatta yo.  
                   bank to can-go not-past F(inal)-P(article)

'I could not go to the bank.'

(2.135) syukudai o yattyatta kai.  
                   homework finished Q(estion)-M(arker)

'Did you finish the homework?'

Colloquial speech often deletes the topic of a sentence, especially when the topic is the speaker as in (2.134) or

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the hearer as in (2.135). If we add the topic to (2.134) and (2.135), the resulting sentences will be (2.136) and (2.137), respectively:

(2.136) boku wa ginkoo e ike nakatta yo.  
 I bank to can-go not-past FP  
 'I could not go to the bank.'

(2.137) kimi wa syukudai o yattyyatta kai.  
 you homework finished QM  
 'Did you finish the homework?'

It should be noticed that the wa in (2.136) and (2.137) can never be taken as a contrastive wa, if these sentences are to be synonymous with (2.134) and (2.135), respectively. This fact suggests that a topic wa may be deleted without causing any ambiguity and may be recovered, causing no semantic change, in certain contexts, whereas a contrastive wa can never be so deleted or recovered. This difference indicates the fact that a topic wa is more general or "unmarked" than a contrastive wa.

Furthermore, a topic wa may occur more than once in a simplex sentence, while a contrastive wa may not. To take a concrete example, consider the following:

(2.138) kinoo wa John wa tosyokan e wa ika nakatta.  
 yesterday library to go not-did  
 'John did not go to the library yesterday.'

It is possible to interpret at least two wa's in (2.138) as a topic wa, but it rarely, if ever, happens that the two wa's out of the three in sentences such as (2.138) may be taken to be a contrastive wa. These facts will be enough to



demonstrate the primacy of a topic wa over a contrastive wa.

Now, consider the following:

- (2.139) subeteno oobosya wa sintaikensa o uke nakatta.  
 all applicant physical- undergo not-did  
 examination

'All the applicants did not undergo a  
 physical-examination.'

- (2.140) oobosya ga subete wa sintaikensa o uke nakatta.  
 applicant all physical- undergo not-did  
 examination

'Not all the applicants underwent a  
 physical-examination.'

- (2.141) [[subeteno oobosya ga sintaikensa o uketa  
 all applicant physical- underwent  
 examination

wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 that is not

'It is not so that all the applicants underwent  
 a physical-examination.'

If sentence (2.139) is acceptable, it is not synonymous with (2.141), though sentence (2.140) is synonymous with (2.141). This is quite natural in the light of the primacy of a topic wa over a contrastive wa: wa in (2.139), attached to the noun modified by a quantifier, is most naturally interpreted as a topic wa, though wa in (2.140), attached immediately to the quantifier, is a contrastive wa.

From the primacy of a topic wa it naturally follows that if there is only one wa attached to a noun phrase in a sentence, this wa is usually taken as a topic wa, and the noun phrase with this wa is interpreted as the topic of a sentence. But when there are two noun phrases with wa, one



of them may be interpreted as a contrastive wa. From this viewpoint, reexamine sentence (2.129), repeated here as (2.142):

- (2.142)(=2.129) John wa ookuno syoosetu wa yoma nakatta.  
                             many      novel      read not-did  
                             'Many novels, John did not read.' or  
                             'John did not read many novels.'

As noted above, sentence (2.142) may be ambiguous and its primary reading is that in which the second wa attached to the noun phrase containing a quantifier is semantically interpreted as a topic wa as well as the first wa, and its secondary reading is that in which the same wa is interpreted as a contrastive wa. The latter interpretation is possible, though secondary, since sentence (2.142) has another noun phrase with wa, John wa, which is most naturally taken to be the topic of the sentence: the presence of this constituent makes it possible for the second wa to be interpreted as a contrastive wa.

Furthermore, a quantifier following a noun such as subete wa in (2.140), though combined with wa, is a constituent that cannot become the topic of a sentence. The same is true of adverbials, adjective phrases and verb phrases which are combined with wa. In contrast, noun phrases combined with wa such as subeteno oobosya wa in (2.139) become most naturally the topic of a sentence.

In sum, the above-observed discrepancy--that a contrastive wa can be attached directly to a quantifier



following a noun, but not to a noun modified by a quantifier--may be accounted for by the fact that: the primacy of a topic wa over a contrastive wa makes a noun combined with wa most naturally the topic of a sentence; only when a constituent combined with wa is such that it cannot become the topic of a sentence can this wa remain a contrastive wa.

### 2.8. The Application of the Proposed Analysis to English Negation and Quantifiers

Before applying the proposed analysis of Japanese negation to English, we wish to examine whether the constraint stated in (2.18), repeated here as (2.143), is also applicable to English negation or not:

(2.143)(=2.18) Negation, whether verb-phrase negation or negation in a higher sentence, may include in its scope the whole sentence in which it occurs.

In this connection, let us cite the following:

(2.144) That student did not take the examination today.

(2.145) It is not so that that student took the examination today.

First of all, sentence (2.144) may be synonymous with (2.145). Second, observe that negation in (2.145) may negate any of the following:

- (2.146) a. That student took the examination today.  
b. that student

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- c. took
- d. the examination
- e. today

Accordingly, any of the following may occur following sentence (2.145):

- (2.147) a. but he read a book
- b. but this student did
- c. but he looked at it
- d. but he took the short quiz
- e. but yesterday

This observation suggests that:

- (2.148) Negation in a higher sentence as in (2.145) includes in its scope the whole sentence in which it occurs, including its lower sentence.

Moreover, observe that any of sentences (2.147a) through (2.147e) may occur following sentence (2.144). This observation and the synonymy of (2.144) with (2.145) demonstrate that:

- (2.149) Verb-phrase negation as in (2.144) may include in its scope the whole sentence in which it occurs.

Since negation in a higher sentence as in (2.145) is called sentential negation in our framework, as will be discussed later in this section, (2.148) and (2.149) may be conjoined into:

- (2.150) Negation, whether sentential or verb-phrase, may include in its scope the whole sentence in which

it occurs.

Based on the observations in this section as well as in section 2.2, we may propose (2.150) as a putative linguistic universal.

Now, let us proceed to apply the proposed analysis to English negation. For this purpose, we may cite the following examples from Jackendoff (1969) with a slight change:

(2.151) Not many arrows hit the target.

(2.152) Many arrows did not hit the target.

Their Japanese counterparts will be (2.153) and (2.154), respectively:

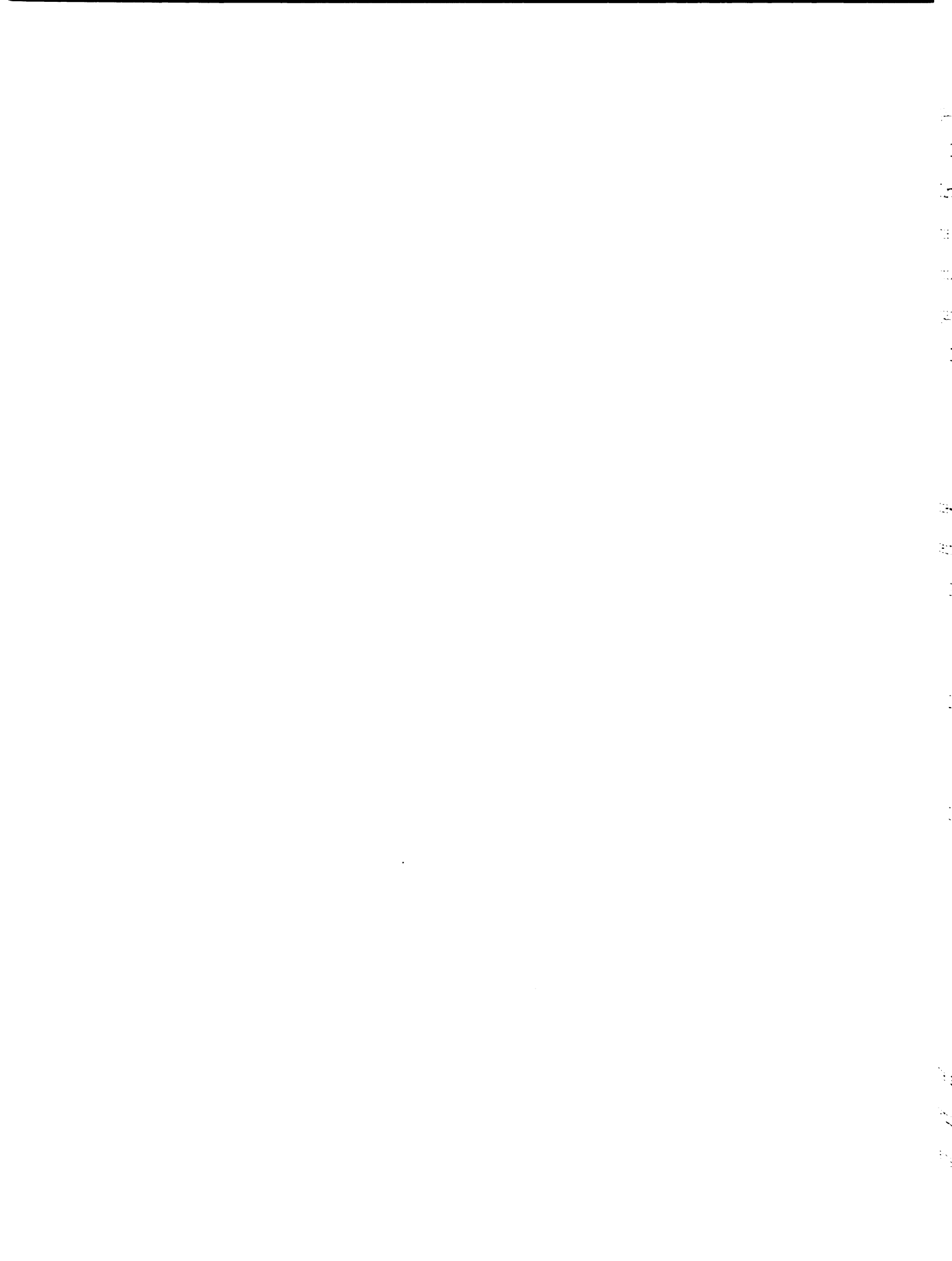
(2.153) [[ookuno ya ga mato ni atatta wake]<sub>S</sub> de wa  
           many arrow target hit that is  
           nai]<sub>S</sub>  
           not

'Not many arrows hit the target.'

(2.154) [ookuno ya ga mato ni atara nakatta]<sub>S</sub>  
           many arrow target hit not-did

'Many arrows did not hit the target.'

It is important to observe that in both (2.153) and (2.154) the negative follows the quantifier. But there is one relevant difference between them: in (2.153) the negative occurs in a higher sentence than the quantifier, while in (2.154) it occurs in the same simplex sentence as the quantifier. Consequently, sentence (2.153) will be the more exact counterpart of (2.155) rather than (2.151) in that in (2.155) the negative occurs in a higher sentence than the



quantifier:

(2.155) It is not so that many arrows hit the target.  
 Furthermore, sentence (2.156), rather than (2.153), will be the more exact counterpart of (2.151) in that the negative occurs in the apparently same simplex sentence as the quantifier:

(2.156) [mato ni ya ga ooku wa atara nakatta]<sub>S</sub>  
           target arrow many hit not-did  
           'Not many arrows hit the target.'

From the foregoing discussion we have the following one-to-one correspondence between the English and Japanese sentences in question:

(2.157) a.(=2.151) [Not many arrows hit the target]<sub>S</sub>  
           b.(=2.156) [mato ni ya ga ooku wa atara nakatta]<sub>S</sub>  
                           target arrow many hit not-did  
 (2.158) a.(=2.152) [Many arrows did not hit the target]<sub>S</sub>  
           b.(=2.154) [ookuno ya ga mato ni atara nakatta]<sub>S</sub>  
                           many arrow target hit not-did  
 (2.159) a.(=2.155) [It is not so [that many arrows hit  
                           the target]<sub>S</sub>]<sub>S</sub>  
           b.(=2.153) [[ookuno ya ga mato ni atatta wake]<sub>S</sub>  
                           many arrow target hit that  
                           de wa nai]<sub>S</sub>  
                           is not

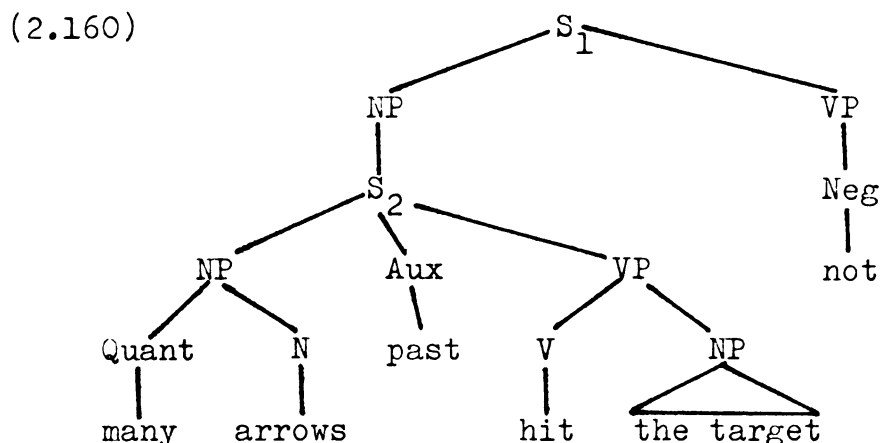
Recall that the discussion in section 2.6 shows that the synonymy of (2.157b) and (2.159b) may be explained in terms of transformations that are independently motivated: sentences (2.157b) and (2.159b) are derived from the same

underlying structure by the application of these transformations.

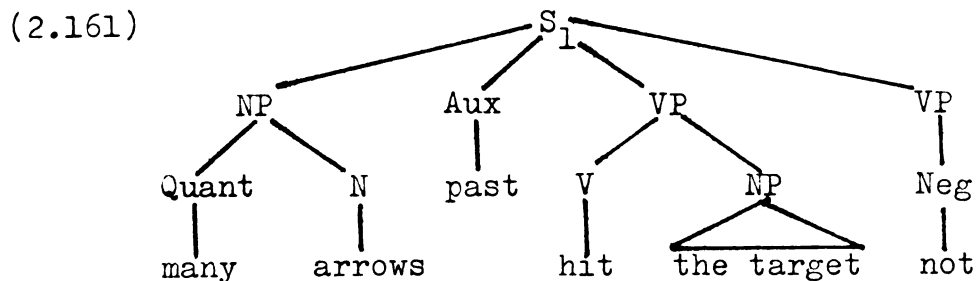
Applying this analysis to the corresponding English sentences, we will try to derive sentences (2.157a) and (2.159a) from the same underlying structure in terms of transformations similar to those used in the derivation of (2.157b) and (2.159b).

According to this analysis, sentences (2.157a) and (2.159a) will be derived from the underlying structure (2.160) in the following way:

i. Underlying structure:



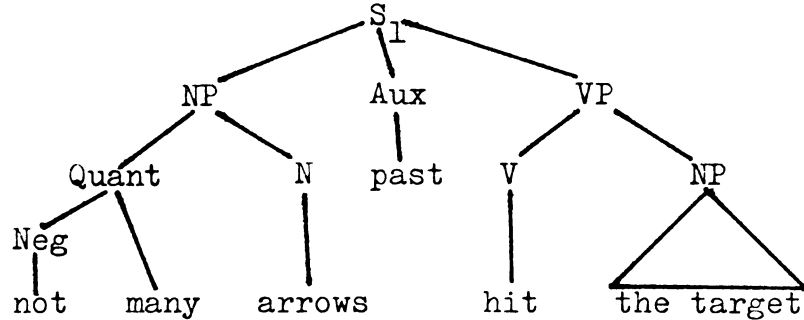
ii. Application of Sentence-raising which raises  $S_2$  into  $S_1$ :



iii. Application of Contrastive wa-attachment: there is no such transformation in English grammar.

iv. Application of Negative-attachment which attaches not to the quantifier, not to the verb as in Japanese, deriving:

(2.162)



The structure (2.162) yields sentence (2.157a). The derivation of sentence (2.159a) will be considered later in this section.

The point is that these transformations must not be ad hoc in the sense that they may be used only in the derivation of (2.157a) from (2.160) or other similar sentences, since if they are ad hoc, the derivation in terms of these transformations also becomes ad hoc and of little interest here.

Our next step is, therefore, to demonstrate that these transformations are not ad hoc in English grammar. Let us consider the Sentence-raising rule first. This rule is necessary to account for the synonymy of sentences such as the following:

(2.163) a. [The association, we know, did not take a proper step]<sub>S</sub>



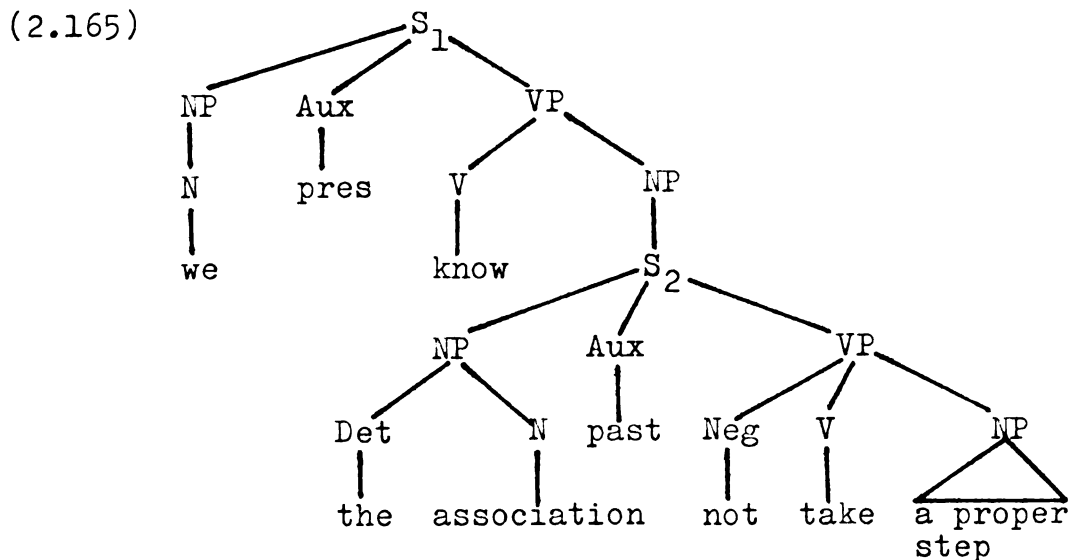
- b. [We know [that the association did not take  
a proper step]<sub>S</sub>]<sub>S</sub>

A simple test can show that (2.163a) and (2.163b) have the surface structures shown above. That is, if we insert the complementizer into (2.163a), the resulting sentence is ungrammatical as follows:

- (2.164) \*That the association, we know, did not take a proper step.

In English the complementizer that can be inserted only into embedded complement sentences. Thus the ungrammaticality of (2.164) indicates that (2.163a) contains no embedded complement sentence. On the other hand, the grammaticality of (2.163b), especially the fact that the complementizer that can occur in (2.163b), clearly demonstrates that (2.163b) contains an embedded sentence as shown above.

Now, considering that sentences (2.163a) and (2.163b) are synonymous, we may propose that they be derived from the same underlying structure, (2.165):





This underlying structure<sup>17</sup> may be given some further support in addition to the above considerations. In this connection, recall the presumably universal constraint proposed in (2.150): the scope of negation is the whole sentence in which it occurs. On the basis of this constraint, the underlying structure (2.165) indicates that the scope of not is  $S_2$  and we know is outside of its scope. If (2.165) is an acceptable underlying structure for sentences (2.163a) and (2.163b), the negatives in these sentences should be in accord with the negative in (2.165) in scope. This is exactly the case here, as is seen by the grammaticality of (2.166) and the ungrammaticality of (2.167):

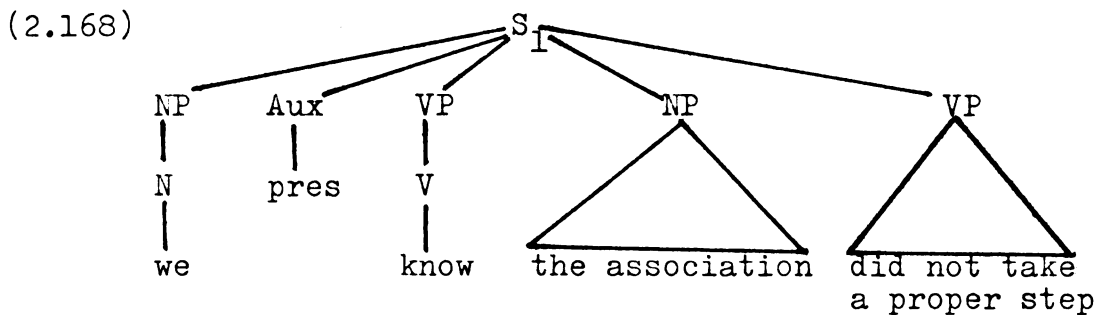
- (2.166) a. The association, we know, did not take a proper step, that is, we know it.  
 b. We know that the association did not take a proper step, that is, we know it.

- (2.167) a. \*The association, we know, did not take a proper step, that is, we do not know it.  
 b. \*We know that the association did not take a proper step, that is, we do not know it.

As mentioned in the beginning of this section, it should be the case that any constituent in the scope of negation may be negated by the negation. Therefore, if we know in (2.163a) and (2.163b) is inside the scope of negation, it may be negated and the sentences of (2.167) should be grammatical. The ungrammaticality of (2.167) along with the grammaticality of (2.166) demonstrates that we know in

(2.163a) and (2.163b) is outside the scope of negation, and this is correctly predicted by the underlying structure (2.165). This clearly lends additional support to the underlying structure (2.165).

Turning to the derivation of sentences (2.163a) and (2.163b), when Sentence-raising does not apply to (2.165), the complementizer that is inserted into  $S_2$  (as in Rosenbaum (1967)), giving sentence (2.163b). If, on the other hand, Sentence-raising applies to (2.165), the resulting structure is as follows:



Then, we know is moved to follow the subject noun phrase, giving sentence (2.163a). In this way, the rule of Sentence-raising can relate sentences such as (2.163a) and (2.163b), thus accounting for their synonymy.

Quite similarly, this analysis in terms of Sentence-raising can account for the synonymy of the (a) sentences with the (b) sentences in (2.169) through (2.172):<sup>18</sup>

- (2.169) a. All of the leaders, I think, will be investigated by the detectives.

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- b. I think that all of the leaders will be investigated by the detectives.
- (2.170) a. The United States, we believe, will not interfere in the country.
- b. We believe that the United States will not interfere in the country.
- (2.171) a. Your solution, it seems to me, is rather ad hoc.
- b. It seems to me that your solution is rather ad hoc.
- (2.172) a. The documents, I must remind you, will be submitted to the conference tomorrow.
- b. I must remind you that the documents will be submitted to the conference tomorrow.

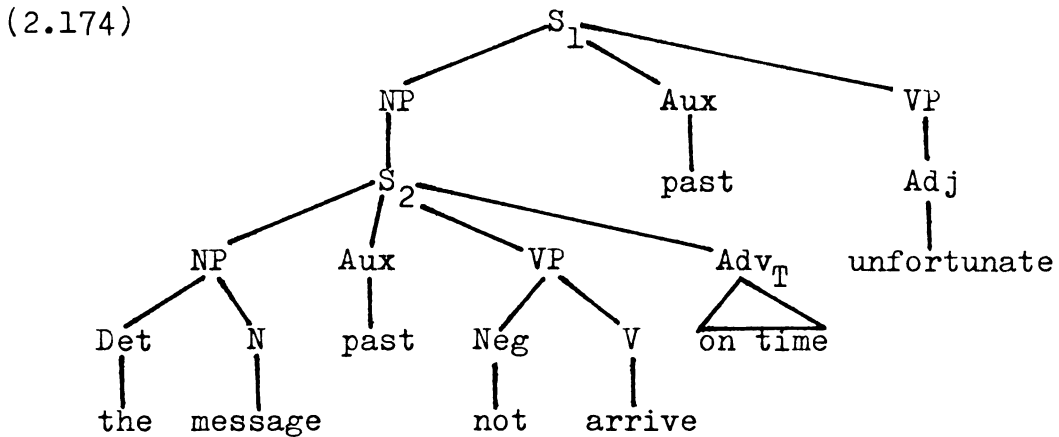
Observe that all these examples contain verbs that belong to the class often called "verbs of saying and thinking." But Sentence-raising is not restricted to this type of example.

Another major class involving the application of Sentence-raising contains so-called sentential adverbials, such as:

- (2.173) a. [Unfortunately, the message did not arrive on time]<sub>S</sub>
- b. [It was unfortunate [that the message did not arrive on time]<sub>S</sub>]<sub>S</sub>

If unfortunately in (2.173a) is called a sentential adverbial, unfortunate in (2.173b) may be called a sentential adjective. A similar test used in connection with (2.163)

can easily prove that sentences (2.173a) and (2.173b) have the surface structures shown here. Now, observing that sentences (2.173a) and (2.173b) are synonymous, we maintain that they are derived from the same underlying structure:

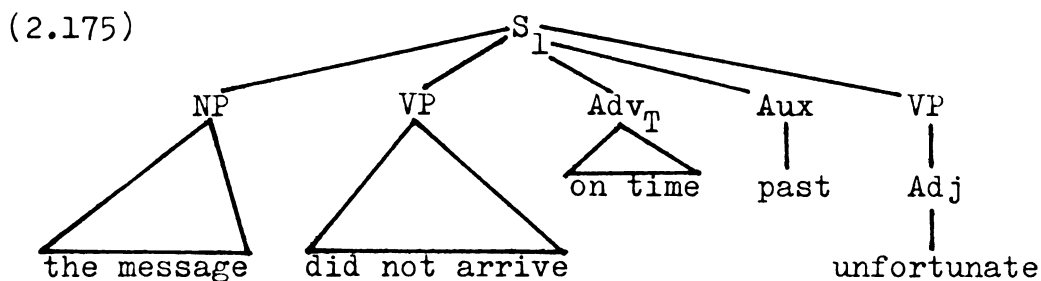


The validity of this underlying structure is confirmed in a way quite similar to that of (2.165), in terms of the scope of not.

Now, let us consider the derivation of sentences (2.173a) and (2.173b) from (2.174). The derivation of (2.173b) does not involve the application of Sentence-raising, but the insertion of a complementizer and a copula and the extraposition of  $S_2$  (as in Rosenbaum (1967)). In turn, if Sentence-raising applies to (2.174) to raise  $S_2$  into  $S_1$ , the following intermediate structure will be derived:







Next, applying Adverbial-formation to change unfortunate into unfortunately and moving it to precede the subject noun phrase, we get sentence (2.173a). If, on the other hand, the adverbial is not shifted, the resulting sentence is:

(2.176) The message did not arrive on time,  
unfortunately.

Thus, this analysis in terms of Sentence-raising can account for the synonymy of (2.173a) with (2.173b) and similar others such as the following paired sentences:

(2.177) a. She was naturally discouraged.

b. It was natural that she was discouraged.

(2.178) a. Probably, he will show up again.

b. It is probable that he will show up again.

(2.179) a. They will certainly win the game.

b. It is certain that they will win the game.

The third major class involving the application of Sentence-raising includes several classes of adverbials such as adverbials of frequency, nominal adverbials, and adverbials of reason and purpose. A detailed discussion of these adverbials will be given in the next chapter and it will be demonstrated there that the derivation of sentences involving these adverbials requires the application of

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## Sentence-raising.

The foregoing discussion regarding three major classes involving the application of Sentence-raising will be enough to demonstrate that Sentence-raising is an independently motivated transformation in English grammar as well. Moreover, Sentence-raising stated in (2.97), repeated here as (2.180), may be applied, unchanged, to the English examples cited so far:

$$(2.180)(=2.97) \quad \text{OPT} \quad [ M [ X ]_{S_2} N ]_{S_1} \longrightarrow [ M X N ]_{S_1}$$

where M, N and X are variables, and M or N dominates  $V_{S.T}^{19}$  or exhaustively dominates  $\text{Adj}_S$ ,  $\text{Adv}_N$ ,  $\text{Adv}_F$ ,  $\text{Adv}_{R.P}$  or Neg

The applicability of the same transformation to both Japanese and English gives further support for this transformation.

Now, we may go on to consider the second transformation, Negative-attachment. This transformation is roughly similar to what Klima (1964) calls Negative-incorporation, in the sense that a negative is attached to a nominal quantifier when the nominal is subject. Klima (1964, 272) gives Negative-incorporation as follows:

$$(2.181) \quad [ \text{Quant-Noun-} \left\{ \begin{array}{l} \text{Sg} \\ \text{Pl} \end{array} \right\} ]_{\text{Nominal}} \text{-neg-Tense} \left\{ \begin{array}{l} \text{M} \\ \text{be} \\ \text{have} \end{array} \right\} X \longrightarrow$$

$$[ \text{neg+Quant-Noun-} \left\{ \begin{array}{l} \text{Sg} \\ \text{Pl} \end{array} \right\} ]_{\text{Nominal}} \text{-Tense} \left\{ \begin{array}{l} \text{M} \\ \text{be} \\ \text{have} \end{array} \right\} X$$

But it is important to note that his Negative-incorporation rule is not meaning-preserving. For instance, his Negative-incorporation rule applies to the underlying structure of sentence (2.182), giving sentence (2.183), which is not synonymous with (2.182):

(2.182) Many people did not like the movie.

(2.183) Not many people liked the movie.

In contrast, our Negative-attachment rule becomes meaning-preserving, if we impose on it one constraint to the effect that a negative is attached to the leftmost pre-verbal quantifier, namely, the leftmost quantifier preceding the verb, and if there is no such quantifier, the negative is attached to the verb. Thus our Negative-attachment rule is informally something like (2.184):

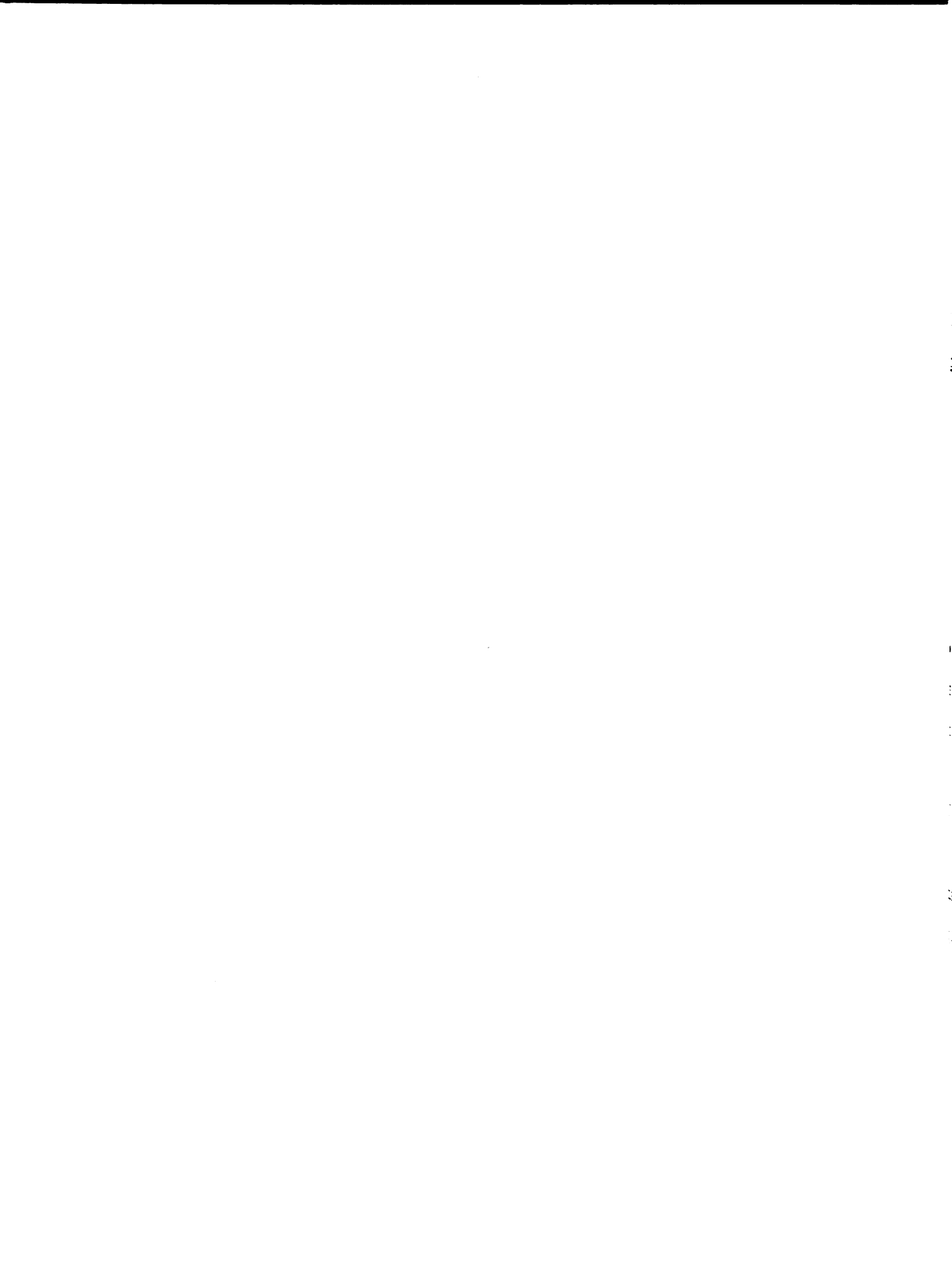
(2.184) Negative-attachment in English attaches a negative to the leftmost pre-verbal quantifier of, if there is no such quantifier, to the verb which follows no quantifier or negative.

This may be formalized as:

(2.185) a. X Quant Y Neg  $\longrightarrow$   
           X Neg+Quant Y  
       b. X V Y Neg  $\longrightarrow$   
           X Neg+V Y

where X and Y are variables, and X contains no Quant or Neg

According to this Negative-attachment rule, the following derivation, for instance, takes place:



(2.186) a. [many arrows past hit the target [not]<sub>Neg</sub>]<sub>S</sub>  
 → Not many arrows hit the target.

b. [the police past arrest many demonstrators  
 [not]<sub>Neg</sub>]<sub>S</sub> →  
 The police did not arrest many demonstrators.

Moreover, the Negative-attachment rule correctly attaches not to any as in (2.187a), but not to the verb as in (2.187b):

(2.187) a. [any girl pres enjoy dating Bill [not]<sub>Neg</sub>]<sub>S</sub>  
 → Not any girl enjoys dating Bill.

(→ No girl enjoys dating Bill.)

b. [any girl pres enjoy dating Bill [not]<sub>Neg</sub>]<sub>S</sub>  
 → \*Any girl does not enjoy dating Bill.

We note that the derivation (2.187b) gives an ungrammatical sentence and this is due to the violation of the condition of Negative-attachment (2.185b). Thus, the derivation (2.187b) is blocked through the filtering function of Negative-attachment.

To show the independent motivation of this transformation, consider the following sentences involving no quantifier but certain kinds of adverbials and negation:

(2.188) a. It is not so that only that boy stole apples in the orchard.

b. Not only that boy stole apples in the orchard.

c. Only that boy did not steal apples in the orchard.



- (2.189) a. It is not so that that player often does his best.
- b. That player does not often do his best.
- c. That player often does not do his best.

We notice that sentence (c) is not synonymous with either sentence (a) or sentence (b) in both (2.188) and (2.189). This fact suggests that the negative not in the (b) sentences must be distinguished from that in the (c) sentences in some way. It may be proposed here that these two types of negation be distinguished in terms of the distinction between sentential and verb-phrase negation: not in the (a) and (b) sentences is sentential negation which is derived by the base rule (2.190b), while not in the (c) sentences is verb-phrase negation that is derived by the rule (2.190c):

- (2.190) a.  $S \longrightarrow NP \text{ (Aux) VP}$
- b.  $VP \longrightarrow \text{Neg}$
- c.  $VP \longrightarrow (\text{Neg}) V \text{ (NP)}$

This distinction between sentential and verb-phrase negation is different in a significant way from the distinction between sentence and constituent negation in Klima (1964), and that between sentence and verb phrase negation in Jackendoff (1969). According to Klima, the negation in both (2.188) and (2.189) is sentence negation.

In Jackendoff's analysis, on the other hand, neg in  $[X - \text{neg} - Y]_S$  is sentence negation if there exists a paraphrase "It is not so that  $[X - Y]_S$ ." Thus, the



negation in (2.188a), (2.188b), (2.189a) and (2.189b) will be sentence negation, while that in (2.188c) and (2.189c) will be verb phrase negation. Furthermore, according to his analysis, the negation in (2.191a) and (2.192a) will be sentence negation, since there are paraphrases of (2.191a) and (2.192a), such as (2.191b) and (2.192b), respectively:

- (2.191) a. That boy did not steal apples in the orchard.  
 b. It is not so that that boy stole apples in the orchard.
- (2.192) a. That player does not do his best.  
 b. It is not so that that player does his best.

In our analysis, however, the negation in (2.191a) and (2.192a) is verb-phrase negation, whereas that in (2.191b) and (2.192b) is sentential negation. These differences may be summarized as:

(2.193)

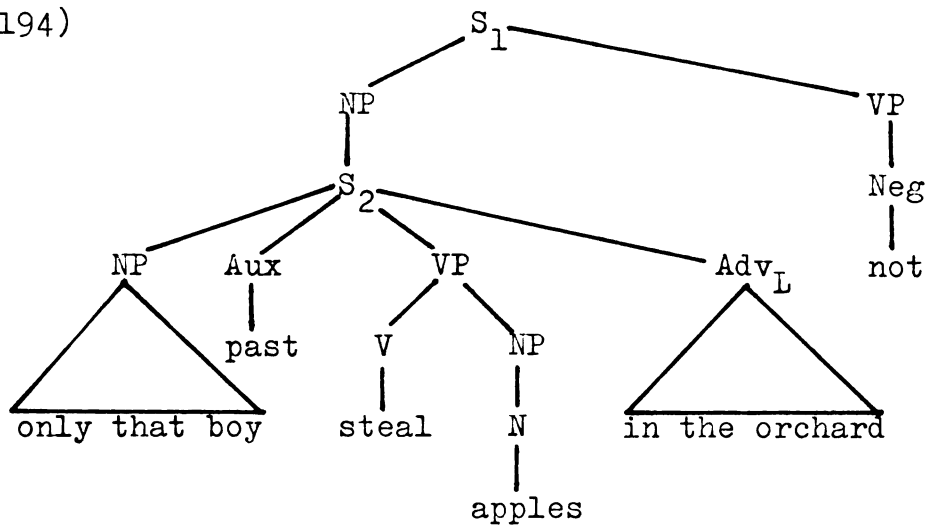
Klima	Jackendoff	Our Analysis
Sentence Neg.	Sentence Neg.	Sentential Neg.
	Verb Phrase Neg.	Verb-phrase Neg.

Thus, Klima's sentence negation includes Jackendoff's verb phrase negation and Jackendoff's sentence negation includes part of our verb-phrase negation. In addition, our sentential negation is different from both of their sentence negation in that it is generated outside the sentence which

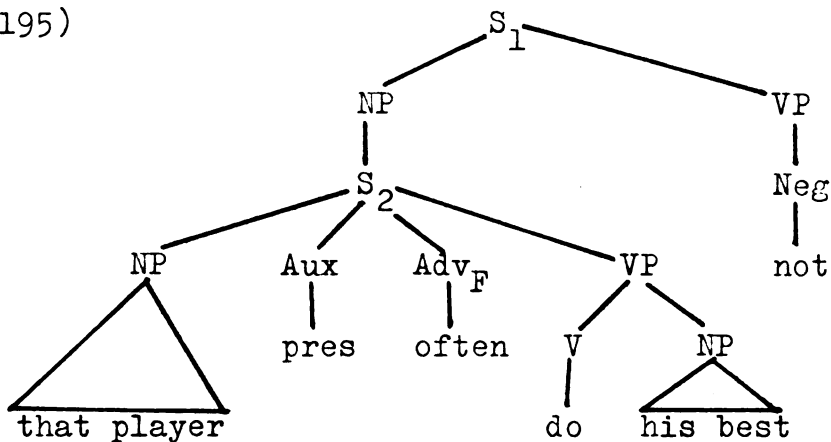
it negates in underlying structure, while their sentence negation is derived inside the sentence which it negates.

Now, let us return to the sentences in (2.188) and (2.189). Under our analysis, sentences (2.188a) and (2.188b) are derived from the underlying structure (2.194), whereas sentences (2.189a) and (2.189b) are derived from (2.195) with unnecessary details aside:

(2.194)



(2.195)



The structure (2.194) indicates that since the scope of not is  $S_1$ , only is included in its scope. This accounts for the fact that in (2.188a) and (2.188b) only is included in the



scope of not, as opposed to (2.188c) in which only is outside the scope of not.<sup>20</sup> Similarly, the structure (2.195) indicates that often is in the scope of not, reflecting the fact that in (2.189a) and (2.189b) often is included in the scope of not, unlike (2.189c) in which often is outside the scope of not.<sup>21</sup>

Now, considering the derivation of (2.188b) from (2.194) and that of (2.189b) from (2.195), they require the attaching of not to only and often, respectively, as well as the raising of  $S_2$  into  $S_1$ . The point here is that this attaching of not can be taken care of by the Negative-attachment rule in (2.185), if it is slightly revised to:

$$(2.196) \text{ a. } X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \end{array} \right\} Y \text{ Neg} \longrightarrow$$

$$X \text{ Neg+} \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \end{array} \right\} Y$$

$$\text{b. (=2.185b) } X \quad V \quad Y \quad \text{Neg} \longrightarrow \\ X \quad \text{Neg+V} \quad Y$$

where X and Y are variables, and X contains no Neg, Quant,  $\text{Adv}_F$  or  $\text{Adv}_N$  such as only

The fact that Negative-attachment is necessary to account for the synonymy of (2.188b) with (2.188a), and (2.189b) with (2.189a) demonstrates that this transformation is not restricted to examples involving quantifiers and negation. Moreover, examples such as (2.188b) and (2.189b) further serve to confirm the independent motivation of

## Sentence-raising.

The remarkable difference between Negative-attachment in Japanese and that in English is that a negative is always attached to a verb (including an adjective and a copula) in Japanese, while in English it is attached primarily to a quantifier, then to a verb if there is no quantifier preceding the verb. But it should be recalled that in Japanese a contrastive wa is attached to a quantifier before the application of Negative-attachment. Thus, the following parallel is observed between them:

(2.197) a. Japanese:

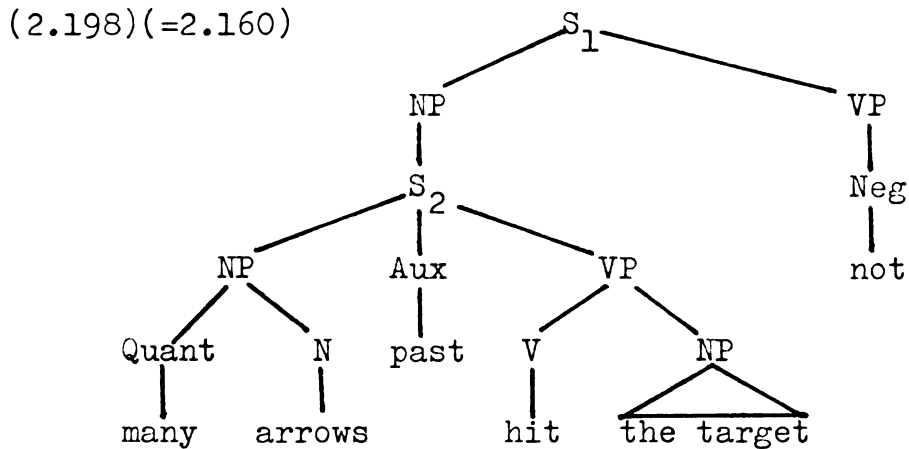
- i. [ . . . Quant . . . wa ]<sub>S</sub> →  
     [ . . . Quant+wa . . . ]<sub>S</sub>
- ii. [ . . . Quant+wa . . . V . . . Neg ]<sub>S</sub> →  
     [ . . . Quant+wa . . . V+Neg . . . ]<sub>S</sub>

b. English:

- [ . . . Quant . . . V . . . Neg ]<sub>S</sub> →  
     [ . . . Neg+Quant . . . V . . . ]<sub>S</sub>

In Japanese, only after wa is attached to a quantifier as in (2.197a.i) can a negative be attached to a verb preceded by a quantifier as in (2.197a.ii). In English, on the other hand, a negative must be attached to a pre-verbal quantifier as in (2.197b); a negative cannot be attached to a verb preceded by a quantifier. This restriction in English may be compared with the restriction in Japanese that wa must be attached beforehand to a quantifier so that a negative can be attached to a verb preceded by a quantifier.

It is now time to turn to the underlying structure (2.160), which will be repeated here for convenience:



This structure will be generated by the above base rule (2.190). In particular, it is important to note that negation in (2.198) is derived by the rule (2.190b), not the rule (2.190c). It should also be noticed that the underlying structure (2.198) does not contain it preceding the embedded sentence: we assume, following Fillmore (1968) and Langendoen (1969), that the expletive it does not exist in underlying structure, though Rosenbaum's (1967) argument is based on its presence in deep structure. In this connection, one linguistic fact may be mentioned: in Japanese there is no equivalent of this English it at all.<sup>22</sup> Moreover, the structure (2.198) involves the assumption given in G. Lakoff (1965), Fillmore (1968) and others that a copula is not present in underlying structure but is transformationally inserted as a kind of tense-carrier. In this connection, it may be mentioned that in Japanese a copula does not appear with ordinary predicate adjectives,

as discussed in section 2.6.

Now, let us consider the derivation of sentence (2.159a), repeated here as (2.199) for convenience:

(2.199)(=2.159a) [It is not so [that many arrows hit  
the target]<sub>S</sub>]<sub>S</sub>

The derivation of (2.199) from (2.198) must involve the insertion of it, is and so as well as the extraposition of the embedded sentence (as in Rosenbaum (1967)). Here, it should be recalled that the parallel derivation of the Japanese correspondent of (2.199), namely, (2.159b), must also involve the insertion of the copula da "is," as discussed in section 2.6, though the equivalents of it and so are not inserted: there is no equivalent of it at all in Japanese, as mentioned in footnote 17, and the insertion of so does not seem to be obligatory even in the derivation of English (2.199) and other similar sentences.<sup>23</sup>

Summarizing so far, we have argued that sentences such as (2.157a) and (2.159a) are derived from the same underlying structure, and that the transformations necessary for the derivation of sentences like (2.157a) are independently motivated in English grammar.

This analysis, if adopted, may solve some of the problems noted in section 1.2 of Chapter I, namely, problems A through D. Let us examine each:

A. According to our analysis, sentences (1.5) and (1.6), repeated here as (2.200) and (2.201), will be derived from the underlying structures (2.202) and (2.203),

respectively:

(2.200)(=1.5) Not many arrows hit the target.

(2.201)(=1.6) Many arrows did not hit the target.

(2.202) [[[[many arrows]<sub>NP</sub> [past]<sub>Aux</sub> [[hit]<sub>V</sub> [the target]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

(2.203) [[many arrows]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [hit]<sub>V</sub> [the target]<sub>NP</sub>]<sub>VP</sub>]<sub>S</sub>

It is important to note that the negation in (2.202) is derived by the base rule (2.190b), while that in (2.203) is derived by the rule (2.190c). Thus, the semantic difference between (2.200) and (2.201) can be explained by the relevant difference of their underlying structures, in particular, the sentential negation in (2.202) versus the verb-phrase negation in (2.203).

Similarly, sentences (1.8), (1.9) and (1.10), repeated here as (2.204), (2.205) and (2.206), will have the underlying structures (2.207), (2.208) and (2.209), respectively, under our analysis:

(2.204)(=1.8) The police did not arrest many demonstrators.

(2.205)(=1.9) Many demonstrators were not arrested by the police.

(2.206)(=1.10) Not many demonstrators were arrested by the police.

(2.207) [[[[[the police]<sub>NP</sub> [past]<sub>Aux</sub> [[arrest]<sub>V</sub> [many demonstrators]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>



(2.208) [[the police]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [arrest]<sub>V</sub>  
 [many demonstrators]<sub>NP</sub>]<sub>VP</sub>]<sub>S</sub>

(2.209)(=2.207) [[[[the police]<sub>NP</sub> [past]<sub>Aux</sub> [[arrest]<sub>V</sub>  
 [many demonstrators]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

We note that the structure underlying sentence (2.204) is the same as that underlying sentence (2.206), but is different from that underlying sentence (2.205). This provides an explanation for the fact that (2.204) is synonymous with (2.206), but not with (2.205).

B. The counter-example of the first type may be accounted for within our framework. For instance, sentence (1.11), repeated here as (2.210), will have the underlying structure (2.211) in our analysis:

(2.210)(=1.11) The arrows that did not hit the target  
 were many.

(2.211) [[[[the arrows]<sub>NP</sub> [arrows past not hit the  
 target]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [past]<sub>Aux</sub> [[many]<sub>Quant</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

In (2.211) the quantifier many in the higher sentence includes the negative not in its scope. Thus, sentence (2.210) is synonymous with sentence (1.6), repeated above as (2.201), in which many includes the negative in its scope.

The second type of counter-example, in which the quantifier in question has extra heavy stress, cannot be explained in our analysis given so far.

C. This analysis does not involve the application of

Quantifier-lowering, but rather Sentence-raising and other transformations which are all independently motivated, as demonstrated above.

- D. Our underlying structures for sentences with negation and quantifiers are not as ad hoc as the generative semanticists' (e.g. G. Lakoff's), since the underlying structures and their corresponding surface structures are related by means of transformations independently motivated in both Japanese and English.

But there are still a few problems which remain unsolved in this analysis. To start with, consider and compare the underlying structures (2.202) and (2.203) once more. The proposed analysis cannot block the application of Passivization to (2.203) underlying (2.201) to yield sentence (1.7), repeated here as (2.212), in spite of the fact that (2.212) is not synonymous with (2.201):

(2.212)(=1.7) The target was not hit by many arrows.

Similarly, this analysis is not satisfactory in that when Passivization does not apply to (2.208) underlying (2.205), the resulting sentence is (2.204), though (2.204) is not synonymous with (2.205); only when Passivization applies to (2.208) will sentence (2.205) be generated, as desired.

These considerations lead us to the conclusion that (2.203) is not an acceptable underlying structure for (2.201), and neither is (2.208) for (2.205). Thus, the proposed analysis is not complete by itself but needs to be

supplemented by a fuller analysis of quantifiers.

## 2.9. A Proposed Analysis of Quantifiers with Respect to Negation

Since the proposed analysis of negation needs to be supplemented by a fuller analysis of quantifiers, we may now proceed to consider and propose an analysis of quantifiers with respect to negation. The analysis of quantifiers to be proposed will be based on the similarities between quantifiers and negatives.<sup>24</sup>

### 2.9.1. A Proposed Analysis of Quantifiers in Japanese

In discussing negation with respect to quantifiers in section 2.5, we have mentioned that minna "all" in sentence (2.214) is included in the scope of negation, as contrasted with minna "all" in (2.213) which is not included in the scope of negation:

(2.213)(=2.71) sono kurasu no gakusei ga minna sono  
 the class in student all that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did  
 'All the students in the class did not  
 respect that teacher.'

(2.214)(=2.70) sono kurasu no gakusei ga minna wa sono  
 the class in student all that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did  
 'Not all the students in the class  
 respected that teacher.'

If our analysis of negation is acceptable (in particular, if the negation in (2.214) has originated from a higher sentence), then the logical extension of this analysis permits us to derive minna "all" in (2.213) from a higher sentence. This analysis of negation results from the observation that the scope of negation is the whole sentence in which it occurs, as noted in (2.18). It follows from this that if a constituent is not included in the scope of negation, it is outside the sentence containing the negation. Therefore, if sentence (2.213) is not synonymous with (2.215) involving the negation in a higher sentence which includes the quantifier in its scope, it is because minna "all" in (2.213) is not included in the scope of negation:

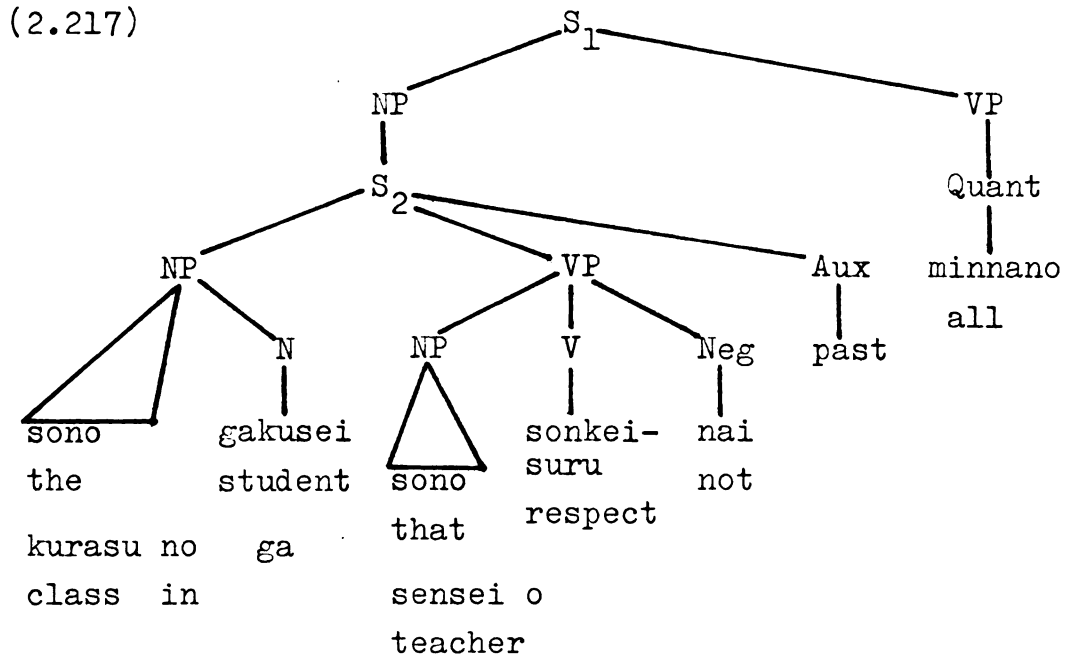
(2.215)(=2.72) [[sono kurasu no gakusei ga minna sono  
the class in student all that  
sensei o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
teacher respected that is not  
'It is not so that all the students in  
the class respected that teacher.'

This is clearly confirmed by the fact that (2.213) may be synonymous with (2.216), in which the quantifier subeteno "all" is outside the sentence containing the negative:

(2.216) [[sono sensei o sonkeisi nakatta no]<sub>S</sub> wa sono  
that teacher respect not-did that the  
kurasu no subeteno gakusei datta]<sub>S</sub>  
class in all student was  
'Lit. It was all the students in the class that  
did not respect that teacher.'

In (2.216) the quantifier, which occurs in a higher sentence than the negative, is outside the scope of the negative. Now, the synonymy of (2.213) with (2.216) along with the non-synonymy of (2.213) with (2.215) suggests that the quantifier minna "all" in (2.213) occurs in the underlying structure not only outside the sentence containing the negation but also in a sentence higher than the negation.

From the foregoing argument it follows that if our analysis of negation--based on the constraint that the scope of negation is the whole sentence in which it occurs--is acceptable, the underlying structure for sentence (2.213) will be (2.217) with unnecessary details aside:



This underlying structure indicates that since the scope of the negative is  $S_2$ , the quantifier is outside of its scope. The quantifier minnano "all" may be called a sentential quantifier, as opposed to a nominal quantifier such as

minna "all" in (2.214). A sentential quantifier is derived by the rule (2.218b), while a nominal quantifier is derived by the rule (2.218c):

- (2.218) a.(=2.128a)  $S \rightarrow NP VP (Aux) (wa)$   
 b.  $VP \rightarrow Quant$   
 c.  $NP \rightarrow \left\{ \begin{array}{l} (S) (Quant) (Det) N \\ S (NP) \end{array} \right\}$

Rule (2.218b) may be conjoined with rule (2.128b) and (2.128c) into:

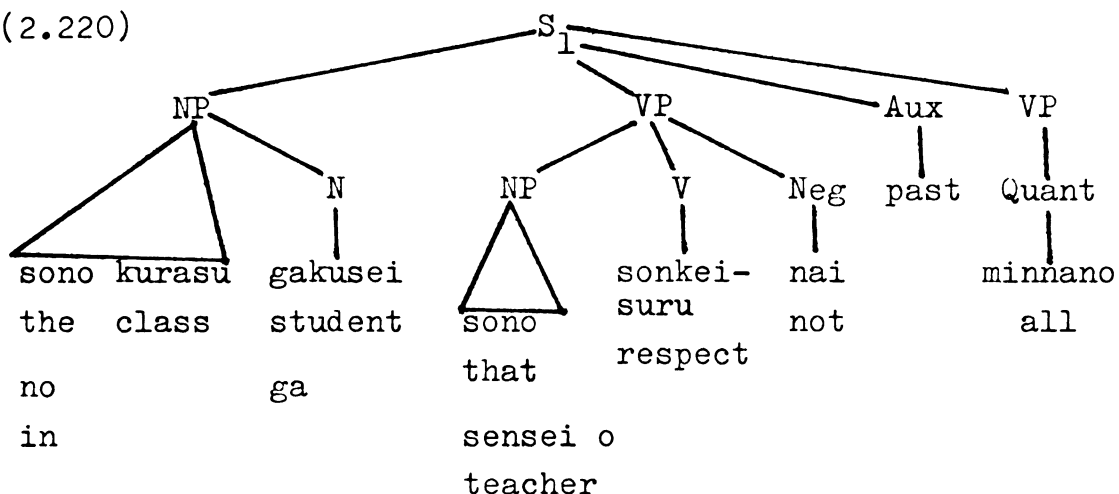
- (2.219)  $VP \rightarrow \left\{ \begin{array}{l} (NP) V (Neg) \\ Neg \\ Quant \end{array} \right\}$

A striking parallel is observed between the relevant rules that derive two types of negation and those that derive two types of quantifiers, namely, between (2.128b) and (2.218b), and (2.128c) and (2.218c).

Turning to the underlying structure (2.217), this structure will go through the following stages to derive sentence (2.213):

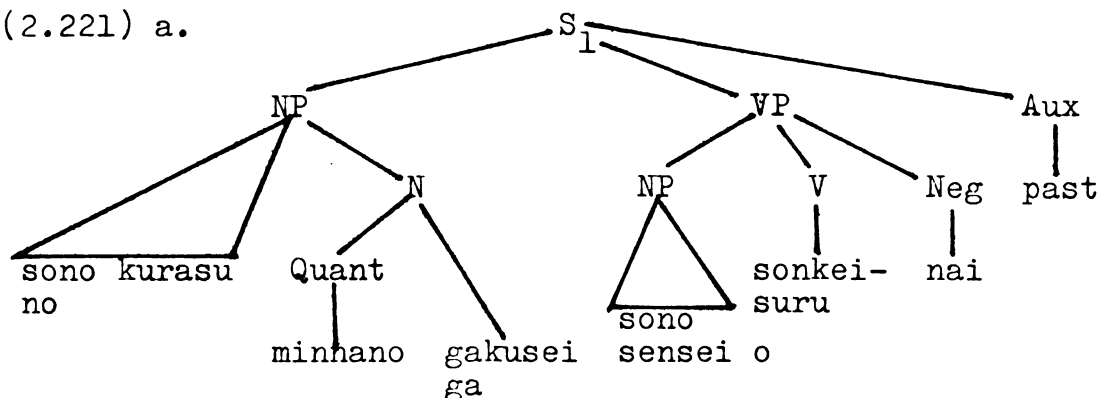
- i. Application of Sentence-raising, giving (2.220) from (2.217):

(2.220)

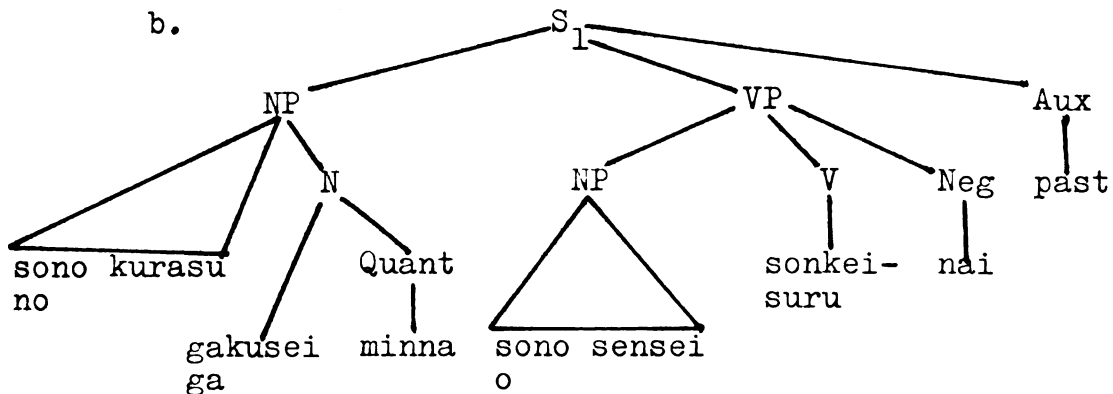


ii. Application of Quantifier-attachment, giving (2.221a) or (2.221b) from (2.220):

(2.221) a.



b.



Turning next to the transformations used in the above derivation, the first one, Sentence-raising, is the same rule

that is used in the derivation of sentences containing sentential negation. To cover the derivation of (2.220) from (2.217), the Sentence-raising rule in (2.180) needs only a slight revision such as:

$$(2.222) \text{ OPT } [ M [ X ]_{S_2} N ]_{S_1} \longrightarrow [ M X N ]_{S_1}$$

where M, N and X are variables, and M or N dominates  $V_{S.T}$  or exhaustively dominates  $\text{Adj}_S$ ,  $\text{Adv}_N$ ,  $\text{Adv}_F$ ,  $\text{Adv}_{R.P}$ , Quant or Neg

A new transformation is Quantifier-attachment, which may be compared with Negative-attachment. As a first approximation, to be revised later on, we may give Quantifier-attachment as:

$$(2.223) \begin{array}{cccccc} X & N & Y & V & Z & \text{Quant} \\ \longrightarrow & & & & & \\ X & \text{Quant+N} & Y & V & Z & \end{array}$$

where X, Y and Z are variables, and X contains no Quant or Neg

We note that in Japanese most quantifiers can not only precede but also follow the nouns which they modify. Thus, the application of Quantifier-attachment to (2.220) gives (2.221a) first, and the optional shift of the quantifier derives (2.221b). The structure (2.221b) generates sentence (2.213), while (2.221a) gives an ungrammatical sentence, such as:



(2.224) \*sono kurasu no minnano gakusei ga sono sensei  
 the class in all student that teacher  
 o sonkeisi nakatta.  
 respect not-did

'All the students in the class did not respect  
 that teacher.'

This is due to the idiosyncrasy of minna "all." If the  
 quantifier is subete "all" in place of minna, it can both  
 precede and follow the nouns which it modifies. Thus, both  
 (2.225a) and (2.225b) are grammatical sentences:

(2.225) a. sono kurasu no subeteno gakusei ga sono  
 the class in all student that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did

'All the students in the class did not  
 respect that teacher.'

b. sono kurasu no gakusei ga subete sono  
 the class in student all that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did

'All the students in the class did not  
 respect that teacher.'

Incidentally, it should be mentioned that a quantifier  
 is not just shifted to a proper place but is attached to a  
 noun in that an attached quantifier and a noun together form  
 a unit of a noun phrase just as an attached negative and a  
 verb make a unit of a verb phrase. This is confirmed by the  
 passive and the reflexive tests which are, according to  
 Jacobs and Rosenbaum (1968), relevant to the discovery of  
 noun phrases, such as:

(2.226)

sono sensei wa sono kurasu no	{	<u>subeteno</u> gakusei	}
that teacher the class in		all student	
		gakusei <u>subete</u>	
		student all	

ni sonkeisare nakatta.

by respected not-was

'By all the students in the class, that teacher was not respected. (= That teacher was not respected by any student in the class.)'

(2.227)

sono kurasu no	{	<u>subeteno</u> gakusei ga	}	zibunzisin
the class in		all student		themselves
		gakusei ga <u>subete</u>		
		student all		

o kitaete iru.

training are

'All the students in the class are training themselves.'

Continuing the discussion of Quantifier-attachment,

let us consider and compare the following pair of sentences:

(2.228) ookuno hitobito ga daigakusei o sinyoosi nakatta.

many	people	college	trust	not-did
		student		

'Many people did not trust college students.'

(2.229) hitobito wa ookuno daigakusei o sinyoosi nakatta.

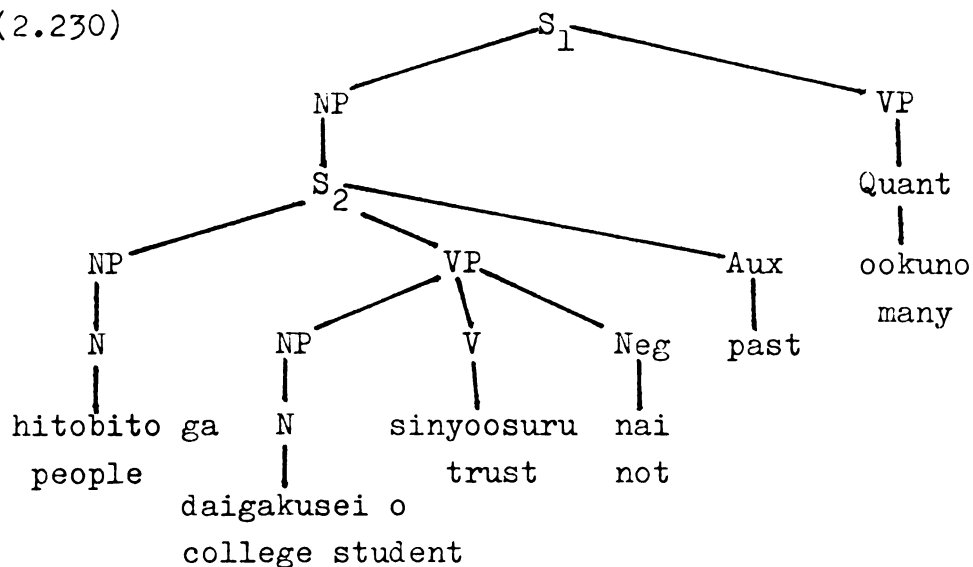
people	many	college	trust	not-did
		student		

'Many college students, people did not trust.'

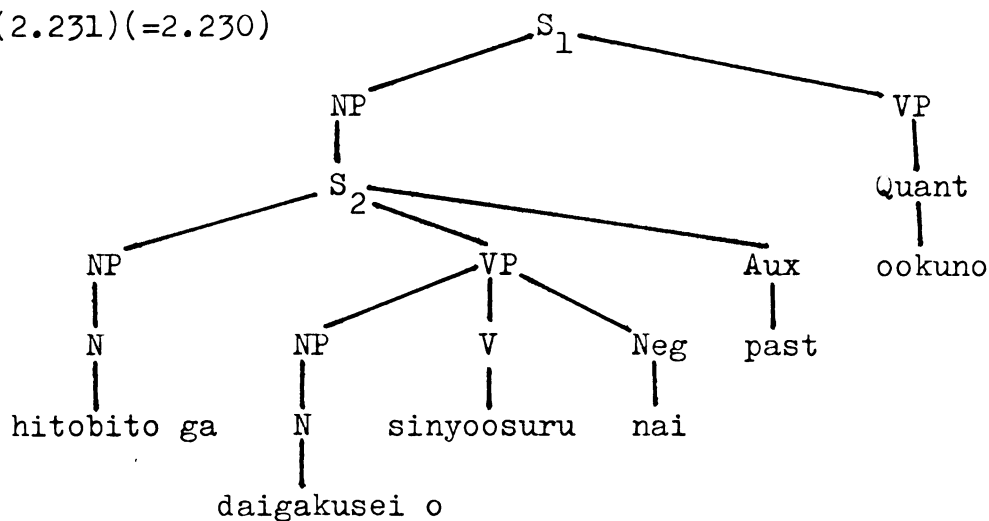
According to this analysis, sentences (2.228) and (2.229)

will be derived from (2.230) and (2.231), respectively:

(2.230)



(2.231)(=2.230)



We note, first of all, that (2.230) and (2.231) are identical. This is clearly a problem since these structures cannot offer an explanation for the semantic difference between sentences (2.228) and (2.229). Now, considering the derivation involving (2.230), after the raising of S<sub>2</sub> into S<sub>1</sub>, Quantifier-attachment correctly assigns ookuno "many" to hitobito "people," giving sentence (2.228). But the trouble is that this Quantifier-attachment rule cannot assign ookuno

"many" to daigakusei "college student" in (2.231) to generate sentence (2.229), since the leftmost constituent combinable with ookuno "many" is hitobito "people," not daigakusei "college student." Thus, there is no chance of sentence (2.229) being generated from (2.231). This poses another problem here.

Moreover, if Passivization optionally applies in the S<sub>2</sub>-cycle of (2.230), the following structure is derived:

(2.232) [[ [daigakusei ga hitobito ni sinyoosare  
college student people by trusted  
nakatta ]<sub>S<sub>2</sub></sub> ]<sub>NP</sub> [ [ookuno ]<sub>Quant</sub> ]<sub>VP</sub> ]<sub>S<sub>1</sub></sub>  
not-were<sub>2</sub> many

Then, Quantifier-attachment attaches ookuno "many" to daigakusei "college student," yielding sentence (2.233), not (2.234), though (2.234), not (2.233), is synonymous with (2.228):

(2.233) ookuno daigakusei ga hitobito ni sinyoosare  
many college student people by trusted  
nakatta.  
not-were

'Many college students were not trusted by people.'

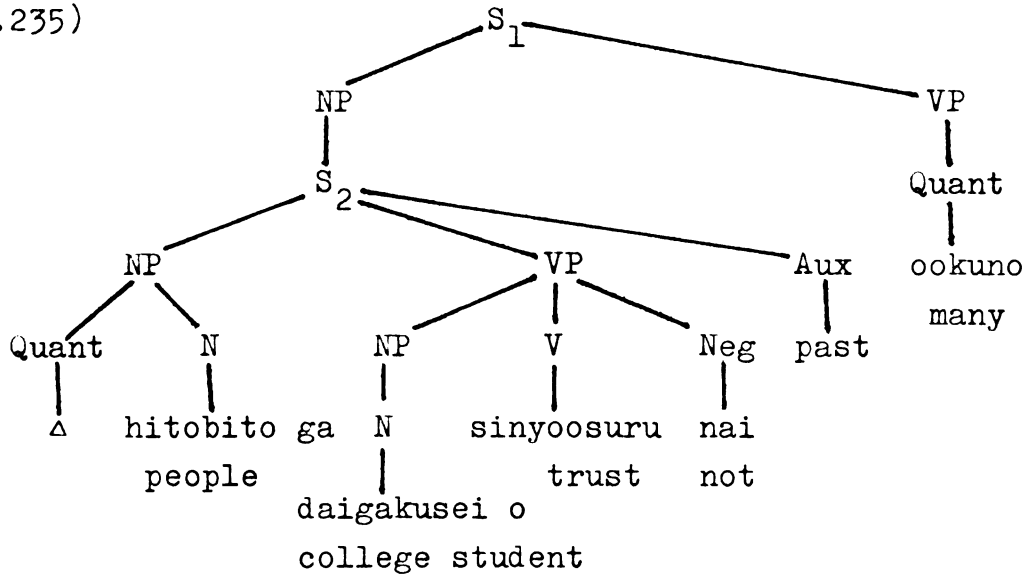
(2.234) daigakusei wa ookuno hitobito ni sinyoosare  
college student many people by trusted  
nakatta.  
not-were

'By many people, college students were not trusted.'

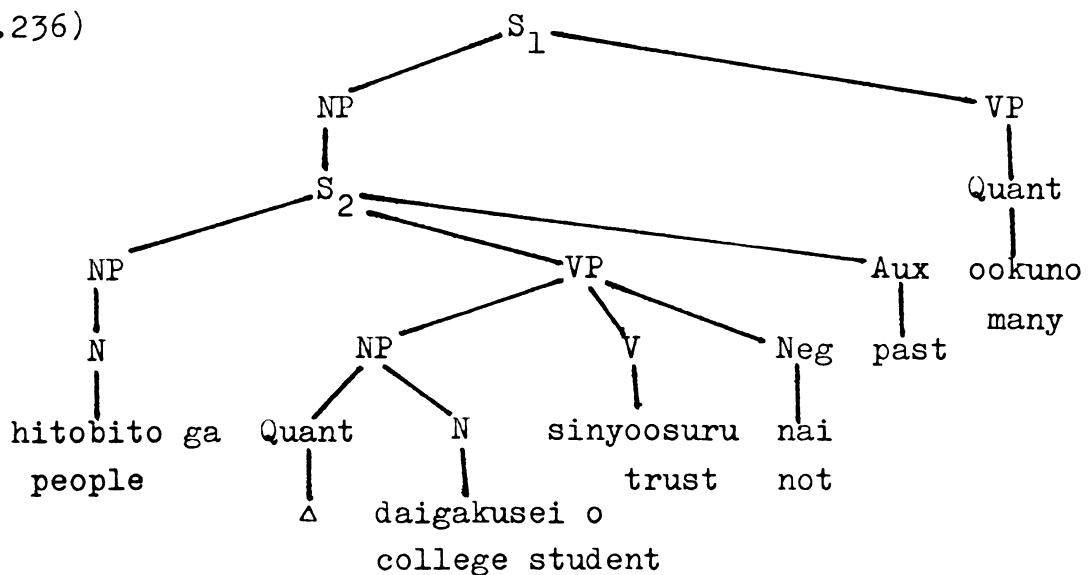
This presents still another problem for the Quantifier-attachment rule in (2.223).

Our suggestion for these problems is to make use of a dummy symbol  $\Delta$ . More specifically, the structures (2.230) and (2.231) underlying (2.228) and (2.229) will be revised to (2.235) and (2.236), respectively:

(2.235)



(2.236)



These structures both indicate that the quantifier ookuno is outside the scope of negation. What is more, the relevant difference between (2.235) and (2.236) can provide an

explanation for the semantic difference between sentences (2.228) and (2.229). Thus, the use of  $\Delta$  solves the first problem noted above regarding (2.230) and (2.231).

Furthermore, the use of  $\Delta$  is not unique here, but is used not infrequently in the theory of transformational grammar. Chomsky (1970a, 203), for instance, suggests that the underlying structure for passives is NP-Aux-V-NP-by  $\Delta$ , where by  $\Delta$  is an agent phrase and the first step of the passive operation is to replace  $\Delta$  by the subject noun phrase. Chomsky (1970a, 204) further argues that agent-postposing is simply a generalization of one of the components of the passive transformation: for instance, if agent-postposing applies to the enemy-destruction-of the city-by  $\Delta$ , it derives the-destruction of the city-by the enemy. In addition, Chomsky (1970a:197-198, 209) proposes that sentences such as the question is whether John should leave and the prospects are for peace derive from the structure [ Det N Comp ]<sub>NP</sub> be [  $\Delta$  ]<sub>Pred</sub> by replacement of the unspecified predicate  $\Delta$  by the complement of the subject noun, and that this underlying structure involving  $\Delta$  is motivated as the matrix structure for sentences such as what John did was hurt himself, which might be derived from [ it that John hurt John ]<sub>NP</sub> be [  $\Delta$  ]<sub>Pred</sub>. Adopting this analysis, Akmajian (1970, 30), in discussing pseudo-cleft sentences, posits Extraction Rule such as:

$$[ \text{S} [ \text{X} - \text{A} - \text{Y} ]_{\text{S}} \text{be} [ \Delta ] ] \longrightarrow [ \text{S} [ \text{X} - [+PRO,+WH] - \text{Y} ]_{\text{S}} \text{be} [ \text{A} ] ]$$

Moreover, Bresnan (1970, 300) notes that "Chomsky (1967, 33) suggests that the underlying structure for John broke his arm, where his indicates inalienable possession, is John broke  $\Delta$ 's arm. A copying transformation would fill in  $\Delta$  with John and ultimately he." Thus, the dummy symbol  $\Delta$  generally occurs in underlying structure and is later filled in by the application of a relevant transformation.

Now, the use of  $\Delta$  necessitates the revision of Quantifier-attachment to the operation of replacing  $\Delta$  by a quantifier, or put differently, attaching a quantifier to  $\Delta$ . Thus, the Quantifier-attachment rule in (2.223) will have to be revised to:

$$(2.237) \quad X \quad [ \Delta \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y \quad \text{Quant} \longrightarrow \\ X \quad [ \text{Quant} \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y$$

where X and Y are variables, and X contains no Quant or Neg

Notice that Quantifier-attachment is not a transformation that inserts morphological material into a lower sentence, since Sentence-raising, applied beforehand, raises a sentence containing the unspecified quantifier  $\Delta$  into a higher sentence containing the quantifier to be attached.

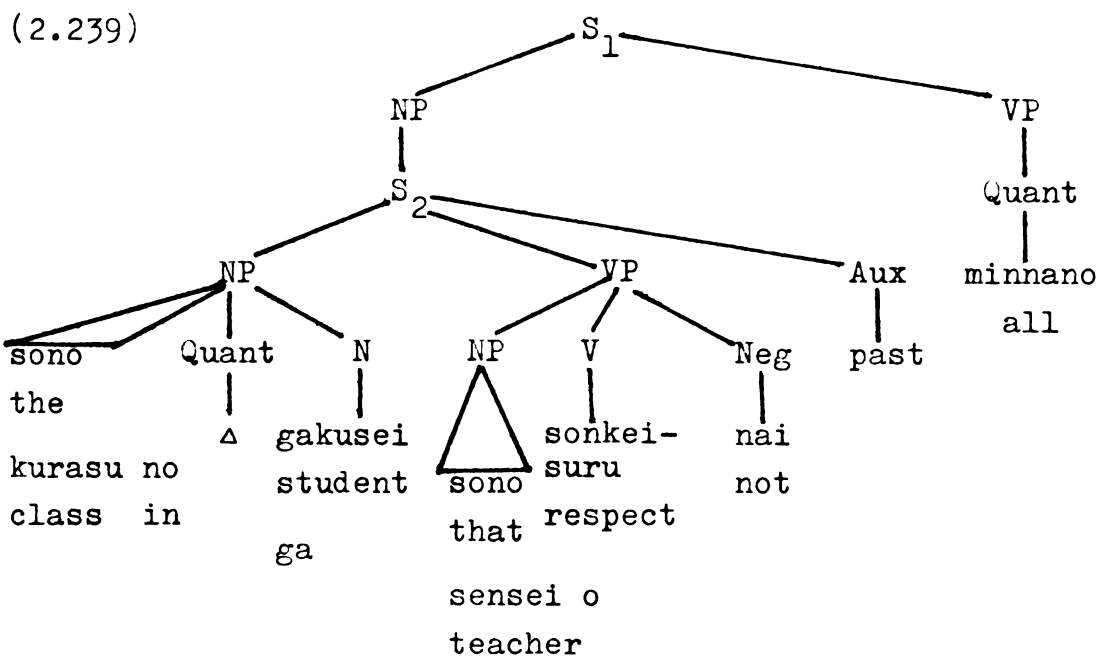
Turning to the derivation of (2.228) and (2.229) from (2.235) and (2.236), after  $S_2$  is raised into  $S_1$ , the Quantifier-attachment rule in (2.237) attaches the quantifier ookuno "many" to  $\Delta$  in (2.235) and (2.236), deriving (2.228) and (2.229), respectively. Thus, the revised Quantifier-attachment rule along with the use of  $\Delta$  solves the second

problem noted above regarding the derivation of (2.229). In addition, even if Passivization applies to (2.235), the resulting structure is as follows:

(2.238) [[daigakusei ga  $\Delta$  hitobito ni sinyoosare  
college student people by trusted  
nakatta]<sub>S<sub>2</sub></sub> ]<sub>NP</sub> [[ookuno]<sub>Quant</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>  
not-were<sub>2</sub> many

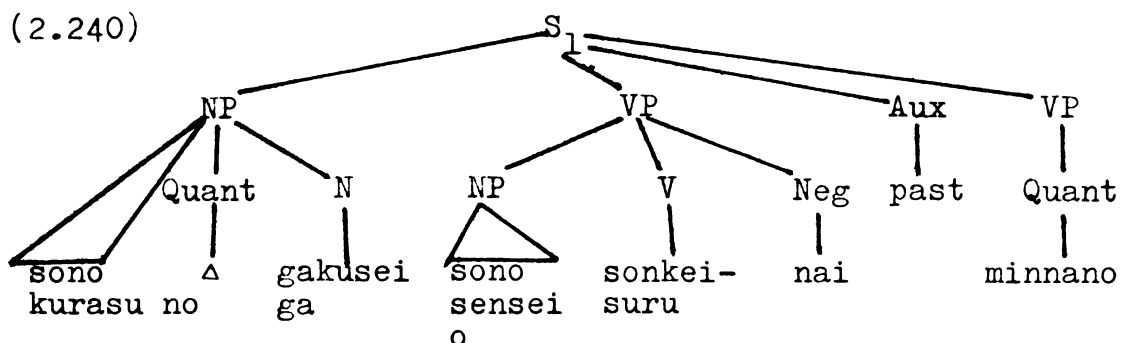
Then, the quantifier ookuno "many" is attached to  $\Delta$ , deriving sentence (2.234). In this way, the use of  $\Delta$  together with Quantifier-attachment in (2.237) solves all the above-noted problems in a natural way.

The use of  $\Delta$  and the revision of Quantifier-attachment also necessitate the corresponding revision of the underlying structure (2.217) to (2.239):



Applying Sentence-raising to (2.239), we derive (2.240) rather than (2.220):





Then, the application of Quantifier-attachment derives (2.221a) first and the optional shift of the quantifier yields (2.221b), as desired.

Our next step is to show that Quantifier-attachment is not an ad hoc transformation that may be applied only in the derivation of sentences containing a quantifier and negation. To illustrate with a concrete example, let us observe the following:

(2.241) [Mary dake ga yakusoku o mamora nakatta]<sub>S</sub>  
           only       promise       keep not-did

'Only Mary did not keep her promise.'

(2.242) [[Mary dake ga yakusoku o mamotta wake]<sub>S</sub> de  
           only       promise       kept that is

wa nai]<sub>S</sub>  
      not

'It is not so that only Mary kept her promise.'

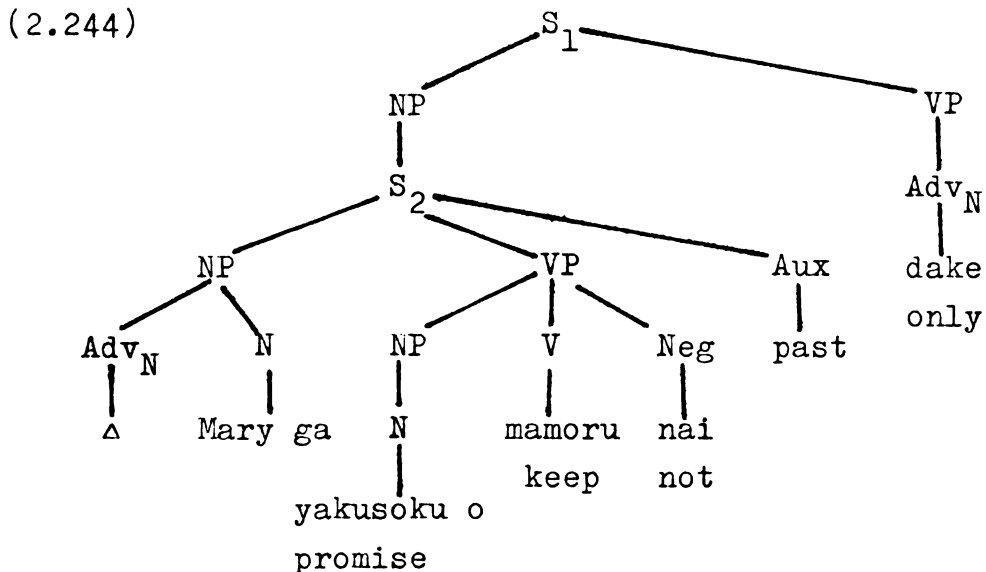
We note first that sentence (2.241) is not synonymous with (2.242). We further note that in (2.242) the negative nai includes in its scope the lower sentence containing the nominal adverbial dake "only." The non-synonymy of (2.241) with (2.242) indicates that dake in (2.241) is

outside the scope of negation, and that as the scope of negation is the whole sentence in which it occurs, dake "only" has originated from a higher sentence in the underlying structure. This is clearly confirmed by the fact that sentence (2.241) may be synonymous with (2.243), in which dake is in a higher sentence than the negative:

(2.243) [[yakusoku o mamora nakatta no]<sub>S</sub> wa Mary  
 promise keep not-did that  
dake da]<sub>S</sub>  
 only is

'Lit. It is only Mary that did not keep her promise.'

If this line of argumentation is acceptable, it follows that sentence (2.241) has the underlying structure of the following form:



This structure indicates that the nominal adverbial dake is outside the scope of negation. After raising S<sub>2</sub> into S<sub>1</sub>, we need a transformation to attach dake to Δ, giving sentence

(2.241). But we note here that this operation is essentially the same as that of Quantifier-attachment in (2.237). Thus, to take care of the attaching of dake "only" to  $\Delta$  we need no new rule but a slight revision of Quantifier-attachment such as:

$$(2.245) \quad X \quad [ \Delta \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \rightarrow \\ X \quad [ \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} (\text{Det}) \quad N ]_{\text{NP}} \quad Y$$

where X and Y are variables, and X contains no Quant, Adv<sub>N</sub> or Neg

Now, this rule can be used to attach the nominal adverbial dake to  $\Delta$ , deriving sentence (2.241).<sup>25</sup> Furthermore, it may be mentioned here that nominal adverbials are attached to the unspecified nominal adverbial  $\Delta$  in that an attached nominal adverbial and a noun or a noun phrase together form a unit of a noun phrase. This can be proved by the passive and the reflexive tests in a way quite similar to the case of quantifiers (see (2.226) and (2.227)).

The foregoing discussion demonstrates that Quantifier-attachment is, at least, not ad hoc in that it may be applied to nominal adverbials in addition to quantifiers. Furthermore, this transformation may be applied, unchanged, to English as well, as will be discussed in section 2.9.2, and this fact will further increase the independent motivation of this transformation.

Amplifying the discussion of Quantifier-attachment, we

may go on to consider the following examples in which two quantifiers are involved in a sentence:<sup>26</sup>

(2.246) ookuno seito ga zyugyoo de hutatuno subako  
 many pupil class in two nest box  
 o tukutta.  
 made

'Many pupils made two nest boxes in the class.'

(2.247) hutatuno subako ga zyugyoo de ookuno seito  
 two nest box class in many pupil  
 niyotte tukurareta.  
 by were made

'Two nest boxes were made by many pupils in the class.'

We observe first that sentence (2.246), in its primary reading, is synonymous with (2.248), but not with (2.249), while sentence (2.247), in its primary reading, is synonymous with (2.249), not (2.248):

(2.248) [[[zyugyoo de hutatuno subako o tukutta]<sub>S</sub>  
 class in two nest box made  
 seito ga]<sub>NP</sub> ooku ita]<sub>S</sub>  
 pupil many were

'Lit. The pupils who made two nest boxes in the class were many.'

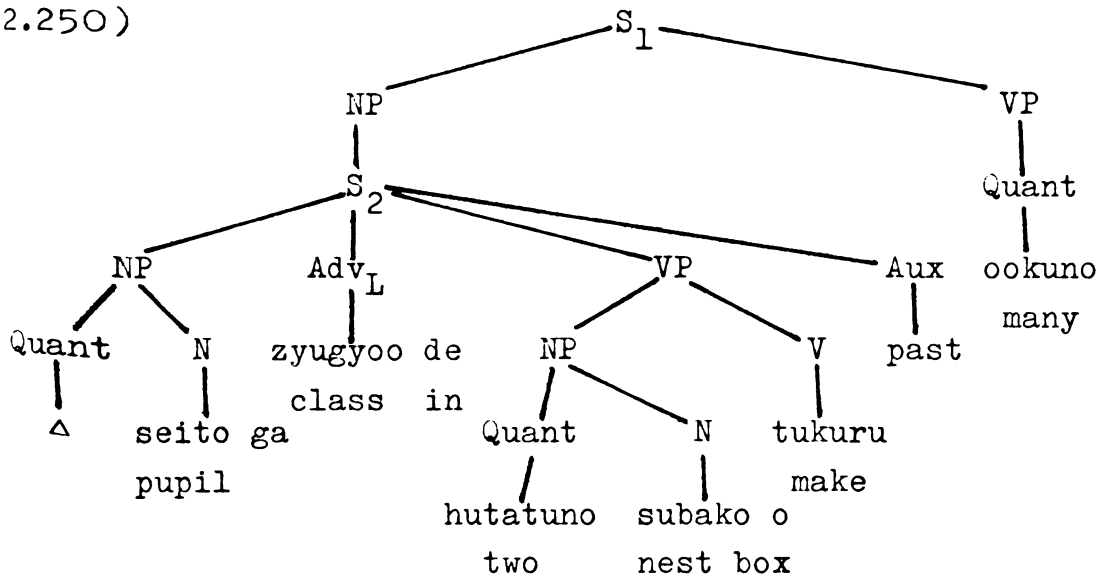
(2.249) [[[zyugyoo de ookuno seito ga tukutta]<sub>S</sub> subako  
 class in many pupil made nest box  
 wa]<sub>NP</sub> hutatu da(tta)]<sub>S</sub>  
 two are(were)

'Lit. The nest boxes that many pupils made in the class are (were) two (in number).'

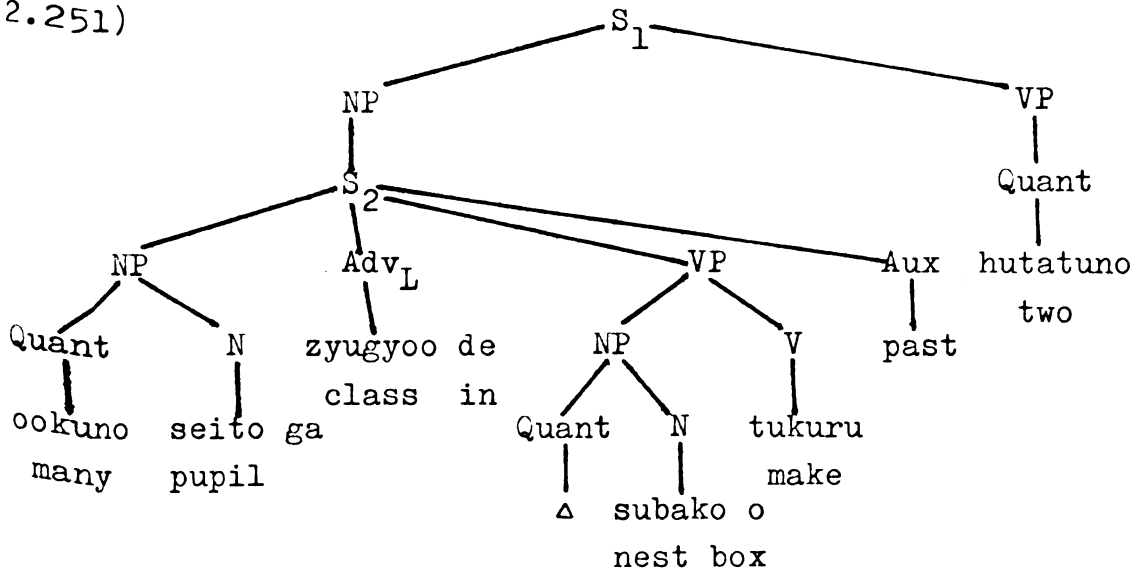
We see that in (2.248) hutatuno "two" cannot include ooku

"many" in its scope, since the latter occurs in a higher sentence than the former, and the opposite is the case with (2.249). The synonymy of (2.246) with (2.248) and that of (2.247) with (2.249) lead us to set up (2.250) and (2.251) as the underlying structures for (2.246) and (2.247), respectively:

(2.250)



(2.251)



It is important to note that these underlying structures

are based on the following hypothesis:

- (2.252) The scope of a quantifier is the whole sentence  
in which it occurs.

To show the validity of (2.250) and (2.251), therefore, we must **verify** this hypothesis. In this connection, let us **consider** the following:

- (2.253) ookuno seito ga zyugyoo de subako o tukutta.  
many pupil class in nest box made  
'Many pupils made nest boxes in the class.'

Sentence (2.253) is synonymous with sentence (2.254), which is in turn derived from (2.255):

- (2.254) [[[zyugyoo de subako o tukutta]<sub>S</sub> seito ga]<sub>NP</sub>  
class in nest box made pupil  
ooku ita]<sub>S</sub>  
many were  
'Many were the pupils who made nest boxes in  
the class.'

- (2.255) [[[seito ga zyugyoo de subako o tukutta]<sub>S</sub>  
pupil class in nest box made  
seito ga]<sub>NP</sub> ooku ita]<sub>S</sub>  
pupil many were

In the structure (2.255) underlying (2.254) the quantifier ooku "many" includes in its scope the lower sentence [seito ga zyugyoo de subako o tukutta]<sub>S</sub> (= pupils made nest boxes in the class). Then, the synonymity of (2.253) with (2.254) suggests that ookuno "many" in (2.253) also includes in its scope the whole sentence [seito ga zyugyoo de subako o tukutta]<sub>S</sub> (= pupils made nest boxes in the class). Thus, it is shown that hypothesis (2.252) is true of sentence



(2.253) .

To take another example, let us consider (2.256):

(2.256) [seito ga zyugyoo de hutatuno subako o tukutta]<sub>S</sub>  
 pupil class in two nest box made  
 'Pupils made two nest boxes in the class.'

We observe that (2.256) is synonymous with sentence (2.257), which is in turn derived from (2.258):

(2.257) [[[seito ga zyugyoo de tukutta]<sub>S</sub> subako wa]<sub>NP</sub>  
 pupil class in made nest box  
hutatu da(tta)]<sub>S</sub>  
 two are(were)

'Lit. The nest boxes that the pupils made in the class are (were) two (in number).'

(2.258) [[[seito ga zyugyoo de subako o tukutta]<sub>S</sub>  
 pupil class in nest box made  
 subako ga]<sub>NP</sub> hutatu da(tta)]<sub>S</sub>  
 nest box two are(were)

In the structure (2.258) underlying (2.257) the quantifier hutatu "two" includes in its scope the lower sentence [seito ga zyugyoo de subako o tukutta]<sub>S</sub> (= pupils made nest boxes in the class), and the synonymy of (2.256) with (2.257) indicates that hutatuno "two" in (2.256) also includes in its scope the whole sentence in which it occurs, namely, [seito ga zyugyoo de subako o tukutta]<sub>S</sub> (= pupils made nest boxes in the class). Thus, we see that hypothesis (2.252) is also applicable to sentence (2.256). This can be easily extended to other similar sentences containing quantifiers. In this way, hypothesis (2.252) can be established as a linguistic fact observed in Japanese.



Now, let us return to underlying structures (2.250) and (2.251). Based on the above-established fact--the scope of a quantifier is the whole sentence in which it occurs--these structures indicate that the quantifier in  $S_1$  is outside the scope of the quantifier in  $S_2$ . More specifically, in (2.250) the scope of hutatuno "two" is  $S_2$  and ookuno "many" in  $S_1$  is outside of its scope, whereas in (2.251) the scope of ookuno is  $S_2$  and hutatuno in  $S_1$  is outside of its scope. This relevant difference reflects the semantic difference between the sentences derived from them.

Now, it is time to consider the derivation of (2.246) and (2.247) from (2.250) and (2.251), respectively. Taking (2.250) first, if no moving transformation applies in the  $S_2$ -cycle, Quantifier-attachment applies, after the raising of  $S_2$  into  $S_1$ , to assign ookuno to  $\Delta$ , giving sentence (2.246). But if Passivization applies in the  $S_2$ -cycle of (2.250), the resulting structure is as follows:

(2.259) [[ [hutatuno subako ga zyugyoo de  $\Delta$  seito niyotte  
           two nest box class in pupil by  
           tukurareta] $_{S_2}$  ] $_{NP}$  [[ookuno] $_{Quant}$ ] $_{VP}$ ] $_{S_1}$   
           were made                   many

Then, Quantifier-attachment cannot apply since the structure (2.259) does not satisfy the condition of Quantifier-attachment in that the unspecified quantifier  $\Delta$  follows another quantifier hutatuno "two." In this way, Quantifier-attachment can explain why there is no passive counterpart of (2.246), derived from the same underlying structure,

(2.250).

Turning next to the derivation of (2.247) from (2.251), if no moving transformation applies in the  $S_2$ -cycle, the application of Quantifier-attachment is blocked, because the unspecified quantifier  $\Delta$  follows another quantifier ookuno "many." If, on the other hand, Passivization applies to (2.251), the resulting structure is as follows:

(2.260) [[ $\Delta$  subako ga zyugyoo de ookuno seito niyotte  
 nest box class in many pupil by  
 tukurareta] $_{S_2}$ ] $_{NP}$  [[hutatuno] $_{Quant}$ ] $_{VP}$ ] $_{S_1}$   
 were made two

Then, Quantifier-attachment can apply, after  $S_2$  is raised into  $S_1$ , deriving sentence (2.247). In this case again, the Quantifier-attachment rule can explain why there is no non-passive counterpart of (2.247), derived from the underlying structure (2.251).

The discussion of sentences (2.246) and (2.247) demonstrates that Quantifier-attachment can correctly block the derivation of (2.247) from the structure underlying (2.246) as well as the derivation of (2.246) from the structure underlying (2.247), and by so doing it can explain why there is no passive counterpart of (2.246) nor non-passive counterpart of (2.247). Furthermore, in our analysis in terms of the Quantifier-attachment rule, Passivization remains optional and meaning-preserving.

2.9.2. The Application of the Proposed Analysis to English Quantifiers

Our particular interest in this section is to apply the above analysis of Japanese quantifiers to English ones and to demonstrate additionally the validity of the analysis.

To start with, recall that in section 2.8 we proposed the constraint (2.150), repeated here as (2.261), as a linguistic universal:

- (2.261)(=2.150) Negation, whether sentential or verb-phrase, may include in its scope the whole sentence in which it occurs.

Next, noting the fact that quantifiers have some similarities to negatives (see footnote 24), we attempt to formulate the counterpart of (2.261) for quantifiers. In this connection, consider the following example:

- (2.262) Many students took the examination today.

Sentence (2.262) may be synonymous with sentence (2.263), which is in turn derived from (2.264):

- (2.263) Many were the students who took the examination today.

- (2.264) [many were [the students [students took the examination today]<sub>S</sub>]<sub>NP</sub>]<sub>S</sub>

In (2.264) the quantifier many includes in its scope the lower sentence [students took the examination today]<sub>S</sub>, and the synonymy of (2.262) with (2.263) indicates that many in (2.262) also includes in its scope the whole sentence, [students took the examination today]<sub>S</sub>. Thus, we get:

(2.265) The scope of a quantifier is the whole sentence in which it occurs.

This is also true of quantifiers attached to an object noun phrase as in (2.266):

(2.266) The doctor cured many patients.

(2.267) Many were the patients whom the doctor cured.

(2.268) [many were [the patients [the doctor cured patients]<sub>S</sub>]<sub>NP</sub>]<sub>S</sub>

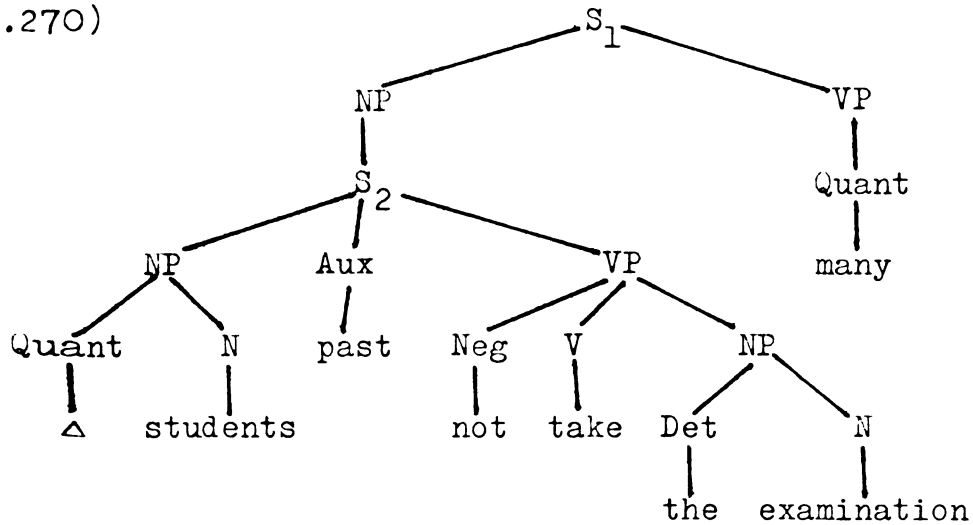
In the structure (2.268) from which sentence (2.267) is derived, the quantifier many includes in its scope the lower sentence, [the doctor cured patients]<sub>S</sub>. Then, the synonymy of (2.266) with (2.267) suggests that many in (2.266) also includes in its scope the whole sentence in which it occurs, namely, [the doctor cured patients]<sub>S</sub>. Thus, it is shown that (2.265) holds for sentences such as (2.266) as well. This can be easily extended to other similar sentences containing quantifiers. In this way, (2.265) may be established as a linguistic fact observable in English as well as in Japanese. Then, we may propose (2.265) as another putative linguistic universal, in addition to (2.261).

Now, it is time to apply the proposed analysis of Japanese quantifiers to English ones. In this connection, let us consider the following:

(2.269) Many students did not take the examination.

Under the proposed analysis, this sentence has an underlying structure of the following form:

(2.270)

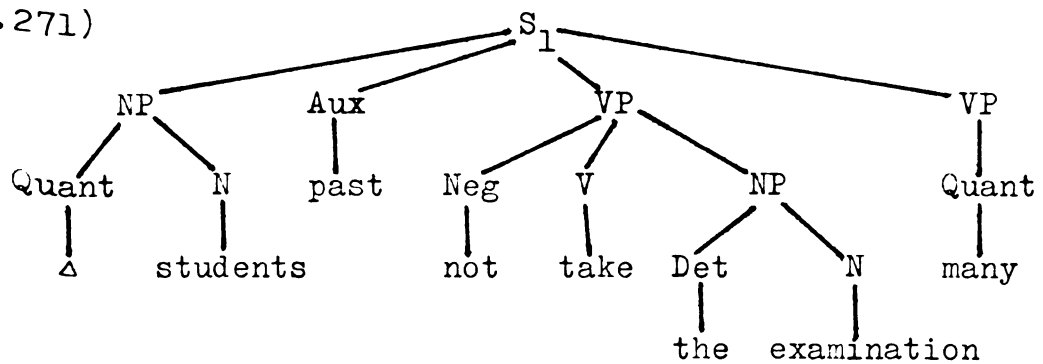


It should be noted that the underlying structure (2.270) is based on the two putative universals (2.261) and (2.265): based on them, this structure indicates that the scope of not is  $S_2$ , while that of many is  $S_1$ , thus explaining why not in sentence (2.269) cannot include many in its scope.

In order to derive sentence (2.269), the underlying structure (2.270) will go through the following stages:

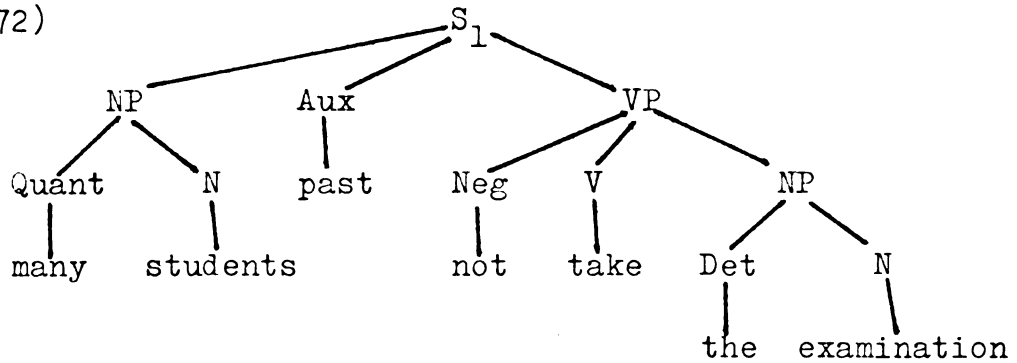
- i. Application of Sentence-raising, giving:

(2.271)



- ii. Application of Quantifier-attachment, deriving:

(2.272)



This structure becomes sentence (2.269). It may be mentioned here that many in (2.272) is attached to students in the sense that many students as a unit forms a noun phrase: it can be easily shown by the passive and the reflexive tests as in (2.226) and (2.227) that many students in (2.272) is a noun phrase and functions as such.

Now, let us consider the transformations involved in the derivation of sentence (2.269). We note first that Sentence-raising, giving (2.271) from (2.270), is the same that is stated in (2.222), repeated here in (2.273):

(2.273)(=2.222) OPT [ M [ X ]<sub>S<sub>2</sub></sub> N ]<sub>S<sub>1</sub></sub> → [ M X N ]<sub>S<sub>1</sub></sub>

where M, N and X are variables, and M or N dominates V<sub>S.T</sub> or exhaustively dominates Adj<sub>S</sub>, Adv<sub>N</sub>, Adv<sub>F</sub>, Adv<sub>R.P</sub>, Quant or Neg

That is, the same rule is applicable to both Japanese and English, which provides additional support for this transformational rule.

The second transformation is Quantifier-attachment, which gives (2.272) from (2.271). We note here again that

Quantifier-attachment given in (2.245), repeated here in (2.274), can be applied, unchanged, to English quantifiers as well:

$$(2.274)(=2.245) \quad X \quad [ \Delta \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \rightarrow$$

$$X \quad [ \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y$$

where X and Y are variables, and X contains no Quant, Adv<sub>N</sub> or Neg

Moreover, the same transformation is necessary to derive sentences such as (2.275) involving the nominal adverbial only:

(2.275) Only that passenger did not pay the additional fare.

Sentence (2.275) is not synonymous with (2.276), in which only is in the scope of negation:

(2.276) a. It is not so that only that passenger paid the additional fare.

b. Not only that passenger paid the additional fare.

The non-synonymy of (2.275) with (2.276) suggests that only in (2.275) is outside the scope of negation. This is additionally confirmed by the fact that (2.275) may be synonymous with (2.277), in which only is outside the scope of negation:

(2.277) It was only that passenger that did not pay the additional fare.

1



If only in (2.275) is outside the scope of not, it must be outside the sentence containing not, since the scope of not is the whole sentence in which it occurs. Thus, the underlying structure for sentence (2.275) will be:

(2.278) [[[[[ $\Delta$ ]<sub>Adv<sub>N</sub></sub> [that]<sub>Det</sub> [passenger]<sub>N</sub>]<sub>NP</sub> [past]<sub>Aux</sub>  
 [[not]<sub>Neg</sub> [pay]<sub>V</sub> [the additional fare]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
 [[only]<sub>Adv<sub>N</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

We see that this structure indicates that only in the higher sentence is outside the scope of not. Moreover, it is clear that the derivation of (2.275) from (2.278) requires the attachment of only to  $\Delta$  as well as the raising of S<sub>2</sub> into S<sub>1</sub>. Here, the point is that this attachment of only can be covered by the same rule stated in (2.274).

Summarizing so far, we have indicated that Quantifier-attachment is not ad hoc in English in that it may be applied to nominal adverbials in addition to quantifiers. Furthermore, Quantifier-attachment given in (2.274) can be applied, unchanged, to English quantifiers and nominal adverbials as well as to Japanese ones. The applicability of the same Quantifier-attachment rule to both Japanese and English clearly increases the independent motivation of this transformation.

Returning to the underlying structure (2.270), many in this structure will be derived by the rule (2.279b) as a sentential quantifier, as opposed to a nominal quantifier derived by the rule (2.279c):

- (2.279) a. (=2.190a)  $S \rightarrow NP (Aux) VP$   
 b.  $VP \rightarrow Quant$   
 c.  $NP \rightarrow \left\{ \begin{array}{l} (Quant) (Det) N (S) \\ (NP) S \end{array} \right\}^{27}$

Rule (2.279b) may conjoin with (2.190b) and (2.190c) into:

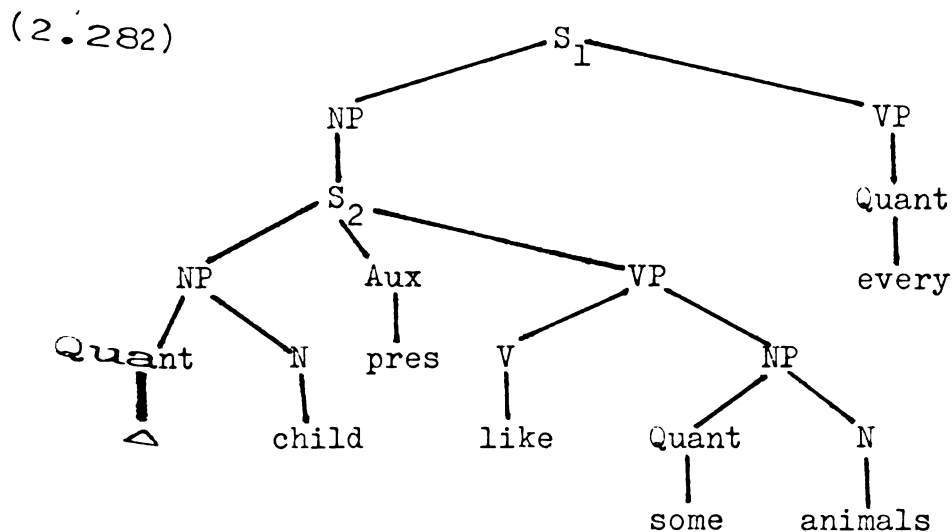
$$(2.280) \quad VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) \\ Neg \\ Quant \end{array} \right\}$$

Rule (2.279c) may be compared with (2.190c) that derives verb-phrase negation.

Continuing this discussion, we may now proceed to consider examples containing two quantifiers in a sentence such as:

- (2.281) a. Every child likes some animals.  
 b. Some animals, every child likes.  
 c. Some animals are liked by every child.

Sentence (2.281a) is not synonymous with either (2.281b) or (2.281c), and according to our analysis, the structure underlying (2.281a) will be:



The structure (2.282) indicates that every in the higher sentence is outside the scope of some, thus explaining why some in sentence (2.281a) cannot include every in its scope.

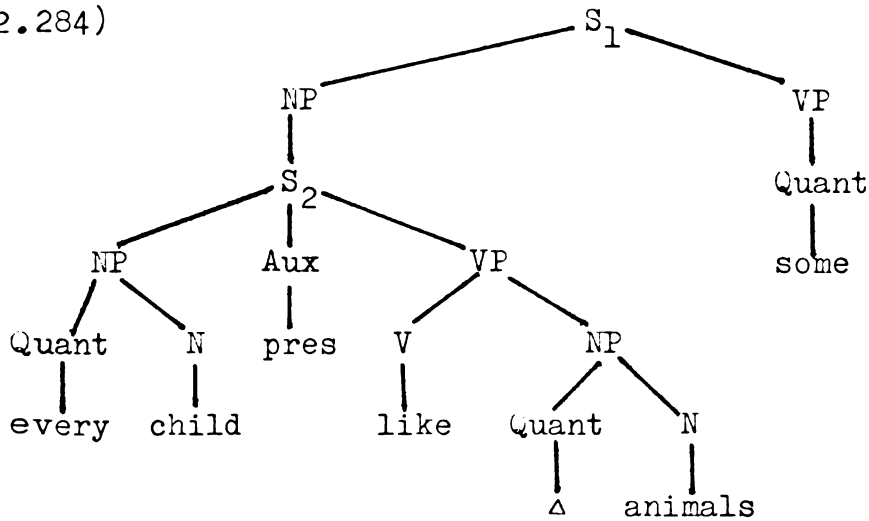
If no moving transformation applies in the  $S_2$ -cycle of (2.282), Quantifier-attachment applies, after  $S_2$  is raised into  $S_1$ , to generate sentence (2.281a). If, on the other hand, Topicalization or Passivization applies in the  $S_2$ -cycle of (2.282), the resulting structure is:

- (2.283) a. [[some animals,  $\Delta$  child likes] $_{S_2}$ ] $_{NP}$   
 [[every] $_{Quant}$ VP] $_{S_1}$
- b. [[some animals are liked by  $\Delta$  child] $_{S_2}$ ] $_{NP}$   
 [[every] $_{Quant}$ ] $_{S_1}$

In both (2.283a) and (2.283b) Quantifier-attachment is blocked since the unspecified quantifier  $\Delta$  follows another quantifier some. In this way, the Quantifier-attachment rule with the condition "X contains no Quant or Neg," as stated in (2.274), can explain why there is no passive or topicalized counterpart of (2.281a), derived from the structure (2.282) underlying (2.281a).

In turn, sentences (2.281b) and (2.281c) are synonymous, and they will be derived from the underlying structure (2.284) under our analysis:

(2.284)



This structure indicates that some includes every in its scope, but not the other way around. Now, if no moving transformation applies in the  $S_2$ -cycle, Quantifier-attachment cannot apply in the  $S_1$ -cycle, since the unspecified quantifier  $\Delta$  follows another quantifier every. Only when certain moving transformations apply in such a way as to prepose the unspecified quantifier  $\Delta$  over every can Quantifier-attachment apply. Thus, if Topicalization or Passivization applies in the  $S_2$ -cycle of (2.284), the resulting structure will be (2.285a) or (2.285b), respectively:

(2.285) a.  $[[[\Delta \text{ animals, } \underline{\text{every}} \text{ child likes}]_{S_2}]_{NP} [[\underline{\text{some}}]_{\text{Quant}}]_{VP}]_{S_1}$

b.  $[[[\Delta \text{ animals are liked by } \underline{\text{every}} \text{ child}]_{S_2}]_{NP} [[\underline{\text{some}}]_{\text{Quant}}]_{VP}]_{S_1}$

Then, applying Sentence-raising and Quantifier-attachment, we derive sentences (2.281b) and (2.281c), respectively. In

this case again, Quantifier-attachment can account for there being no non-topicalized or non-passive counterpart of (2.281b) and (2.281c), derived from the underlying structure (2.284).

### 2.10. The Discussion and Solution of Remaining Problems

Based on the analysis proposed in the preceding sections, we may now proceed to reexamine and solve those problems mentioned in section 2.8. Let us consider each of them:

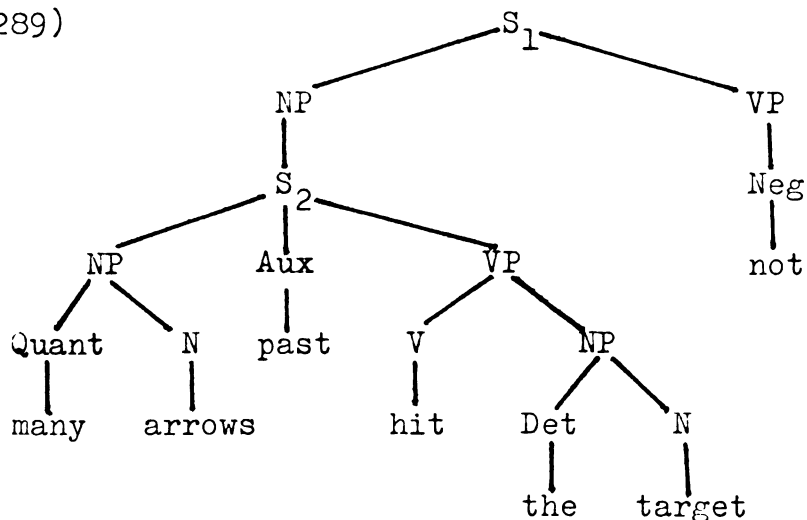
A. According to the proposed analysis, sentences (2.200), (2.201) and (2.212), repeated here as (2.286), (2.287) and (2.288), will have underlying structures (2.289), (2.290) and (2.291), respectively:

(2.286)(=2.200) Not many arrows hit the target.

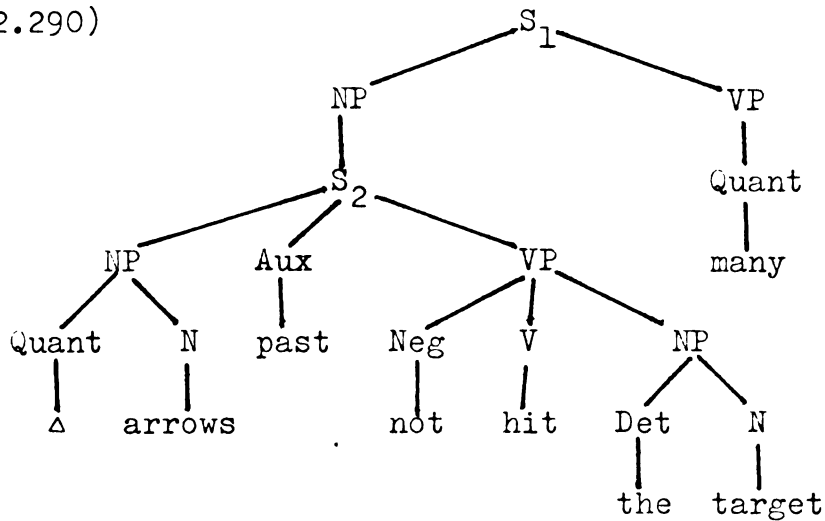
(2.287)(=2.201) Many arrows did not hit the target.

(2.288)(=2.212) The target was not hit by many arrows.

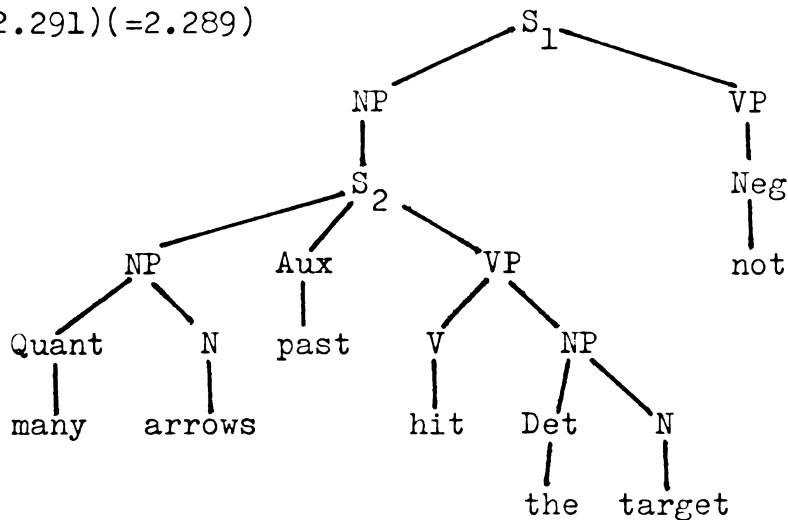
(2.289)



(2.290)



(2.291)(=2.289)



We note first that the structure (2.289) underlying (2.286) and the structure (2.291) underlying (2.288) are identical. This provides an explanation for the synonymy of (2.286) and (2.288). Considering (2.289) first, if no moving transformation applies in the S<sub>2</sub>-cycle, Sentence-raising and Negative-attachment apply, yielding sentence (2.286). If, on the other hand, Passivization applies to (2.289), the resulting structure is as follows:

(2.292) [[[the target was hit by many arrows]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Applying Sentence-raising and Negative-attachment to attach not to the verb, since the verb follows no quantifier or negative in this case, we get sentence (2.288). Thus, this approach can account for the fact that sentence (2.288) is synonymous with (2.286), since they are derived from the same underlying structure, (2.289): in particular, the structure (2.289) involving not in a higher sentence than many can explain why many in (2.286) and (2.288) cannot include not in its scope. Furthermore, this approach keeps intact the "meaning-preserving" definition of transformations such as Passivization and Topicalization.

Considering next (2.290), if no moving transformation applies in the S<sub>2</sub>-cycle, Sentence-raising and Quantifier-attachment apply, giving sentence (2.287). If, on the other hand, some moving transformation, for instance, Passivization applies in the S<sub>2</sub>-cycle of (2.290), the following structure is derived:

(2.293) [[[the target was not hit by Δ arrows]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
 [[many]<sub>Quant</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Then, Quantifier-attachment is blocked in the S<sub>1</sub>-cycle, since the unspecified quantifier Δ follows the negative not. In this way, our approach can explain why there is no passive counterpart of (2.287) that is derived from

(2.290).

Furthermore, we noted in section 2.8 that if the structure underlying (2.287) is (2.203) (repeated here as (2.294)) instead of (2.290), then there is no reason to block the application of Passivization to (2.294), giving sentence (2.288), though it is not synonymous with (2.287):

(2.294)(=2.203) [[many arrows]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub>  
[hit]<sub>V</sub> [the target]<sub>NP</sub>]<sub>VP</sub>]<sub>S</sub>

This problem is solved if we adopt (2.290), not (2.294), as the underlying structure for sentence (2.287). That is to say, Passivization may freely apply in the  $S_2$ -cycle of (2.290), since there is no reason to block its application, but if Passivization applies there, Quantifier-attachment is blocked in the  $S_1$ -cycle of (2.290), since the condition of this transformation is not satisfied in that case. Thus, the filtering function of Quantifier-attachment correctly blocks the derivation of sentence (2.288) from (2.290) underlying (2.287). This gives additional support to the underlying structure (2.290).

Next, let us consider sentences (2.204), (2.205) and (2.206), repeated here as (2.295), (2.296) and (2.297), respectively:

(2.295)(=2.204) The police did not arrest many  
demonstrators.

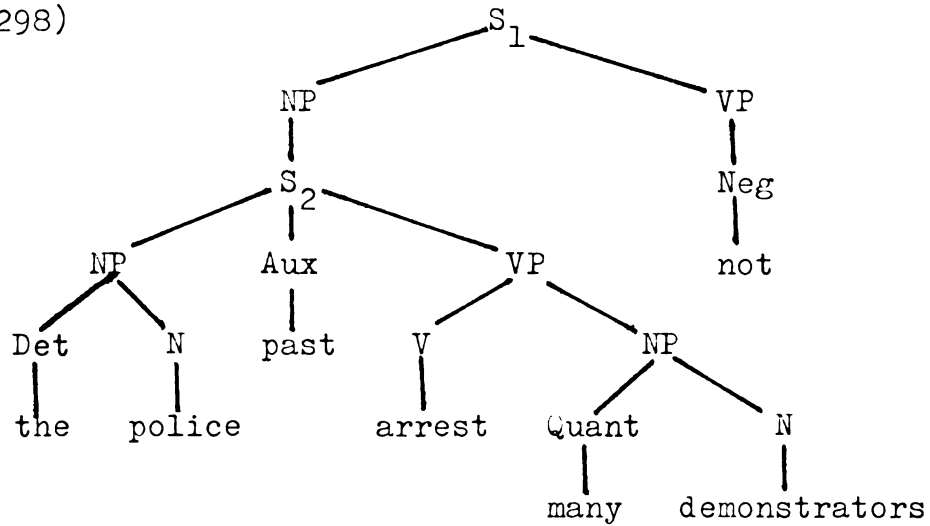
(2.296)(=2.205) Many demonstrators were not arrested  
by the police.



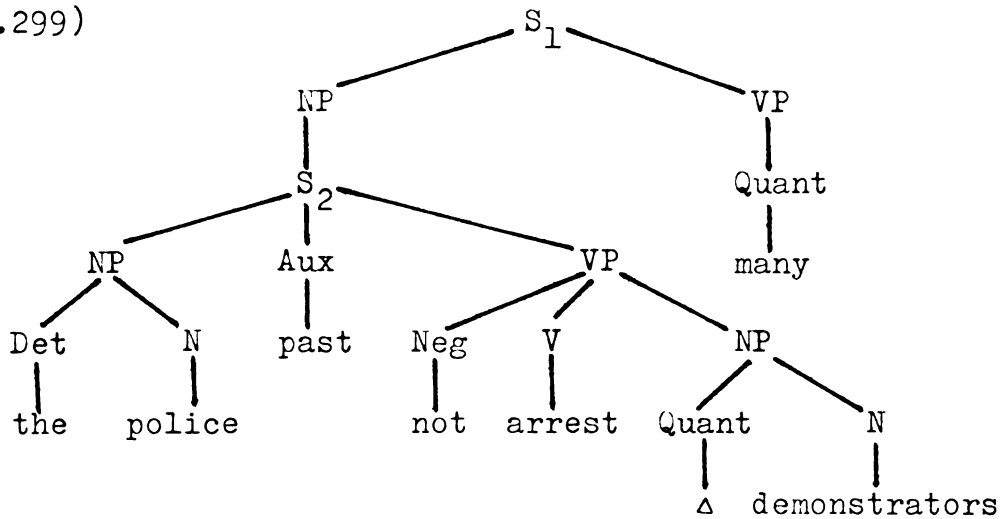
(2.297)(=2.206) Not many demonstrators were arrested  
by the police.

Under our analysis, their underlying structures will be  
(2.298), (2.299) and (2.300), respectively:

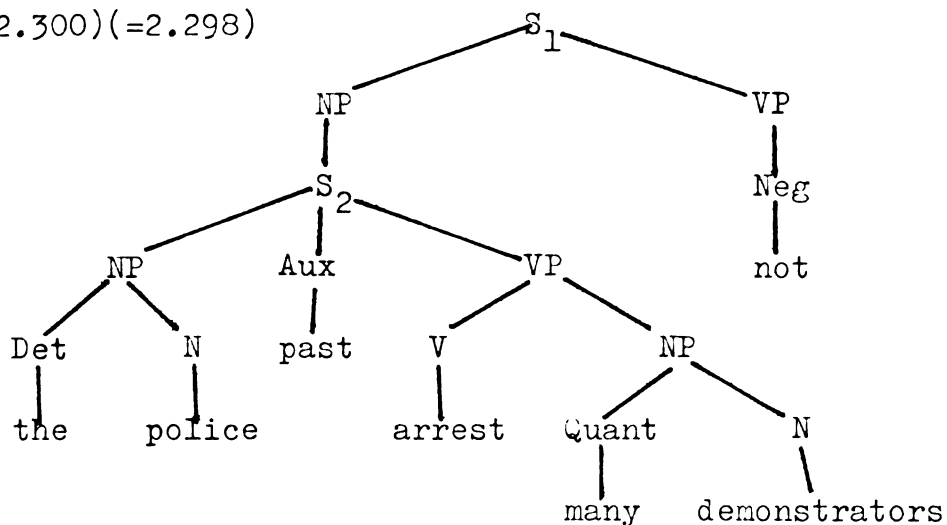
(2.298)



(2.299)



(2.300)(=2.298)



We note first that (2.298) underlying (2.295) is identical with (2.300) underlying (2.297), which provides an explanation for the synonymy of (2.295) with (2.297). We note next that the structure (2.298) underlying (2.295) and (2.297) indicates that not in the higher sentence is outside the scope of many, thus explaining why in (2.295) and (2.297) many cannot include not in its scope. Now, let us assume tentatively that the underlying structure for (2.295) is not (2.298), but (2.301) involving verb-phrase negation in place of sentential negation in (2.298):

(2.301) [[the police]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [arrest]<sub>V</sub>  
 [many demonstrators]<sub>NP</sub>]<sub>VP</sub>]<sub>S</sub>

Then, we cannot account for the synonymy of (2.295) with (2.297) in a natural way. Moreover, we cannot explain why in sentence (2.295) many cannot include not in its scope. The scope of many is the whole sentence in which it occurs, so if (2.301) underlies sentence (2.295), many should be able to include not in its scope. Thus,



structure (2.298) clearly has several advantages over (2.301) as the underlying structure for sentence (2.295).

Now, turning to the derivation of (2.295) and (2.297), if no moving transformation applies in the  $S_2$ -cycle of (2.298), Sentence-raising applies, raising  $S_2$  into  $S_1$ . Then, Negative-attachment applies to attach not to the verb, since the verb follows no quantifier or negative in this case, giving sentence (2.295). On the other hand, if Passivization applies to (2.298), the resulting structure is:

(2.302) [[ [many demonstrators were arrested by the  
police] $_{S_2}$ ] $_{NP}$  [[not] $_{Neg}$ ] $_{VP}$ ] $_{S_1}$

Applying Sentence-raising and Negative-attachment, we derive sentence (2.297). Thus, this approach can account for the fact that sentence (2.297) is the passive counterpart of (2.295), derived from the same underlying structure, (2.298).

Turning next to (2.299), if no moving transformation applies in the  $S_2$ -cycle, Quantifier-attachment is blocked: the unspecified quantifier  $\Delta$  follows the negative not, which does not meet the condition of Quantifier-attachment. If, on the other hand, Passivization applies in the  $S_2$ -cycle of (2.299), the following structure is derived:

(2.303) [[[ $\Delta$  demonstrators were not arrested by the  
police] $_{S_2}$ ] $_{NP}$  [[many] $_{Quant}$ ] $_{VP}$ ] $_{S_1}$

After  $S_2$  is raised into  $S_1$ , Quantifier-attachment can apply to attach many to  $\Delta$ , giving sentence (2.296). In this case, too, this approach can explain, in terms of the filtering function of Quantifier-attachment, why there is no non-passive counterpart of (2.296), derived from the underlying structure (2.299).

In section 2.8, we further noticed that (2.208), repeated here as (2.304), is not acceptable as an underlying structure for (2.205), repeated here as (2.305):

(2.304)(=2.208) [[the police]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [arrest]<sub>V</sub> [many demonstrators]<sub>NP</sub>]<sub>VP</sub>]<sub>S</sub>

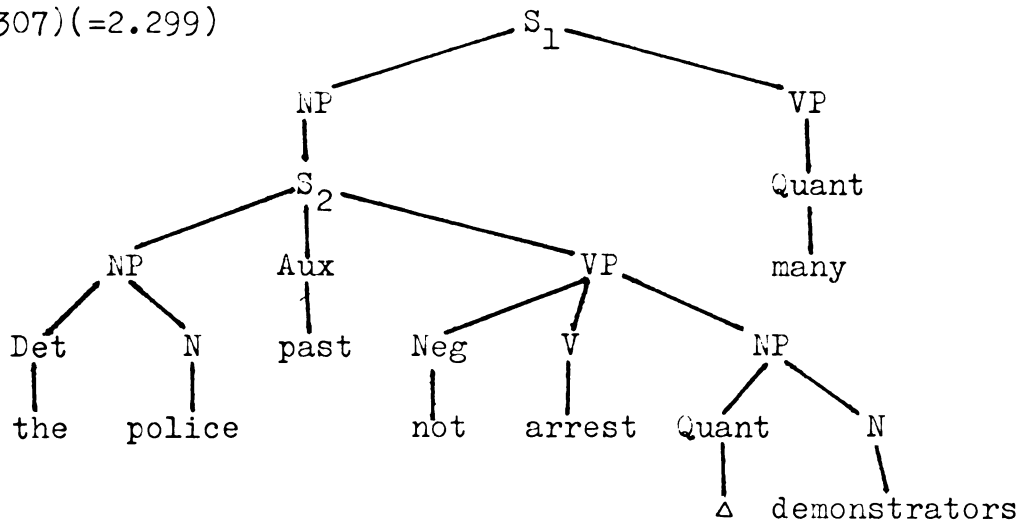
(2.305)(=2.205) Many demonstrators were not arrested by the police.

(2.306)(=2.204) The police did not arrest many demonstrators.

We noted there that when Passivization does not apply to (2.304) underlying (2.305), the resulting sentence is (2.306), although (2.306) is not synonymous with (2.305); only when Passivization applies to (2.304) will sentence (2.305) be derived. Thus, there is no natural way to block the derivation of (2.306) from (2.304), if the underlying structure for (2.305) is (2.304). This problem simply does not occur, if (2.299), rather than (2.304), is adopted as the underlying structure for sentence (2.305), as proposed here. Consider once again (2.299), repeated here as (2.307) for convenience of

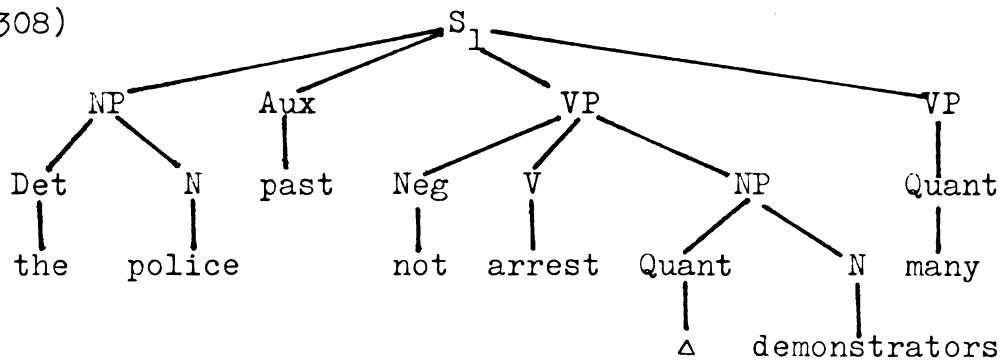
reference:

(2.307)(=2.299)



Applying Sentence-raising, we derive (2.308):

(2.308)



In order to derive (2.306) from (2.308), many must be attached to Δ preceded by the negative not. But this operation clearly violates the condition of Quantifier-attachment. In other words, such an operation is blocked through the filtering function of this transformation. Under our analysis, therefore, there is no chance of sentence (2.306) being derived from (2.307) underlying (2.305).

B. The first type of counter-example such as (2.210), as already discussed at the end of section 2.8, poses no problem in our analysis. But the second type of counter-example such as (1.12), repeated here as (2.309), involving extra heavy stress on the quantifier is still a problem within our framework:

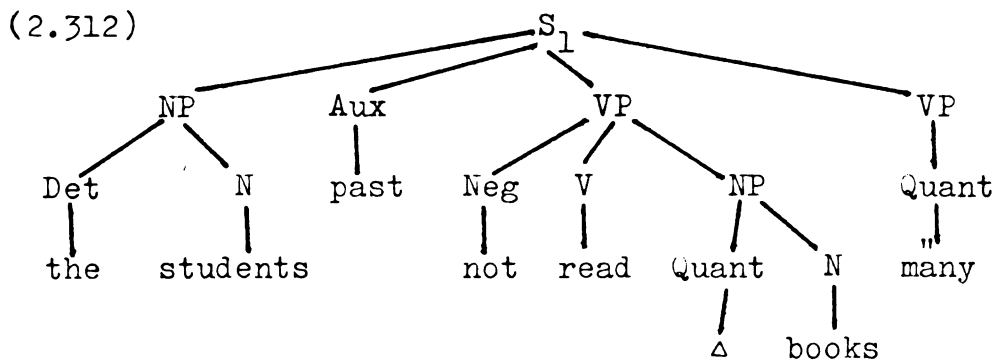
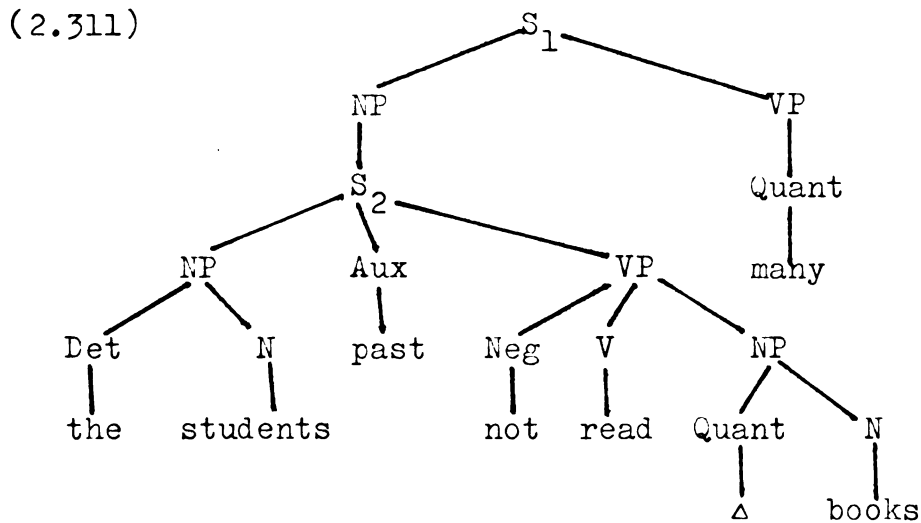
(2.309)(=1.12) The students did not read many books.

We may only suggest one possible solution for this problem, based on an assumption proposed by Bresnan (1971a), Bierwisch (1968) and Pope (1971). Bresnan argues that certain phonological rules such as the Nuclear Stress Rule are ordered after all the syntactic transformations on each transformational cycle. Bierwisch has reached a conclusion that in certain German sentences, stress must be assigned or somehow marked before some of the syntactic rules apply. Similarly, Pope argues that some phonological phenomena such as intonation assignment must precede some syntactic deletion rules. What is common to their arguments is that syntax and phonology interpenetrate. If we assume, following them, that some phonological rule that assigns extra heavy stress on quantifiers applies before Quantifier-attachment applies, a slight revision of Quantifier-attachment may take care of examples such as (2.309). This revision will be something like:

(2.310) Quantifier-attachment may attach a quantifier to  $\Delta$  preceded by another quantifier or a negative, if the quantifier to be attached has

extra heavy stress.

This proviso may allow Quantifier-attachment to apply to structures such as (2.312), which is in turn derived from the underlying structure (2.311) by the application of Sentence-raising and the stress-assignment rule:



Applying Quantifier-attachment to (2.312), we attach many to  $\Delta$ , though it follows not, deriving sentence (2.309).

c. This analysis, as already mentioned in section 2.8, does not involve the application of the Quantifier-lowering rule which has been criticized as an ad hoc transformation in that it violates a presumably universal condition on



transformations. Instead, this analysis makes use of Quantifier-attachment, Sentence-raising and Negative-attachment, which are all shown to be independently motivated transformations in both Japanese and English.

D. The underlying structures proposed by this analysis are free from those criticisms which are made against underlying structures such as (1.3) and (1.4) proposed by G. Lakoff. The underlying structures within our framework are well-motivated in that:

1. The underlying structures and their corresponding surface structures are related by means of independently motivated transformations in both Japanese and English.
2. The underlying structures do not involve the relative clauses that have been criticized as unique by Chomsky (1972, 183).
3. The underlying structures are based on putative linguistic universals regarding the scope of negation and that of quantifiers.

Taking the argument of this section one step further, we may proceed to a discussion of the examples in which apparently only one quantifier is involved. To take concrete examples, consider the following:

- (2.313) a. Some pupils made a nest box in the class.  
           b. A nest box was made by some pupils in the class.
- (2.314) a. Many students know a foreign language.

b. A foreign language is known by many students.

There is a clear semantic difference observed between the (a) and the (b) sentences in (2.313) and (2.314): (2.313a) means that there are some pupils who (each) made a nest box in the class, while (2.313b) means that there is one nest box that some pupils made in the class; similarly, only (2.314a) has the reading that there are many students who know a foreign language, while (2.314b) means that there is a (particular) foreign language that many students know. In other words, the scope of some is the whole sentence in (2.313a), but not in (2.313b), and the scope of many is the whole sentence in (2.314a), but not in (2.314b). In comparison with (2.313) and (2.314), consider next the following examples containing the definite determiner that in place of a in (2.313) and (2.314):

(2.315) a. Some pupils made that nest box in the class.

b. That nest box was made by some pupils in the class.

(2.316) a. Many students know that foreign language.

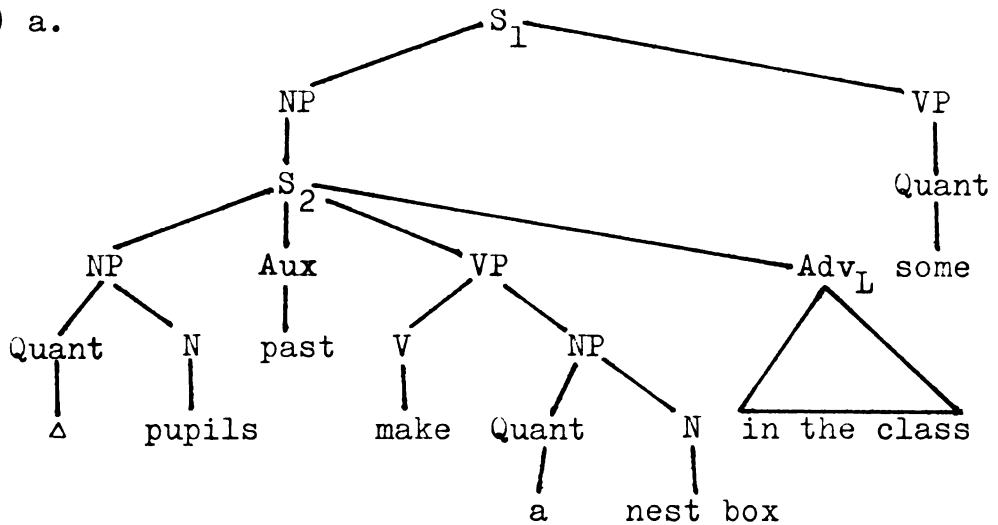
b. That foreign language is known by many students.

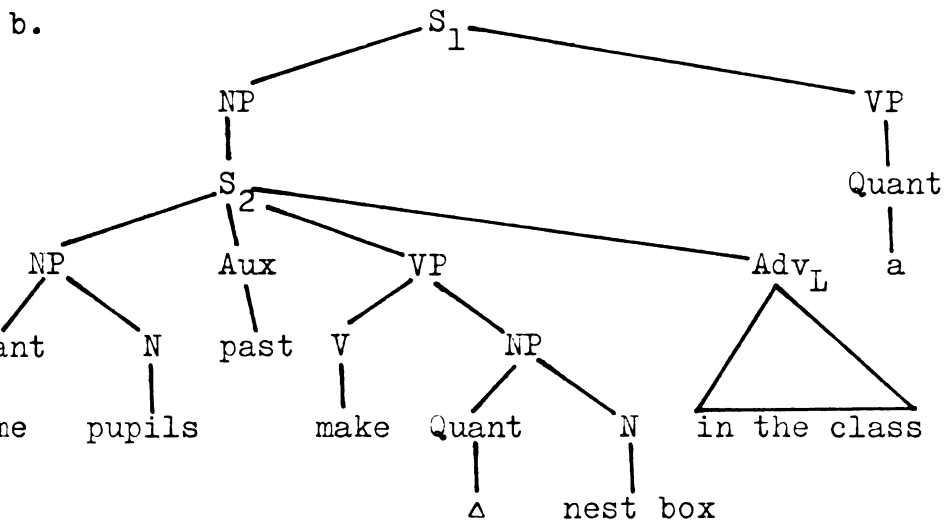
It should be observed that the (a) sentence is synonymous with the (b) sentence in (2.315) and (2.316): both (2.315a) and (2.315b) mean that there are some pupils who made that nest box in the class, and (2.316a) and (2.316b) have the reading that there are many students who know that foreign language. Accordingly, the scope of some is the whole

sentence in both (2.315a) and (2.315b), and so is the scope of many in (2.316a) and (2.316b).

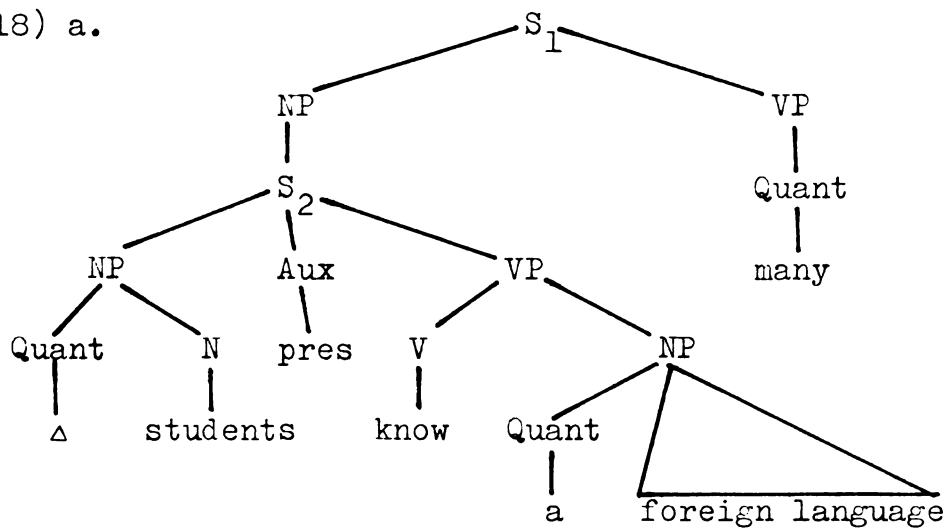
The above comparison of (2.313) and (2.314) with (2.315) and (2.316) suggests that the semantic difference between the paired sentences in (2.313) and (2.314) is due to the indefinite article a in them. If we treat a as a kind of numeral meaning "one,"<sup>28</sup> namely, a kind of quantifier, then the above-observed semantic difference can be explained in our framework: the structures underlying (2.313a), (2.313b), (2.314a) and (2.314b) will be (2.317a), (2.317b), (2.318a) and (2.318b), respectively:

(2.317) a.

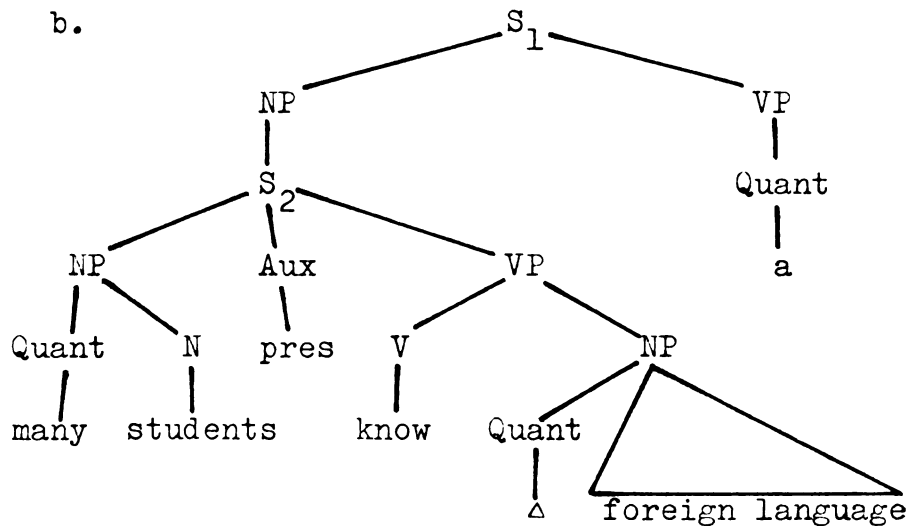




(2.318) a.



b.



The structure (2.317a) indicates that some in the higher sentence includes a in its scope, but not the other way around, thus explaining why some in (2.313a) can include a in its scope. On the other hand, (2.317b) shows that a in the higher sentence is outside the scope of some, thus explaining why some in (2.313b) cannot include a in its scope. Thus, the relevant difference between (2.317a) and (2.317b) provides an explanation for the semantic difference between (2.313a) and (2.313b). Similarly, the difference between the structures (2.318a) and (2.318b) reflects the semantic difference between (2.314a) and (2.314b).

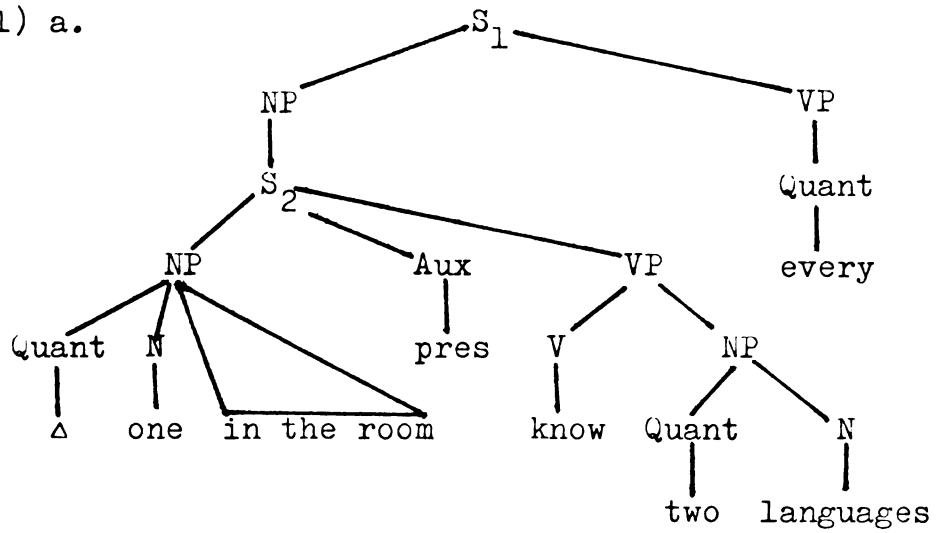
Furthermore, intuitively, the semantic difference between (2.313a) and (2.313b) or (2.314a) and (2.314b) seems to be quite parallel to the semantic difference between the following paired sentences involving two quantifiers:

- (2.319) a. Everyone in the room knows two languages.  
 b. Two languages are known by everyone in the room.<sup>29</sup>

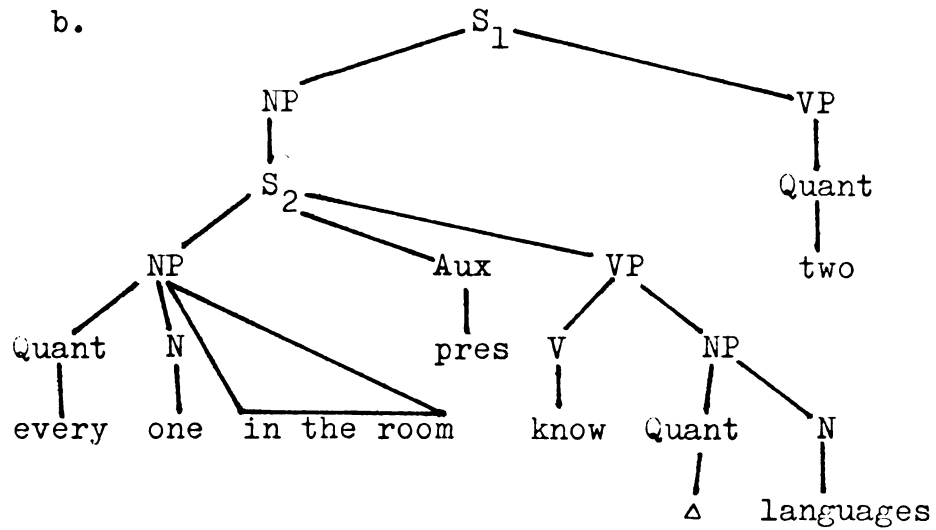
- (2.320) a. Many children like some animals.  
 b. Some animals are liked by many children.

Under our analysis, they are derived from the underlying structures (2.321a), (2.321b), (2.322a) and (2.322b), respectively:

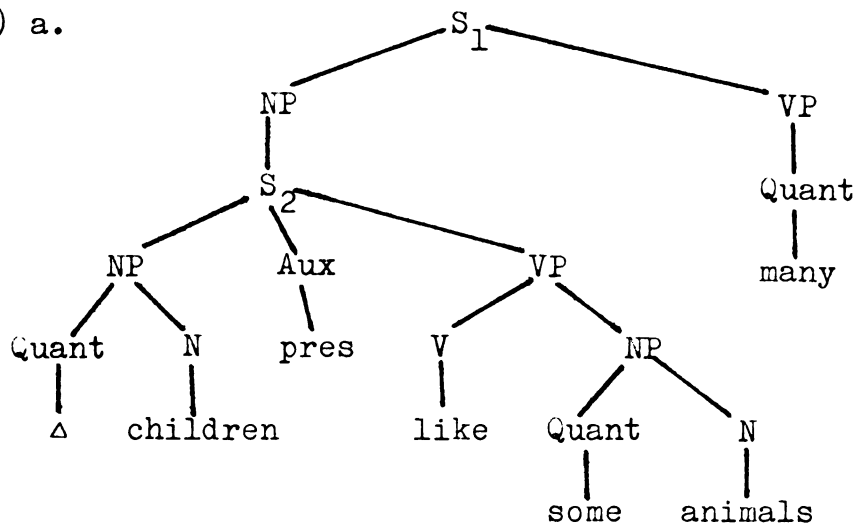
(2.321) a.

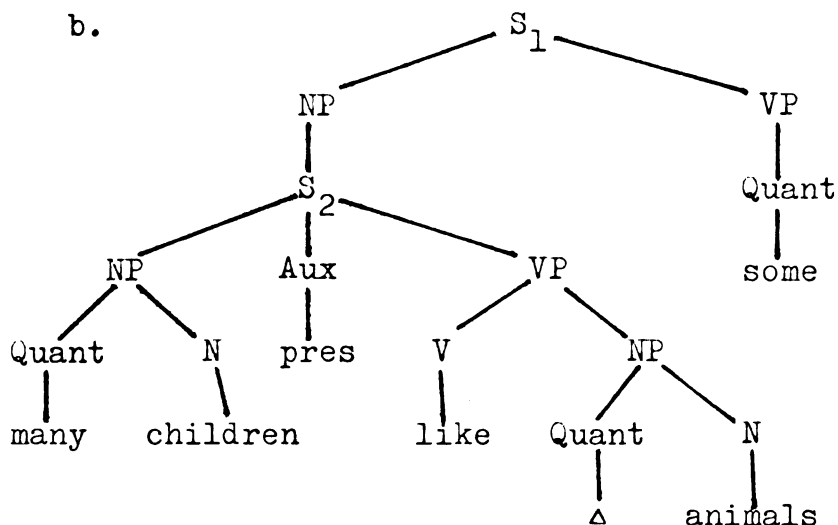


b.



(2.322) a.





Note the striking parallel of (2.317) and (2.318) to (2.321) and (2.322) with respect to quantifiers and their sentential hierarchy. If we adopt the underlying structures (2.317) and (2.318), we may treat the semantic difference between the paired sentences in (2.313) and (2.314) in a way quite similar to that between the paired sentences in (2.319) and (2.320).

Moreover, the derivation of (2.313) and (2.314) from (2.317) and (2.318), respectively, can be covered in terms of Sentence-raising and Quantifier-attachment in a way similar to the derivation of (2.319) and (2.320) from their underlying structures. To take up (2.317a) first, if no moving transformation applies in the  $S_2$ -cycle, Sentence-raising and Quantifier-attachment apply, giving sentence (2.313a). If, on the other hand, Passivization applies to (2.317a), the resulting structure is as follows:

(2.323) [[a nest box was made by  $\Delta$  pupils in the class] $_{S_2}$ ] $_{NP}$  [[some] $_{Quant}$ ] $_{VP}$ ] $_{S_1}$

Then, Quantifier-attachment is blocked since the unspecified quantifier  $\Delta$  follows another quantifier (a in this case). Thus, the same Quantifier-attachment rule can correctly predict that there is no passive counterpart of (2.313a) derived from the underlying structure (2.317a), in addition to covering the derivation of (2.313a) from (2.317a).

Turning next to (2.317b), if no moving transformation applies, Quantifier-attachment is blocked because the unspecified quantifier  $\Delta$  to which a is to be attached follows another quantifier some. But if Passivization applies to (2.317b), the following structure is derived:

(2.324) [[ $\Delta$  nest box was made by some pupils in the  
class]<sub>S<sub>2</sub></sub>]NP [[a]<sub>Quant</sub>]VP]<sub>S<sub>1</sub></sub>

Then, applying Sentence-raising and Quantifier-attachment, we derive sentence (2.313b). Thus, Quantifier-attachment can take care of the derivation of (2.313b) from (2.317b). Moreover, it can correctly block the derivation of the non-passive counterpart of (2.313b) from (2.317b).

A similar argument holds for the derivation involving (2.318a) and (2.318b). Applying Sentence-raising and Quantifier-attachment to (2.318a), we generate sentence (2.314a). But if Passivization applies to (2.318a), Quantifier-attachment is blocked, giving no grammatical sentence. In the case of (2.318b), if Passivization applies in the S<sub>2</sub>-cycle, the application of Sentence-raising and Quantifier-attachment yields sentence (2.314b). But if no moving transformation applies in the S<sub>2</sub>-cycle of (2.318b),



then Quantifier-attachment is blocked, giving no grammatical sentence. In this way, the same Quantifier-attachment rule can correctly predict that there is no passive counterpart of (2.314a) derived from (2.318a), nor any non-passive counterpart of (2.314b) derived from (2.318b).

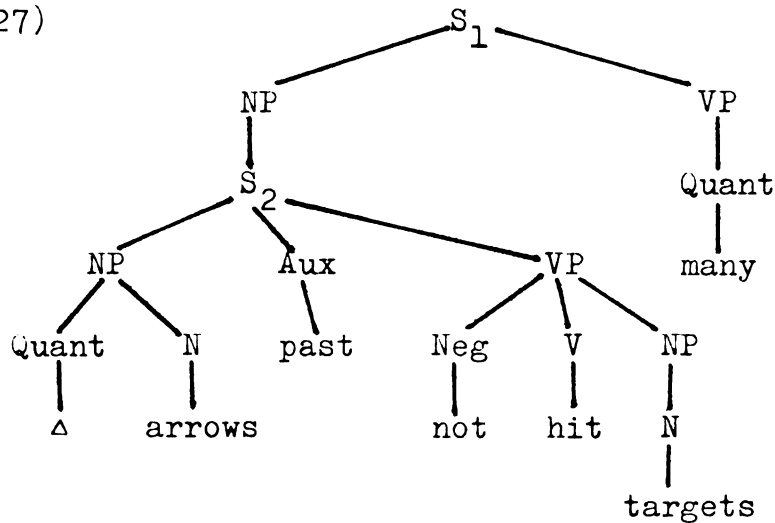
Next, we wish to consider examples of a different type such as:

(2.325) Many arrows did not hit targets.

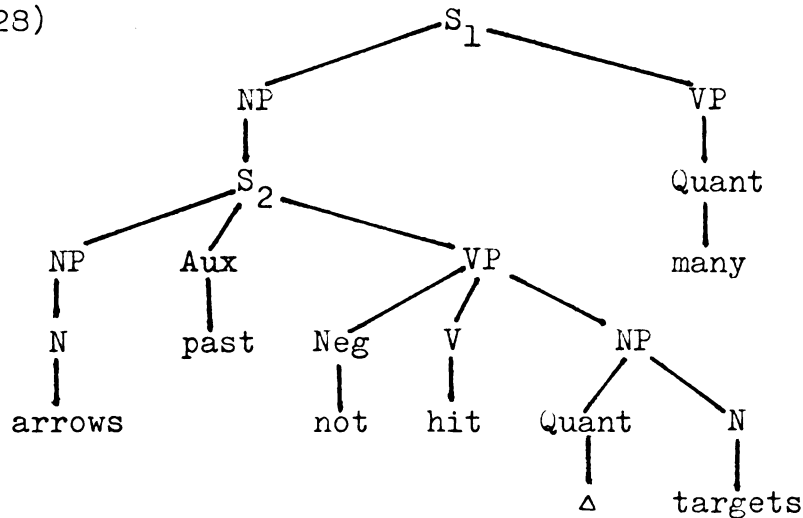
(2.326) Many targets were not hit by arrows.

The underlying structures for these sentences are (2.327) and (2.328), respectively:

(2.327)



(2.328)



The relevant difference between these structures reflects the semantic difference between sentences (2.325) and (2.326). Now, considering (2.327), if no moving transformation applies in the  $S_2$ -cycle, Sentence-raising and Quantifier-attachment apply, giving sentence (2.325). On the other hand, if Passivization applies to (2.327), the resulting structure is as follows:

(2.329)  $[[[\text{targets were } \underline{\text{not}} \text{ hit by } \Delta \text{ arrows}]_{S_2}]_{NP} [[\underline{\text{many}}]_{\text{Quant}}]_{VP}]_{S_1}$

Then, Quantifier-attachment is blocked since the unspecified quantifier  $\Delta$  follows the negative not. Furthermore, the use of  $\Delta$  correctly blocks the attachment of many to targets in (2.329) to derive sentence (2.326). In the case of (2.328), if no moving transformation applies in the  $S_2$ -cycle, Quantifier-attachment is blocked because  $\Delta$  follows the negative not. In particular, the use of  $\Delta$  can block the attachment of many to arrows to give sentence (2.325). If, on the other hand, Passivization applies to (2.328), the

following intermediate structure is derived:

$$(2.330) \quad \begin{array}{l} [[[\Delta \text{ targets were } \underline{\text{not}} \text{ hit by arrows}]_{S_2}]_{NP} \\ [[\underline{\text{many}}]_{\text{Quant}}]_{VP}]_{S_1} \end{array}$$

Then, the application of Sentence-raising and Quantifier-attachment yields sentence (2.326). In this way, the use of  $\Delta$  is necessary not only to distinguish the structure underlying (2.325) from that underlying (2.326) but also to take care of the derivation of sentences (2.325) and (2.326) from (2.327) and (2.328), respectively, correctly blocking the derivation of (2.326) from (2.327) and that of (2.325) from (2.328).

To make this point clearer, let us compare (2.327) and (2.328) with (2.331) and (2.332) which are (2.327) and (2.328) with  $\Delta$  missing:

$$(2.331) \quad \begin{array}{l} [[[\text{arrows past } \underline{\text{not}} \text{ hit targets}]_{S_2}]_{NP} \\ [[\underline{\text{many}}]_{\text{Quant}}]_{VP}]_{S_1} \end{array}$$

$$(2.332) \quad \begin{array}{l} [[[\text{arrows past } \underline{\text{not}} \text{ hit targets}]_{S_2}]_{NP} \\ [[\underline{\text{many}}]_{\text{Quant}}]_{VP}]_{S_1} \end{array}$$

We note first that (2.331) and (2.332) are identical. This indicates that without the use of  $\Delta$ , no distinction can be made between the structure underlying (2.325) and that underlying (2.326), though (2.325) and (2.326) are not synonymous. Furthermore, assuming that (2.331) is the underlying structure of (2.325), the application of Passivization and Sentence-raising gives the following intermediate structure:

(2.333) [targets were not hit by arrows

[[many]<sub>Quant</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Then, there is no natural way to block the attachment of many to targets which derives sentence (2.326). Thus, this analysis allows the derivation of sentence (2.326) from the structure underlying sentence (2.325), though (2.326) is not synonymous with (2.325). Furthermore, if (2.332) is the underlying structure of sentence (2.326), there is no reason to block the attachment of many to arrows which gives sentence (2.325). In this case again, this analysis permits the derivation of sentence (2.325) from the structure underlying sentence (2.326), in spite of the fact that sentence (2.325) is not synonymous with (2.326). Notice that all these problems are solved or simply do not occur if we make use of  $\Delta$ , as seen above.

The foregoing argument regarding sentences (2.325) and (2.326) clearly demonstrates that the use of  $\Delta$  is necessary to take care of the correct derivation of these sentences. This argument remains true of sentences involving nominal adverbials, which will be treated in the next chapter.

Lastly, let us consider sentences such as (2.334) and (2.335) cited from Langacker (1972, 234):

(2.334) a. Not many of the boys didn't consult John.

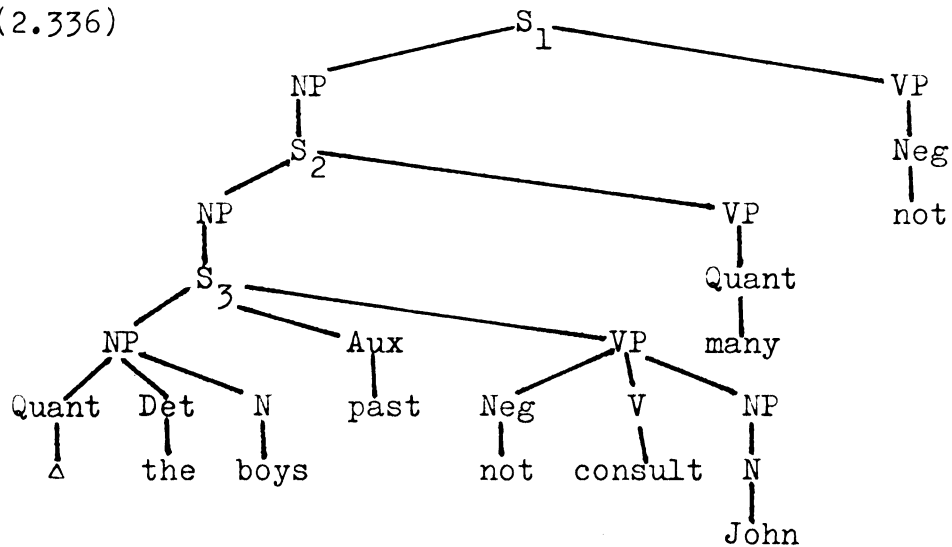
b. \*John wasn't consulted by not many of the boys.

(2.335) a. Not many of the students weren't examined by the doctor.

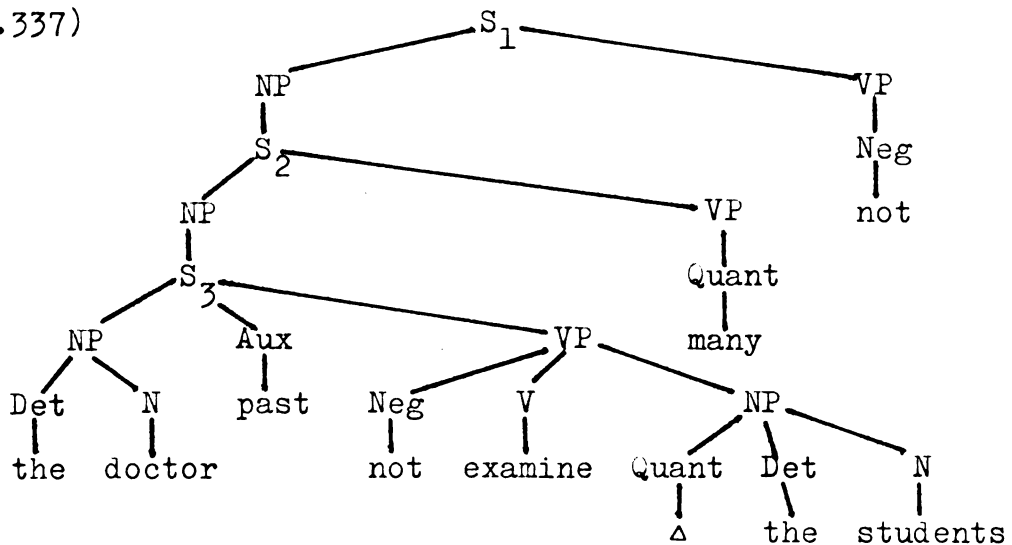
- b. \*The doctor didn't examine not many of the students.

If his judgement about the grammaticality of these sentences is acceptable, grammatical sentences (2.334a) and (2.335a) are derived, under our analysis, from (2.336) and (2.337), respectively:

(2.336)

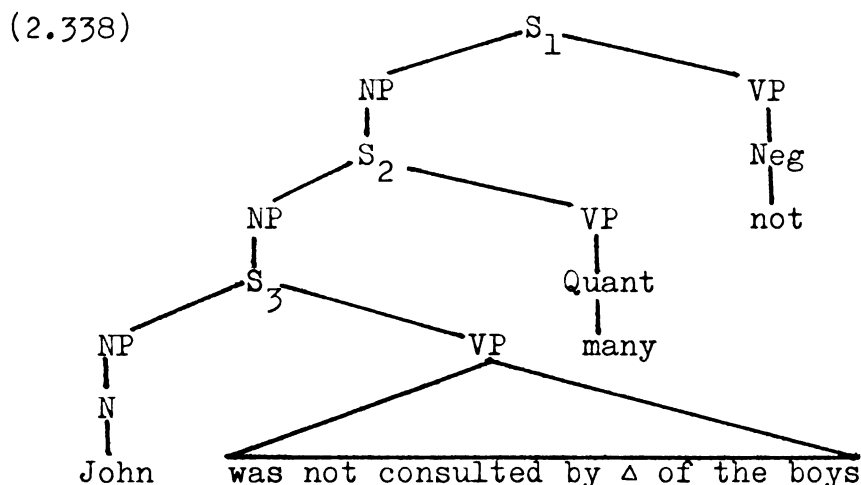


(2.337)



Considering (2.336) first, after S<sub>3</sub> is raised into S<sub>2</sub> and

the quantifier many is attached to  $\Delta$ ,  $S_2$  is further raised into  $S_1$ . Then, the negative is attached to the quantifier, yielding sentence (2.334a). If, on the other hand, Passivization applies in the  $S_3$ -cycle, the following intermediate structure is derived:



Then, after  $S_3$  is raised into  $S_2$ , the application of Quantifier-attachment is blocked since  $\Delta$  follows the negative not. If we attach many to  $\Delta$ , violating the condition of Quantifier-attachment, we will get an ungrammatical sentence such as:

(2.339)(=2.334b) \*John wasn't consulted by not many  
of the boys.

We note that the generation of (2.339) from (2.338) also violates the condition of Negative-attachment in that it involves the attachment of not in  $S_1$  to many which is preceded by another negative not. Thus, the generation of ungrammatical sentences such as (2.339) is correctly blocked, in our analysis, through the filtering function of the two

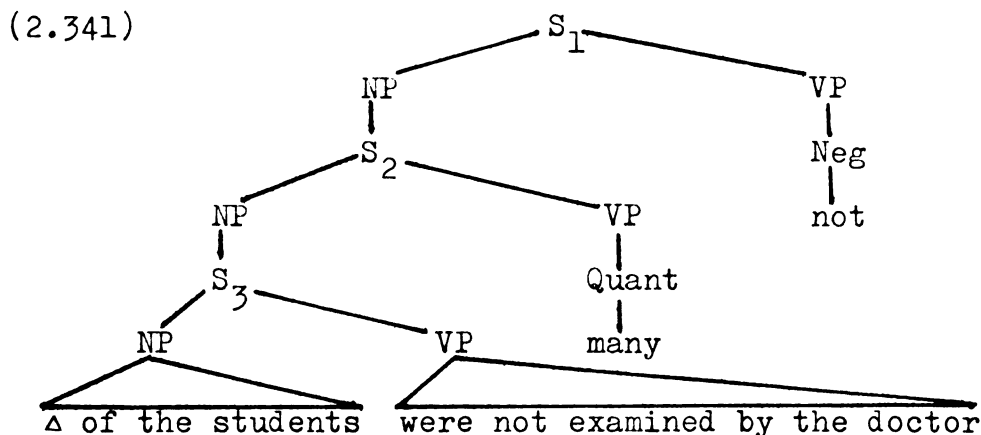
transformations. In other words, there is no chance of sentences such as (2.339) being generated in our analysis.

Turning to (2.337), after  $S_3$  is raised into  $S_2$ , the application of Quantifier-attachment is blocked since  $\Delta$  is preceded by the negative not. Thus, there is no chance of ungrammatical sentences such as (2.340) being generated in our analysis:

(2.340)(=2.335b) \*The doctor didn't examine not many of the students.

The generation of (2.340) from (2.337) violates the condition of Negative-attachment as well as that of Quantifier-attachment, since it involves the attachment of not in  $S_1$  to many which is preceded by the negative not. Thus, the filtering function of these transformations correctly blocks the generation of ungrammatical sentences such as (2.340).

Now, turning back to (2.337), if Passivization applies in the  $S_3$ -cycle, it gives the intermediate structure (2.341):



Then, after  $S_3$  is raised into  $S_2$ , Quantifier-attachment

applies to attach many to  $\Delta$ . Next, the application of Sentence-raising and Negative-attachment to attach not to many yields sentence (2.335a).

In this way, our analysis can correctly predict the ungrammaticality of sentences such as (2.334b) and (2.335b) as well as generate grammatical sentences such as (2.334a) and (2.335a).

## 2.11. Conclusions

In this chapter we have discussed the interrelations of negation and quantifiers. The major findings of this chapter may be summarized as follows:

1. The proposed analysis of negation and quantifiers is based on the two putative universal we noted regarding the scope of negation and that of quantifiers:
  - a) The scope of negation, sentential or verb-phrase, is the whole sentence in which it occurs.
  - b) The scope of a quantifier, sentential or nominal, is the whole sentence in which it occurs.
2. This analysis involves the twofold distinction of negation, sentential and verb-phrase, and that of quantifiers, sentential and nominal. Sentential negation and quantifiers are derived by the rule that rewrites VP and they "command" the sentences they modify in the underlying structures. In contrast, verb-phrase negation and nominal quantifiers are derived by the rules that rewrite VP and NP, respectively, as their optional constituents.



3. Thus, this analysis contains the following base rules in Japanese and English:

Japanese:  $S \rightarrow NP VP (Aux) (wa)$

$$VP \rightarrow \left\{ \begin{array}{l} (NP) V (Neg) \\ Neg \\ Quant \end{array} \right\}$$

$$NP \rightarrow \left\{ \begin{array}{l} (S) (Quant) (Det) N \\ S (NP) \end{array} \right\}$$

English:  $S \rightarrow NP (Aux) VP$

$$VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) \\ Neg \\ Quant \end{array} \right\}$$

$$NP \rightarrow \left\{ \begin{array}{l} (Quant) (Det) N (S) \\ (NP) S \end{array} \right\}$$

4. Furthermore, this analysis requires some transformations to map the underlying structures derived by the above base rules into the corresponding surface structures. These are Sentence-raising, Negative-attachment and Quantifier-attachment in both Japanese and English, and Contrastive wa-attachment in Japanese, which are all shown to be independently motivated transformations. In particular, Sentence-raising and Quantifier-attachment have the same form and are applicable to both Japanese and English.
5. The analysis in terms of these base rules and transformations is applicable to both Japanese and English, and has several other advantages over both the interpretive and the generative-semantic analyses of negation and quantifiers.

## CHAPTER II

### FOOTNOTES

1. Unless otherwise stated, all the sentence-examples are the author's. Moreover, Japanese sentences are given in a transcription which shows as closely as possible one-to-one correspondence between Japanese and English, particularly in regard to the treatment of Japanese particles.

2. Another Japanese equivalent of only is dake, and so the following may also be the counterpart of (2.10):

(a) sono syoonen dake ga karenno hahaoya o  
that boy only his mother  
settoku-dekiru.  
persuade can

'Only that boy can persuade his mother.'

But there are some cases in which sika . . . nai can be used but dake cannot, for instance, as in the following:

(b) kyoo wa zikan ga zyuubun atta ga sono  
today time plenty of existed but that  
hon sika yome nakatta.  
book only can-read not-past

'I had plenty of time today but I could read only that book.'

If we replace sika . . . nai with dake, the resulting

sentence will be unacceptable, or at least very awkward:

(c)?\*kyoo wa zikan ga zyuubun atta ga sono  
 today time plenty of existed but that  
 hon dake yometa.  
 book only could-read

'Lit. I had plenty of time today but I could  
 read only that book.'

Thus, sika . . . nai and dake together may correspond to the English only in all its environments.

3. Notice that siru is the basic form, namely, the present indicative form of the verb and it takes the form sira when followed by the negative nai.
4. Sentence (2.13) is derived from the structure (a) by replacing the subject marker ga by the topic marker wa:

(a) [[kare ga kinoo tosyokan de benkyoosita wake]<sub>S<sub>2</sub></sub>  
 he yesterday library in studied that  
 de wa nai]<sub>S<sub>1</sub></sub>  
 is not

This replacement also occurs in the derivation of simplex sentences such as (2.12); sentence (2.12) derives from the structure (b) by the replacement of ga by wa:

(b) [kare ga kinoo tosyokan de benkyoosi nakatta]<sub>S</sub>  
 he yesterday library in study not-did

The replacement of ga by wa is, however, not without restriction. For instance, it cannot occur in relative clauses as in (c):

- (c) [[haha { ga } tukutta]<sub>S</sub> suupu]<sub>NP</sub> wa oisii]<sub>S</sub>  
 mother            \*wa            made            soup            delicious

'The soup that my mother made is delicious.'

The ungrammaticality of (c) with wa in place of ga shows that the topic marker wa cannot occur in certain kinds of embedded sentences. Based on this observation, one might argue that the surface structure of sentence (2.13) will be (d) rather than (e):

- (d) [kare wa [kinoo tosyokan de benkyoosita wake]<sub>S<sub>2</sub></sub>  
 he    yesterday library    in    studied    that  
 de wa nai]<sub>S<sub>1</sub></sub>  
 is    not

- (e) [[kare wa kinoo tosyokan de benkyoosita wake]<sub>S<sub>2</sub></sub>  
 he    yesterday library    in    studied    that  
 de wa nai]<sub>S<sub>1</sub></sub>  
 is    not

Whichever may be the case, however, it is a matter of surface structure and it does not influence the fact that kare wa in sentence (2.13) occurs in S<sub>2</sub>, not in S<sub>1</sub>, in the underlying structure. Therefore, even if we adopt (d) rather than (e) as the surface structure of (2.13), it does not influence our discussion here. The same is true of the other sentences of the (2.13) type in this thesis.

5. It seems that degree adverbials can co-occur with compound adjectives containing the negative nai when they are synonymous with their positive counterparts such as:



- iii. kare wa motto husyooziki de nai.  
 he more dishonest is not  
 'He is not more dishonest.'

Since sonnani "so," ammari "too" and motto "more" are degree adverbials, these examples appear to be counter-examples to the above observation in that the degree adverbials apparently co-occur with a compound adjective containing nai that cannot occur with other degree adverbials. But notice that these sentences are unambiguous and are synonymous with (d.i), (d.ii) and (d.iii), respectively:

- (d) i. kare wa sonnani husyooziki de wa nai.  
 he so dishonest is not  
 'He is not so dishonest.'
- ii. kare wa ammari husyooziki de wa nai.  
 he too dishonest is not  
 'He is not too dishonest.'
- iii. kare wa motto husyooziki de wa nai.  
 he more dishonest is not  
 'He is not more dishonest.'

This observation suggests that the sentences in (c) do not involve the compound adjective husyooziki de nai "not dishonest" as a unit. That is, they can be analyzed into (e), but not (f):

- (e) i. kare wa [sonnani husyooziki de] nai.  
 he so dishonest is not
- ii. kare wa [ammari husyooziki de] nai.  
 he too dishonest is not

- iii. kare wa [motto husyooziki de] nai  
 he more dishonest is not
- (f) i. \*kare wa sonnani [husyooziki de nai]  
 he so dishonest is not
- ii. \*kare wa ammari [husyooziki de nai]  
 he too dishonest is not
- iii. \*kare wa motto [husyooziki de nai]  
 he more dishonest is not

Thus, they are not genuine counter-examples to the above-observed restriction regarding the non-ambiguity of sentences such as (2.28), (2.30), (2.32) and (2.33). On the contrary, the non-ambiguity of the sentences in (c) confirms this restriction.

6. This is equivalent to saying that (2.28), (2.30), (2.32) and (2.33) can be analyzed into (a), but not (b):

- (a) i. sono siyoonin wa [taihen husyooziki de] nai.  
 the employee very dishonest is not
- ii. sono siyoonin wa [kimi yori husyooziki  
 the employee you more-than dishonest  
 de] nai.  
 is not
- iii. kareno ie wa [taihen tiisaku] nai.  
 his house very small not
- iv. kanozyo wa [taihen minikuku] nai.  
 she very ugly not
- (b) i. \*sono siyoonin wa taihen [husyooziki de nai]  
 the employee very dishonest is not

- ii. \*sono siyoonin wa kimi yori [husyooziki  
the employee you more-than dishonest  
de nai]  
is not
- iii. \*kareno ie wa taihen [tiisaku nai]  
his house very small not
- iv. \*kanozyo wa taihen [minikuku nai]  
she very ugly not

In contrast, ambiguous sentences (2.22) and (2.25) can be analyzed into both (c) and (d):

- (c) i. sono siyoonin wa [taihen syooziki de] nai.  
the employee very honest is not
- ii. sono siyoonin wa [kimi yori syooziki  
the employee you more-than honest  
de] nai.  
is not
- (d) i. sono siyoonin wa taihen [syooziki de nai]  
the employee very honest is not
- ii. sono siyoonin wa kimi yori [syooziki  
the employee you more-than honest  
de nai]  
is not

7. The form naka is one of the variant forms of the negative naku "not." The relevant variant forms of naku are as follows, with the main environments in which they occur:

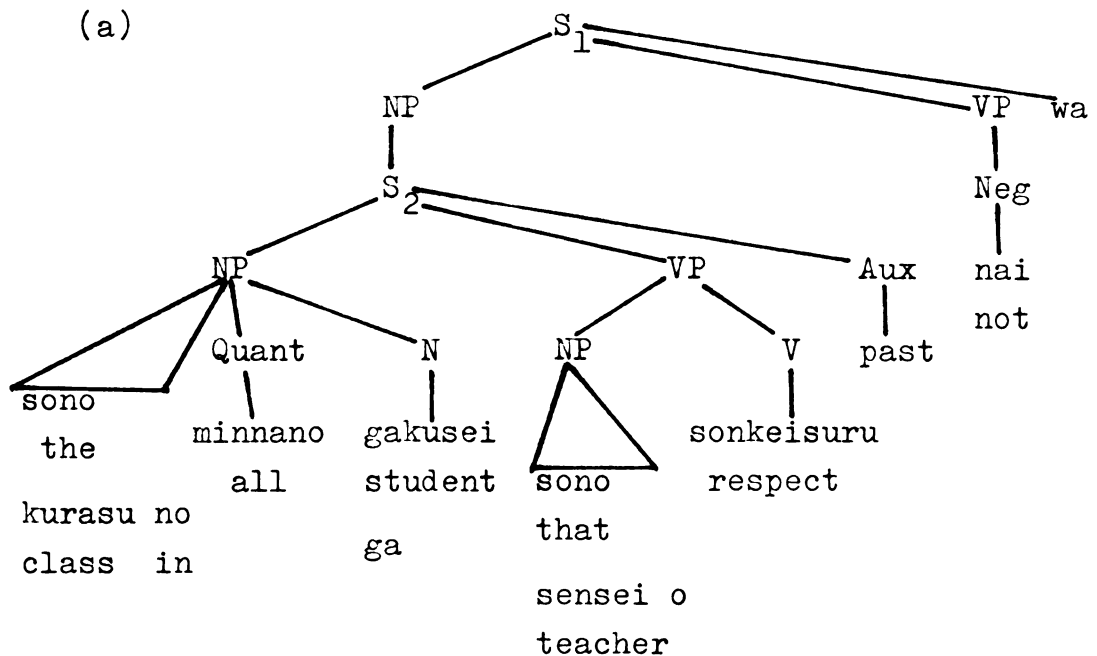


naka /	{	—— tta	(past particle)
		—— roo	(presumptive particle)
naku /	{	—— ∅	(infinitive form)
		—— te	(gerund particle)
nake /	——	reba	(provisional particle)
nai /	——	∅	(present indicative form)

8. For a detailed discussion of wa-attachment, see section 2.6.
9. Incidentally, observe that the Japanese dono is not an exact equivalent of the English any, as will be partly seen from the fact that dono may precede the negative as in (2.73) (observe the ungrammaticality of the English literal translation of (2.73)). In this connection, consider the following:
- (a) [[sono kurasu no dono gakusei mo sono sensei  
the class in any student that teacher  
o sonkeisita wake]<sub>S</sub> de wa nai]<sub>S</sub>  
respected that is not  
'It is not so that every student in the class  
respected that teacher.'
- It should be observed that sentence (a) does not have the meaning that it is not so that any student in the class respected that teacher. These facts demonstrate that the Japanese dono behaves similarly to the English every, all and the like with respect to negation.
10. This underlying structure involves the assumption given in Kuno (1970) that a contrastive wa is present after

a sentence in underlying structure. But even if this assumption turns out to be incorrect, it will not influence our discussion here in an essential way.

Furthermore, the structure (2.75) is not exactly the underlying structure for sentences (2.70) and (2.72) but their intermediate structure in that it is derived from the structure (a) by an optional shift of the quantifier to follow the noun which it modifies:



Notice that the quantifier minnano "all" drops no when it follows the noun which it modifies and this is usually the case with quantifiers and numerals in Japanese. A fuller discussion of quantifiers in Japanese will be given in section 2.9.1. It will be sufficient here to mention that the quantifier in (a) is derived by a rule such as:

(b) NP → (S) (Quant) (Det) N

11. Here and elsewhere in this thesis, "synonymous" means "cognitively synonymous," following Chomsky (1965).

For instance, Chomsky (1965, 22) says:

- (9) (i) I expected a specialist to examine John  
 (ii) I expected John to be examined by a specialist

The sentences (9i) and (9ii) are "cognitively synonymous": one is true if and only if the other is true.

Furthermore, Chomsky (1965, 162) adds as follows:

- (20) (i) John is easy for us to please — it is easy for us to please John  
 (ii) it was yesterday that he came — he came yesterday

In the case of (20), the deep structures of the paired sentences are identical in all respects relevant to semantic interpretation of the sort we are considering here, so that the transformational analysis accounts for the (cognitive) synonymy.

12. See Rosenbaum (1967).
13. Henceforth the adverb "ultimately" will be omitted but the reader should assume that transformations irrelevant to this thesis may intervene between the rules we discuss and the surface structures of the sentences in the examples.
14. Incidentally, a contrastive wa cannot be attached to taihen "very," as shown by the ungrammaticality of:
- (a) \*sono siyoonin wa taihen wa syooziki de nai.  
 the employee very honest is not
- This is due to the idiosyncrasy of taihen "very."

15. When wa is attached to da, it causes the following change:

(a) da + wa nai → de-wa nai

Furthermore, the copula da will be derived from de + aru. To be more exact, therefore, the change in (a) will be something like:

(b) de aru + wa nai →

de-wa aru nai →

de wa nai

- But the point here is that in both (a) and (b) the contrastive wa is attached to the copula, deriving de wa nai and in this sense there is no essential difference between them.
16. Most of the adjectives in Japanese are included in this class and they are typically characterized by the fact that they end with i in their present indicative forms.
17. As regards this underlying structure, we assume, following Fillmore (1968) and Langendoen (1969), that the expletive it does not exist preceding an embedded sentence in underlying structure, though Rosenbaum's (1967) argument is based on its presence in deep structure. Here, one linguistic fact may be mentioned: in Japanese there is no equivalent of this English it at all. For instance, observe the following:

- (a) i. That you have kept your promise is known by them.
- ii. It is known by them that you have kept your promise.
- iii. [[kimi ga yakusoku o mamotta koto]<sub>S</sub> wa  
you promise kept that  
karera ni sirarete iru]<sub>S</sub>  
them by known is  
'That you have kept your promise is known by them.'
- (b) i. For you to stay here will be impossible.
- ii. It will be impossible for you to stay here.
- iii. [[kimi ga kokoni todomaru koto]<sub>S</sub> wa  
you here stay for-to  
hukanoo daroo]<sub>S</sub>  
impossible will  
'For you to stay here will be impossible.'

Japanese does not have constructions corresponding to the (ii) sentences involving the expletive it, but only the counterparts of the (i) sentences, as shown by the (iii) sentences.

18. Kajita (1968) tries to account for the relatedness between the (a) and the (b) sentences in question in terms of a Downgrading transformation that "downgrades" main clauses of a certain type into a constituent of the subordinate clause and at the same time, "upgrades" the original subordinate clause into

a new main clause.

19. When M dominates  $V_{S.T}$ , this  $V_{S.T}$  must be in the affirmative, as Kajita (1968) correctly points out. For instance, sentences such as (a) are ungrammatical, though (b) is quite grammatical:

(a) \*Your solution, it does not seem, is rather ad hoc.

(b) It does not seem that your solution is rather ad hoc.

Thus, when  $V_{S.T}$  is in the negative, the application of Sentence-raising to give (a) must be blocked.

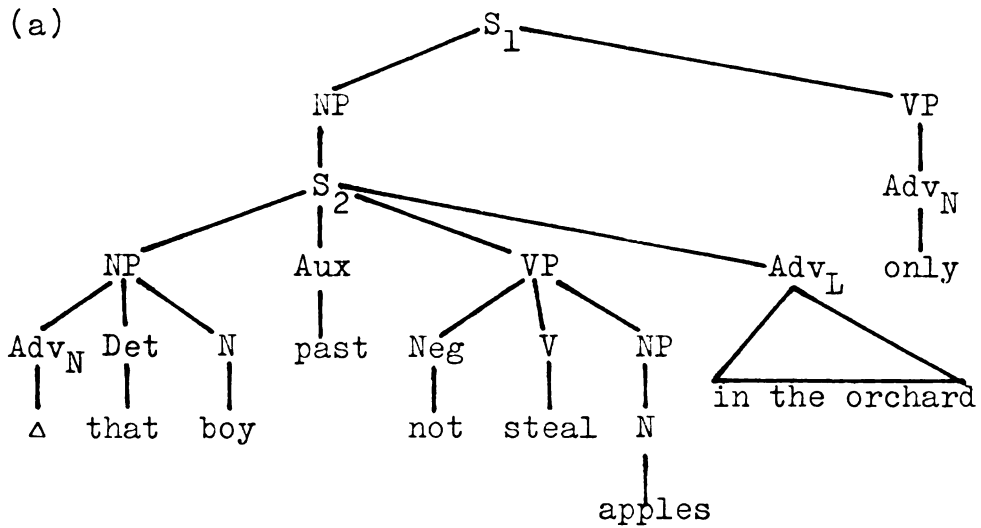
Furthermore, we note that the same is true of sentential adjectives. For instance, sentence (c) is ungrammatical if it is to be synonymous with (d):

(c) \*They will not certainly win the game.

(d) It is not certain that they will win the game.

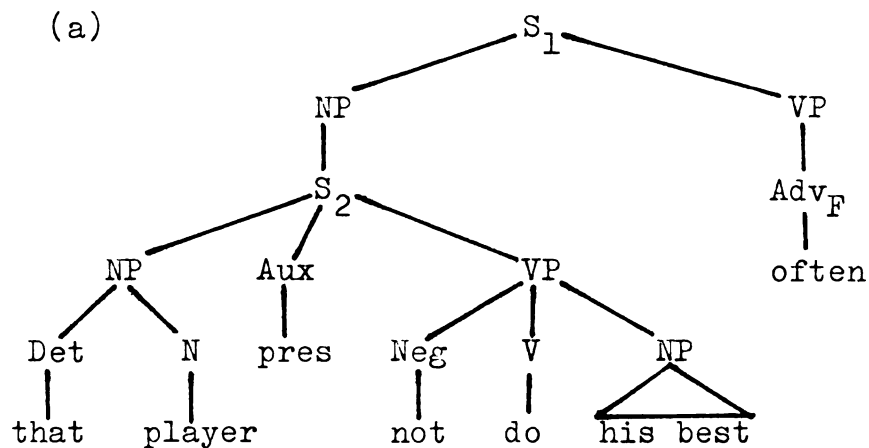
This restriction is also applicable to Japanese  $V_{S.T}$  and  $Adj_S$ .

20. To account for this fact, we propose that the structure underlying sentence (2.188c) be as follows:



A fuller discussion of sentences such as (2.188c) will be given in the next chapter.

21. To explain this fact, we hold that the underlying structure for (2.189c) will be:



For a detailed discussion of sentences such as (2.189c), see the next chapter.

22. See footnote 17.
23. The insertion of so seems not to be absolutely

necessary in that the following sentence without so may be grammatical and synonymous with sentence (2.199):

(a) It is not that many arrows hit the target.

24. In this connection, it should be noted that recent transformational arguments about negation and quantifiers (such as cited at the beginning of this chapter) are based on the similarities between negatives and quantifiers. For instance, G. Lakoff (1969) argues that both negatives and quantifiers are generated in the base as verbs of higher sentences, and moreover, as noted in section 1.1, his Quantifier-lowering rule seems to involve not only quantifiers but also negatives. Jackendoff (1969), (1971) also treats negatives and quantifiers similarly when he argues that the surface order of negatives and quantifiers determines the semantic interpretation of a sentence in which they occur. Furthermore, we may mention here that the English incomplete negatives such as few and little have the property of being both a negative and a quantifier at the same time.

25. After dake "only" is attached to  $\Delta$ , giving dake Mary ga, dake must be obligatorily shifted to follow Mary to derive Mary dake ga "only Mary." This shift of nominal adverbials may be compared with the shift of quantifiers, for instance, to derive (2.221b) from (2.221a).



26. Based on similar behaviors of numerals to quantifiers, we assume that numerals such as hutatuno "two" may be included in the category of quantifiers. In this connection, see Langacker (1972, 195), who includes many and seven in the same category of quantifiers.
27. As regards post-determiner quantifiers, see Carden (1970a). In particular, noting that post-determiner quantifiers behave differently from pre-determiner quantifiers in a number of ways, he convincingly argues that a post-determiner quantifier comes from a deep-structure non-restrictive relative clause with the quantifier in the overt-predicate position, in a way quite similar to non-restrictive adjectives. For instance, as in the following:
- (a) The boys, who were many, left. Adjective rule →
- (b) The many boys left.
28. Historically, the article a developed from the numeral ān "one" in the following way:
- ān "one" > an > a
- Incidentally, this diachronic change shows another fact that the article an is an older form than a.
29. Cited from Chomsky (1957:100-101) with a slight change.

## CHAPTER III

### INTERRELATIONS OF NEGATION AND ADVERBIALS

Continuing the preceding discussion, we consider, in this chapter, certain classes of adverbials in connection with negation. Our major hypotheses in this chapter are as follows:

1. Nominal adverbials, adverbials of frequency, adverbials of reason and purpose including benefactive adverbials behave like quantifiers with respect to negation, and so they may be treated in a way similar to quantifiers.
2. If 1 is acceptable and established, we may apply the analysis proposed in Chapter II to these adverbials, and by so doing we may test and confirm the validity of this analysis in both Japanese and English.
3. Manner adverbials may not co-occur with verb-phrase negation. If this is acceptable, it will provide further support for the twofold distinction of negation, sentential and verb-phrase, in the proposed analysis.

#### 3.1. Negation and Nominal Adverbials in Japanese

The first class of adverbials requiring discussion in connection with negation includes dake "only," (de)saemo "even," mo "too, also" and others, which may be called

nominal adverbials in that they appear attached to noun phrases. For instance, consider the following:

(3.1) John dake ga sono himitu o sitteiru.  
           only     the secret     know  
           'Only John knows the secret.'

(3.2) John desaemo sono himitu o sitteiru.  
           even     the secret     know  
           'Even John knows the secret.'

(3.3) John mo sono himitu o sitteiru.  
           also the secret     know  
           'John also knows the secret.'

First of all, let us consider dake "only" with respect to negation:

(3.4) [sono syoonen dake ga ohiru o tabe nakatta]<sub>S</sub>  
           that boy only lunch eat not-did  
           'Only that boy did not eat lunch.'

(3.5) [[sono syoonen dake ga ohiru o tabeta wake]<sub>S</sub> de  
           that boy only lunch ate that is  
           wa nai]<sub>S</sub>  
           not

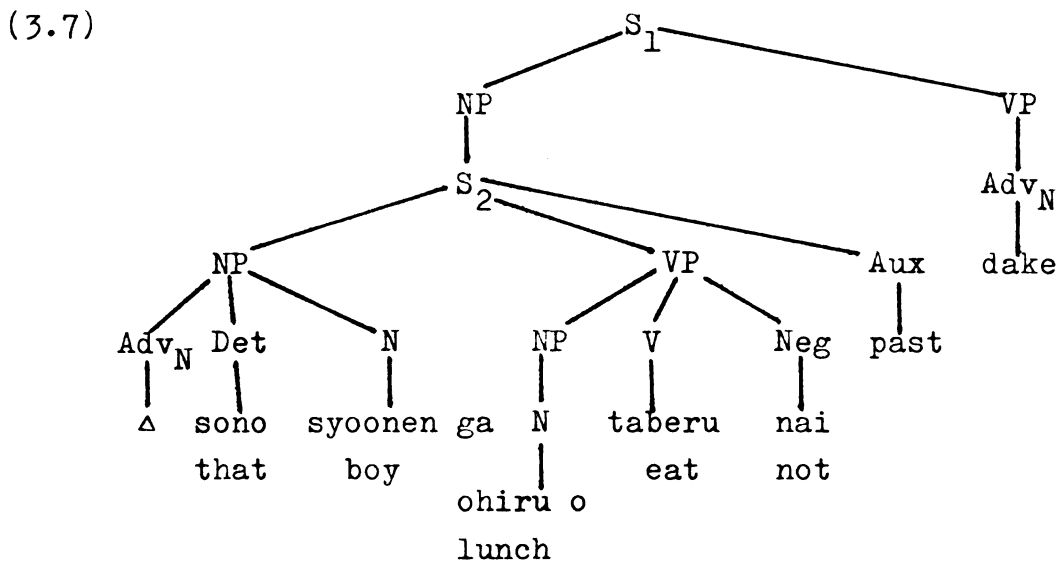
'It is not so that only that boy ate lunch.'

Clearly sentences (3.4) and (3.5) are not synonymous. It is observed that in (3.5) nai "not" in the higher sentence includes dake "only" in its scope, and the non-synonymy of (3.4) and (3.5) suggests that dake "only" in (3.4) is outside the scope of negation. This is directly confirmed by the synonymy of (3.4) with (3.6):

- (3.6) [[ohiru o tabe nakatta no]<sub>S</sub> wa sono syoonen  
 lunch eat not-did that that boy  
dake da]<sub>S</sub>  
 only is

'It is only that boy that did not eat lunch.'

In (3.6) dake "only" in the higher sentence is outside the scope of negation. The synonymity of (3.4) with (3.6) along with its non-synonymity with (3.5) demonstrates that dake in (3.4) is outside the scope of negation. Furthermore, since the scope of negation is the whole sentence in which it occurs, we maintain that dake in (3.4) is outside the sentence containing the negation in the underlying structure. Thus, the underlying structure for sentence (3.4) will be as follows:



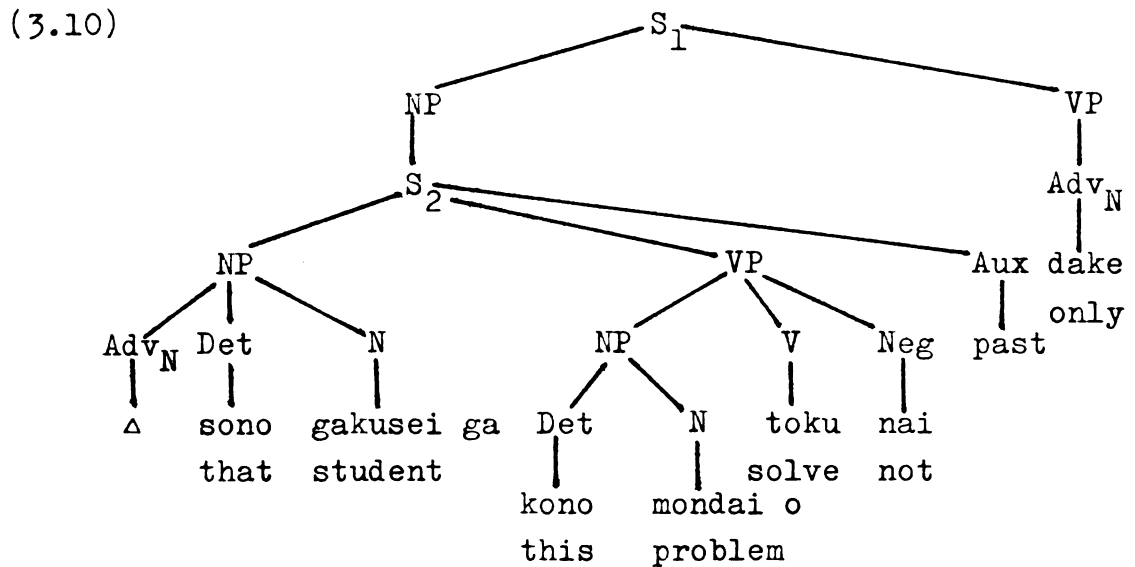
The structure (3.7) indicates that since the scope of the negative is  $S_2$ , dake is outside of its scope. Here, note the use of a dummy symbol  $\Delta$  which is meant to stand for an

unspecified nominal adverbial. The use of  $\Delta$  is necessary, in particular, to distinguish the underlying structures for sentences such as (3.8) and (3.9):

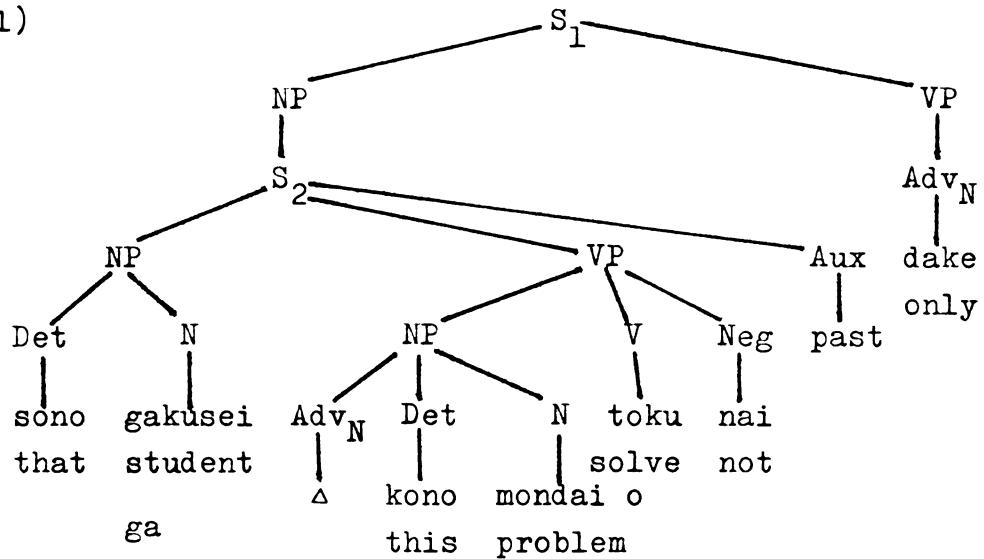
(3.8) sono gakusei dake ga kono mondai o toka nakatta.  
 that student only this problem solve not-did  
 'Only that student did not solve this problem.'

(3.9) sono gakusei wa kono mondai dake wa toka nakatta.  
 that student this problem only solve not-did  
 'Only this problem, that student did not solve.'

That is, the structures underlying (3.8) and (3.9) will be distinguished in terms of  $\Delta$ , as follows, with unnecessary details aside:



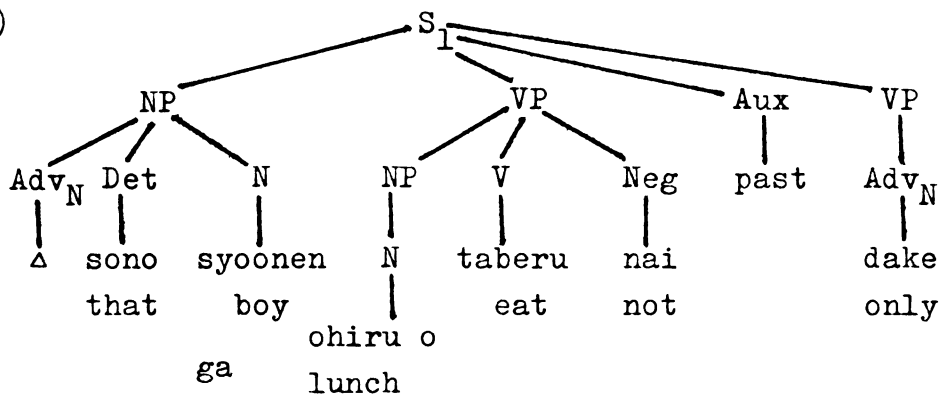
(3.11)



The relevant difference between these structures reflects the semantic difference between the sentences derived from them, namely, (3.8) and (3.9).

Now, turning to the derivation of sentence (3.4) from (3.7), Sentence-raising applies to (3.7), deriving the intermediate structure:

(3.12)



Then, the adverbial dake "only" must be attached to  $\Delta$ . But recall that this operation can be covered by the Quantifier-attachment rule in (2.274), repeated here as (3.13):

(3.13)(=2.274)

$$X \quad [ \Delta \text{ (Det) } N ]_{NP} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \rightarrow$$

$$X \quad [ \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \text{ (Det) } N ]_{NP} \quad Y$$

where X and Y are variables, and X  
contains no Quant, Adv<sub>N</sub> or Neg

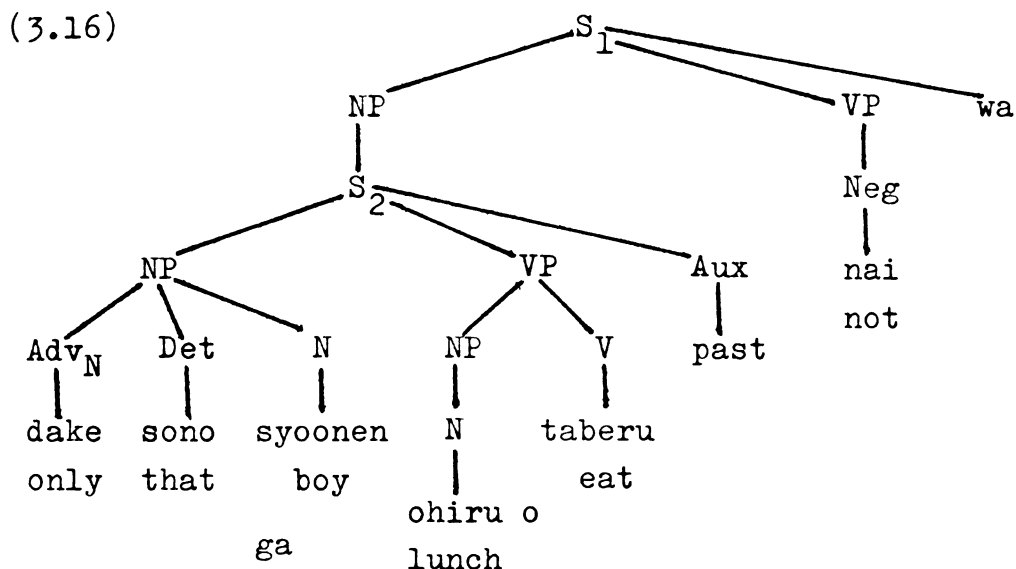
This transformation, applied to (3.12), attaches dake "only" to  $\Delta$ , giving sentence (3.4).<sup>1</sup> Thus, no new transformation is necessary to take care of the derivation of sentences such as (3.4) from (3.7).

Here, it may be mentioned that dake is not just shifted but attached to the unspecified nominal adverbial  $\Delta$  in the sense that sono syoonen dake ga "only that boy" as a unit forms a noun phrase. This can be easily shown by the passive and the reflexive tests as follows:

(3.14) kanozyo wa sono syoonen dake ni sukarete iru.  
she that boy only by liked is  
'She is liked by only that boy.'

(3.15) sono syoonen dake ga zibun(zisin) o kitaete iru.  
that boy only himself training is  
'Only that boy is training himself.'

Next, let us consider sentence (3.5). Based on the observation that in (3.5) the negative in the higher sentence includes dake in its scope, we maintain that the underlying structure for (3.5) will be as follows:



This structure indicates that the nominal adverbial dake "only" is inside the scope of negation. Inserting a complementizer and a copula into  $S_2$  and  $S_1$ , respectively, we get sentence (3.5). In this particular case, there is no synonymous counterpart of (3.5) which is derived from (3.16) by the application of Contrastive wa-attachment. That is, sentence (3.17) is not synonymous with (3.5) and this is due to the idiosyncrasy of dake "only" in Japanese:

- (3.17) sono syoonen dake wa ohiru o tabe nakatta.  
 that boy only lunch eat not-did  
 'Only that boy did not eat lunch.'

In order to derive the underlying structure (3.7), we need the following base rule:

- (3.18) a. (=2.218a)  $S \rightarrow NP VP (Aux) (wa)$   
 b.  $VP \rightarrow Adv_N$

In turn, the derivation of the underlying structure (3.16) will require the following rule in addition to (3.18):<sup>2</sup>



$$(3.19) \quad NP \rightarrow \left\{ \begin{array}{l} (S) (Adv_N) (Det) N \\ S (NP) \end{array} \right\}$$

Rule (3.18b) may conjoin with (2.219) into (3.20) and rule (3.19) may conjoin with (2.218c) into (3.21):<sup>3</sup>

$$(3.20) \quad VP \rightarrow \left\{ \begin{array}{l} (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \end{array} \right\}$$

$$(3.21) \quad NP \rightarrow \left\{ \begin{array}{l} (S) (Adv_N) (Quant) (Det) N \\ S (NP) \end{array} \right\}$$

The foregoing discussion demonstrates that the semantic difference between (3.4) and (3.5) may be reduced to the difference between sentential and verb-phrase negation: only sentential negation can include nominal adverbials such as dake "only" in its scope.

Adding to this discussion, let us examine next the following sentences involving negation and another nominal adverbial (de)saemo "even":

(3.22) Tom desaemo kanozyo o settoku-deki nai.  
           even        her        persuade can not  
           'Lit. Even Tom cannot persuade her.'

(3.23) [[Tom desaemo kanozyo o settoku-dekiru wake]<sub>S</sub>  
           even        her        persuade can that  
           de wa nai]<sub>S</sub>  
           is        not  
           'Lit. It is not so that even Tom can persuade her.'

There is some semantic difference between (3.22) and (3.23), though (3.23) may not be used as commonly as (3.22). For

instance, they will occur in the following contexts:<sup>4</sup>

(3.24) kimi ga kanozzyo o settoku-deki nai no wa toozen  
 you her persuade can not that no wonder  
 da ga Tom desaemo kanozzyo o settoku-deki nai.  
 is but even her persuade can not  
 'Lit. It is no wonder that you cannot persuade  
 her but even Tom cannot persuade her.'

(3.25) kimi ga kanozzyo o settoku-dekiru no wa toozen  
 you her persuade can that no wonder  
 da ga Tom desaemo kanozzyo o settoku-dekiru wake  
 is but even her persuade can that  
 de wa nai.  
 is not  
 'Lit. It is no wonder that you can persuade her  
 but it is not so that even Tom can persuade  
 her.'

The semantic difference between (3.22) and (3.23) is confirmed by the fact that (3.22) cannot occur in the context of (3.25), nor can (3.23) occur in that of (3.24):

(3.26) \*kimi ga kanozzyo o settoku-dekiru no wa toozen  
 you her persuade can that no wonder  
 da ga Tom desaemo kanozzyo o settoku-deki nai.  
 is but even her persuade can not  
 'Lit. It is no wonder that you can persuade her  
 but even Tom cannot persuade her.'

(3.27) \*kimi ga kanozyo o settoku-deki nai no wa toozen  
 you her persuade can not that no wonder  
 da ga Tom desaemo kanozyo o settoku-dekiru wake  
 is but even her persuade can that  
 de wa nai.  
 is not

'Lit. It is no wonder that you cannot persuade  
 her but it is not so that even Tom can  
 persuade her.'

The ungrammaticality of (3.26) and (3.27) shows that  
 sentences (3.22) and (3.23) are not interchangeable in the  
 above contexts; this clearly demonstrates that they are not  
 synonymous.

Furthermore, we note that sentence (3.23) may often be  
 replaced by some other sentence. In this connection,  
 compare the following:

(3.28) a. Tom desaemo kanozyo o settoku-dekiru.  
 even her persuade can

'Lit. Even Tom can persuade her.'

b.(=3.22) Tom desaemo kanozyo o settoku-deki nai.  
 even her persuade can not

'Lit. Even Tom cannot persuade her.'

Sentence (3.28a) implies that there is some other person who  
can persuade her, whereas sentence (3.28b) implies that  
 there is some other person who cannot persuade her. Then,  
 re-examine (3.23). Sentence (3.23) in its primary reading  
 means that there is some other person who can persuade her,  
 but Tom cannot persuade her. This is to say that in  
 contrast with someone (who can do so) Tom cannot persuade

her. This meaning can be expressed by the following sentence involving a contrastive wa:

(3.29) Tom wa kanozyo o settoku-deki nai.  
her persuade can not

'Tom (in contrast with someone else) cannot persuade her.'

Sentence (3.29) is more straightforward than (3.23), expressing a similar meaning. To show the semantic similarity of (3.29) to (3.23), sentence (3.29) can occur in the context of (3.25) but not of (3.24); hence the grammaticality of (3.30) but the ungrammaticality of (3.31):

(3.30) kimi ga kanozyo o settoku-dekiru no wa toozen  
you her persuade can that no wonder

da ga Tom wa kanozyo o settoku-deki nai.  
is but her persuade can not

'It is no wonder that you can persuade her but Tom cannot persuade her.'

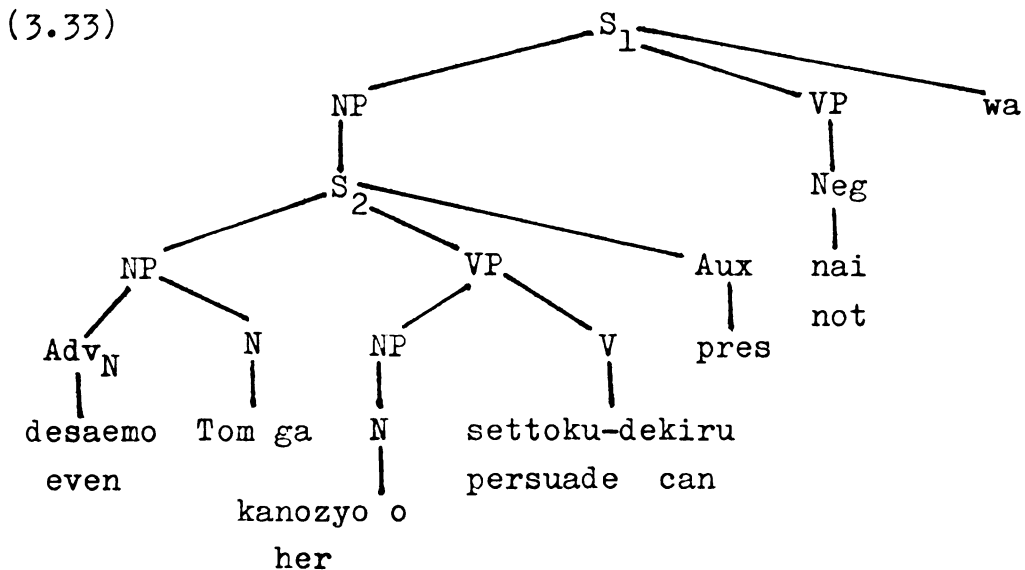
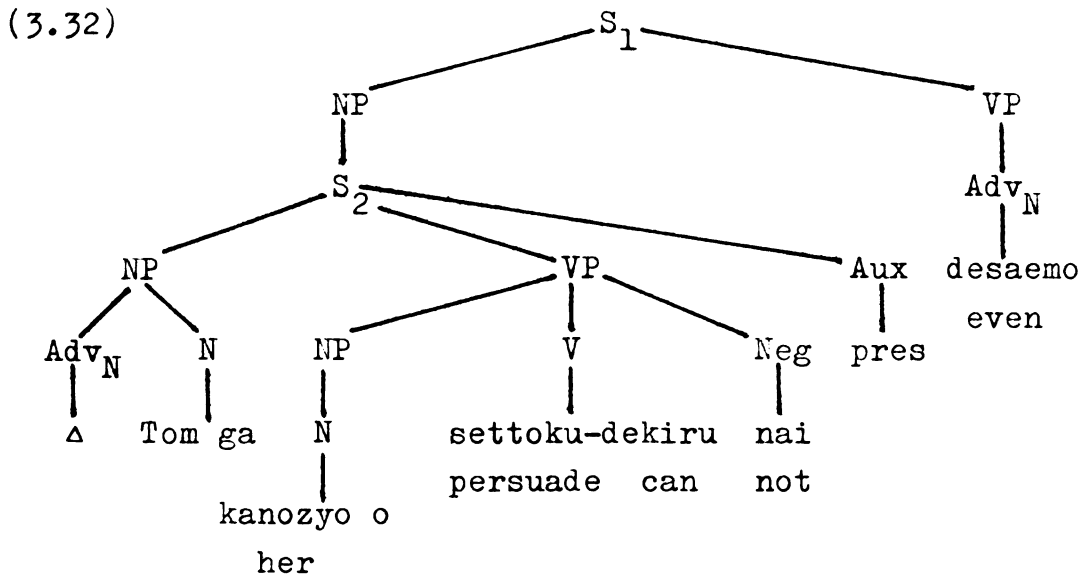
(3.31) \*kimi ga kanozyo o settoku-deki nai no wa toozen  
you her persuade can not that no wonder

da ga Tom wa kanozyo o settoku-deki nai.  
is but her persuade can not

'It is no wonder that you cannot persuade her but Tom cannot persuade her.'

From the foregoing discussion we see that sentence (3.22) is not synonymous with (3.23). In (3.23) the negative in the higher sentence includes desaemo "even" in its scope, and the non-synonymity of (3.22) with (3.23) suggests that desaemo in (3.22) is not included in the scope of the negative. This in turn suggests that since the scope of the negative is the whole sentence in which it occurs,

desaemo "even" in (3.22) occurs outside the sentence containing the negative in the underlying structure. Consequently, the structures underlying (3.22) and (3.23) will be (3.32) and (3.33), respectively, with unnecessary details aside:



The relevant difference between them reflects the semantic difference between sentences (3.22) and (3.23). The

derivation of (3.22) from (3.32) involves the application of Sentence-raising and Quantifier-attachment stated in (3.13). In turn, the derivation of (3.23) from (3.33) requires the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively.

Extending this discussion, we may now consider the third nominal adverbial mo "too, also" as in:

(3.34) Mary mo nemura nakatta.  
           either sleep not-did

'Mary did not sleep, either.'

(3.35) Mary mo nemutta wake de wa nai.  
           too slept that is not

'It is not so that Mary slept, too.'

The nominal adverbial mo behaves very similarly to (de)saemo "even" with respect to negation. This is not surprising after all, since (de)saemo contains mo. It is observed that sentences (3.34) and (3.35) are not synonymous: more specifically, (3.34) implies that some other person did not sleep either, while (3.35) implies that some other person slept. Thus, (3.35) may be almost synonymous with (3.36) containing a contrastive wa:

(3.36) Mary wa nemura nakatta.  
           sleep not-did

'Mary (in contrast with someone else) did not sleep.'

The difference between (3.34) and (3.35) may be compared with that between (3.37) and (3.38) in English:

(3.37) That pupil was not scolded, either.

(3.38) That pupil was not scolded, too.

Sentence (3.37) implies that there was some other pupil who was not scolded, whereas (3.38), if it is acceptable, implies that some other pupil was scolded. To put it differently, sentence (3.38) is synonymous with:

(3.39) It is not so that that pupil was scolded, too.

Summarizing the foregoing discussion, we have demonstrated that nominal adverbials in Japanese show semantic differences, depending upon whether they co-occur with sentential or verb-phrase negation. Clearly this provides further motivation for the twofold distinction of negation, sentential and verb-phrase.

### 3.2. Negation and Adverbials of Frequency in Japanese

Our concern in this section is to show that adverbials of frequency behave similarly to quantifiers with respect to negation. To illustrate the point, let us cite concrete examples such as:

(3.40) Mary wa itumo yakusoku o mamora nai.  
                   always promise           keep not

'Lit. Mary always does not keep her promise.'

(3.41) [[Mary wa itumo yakusoku o mamoru wake]<sub>S</sub> de wa  
                   always promise           keep that is  
                   nai]<sub>S</sub>  
                   not

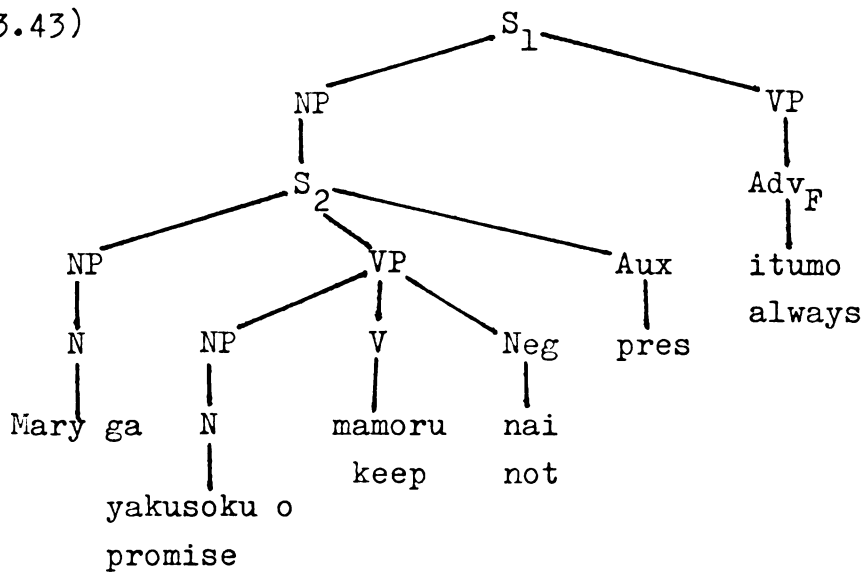
'It is not so that Mary always keeps her promise.'

Clearly sentence (3.40) is not synonymous with (3.41). We



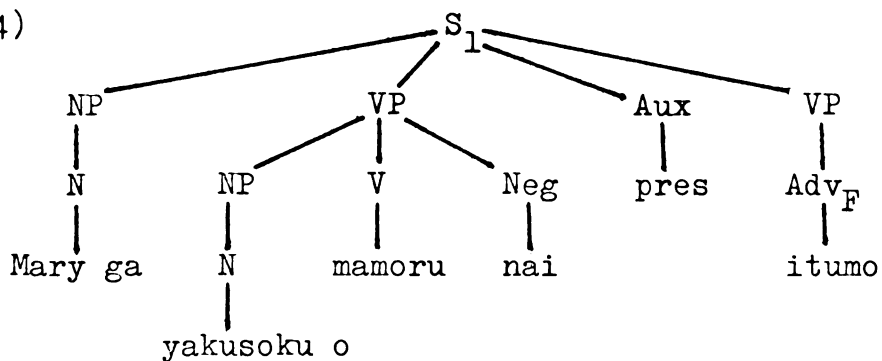


(3.43)



The structure (3.43) indicates that since the scope of negation is S<sub>2</sub>, itumo "always" is outside of its scope. The derivation of sentence (3.40) from (3.43) requires the application of Sentence-raising.<sup>5</sup> Applying Sentence-raising to (3.43), we derive:

(3.44)



If the adverbial is shifted to precede the subject noun phrase, the resulting sentence is as follows:

(3.45) itumo Mary wa yakusoku o mamoru nai.  
 always promise keep not

'Lit. Always Mary does not keep her promise.'

If, on the other hand, itumo "always" in (3.44) is shifted to follow the subject noun phrase, it yields sentence (3.46):

(3.46)(=3.40) Mary wa itumo yakusoku o mamora nai.  
 always promise keep not  
 'Lit. Mary always does not keep her  
 promise.'

Here we need some transformational rule to take care of the shift of adverbials such as itumo in the derivation of (3.45) and (3.46) from (3.44). This rule, which may be called Adverbial-movement, will be formulated as:

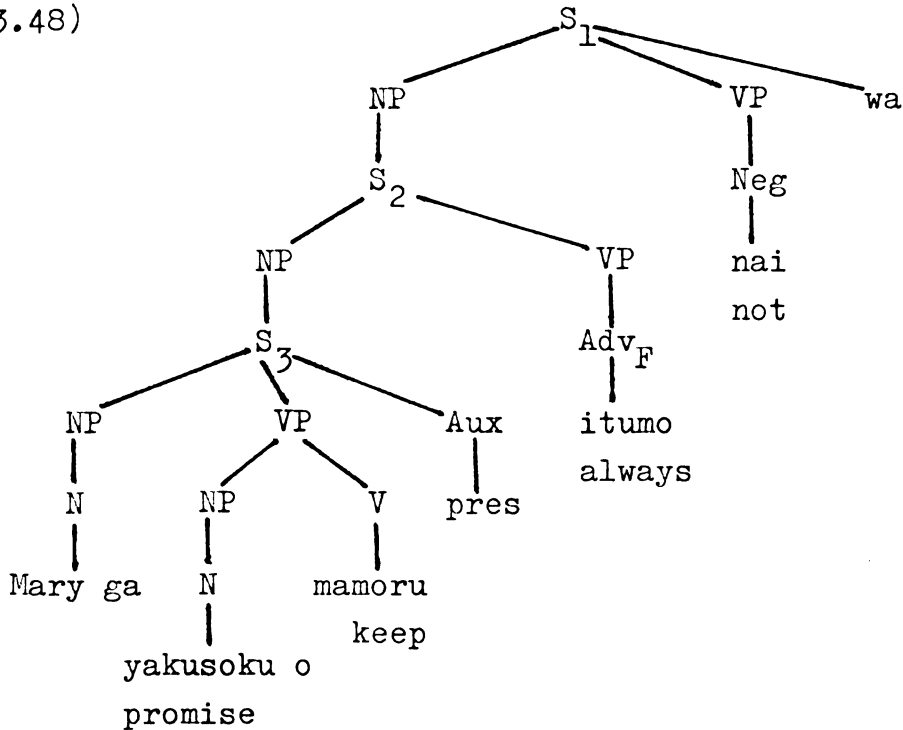
(3.47)  $[ X \quad NP \quad Y \quad Adv_F ]_S \longrightarrow X \left\{ \begin{array}{l} NP \quad Adv_F \\ Adv_F \quad NP \end{array} \right\} Y$

where X and Y are variables, and NP is  
 immediately dominated by S<sup>6</sup>

This transformation is not ad hoc since it is used to shift not only adverbials of frequency but also adverbials of reason and purpose, as will be discussed in the next section.

It is now time to consider sentence (3.41). The negation in (3.41) is sentential, as already noted, so sentence (3.41) will have the following underlying structure under our analysis:

(3.48)



After  $S_3$  is raised into  $S_2$ , the adverbial itumo "always" is moved to follow the subject noun phrase by the application of rule (3.47). Then, the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively, generates sentence (3.41). The relevant difference between adverbials of frequency and quantifiers is that wa cannot be attached to adverbials of frequency as in the case of quantifiers. In other words, sentences such as (3.49) cannot be synonymous with (3.41):

(3.49) Mary wa itumo wa yakusoku o mamoru nai.  
 always      promise      keep      not

'Mary usually does not keep her promise (but in this particular case she does).'

This is due to the idiosyncrasy of adverbials of frequency in general.

In order to derive underlying structures such as

(3.43) and (3.48), we will need the following base rules:

(3.50) a. (=3.18a)  $S \rightarrow NP VP (Aux) (wa)$

b.  $VP \rightarrow Adv_F$

Rule (3.50b) may conjoin with (3.20) into:

(3.51)

$$VP \rightarrow \left\{ \begin{array}{l} (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \end{array} \right\}$$

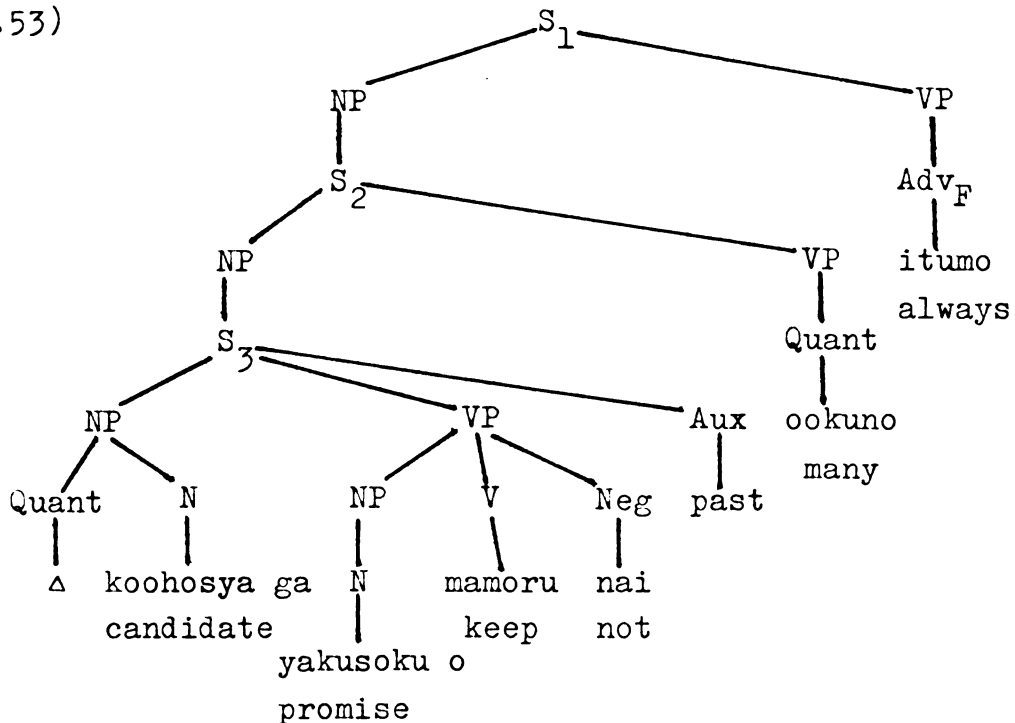
This rule can also derive structures such as (3.53)

underlying sentence (3.52):

(3.52) itumo ookuno koohosya ga yakusoku o mamora  
 always many candidate promise keep  
nakatta.  
 not-did

'Lit. Always many candidates did not keep their promises.'

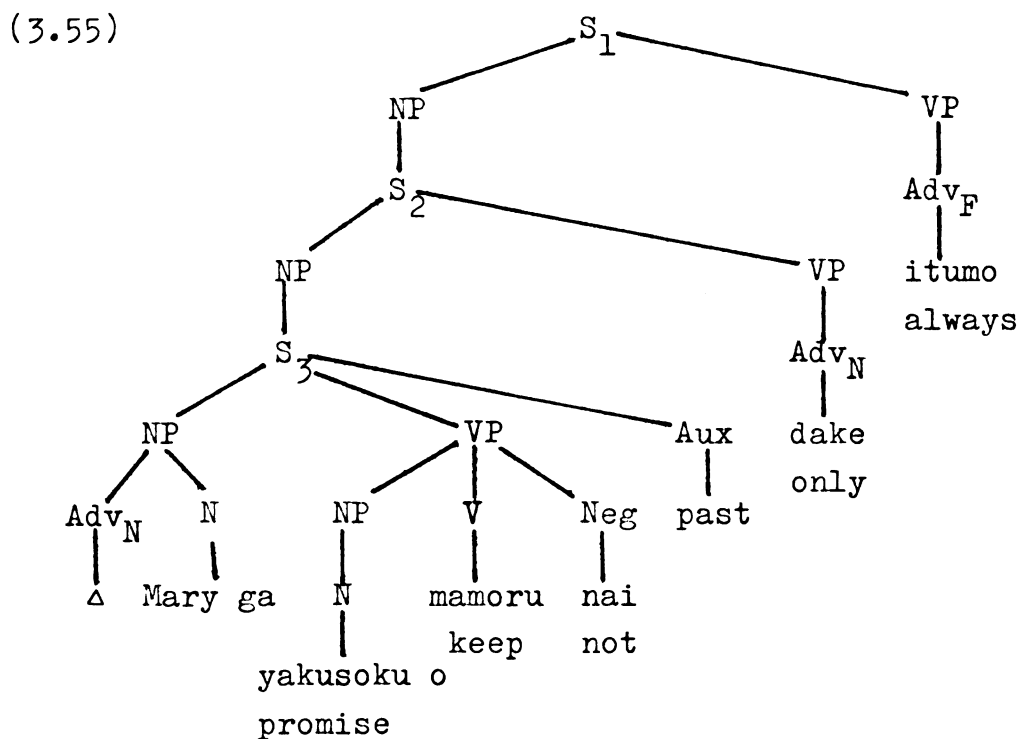
(3.53)



The structure (3.53) indicates that since the scope of negation is  $S_3$ , both of the adverbial and the quantifier are outside of its scope.

Quite similarly, rule (3.51) along with (3.50a) may give structures such as (3.55) underlying sentence (3.54):

- (3.54) itumo Mary dake ga yakusoku o mamora nakatta.  
 always only promise keep not-did  
 'Lit. Always only Mary did not keep her promise.'



This structure shows that the adverbial of frequency and the nominal adverbial are both outside the scope of negation.

Some other examples containing negation and an adverbial of frequency may be cited here:

- (3.56) a. [John wa sibasiba zibunno gimu o hatasa nai]<sub>S</sub>  
 often his duty perform not  
 'John often does not perform his duty.'

- b. [[John wa sibasiba zibunno gimu o hatasu  
often his duty perform  
wake]<sub>S</sub> de wa nai]<sub>S</sub>  
that is not  
'It is not so that John often performs his  
duty.'

- (3.57) a. [Bill wa taitei sippaisi nai]<sub>S</sub>  
in most cases fail not  
'In most cases Bill does not fail.'

- b. [[Bill wa taitei sippaisuru wake]<sub>S</sub> de wa nai]<sub>S</sub>  
in most cases fail that is not  
'It is not so that Bill fails in most cases.'

### 3.3. Negation and Adverbials of Reason and Adverbials of Purpose in Japanese

Now, we may proceed to consider the third class of adverbials that behave similarly to quantifiers with respect to negation. Let us take up adverbials of reason first:

- (3.58) kare wa sore ga riyuu de syussekisi nakatta.  
he that reason for attend not-did  
'For that reason he did not attend.'

- (3.59) [[kare wa sore ga riyuu de syussekisita wake]<sub>S</sub>  
he that reason for attended that  
de wa nai]<sub>S</sub>  
is not

'It is not so that he attended for that reason.'

Obviously sentences (3.58) and (3.59) are not synonymous.

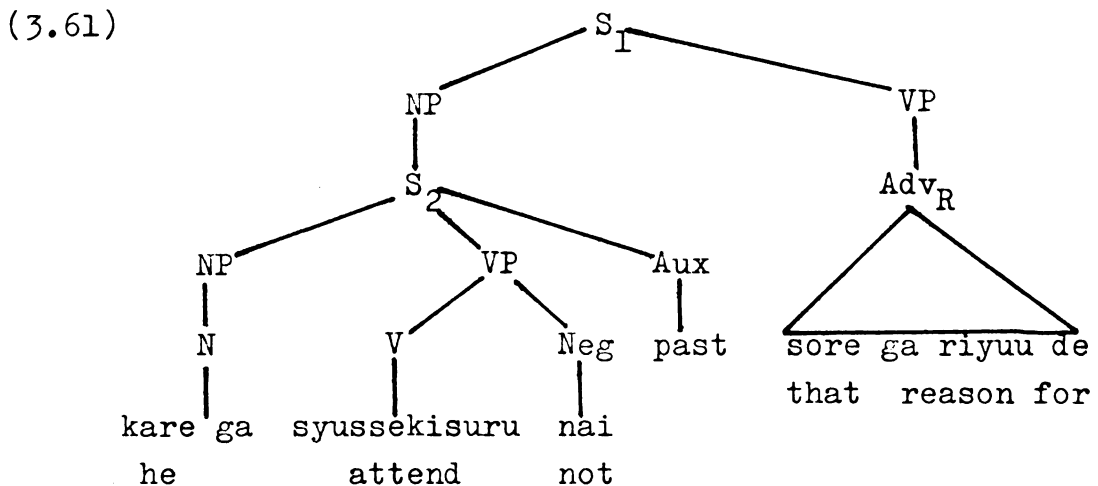
We observe that in (3.59) the negative nai in the higher sentence includes the adverbial in its scope, and that the

non-synonymy of (3.58) with (3.59) suggests that the adverbial in (3.58) is outside the scope of the negative. This observation is supported by the fact that (3.58) is synonymous with (3.60), in which the adverbial is outside the sentence containing the negative:

- (3.60) [[kare ga syusseki si nakatta no]<sub>S</sub> wa sore ga  
 he attend not-did that that  
riyuu da]<sub>S</sub>  
 reason is

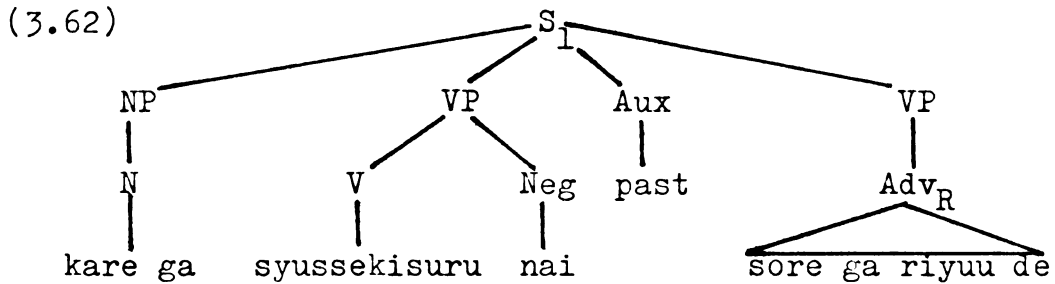
'Lit. It is for that reason that he did not attend.'

Since the scope of negation is the whole sentence in which it occurs, the adverbial in (3.60) is outside the scope of negation. Then it follows that the adverbial of (3.58) must be derived outside the sentence containing the negation in the underlying structure. This consideration permits us to set up the following underlying structure for sentence (3.58):

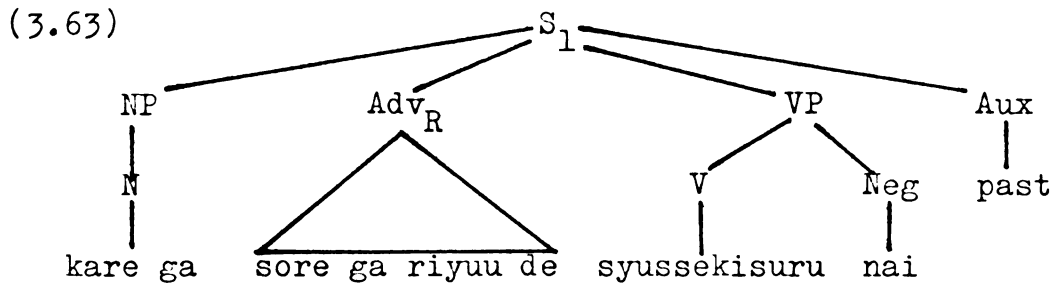


The structure (3.61) shows that since the scope of the

negative is  $S_2$ , the adverbial is outside of its scope. Applying Sentence-raising,<sup>7</sup> we derive the intermediate structure:



Next, applying Adverbial-movement to move the adverbial to follow the subject noun phrase, we get (3.63):



This structure becomes sentence (3.58). If, on the other hand, the adverbial sore ga riyuu de "for that reason" in (3.62) is moved to precede the subject noun phrase kare ga "he," the resulting sentence is as follows:

- (3.64) sore ga riyuu de kare wa syussekisi nakatta.  
 that reason for he attend not-did  
 'For that reason he did not attend.'

It should be noticed that the movement of the adverbial to derive sentences (3.58) and (3.64) from (3.62) can be taken care of by rule (3.47), if it is slightly revised to:



(3.65)

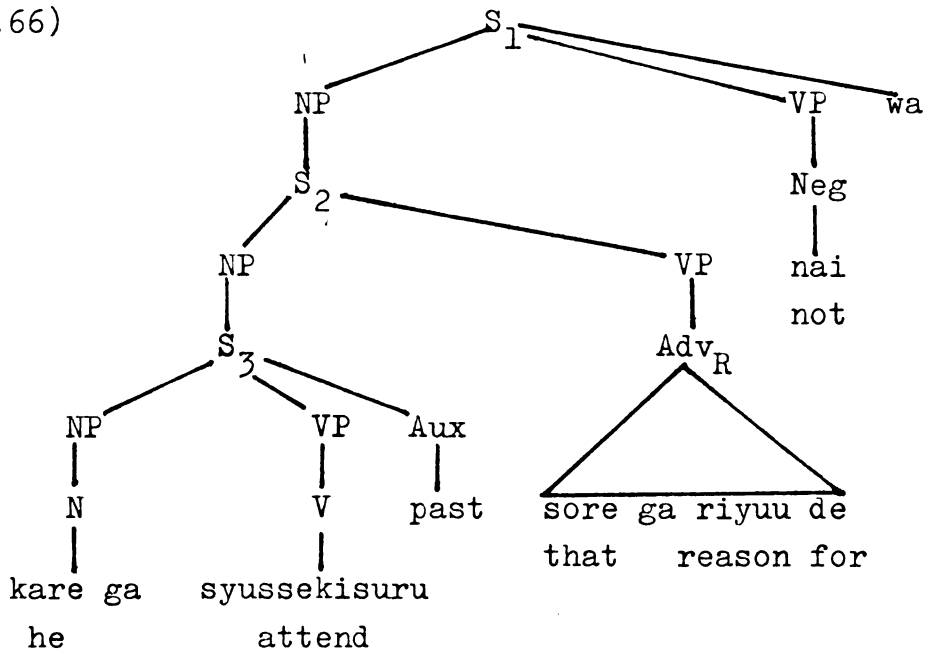
$$[ X \text{ NP } Y \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} ]_S \rightarrow X \left\{ \begin{array}{l} \text{NP} \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} \\ \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} \text{NP} \end{array} \right\} Y$$

where X and Y are variables, and NP is immediately dominated by S

This revision makes the rule more general, since it becomes applicable to adverbials of reason and purpose in addition to adverbials of frequency.

Turning next to sentence (3.59), it will be derived from the underlying structure (3.66) under our analysis:

(3.66)



This structure indicates that the adverbial is inside the scope of the negative in  $S_1$ . After  $S_3$  is raised into  $S_2$ , the adverbial is moved to follow the subject noun phrase. Then, inserting a complementizer into  $S_2$  and a copula into  $S_1$ , we derive sentence (3.59).

A similar analysis holds for the following pair of sentences containing an adverbial of reason composed of an embedded sentence:

- (3.67) [Jane wa sono inu ga kowakatta kara  
                   the dog was afraid of because  
 isi o nage nakatta]<sub>S</sub>  
 stone throw not-did

'Lit. Because Jane was afraid of the dog, she did not throw a stone at it.'

- (3.68) [[Jane wa sono inu ga kowakatta kara  
                   the dog was afraid of because  
 isi o nageta wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 stone threw that is not

'It is not so that Jane threw a stone at the dog because she was afraid of it.'

In (3.68), the negation in the higher sentence includes the adverbial in its scope and the non-synonymy of (3.67) with (3.68) suggests that the adverbial in (3.67) is outside the scope of negation. This is directly confirmed by the synonymy of (3.67) with (3.69), in which the adverbial is outside the sentence containing the negative:

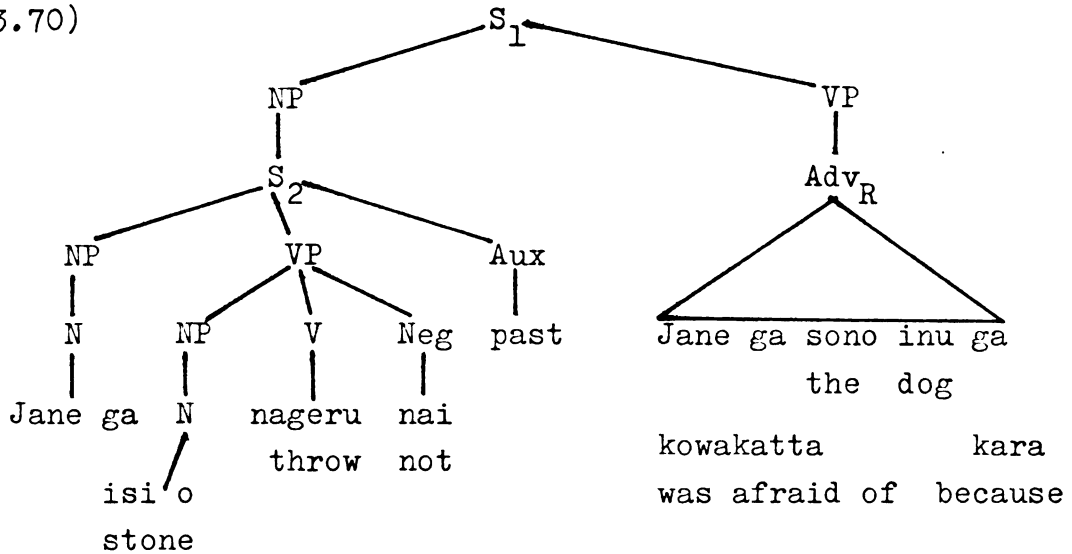
- (3.69) [[Jane ga isi o nage nakatta no]<sub>S</sub> wa [sono inu  
                   stone throw not-did that the dog  
 ga kowakatta kara]<sub>Adv<sub>R</sub></sub> da]<sub>S</sub>  
                   was afraid of because<sup>R</sup> is

'Lit. It is because Jane was afraid of the dog that she did not throw a stone.'

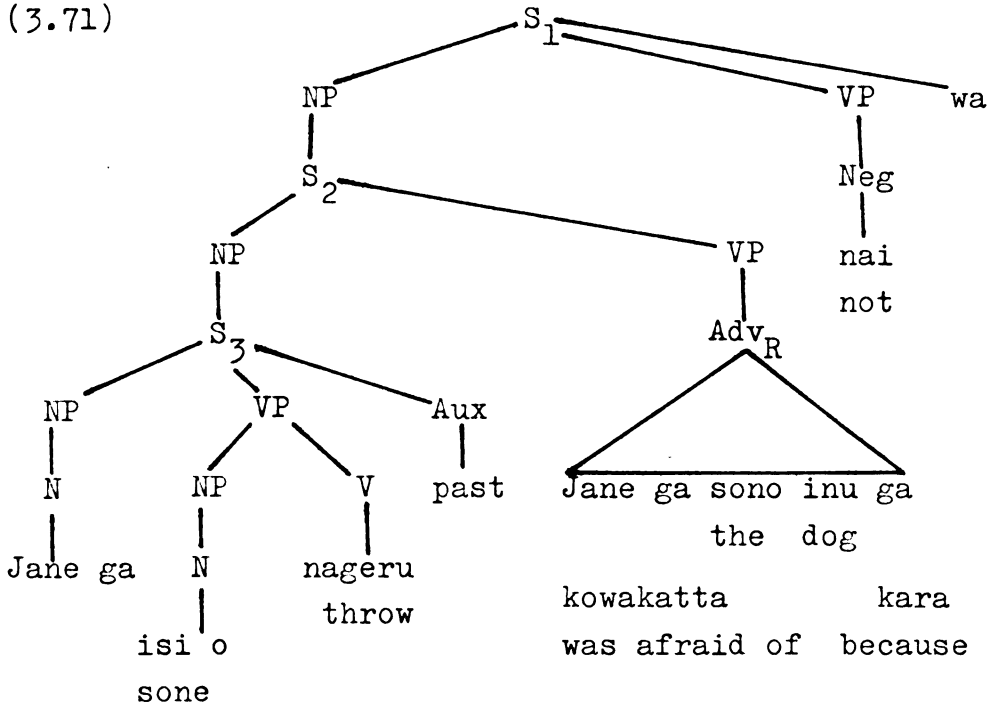
As the scope of negation is the whole sentence in which it occurs, the adverbial in (3.69) is outside the scope of negation. Accordingly, the underlying structures for (3.67)

and (3.68) will be (3.70) and (3.71), respectively, with unnecessary details aside:

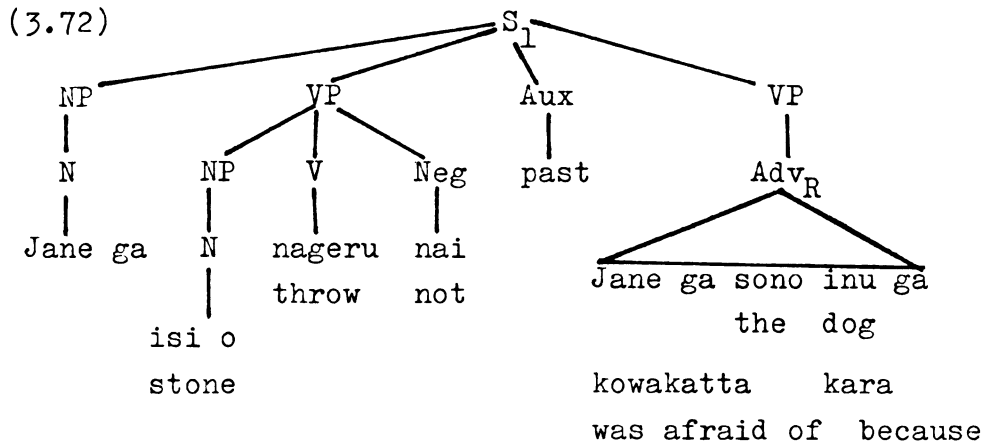
(3.70)



(3.71)



The application of Sentence-raising to (3.70) will derive the following intermediate structure:



Next, if Adverbial-movement applies to move the adverbial to follow the subject noun phrase, we get sentence (3.67). If, on the other hand, the same transformation applies in such a way as to move the adverbial in (3.72) to precede the subject noun phrase, the resulting sentence is as follows:

- (3.73) sono inu ga kowakatta kara Jane wa isi  
 the dog was afraid of because stone  
 o nage nakatta.  
 throw not-did

'Because Jane was afraid of the dog, she did not throw a stone at it.'

In turn, the derivation of sentence (3.68) from (3.71) requires first the raising of  $S_3$  into  $S_2$ . Then, the adverbial is moved to follow the subject noun phrase. Next, the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively, generates sentence (3.68).

The above argument also holds for adverbials of purpose with respect to negation. To cite just one example, consider the following:

(3.74) [karera wa kanozoyo o tasukeru tameni hontoono  
 they her help to true  
 koto o iwa nakatta]<sub>S</sub>  
 thing tell not-did

'They did not tell the truth to help her.'

(3.75) [[karera wa kanozoyo o tasukeru tameni hontoono  
 they her help to true  
 koto o itta wakel]<sub>S</sub> de wa nai]<sub>S</sub>  
 thing told that is not

'It is not so that they told the truth to help her.'

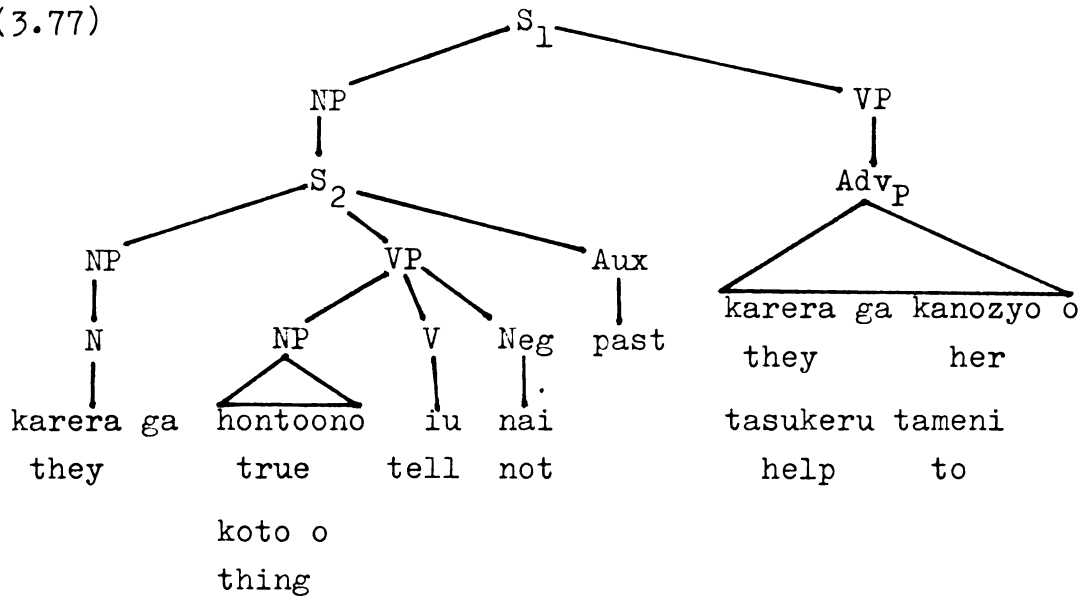
Sentence (3.74) may be ambiguous but its primary reading is not synonymous with that of (3.75). In (3.75) the negative in the higher sentence includes the adverbial in its scope, and the non-synonymy of (3.74) with (3.75) suggests that the adverbial in (3.74) is outside the scope of negation. This is clearly supported by the synonymy of (3.74) with (3.76), in which the adverbial is outside the sentence containing the negation:

(3.76) [[karera ga hontoono koto o iwa nakatta no]<sub>S</sub> wa  
 they true thing tell not-did that  
 [kanozoyo o tasukeru tame(ni)]<sub>Adv<sub>P</sub></sub> da]<sub>S</sub>  
 her help to is

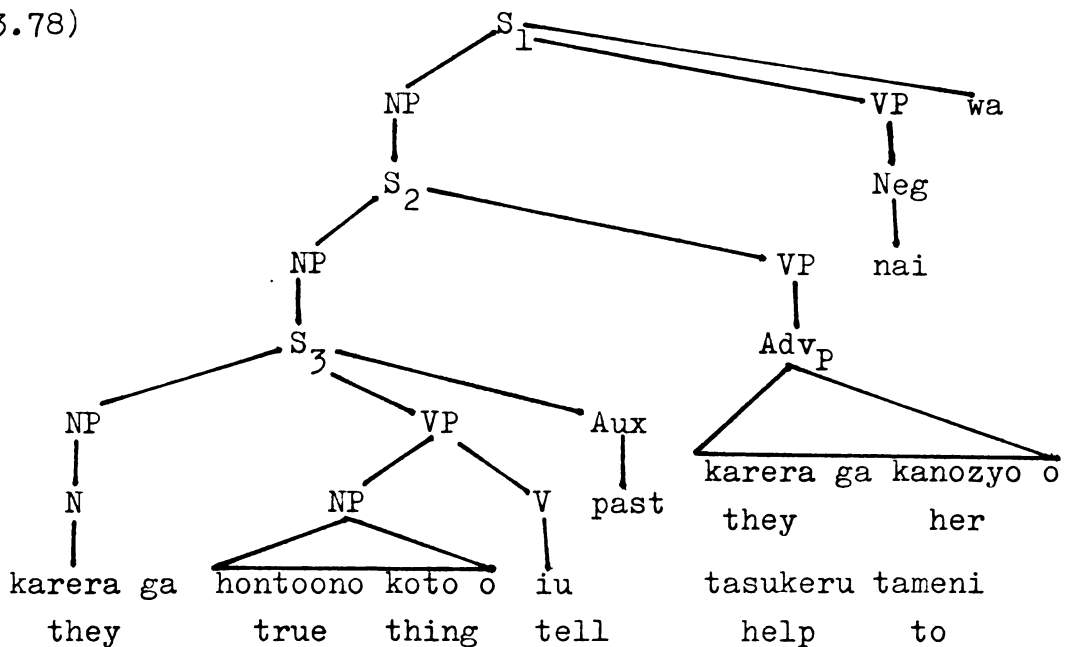
'Lit. It is to help her that they did not tell the truth.'

Based on this observation, we maintain that the underlying structures for sentences (3.74) and (3.75) will be (3.77) and (3.78), respectively:

(3.77)

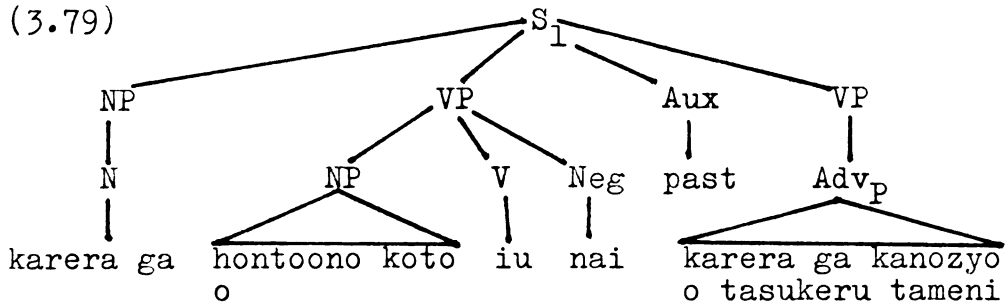


(3.78)



Observe the relevant difference between them: in (3.77) the scope of the negative is S<sub>2</sub> and the adverbial is outside of its scope, whereas in (3.78) the negative, whose scope is S<sub>1</sub>, includes the adverbial in its scope. Now, let us consider the derivation of (3.74) from (3.77). Applying Sentence-raising to (3.77), we get the following intermediate

structure:



Then, the movement of the adverbial gives sentence (3.74). In turn, the derivation of sentence (3.75) from (3.78) requires the raising of  $S_3$  into  $S_2$  and the movement of the adverbial as well as the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively.

Here, so-called benefactive adverbials may be included, for our purpose, with adverbials of purpose in the broad sense of the word. They behave quite similarly to adverbials of purpose with regard to negation. To illustrate the point, let us consider the following:

(3.80) sensei wa kimino tame o omotte kimi o home  
 teacher your good for you praise  
nakatta.  
 not-did

'For your good the teacher did not praise you.'

(3.81) [[sensei wa kimino tame o omotte kimi o hometa  
 teacher your good for you praised  
 wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 that is not

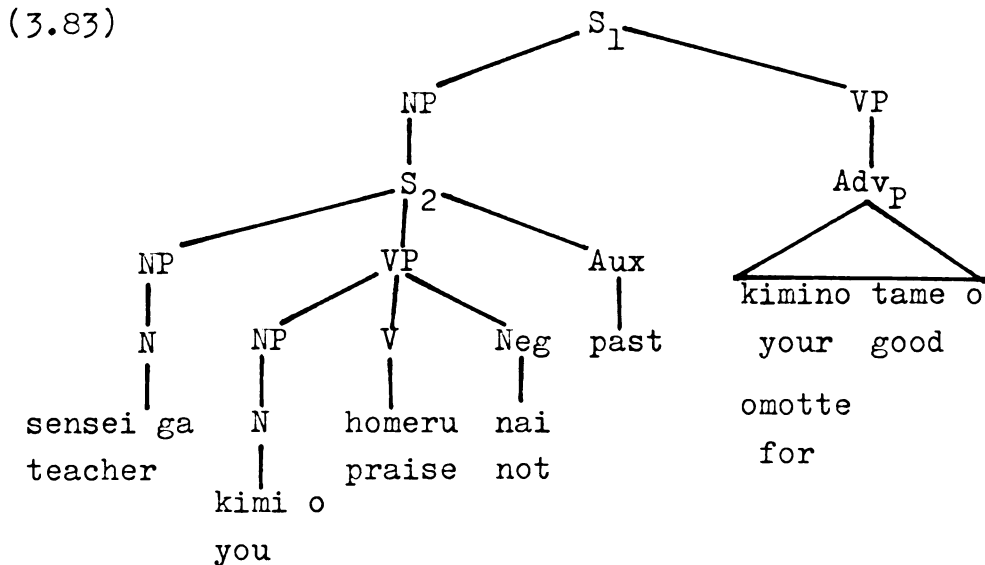
'It is not so that the teacher praised you for your good.'

That is, sentence (3.80) is not synonymous with (3.81); only (3.80) can be synonymous with (3.82):

(3.82) [[sensei ga kimi o home nakatta no]<sub>S</sub> wa kimino  
 teacher you praise not-did that your  
tame o omotte da]<sub>S</sub>  
 good for is

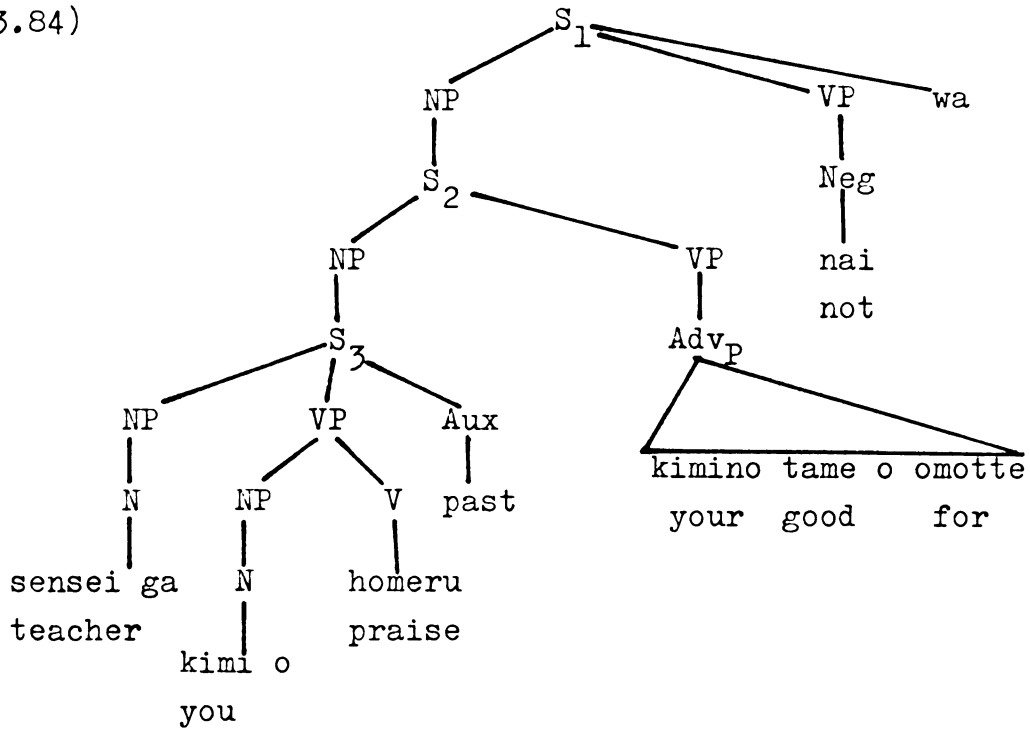
'Lit. It is for your good that the teacher did not praise you.'

The synonymy of (3.80) with (3.82) suggests that the adverbial is outside the scope of negation in (3.80). In (3.81), on the other hand, the adverbial is included in the scope of negation since the negation occurs in a higher sentence than the adverbial. Based on this consideration, we hold that sentences (3.80) and (3.81) will have the following underlying structures, respectively:



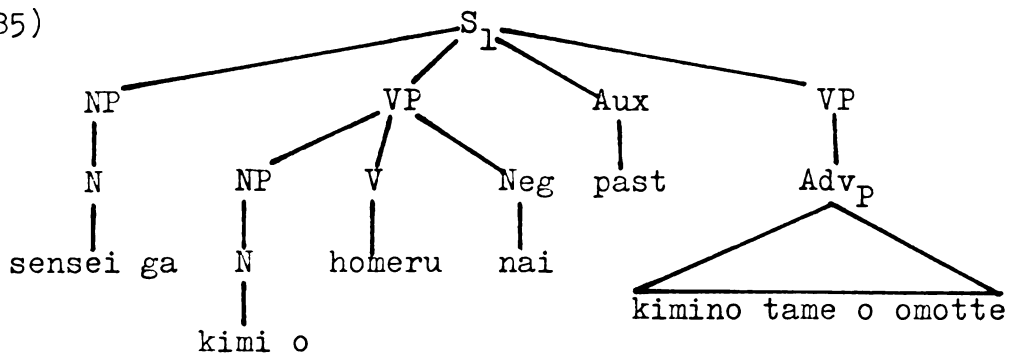


(3.84)



The structure (3.83) shows that the adverbial is outside the scope of negation, while (3.84) indicates that the negative, whose scope is S<sub>1</sub>, includes the adverbial in its scope. Now, the application of Sentence-raising to (3.83) derives the following intermediate structure:

(3.85)



Next, the movement of the adverbial yields sentence (3.80). In turn, the derivation of sentence (3.81) from (3.84) involves the raising of S<sub>3</sub> into S<sub>2</sub>, the movement of the

adverbial as well as the insertion of a complementizer and a copula into  $S_2$  and  $S_1$ , respectively.

Now, in order to derive underlying structures such as (3.61), (3.66), (3.70), (3.71), (3.77), (3.78), (3.83) and (3.84), we will need the following base rules:

(3.86) a.(=3.50a)  $S \rightarrow NP VP (Aux) (wa)$

b.  $VP \rightarrow Adv_{R.P}$

Rule (3.86b) may conjoin with (3.51) into:

(3.87)  $VP \rightarrow \left\{ \begin{array}{l} (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$

Summarizing the foregoing discussion, we see that adverbials of reason and adverbials of purpose including benefactive adverbials behave quite similarly to quantifiers with respect to negation. In particular, we have noted that they show significant semantic differences, depending upon whether they occur with sentential or verb-phrase negation.

#### 3.4. The Application of the Analysis to the Corresponding English Adverbials

Our particular concern in this section is to apply the proposed analysis of certain classes of Japanese adverbials in regard to negation to the corresponding English adverbials with respect to negation. By so doing, we will attempt to show its validity and applicability to English as well as to Japanese. We will consider nominal adverbials, adverbials

of frequency and adverbials of reason and purpose in that order.

### 3.4.1. Negation and Nominal Adverbials in English

We have called dake "only," (de)saemo "even" and mo "too, also" nominal adverbials in Japanese. Their English equivalents are only, even and too or also. The arguments given about Japanese nominal adverbials with respect to negation are largely valid for English nominal adverbials as well.

Let us consider only first, citing the following examples:

(3.88) Only that man does not know the secret.

(3.89) Not only that man knows the secret.

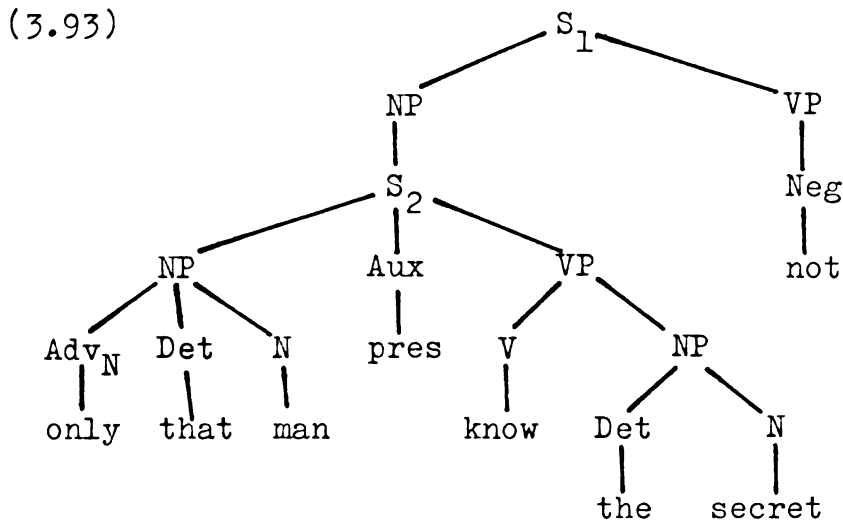
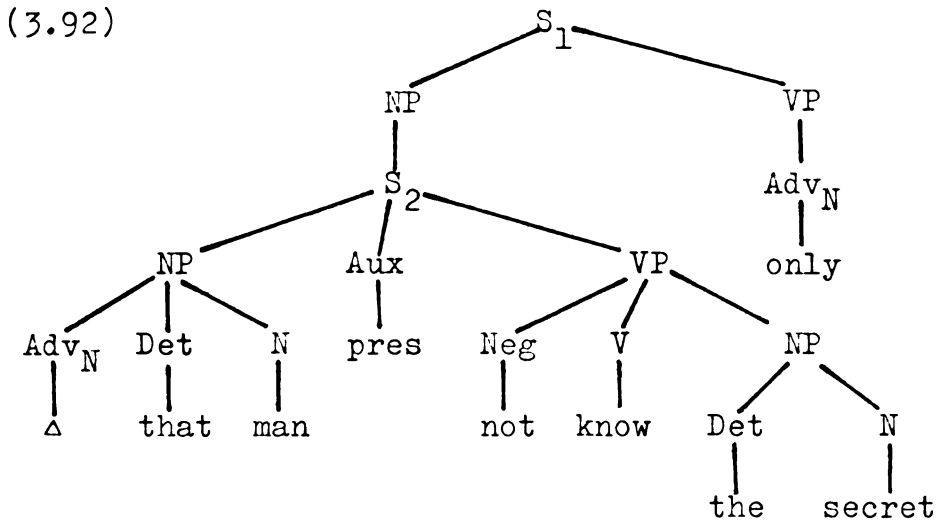
We observe that sentence (3.88) is not synonymous with (3.89). We further observe that sentence (3.88) is synonymous with (3.90), but not (3.91), whereas (3.89) is synonymous with (3.91), not (3.90):

(3.90) It is only that man that does not know the secret.

(3.91) It is not so that only that man knows the secret.

It is observed that in (3.90) the adverbial only, which is outside the sentence containing the negative, is outside of its scope. From the synonymy of (3.88) with (3.90), it follows that only in (3.88) is outside the sentence containing the negative in the underlying structure. In contrast, the synonymy of (3.89) with (3.91) indicates that not occurs in a higher sentence than only in the

underlying structure. Based on this consideration, the underlying structures for sentences (3.88) and (3.89) will be (3.92) and (3.93), respectively:



The underlying structure (3.92) indicates that only is outside the scope of not in  $S_2$ , while (3.93) indicates that only is included in the scope of not in  $S_1$ . Next, observe the use of a dummy symbol  $\Delta$  which stands for an unspecified nominal adverbial. The use of  $\Delta$  is necessary, in particular, to distinguish the underlying structures of sentences such

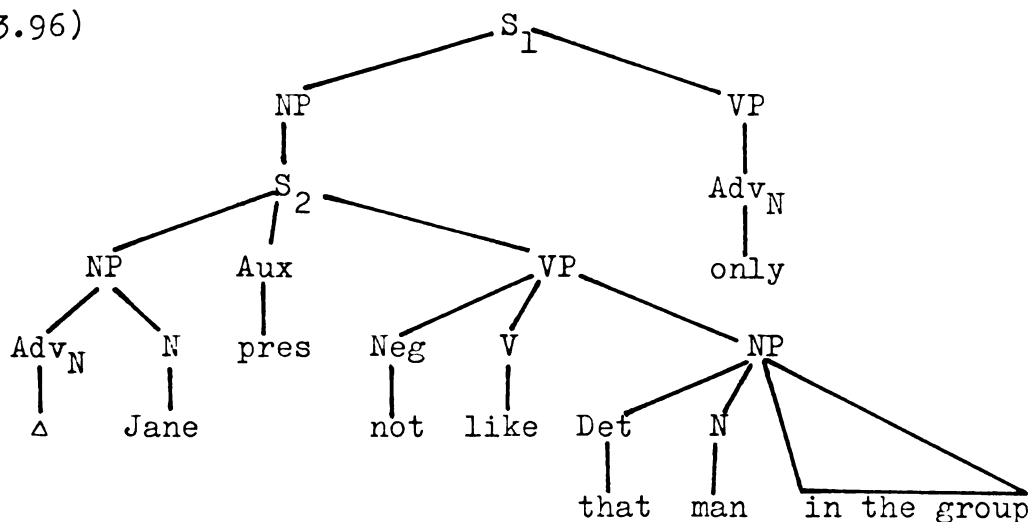
as (3.94) and (3.95):

(3.94) Only Jane does not like that man in the group.

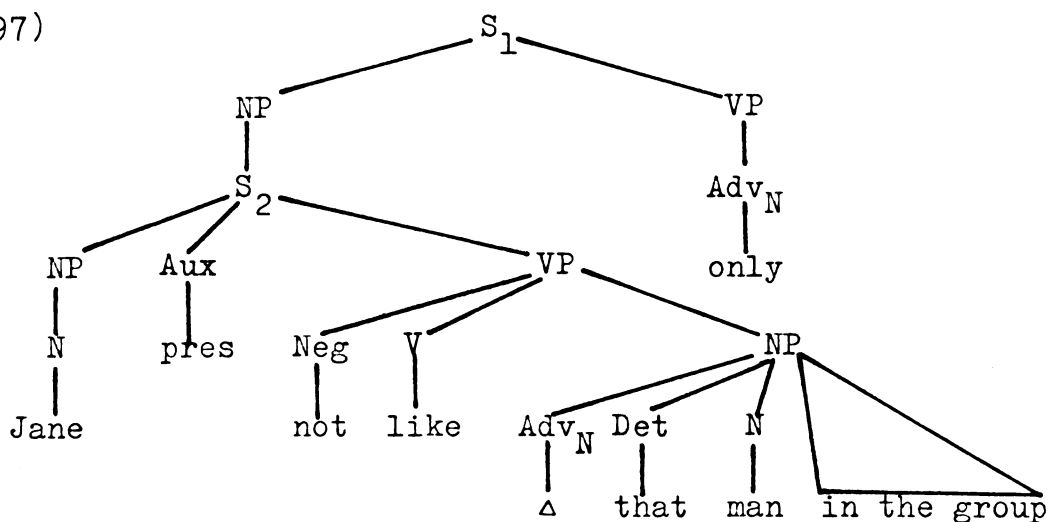
(3.95) Only that man in the group is not liked by Jane.

The underlying structures for (3.94) and (3.95) can be distinguished in terms of  $\Delta$ , as follows, with unrelated details aside:

(3.96)



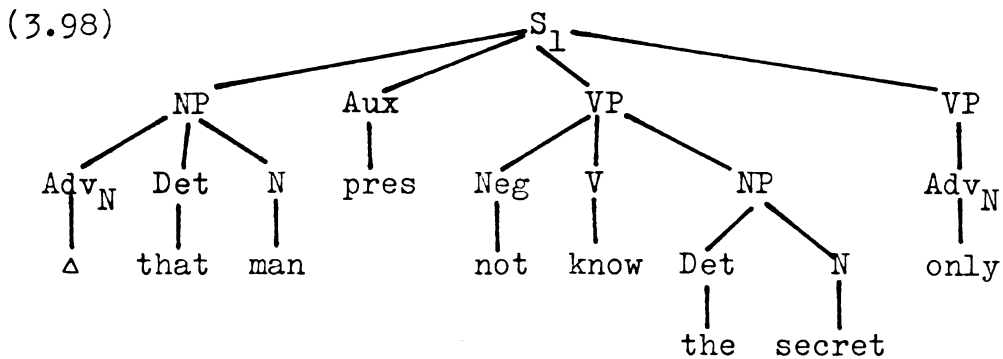
(3.97)



The relevant difference between them is in the position where  $\Delta$  occurs; with  $\Delta$  removed, (3.96) and (3.97) become identical. Thus, by using  $\Delta$  we can distinguish the structures

underlying sentences such as (3.94) and (3.95) in a natural way.<sup>8</sup>

Now, consider the derivation of sentences (3.88) and (3.89) from (3.92) and (3.93), respectively. Applying Sentence-raising to (3.92), we derive the intermediate structure:



Then, Quantifier-attachment applies, giving sentence (3.88). Note, in particular, that the Quantifier-attachment rule in (3.13), repeated here as (3.99), can be applied, unchanged, to English as well as to Japanese:

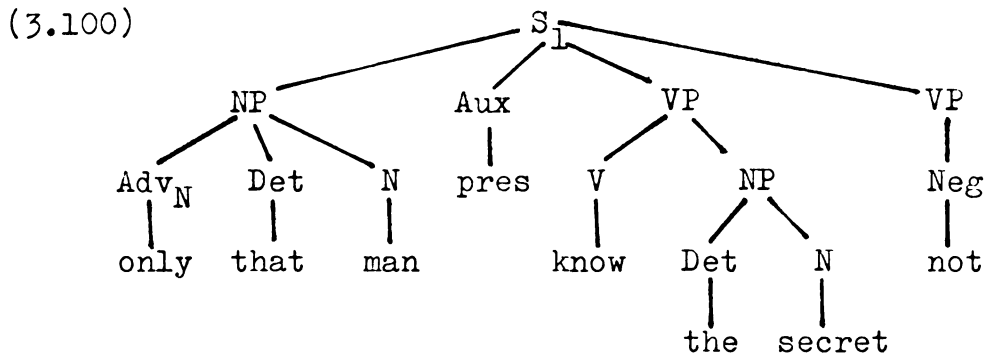
$$(3.99)(=3.13) \quad X \quad [ \Delta \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \rightarrow$$

$$X \quad \left[ \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \quad (\text{Det}) \quad N \right]_{\text{NP}} \quad Y$$

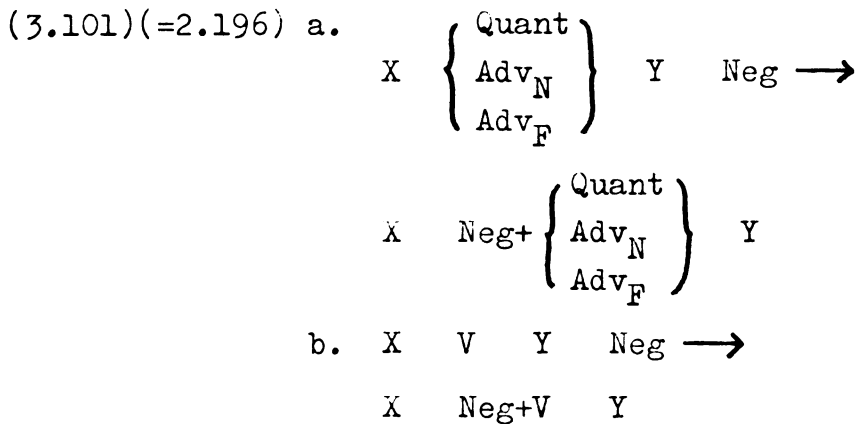
where X and Y are variables, and X contains no Quant, Adv<sub>N</sub> or Neg

Therefore, the derivation of sentence (3.88) from (3.92) needs no new rule.

In turn, consider the derivation of sentence (3.89) from (3.93). First, Sentence-raising applies to (3.93), deriving the intermediate structure:

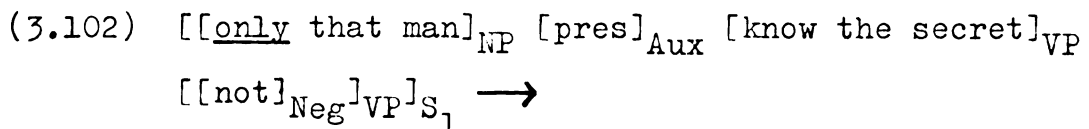


Next, we need some rule to assign not to only. Here, it should be noticed that Negative-attachment in (2.196) of Chapter II, repeated here as (3.101), can be used for this purpose:



where X and Y are variables, and X contains no Neg, Quant, Adv<sub>F</sub> or Adv<sub>N</sub> such as only

The application of this Negative-attachment rule assigns not to only in (3.100), giving sentence (3.89). Notice, in particular, that Negative-attachment cannot attach not in (3.100) to the verb preceded by only to yield sentence (3.88), as follows:



Only that man does not know the secret.

This derivation is correctly blocked through the filtering function of Negative-attachment.

Returning again to (3.93), if Sentence-raising does not apply, it, is and so are inserted, as in many other cases of Chapter II, generating sentence (3.91). In this case again, no new transformation is necessary to derive sentences (3.89) and (3.91) from the same underlying structure, (3.93), nor is a new rule needed to block the derivation of sentence (3.88) from the structure (3.93).

In order to derive underlying structures such as (3.92) and (3.93), we will need the following base rules:

(3.103) a.(=2.279a)  $S \longrightarrow NP (Aux) VP$

b.  $VP \longrightarrow Adv_N$

c.  $NP \longrightarrow (Adv_N) (Det) N (S)$

Rule (3.103b) may conjoin with (2.280) into (3.104a), and (3.103c) may conjoin with (2.279c) into (3.104b):<sup>9</sup>

(3.104) a.  $VP \longrightarrow \left\{ \begin{array}{l} (Neg) V (NP) \\ Neg \\ Quant \\ Adv_N \end{array} \right\}$

b.  $NP \longrightarrow \left\{ \begin{array}{l} (Adv_N) (Quant) (Det) N (S) \\ (NP) S \end{array} \right\}$

Taking this argument one step further, we may proceed to consider examples such as the following:

(3.105) a. The student did not solve only that problem.

b. Only that problem was not solved by the student.



- c. Not only that problem was solved by the student.

We observe that sentence (3.105a) is synonymous with (3.105c), but not with (3.105b). According to our approach, (3.105a) and (3.105c) will be derived from the same underlying structure:

(3.106) [[[[the student]<sub>NP</sub> [past]<sub>Aux</sub> [[solve]<sub>V</sub> [only that problem]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

If Passivization does not apply to (3.106), Sentence-raising and Negative-attachment apply to assign not to the verb, generating sentence (3.105a). If, on the other hand, Passivization applies to (3.106), followed by the application of Sentence-raising, it will derive the intermediate structure (3.107):

(3.107) [[only that problem]<sub>NP</sub> was solved by the student [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Observing the structure (3.107), we note that Negative-attachment (3.101a) can apply to attach not to only, deriving sentence (3.105c). But Negative-attachment (3.101b) cannot apply to (3.107) to assign not to the verb, since the verb is preceded by only. Thus, the following derivation is blocked:

(3.108) [[only that problem]<sub>NP</sub> was solved by the student [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>  $\nrightarrow$

Only that problem was not solved by the student.

The foregoing discussion demonstrates that no new

transformation is necessary to account for the synonymy of (3.105a) with (3.105c).

Turning next to sentence (3.105b), it will be derived from the underlying structure (3.109) with unnecessary details aside:

(3.109) [[[[the student]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [solve]<sub>V</sub>  
 [Δ that problem]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[only]<sub>Adv<sub>N</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

This structure indicates that only in S<sub>1</sub> is outside the scope of not, thus explaining why not in (3.105b) cannot include only in its scope. If no moving transformation, including Passivization, applies to (3.109), Quantifier-attachment is blocked since Δ follows not, thus giving no sentence. In this way, through the filtering function of this transformation we can block the derivation of sentence (3.105a) from (3.109). If, on the other hand, Passivization applies to (3.109), the resulting structure is as follows:

(3.110) [[[[Δ that problem]<sub>NP</sub> was not solved by the  
 student]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[only]<sub>Adv<sub>N</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Then, Quantifier-attachment can apply, following the application of Sentence-raising, to assign only to Δ, deriving sentence (3.105b). Thus, this approach can explain why (3.105c), but not (3.105b), is the passive counterpart of (3.105a) derived from the same underlying structure.

Furthermore, this approach correctly blocks the derivation of (3.105b) from the structure underlying (3.105a) and (3.105c) as well as that of (3.105a) from the structure underlying (3.105b).

Amplifying this discussion, consider next the following examples:

- (3.111) a. Not only that girl hit Bill.  
 b. Only that girl did not hit Bill.  
 c. Bill was not hit by only that girl.

Sentence (3.111c) is synonymous with (3.111a), but not with (3.111b), and this fact can be explained in a similar way. According to our analysis, sentences (3.111a) and (3.111c) will be derived from the same underlying structure:

- (3.112) [[[[[only]<sub>Adv<sub>N</sub></sub> [that]<sub>Det</sub> [girl]<sub>N</sub>]<sub>NP</sub> [past]<sub>Aux</sub>  
 [hit Bill]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Applying Sentence-raising and Negative-attachment to assign not to only, we derive sentence (3.111a). If, on the other hand, Passivization applies to (3.112), the following structure is derived:

- (3.113) [[[[Bill was hit by only that girl]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Then, Negative-attachment attaches not to the verb, after S<sub>2</sub> is raised into S<sub>1</sub>, yielding sentence (3.111c). Thus, (3.111a) and (3.111c) are derived from the same underlying structure, which accounts for the synonymy of these sentences.

Sentence (3.111b) is derived from:

- (3.114) [[[[[Δ]<sub>Adv<sub>N</sub></sub> [that]<sub>Det</sub> [girl]<sub>N</sub>]<sub>NP</sub> [past]<sub>Aux</sub>  
 [[not]<sub>Neg</sub> hit Bill]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[only]<sub>Adv<sub>N</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

After the application of Sentence-raising,

Quantifier-attachment applies to attach only to  $\Delta$ , yielding sentence (3.111b). If, on the other hand, Passivization applies to (3.114), it derives the intermediate structure:

(3.115) [[ [Bill was not hit by [ $\Delta$  that girl]<sub>NP</sub> ]<sub>S<sub>2</sub></sub> ]<sub>NP</sub>  
 [[only]<sub>Adv<sub>N</sub></sub> ]<sub>VP</sub> ]<sub>S<sub>1</sub></sub>

Then, Quantifier-attachment is blocked since  $\Delta$  follows the negative not. This provides an explanation for the lack of a passive counterpart of (3.111b), derived from the underlying structure (3.114).

Turning next to another nominal adverbial even, let us compare the following sentences:

(3.116) Not even that man knows the secret.

(3.117) Even that man does not know the secret.

The English even does not seem to behave like only with respect to negation. That is to say, sentences (3.116) and (3.117) seem to be synonymous with each other. Also, compare them with:

(3.118) It is not so that even that man knows the secret. Sentence (3.118) appears to be synonymous with both (3.116) and (3.117). Furthermore, consider the following:

(3.119) The secret is not known even to that man.

Again, sentence (3.119) may be synonymous with (3.118) as well as (3.116) and (3.117). These observations suggest that the sentential hierarchy of even and a negative is not relevant to the meaning of the sentence in which they occur. Recall, in this connection, that the Japanese equivalent of even, namely, (de)saemo, behaves similarly to the English

only with respect to negation: the sentential hierarchy of (de)saemo and negation is relevant to the meaning of the sentence in which they occur. This seems to have some relation to the fact that (de)saemo contains mo "also."

The next nominal adverbial to be considered here is too. First, compare the following:

(3.120) The boy did not kiss Mary, too.

(3.121) The boy did not kiss Mary, either.<sup>10</sup>

If sentence (3.120) is acceptable, there is some semantic difference observed between (3.120) and (3.121): (3.120) implies that the boy kissed someone else, while (3.121) implies that there was someone else in question whom the boy did not kiss. In other words, sentence (3.120), but not (3.121), is synonymous with (3.122):

(3.122) It is not so that the boy kissed Mary, too.

Therefore, sentences (3.120) and (3.122) may be derived from the same underlying structure distinct from that underlying sentence (3.121). In particular, the negation in (3.120) and (3.122) is sentential, while that in (3.121) is verb-phrase negation.

#### 3.4.2. Negation and Adverbials of Frequency in English

The above argument regarding Japanese adverbials of frequency with respect to negation may hold for English adverbials of frequency as well. To take a concrete example, let us compare the following pair of sentences:

(3.123) That player often does not do his best.

(3.124) That player does not often do his best.

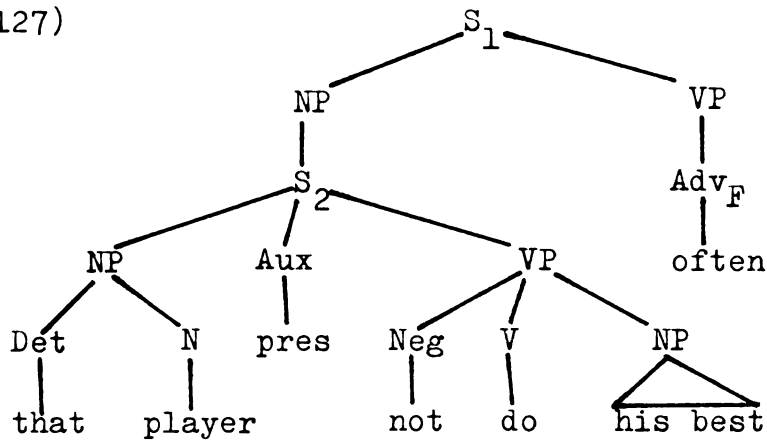
We observe that sentences (3.123) and (3.124) are not synonymous. To clarify this point, we may cite the following:

(3.125) It is often that that player does not do his best.

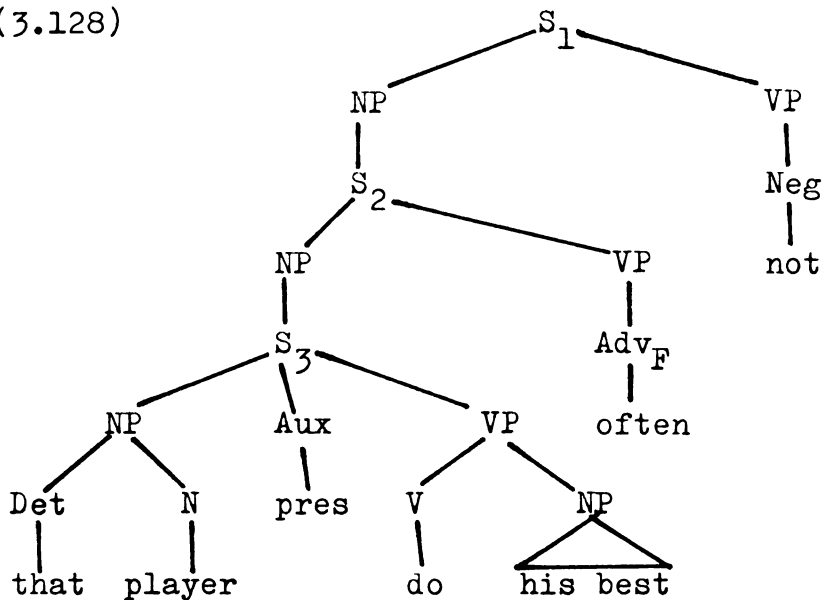
(3.126) It is not so that that player often does his best.

We observe that (3.123) is synonymous with (3.125), not (3.126), whereas (3.124) is synonymous with (3.126), not (3.125). In (3.125) often is outside the scope of negation, since it is outside the sentence containing the negation. Then, the synonymy of (3.123) with (3.125) suggests that often in (3.123) is outside the scope of negation. The scope of negation is the whole sentence in which it occurs, so if often is outside the scope of negation, it must be outside the sentence containing the negation in the underlying structure. In contrast, in (3.126) not in the higher sentence includes the adverbial often in its scope, and the synonymy of (3.124) with (3.126) permits us to assume that not in (3.124) occurs in a higher sentence than often in the underlying structure. This consideration will lead us to set up (3.127) and (3.128) as the underlying structures for (3.123) and (3.124), respectively, with unrelated details aside:

(3.127)

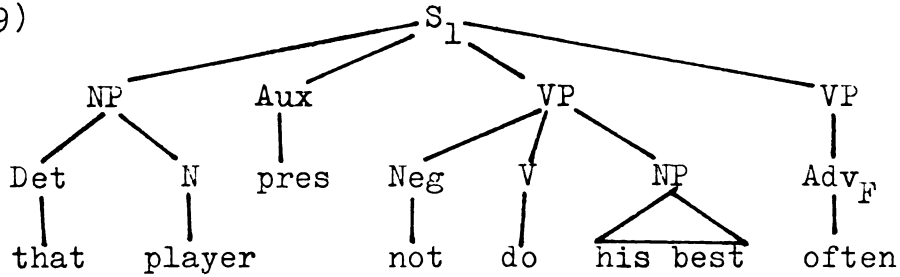


(3.128)



The structure (3.127) indicates that the adverbial is outside the scope of the negative in  $S_2$ , whereas (3.128) shows that the negative, whose scope is  $S_1$ , includes the adverbial in its scope. Now, let us consider the derivation of sentence (3.123) from (3.127). The application of Sentence-raising moves  $S_2$  up into  $S_1$ , deriving the intermediate structure:

(3.129)



The adverbial often in (3.129) is shifted to follow the subject noun phrase,<sup>11</sup> yielding sentence (3.123). If, on the other hand, the adverbial is moved to precede the subject noun phrase, the resulting sentence is as follows:

(3.130) Often that player does not do his best.

This movement of often may be compared with the movement of Japanese adverbials of frequency to follow or precede the subject noun phrase, as seen in section 3.2. To take care of the movement of often in the derivation of (3.123) and (3.130) from (3.129), we need a transformation such as:<sup>12</sup>

(3.131) [ X NP Aux Y Adv<sub>F</sub> ]<sub>S</sub> →

$$X \left\{ \begin{array}{ccc} \text{NP} & \text{Aux} & \text{Adv}_F \\ \text{Adv}_F & \text{NP} & \text{Aux} \end{array} \right\} Y$$

where X and Y are variables, and NP is immediately dominated by S

It should be noted that this transformation is very similar to the corresponding Japanese transformation in (3.47): the relevant difference is the presence of Aux in (3.131) and its absence in (3.47). Thus, rule (3.131) may conjoin with (3.47) into:



$$(3.132) \quad [ X \quad NP \quad (Aux) \quad Y \quad Adv_F ]_S \longrightarrow$$

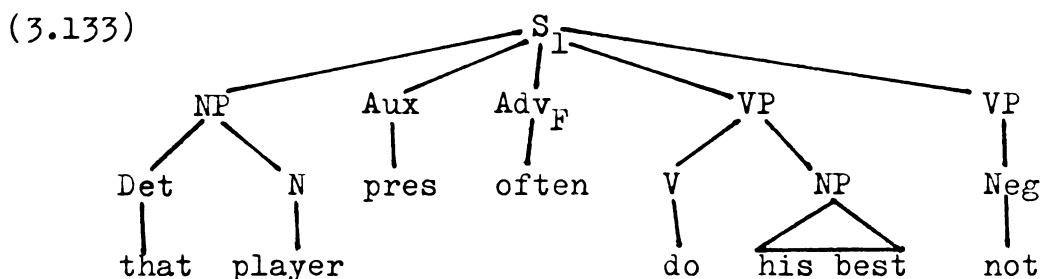
$$X \quad \left\{ \begin{array}{ccc} NP & (Aux) & Adv_F \\ Adv_F & NP & (Aux) \end{array} \right\} \quad Y$$

where X and Y are variables, and NP is immediately dominated by S

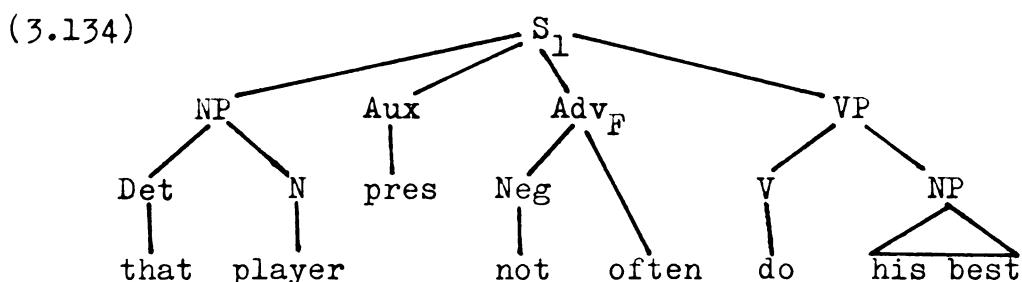
Then, rule (3.132) is applicable to English as well as to Japanese. The applicability of the same transformation to English and Japanese adverbials of frequency reduces the ad hoc-ness of this transformation. Furthermore, just as the same transformation can be used for adverbials of reason and purpose including benefactive adverbials in Japanese, so it can be used for the corresponding English adverbials as well, as will be discussed in the subsequent section. These facts will sufficiently show the independent motivation of this transformation in English grammar.

Turning back to (3.127), if Sentence-raising does not apply, that, it and is are inserted, and the embedded sentence is extraposed, yielding sentence (3.125). In this way, we need no new rule except Adverbial-movement (3.131) to derive (3.123), (3.125) and (3.130) from the same underlying structure, (3.127), nor do we need a new rule to block the derivation of (3.124) from (3.127).<sup>13</sup>

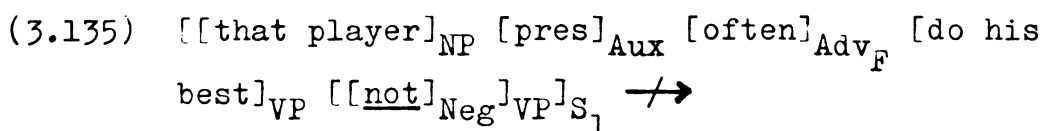
Now, consider the derivation of (3.124) from (3.128). After  $S_3$  is raised into  $S_2$  and the adverbial is moved,  $S_2$  is further raised into  $S_1$ , giving the following intermediate structure:



Then, Negative-attachment stated in (3.101) applies to assign the negative not to often, giving (3.134):



Next, the auxiliary do is introduced,<sup>14</sup> yielding sentence (3.124). It should be mentioned here that through the filtering function of Negative-attachment we can block the attachment of not to the verb, as in the following:



That player often does not do his best.

Thus, no new transformation is necessary to derive sentence (3.124) from (3.128), nor is a new transformation necessary to block the derivation of sentence (3.123) from (3.128).

If, on the other hand, Sentence-raising does not apply to (3.128), that, it, is and so are inserted, as in similar cases discussed in Chapter II, to generate sentence (3.126). No new transformation is needed in this case either.

In order to derive the underlying structures (3.127) and (3.128), we need the following base rules:

(3.136) a. (=3.103a)  $S \rightarrow NP (Aux) VP$

b.  $VP \rightarrow Adv_F$

Rule (3.136b) may conjoin with (3.104a) into:

(3.137)

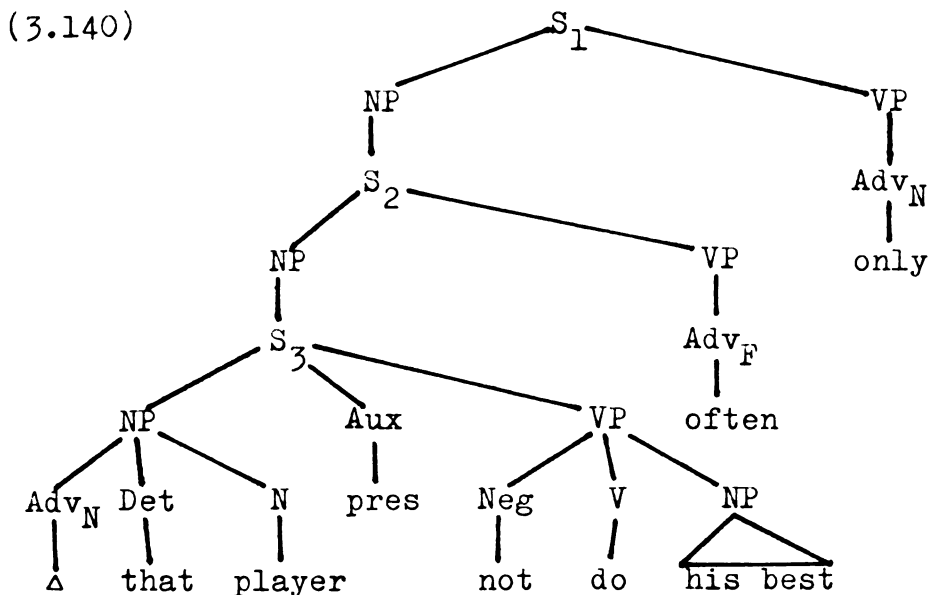
$$VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \end{array} \right\}$$

It should be mentioned that rules (3.136a) and (3.137) can also derive the structures underlying sentences such as (3.138) and (3.139):

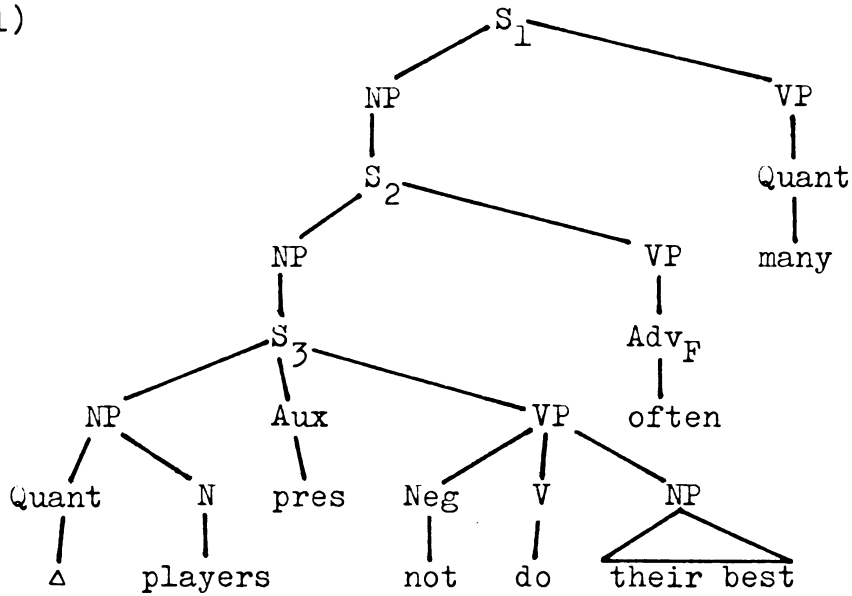
(3.138) Only that player often does not do his best.

(3.139) Many players often do not do their best.

Their underlying structures will be (3.140) and (3.141), respectively:



(3.141)



These structures indicate, among others, that only, often and many are outside the scope of negation, based on the constraint that the scope of negation is the whole sentence in which it occurs.

Other related examples may be cited here:

(3.142) a. In most cases Mary does not keep her word.

b. Mary does not keep her word in most cases.

b'. It is not so that Mary keeps her word in most cases.

(3.143) a. My brother usually does not use knife and fork.

b. My brother does not usually use knife and fork.

b'. It is not so that my brother usually use knife and fork.

(3.144) a. It is always not good to live alone.

b. It is not always good to live alone.

b'. It is not so that it is always good to live alone.

3.4.3. Negation and Adverbials of Reason and Adverbials of Purpose in English

The above discussion concerning Japanese adverbials of reason and of purpose with respect to negation is also applicable to the corresponding English adverbials. First of all, let us consider adverbials of reason, citing the following example:

(3.145) Tom did not adopt the plan for that reason.

Sentence (3.145) may be ambiguous with two readings, depending upon whether the adverbial for that reason is outside the scope of negation or not. When the adverbial is included in the scope of negation, it is synonymous with:

(3.146) It is not so that Tom adopted the plan for that reason.

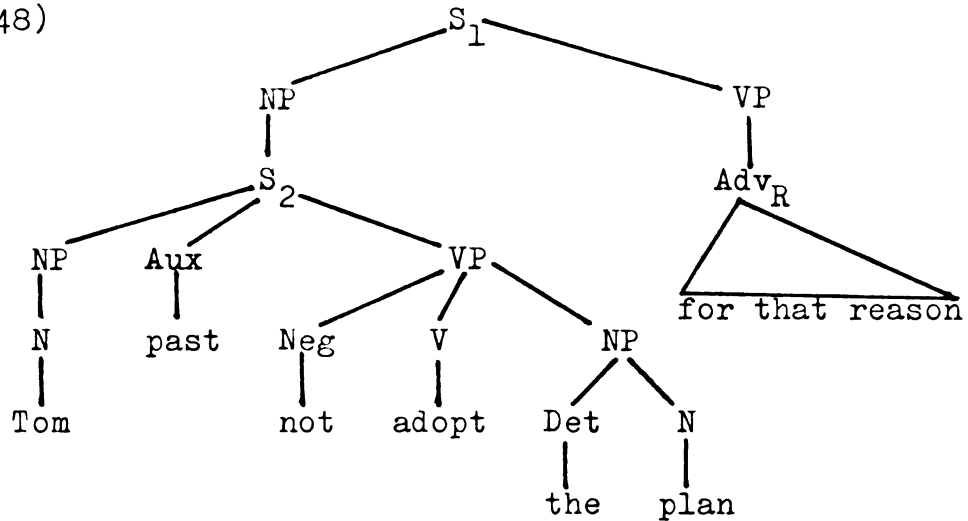
Yet, if for that reason is outside the scope of negation, it is synonymous with the following:

(3.147) a. For that reason Tom did not adopt the plan.

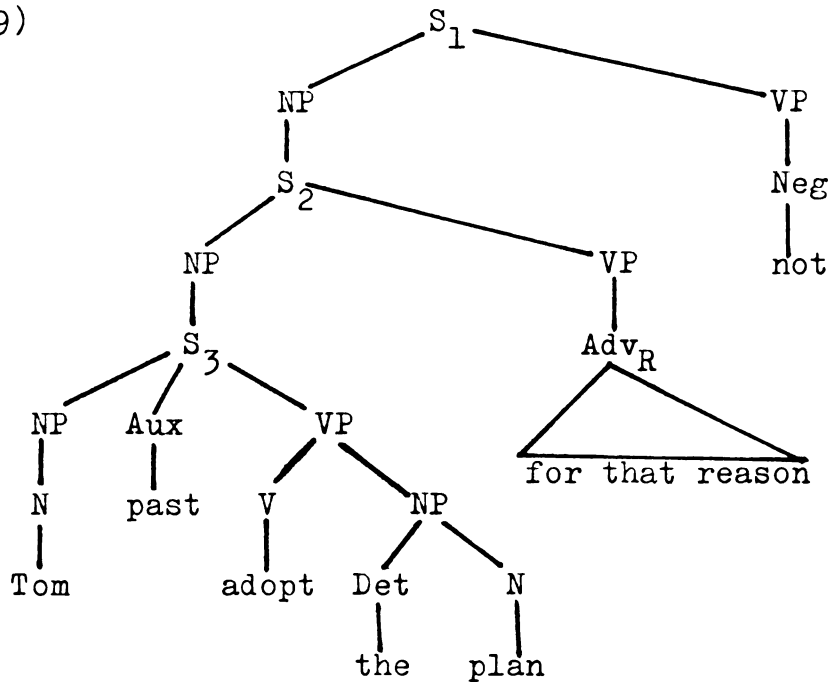
b. It was for that reason that Tom did not adopt the plan.

Based on these observations, we maintain that (3.145) is derived from either of the following underlying structures, depending on its reading:

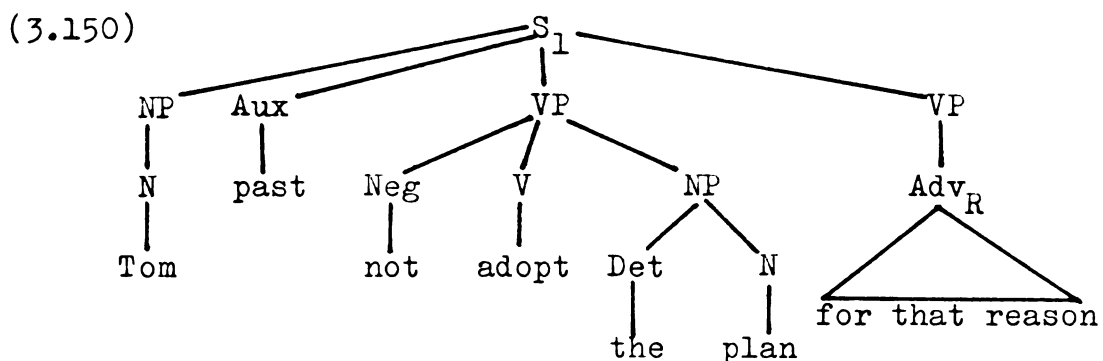
(3.148)



(3.149)



The structure (3.148) shows that since the scope of the negative is  $S_2$ , the adverbial is outside of its scope, whereas the structure (3.149) indicates that the negative, whose scope is  $S_1$ , includes the adverbial in its scope. Now, taking up (3.148) first, the application of Sentence-raising gives (3.150):

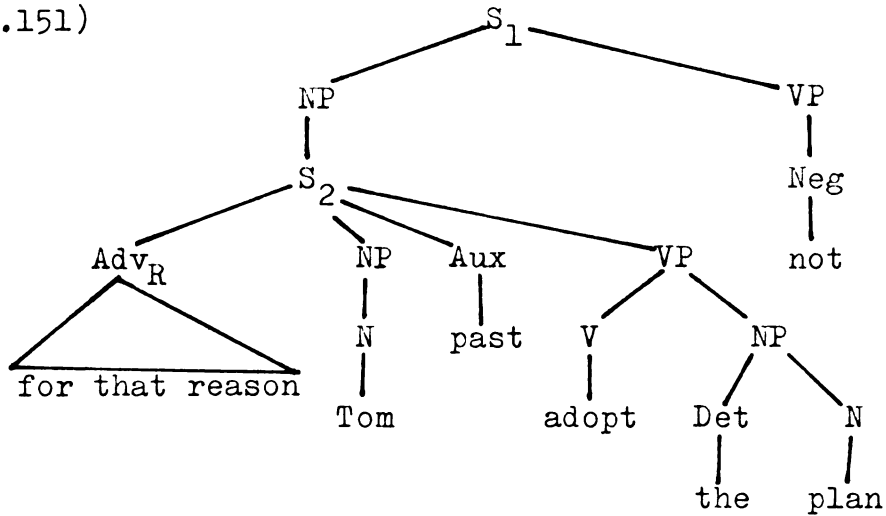


The structure (3.150) becomes sentence (3.145). Then, the optional shift of for that reason<sup>15</sup> gives sentence (3.147a). Furthermore, if  $S_2$  in (3.148) is not raised into  $S_1$ , that, it and was will be inserted to generate sentence (3.147b).

In turn, let us consider the derivation involving (3.149). First, the application of Sentence-raising raises  $S_3$  into  $S_2$ . Then, if  $S_2$  is not raised into  $S_1$ , that, it, is and so are inserted, as in other similar cases, deriving sentence (3.146). On the other hand, if  $S_2$  is raised into  $S_1$ , Negative-attachment assigns not to the verb, yielding sentence (3.145).

In particular, Negative-attachment must block the attachment of not to the verb, if the adverbial for that reason precedes the verb. For instance, after  $S_3$  is raised into  $S_2$  in (3.149), the adverbial may be optionally shifted to precede the subject noun phrase, deriving:

(3.151)



After the raising of  $S_2$  into  $S_1$ , Negative-attachment must be blocked so that it may not perform the following derivation:

(3.152)  $[[\text{for that reason}]_{\text{Adv}_R} \text{Tom past adopt the plan } [[\text{not}]_{\text{Neg}}]_{\text{NP}}]_S \xrightarrow{\text{Neg-attach}} \text{For that reason Tom did not adopt the plan.}$

To block this derivation, Negative-attachment in (3.101) requires only a slight revision as follows:

(3.153) a.(=3.101a)

$$X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \end{array} \right\} Y \text{ Neg} \rightarrow$$

$$X \text{ Neg+} \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \end{array} \right\} Y$$

b.(=3.101b)

$$X \text{ V } Y \text{ Neg} \rightarrow$$

$$X \text{ Neg+V } Y$$

where X and Y are variables, and X contains no

Neg, Quant,  $\text{Adv}_F$ ,  $\text{Adv}_N$  such as only or  $\text{Adv}_{R.P}$

Next, let us consider examples such as the following:



(3.154) Your father did not scold you because he was sad.  
Sentence (3.154) may be similarly ambiguous with two readings. More specifically, it can be synonymous with either of the following:

(3.155) It is not so that your father scolded you because he was sad.

(3.156) a. Because your father was sad, he did not scold you.

b. It was because your father was sad that he did not scold you.

In (3.155) not in the higher sentence includes the adverbial in its scope, while in (3.156) the adverbial is outside the scope of negation, particularly in (3.156b), the adverbial is outside the sentence containing the negation. Consequently, we hold that sentence (3.154) is derived from either of the following underlying structures, depending upon its reading:

(3.157) [[[[[your father]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [scold]<sub>V</sub> [you]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[because your father was sad]<sub>Adv<sub>R</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>]

(3.158) [[[[[[[your father]<sub>NP</sub> [past]<sub>Aux</sub> [[scold]<sub>V</sub> [you]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>3</sub></sub>]<sub>NP</sub> [[because your father was sad]<sub>Adv<sub>R</sub></sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>]

The derivation of (3.154) from (3.157) is rather straightforward: the application of Sentence-raising generates sentence (3.154). Next, the optional movement of the adverbial gives sentence (3.156a). In contrast, the derivation of sentence (3.154) from (3.158) involves the application of

Sentence-raising and Negative-attachment. Incidentally, notice that if the adverbial in (3.158) is shifted to precede the subject noun phrase, followed by the application of Sentence-raising, it derives the following intermediate structure:

(3.159) [[because your father was sad]<sub>Adv<sub>R</sub></sub> your  
father past scold you [[not]<sub>Neg</sub>]<sup>VP</sup>]<sub>S<sub>1</sub></sub>

Then, the revised Negative-attachment rule in (3.153) correctly blocks the following derivation:

(3.160) [[because your father was sad]<sub>Adv<sub>R</sub></sub> your  
father past scold you [[not]<sub>Neg</sub>]<sup>VP</sup>]<sub>S<sub>1</sub></sub>  $\nrightarrow$   
Because your father was sad, he did not scold you.

Thus, Negative-attachment can block the derivation of sentence (3.156a) from (3.158) just as it blocks the generation of (3.147a) from (3.149).

The above argument also holds for adverbials of purpose with regard to negation. To illustrate with an example, consider the following:

(3.161) She did not attend the meeting to entertain those people.

We observe that sentence (3.161) may be ambiguous with two readings.<sup>16</sup> More specifically, it is synonymous with either of the following:

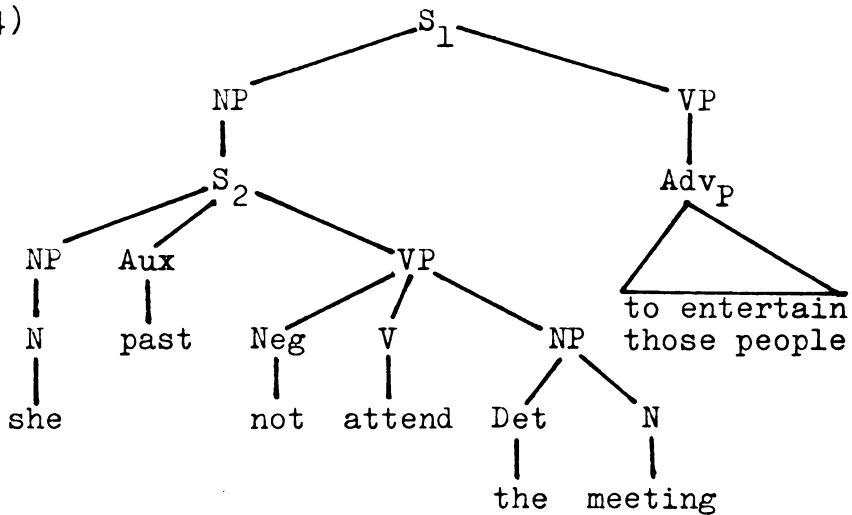
(3.162) It is not so that she attended the meeting to entertain those people.

(3.163) a. To entertain those people she did not attend the meeting.

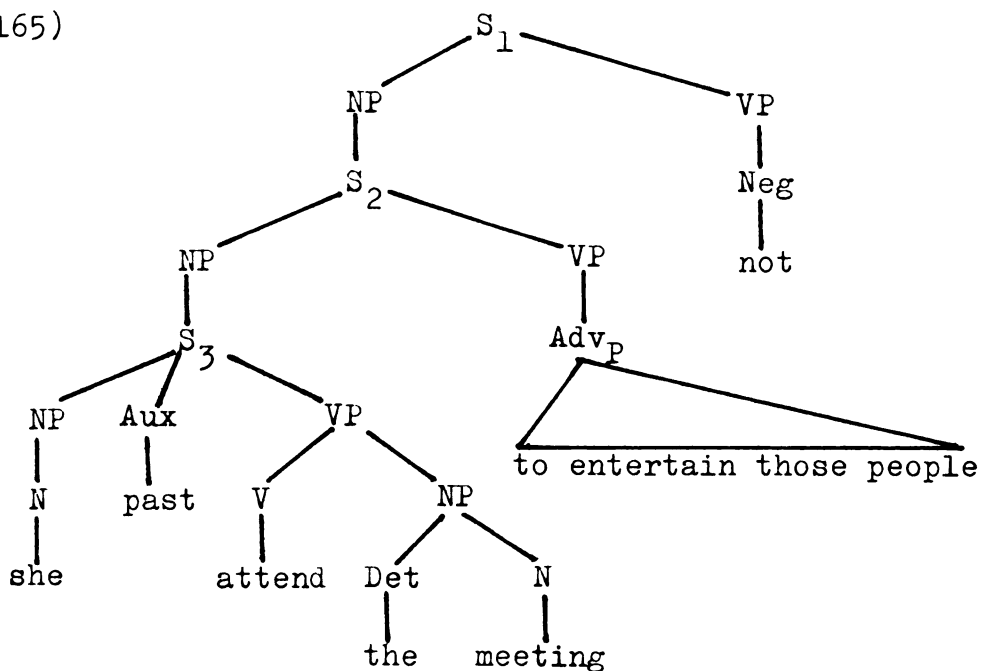
- b. It was to entertain those people that she did not attend the meeting.

In (3.162) the negation in the higher sentence includes the adverbial in its scope, while in (3.163) the adverbial is outside the scope of negation. Accordingly, (3.161) may be derived from either of the following structures with minor details aside, depending upon its reading:

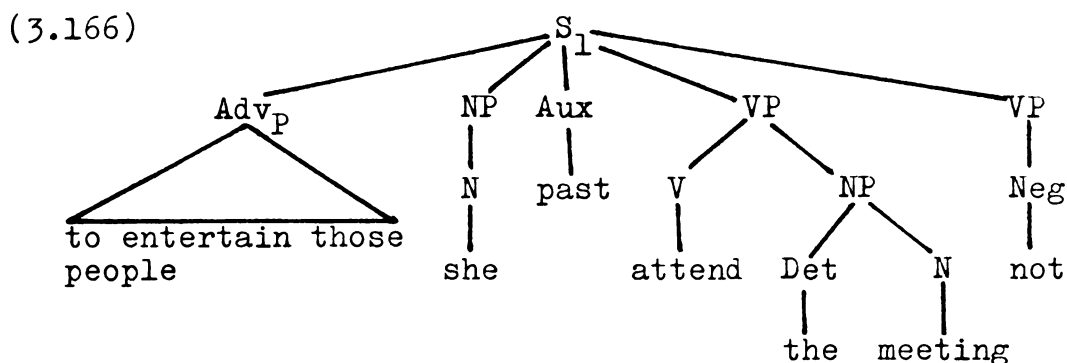
(3.164)



(3.165)



The derivation of sentence (3.161) from (3.164) involves the application of Sentence-raising. Next, the optional movement of the adverbial yields sentence (3.163a). In turn, the derivation of (3.161) from (3.165) requires the application of Negative-attachment as well as Sentence-raising. In particular, if the adverbial is optionally shifted in the  $S_2$ -cycle of (3.165) and  $S_2$  is raised into  $S_1$ , the intermediate structure (3.166) is derived:



Then, Negative-attachment cannot apply to attach not to the verb, since the verb is preceded by the adverbial: that is, the following derivation is blocked:

(3.167) [[to entertain those people]<sub>AdvP</sub> she past attend  
 the meeting [[not]<sub>Neg</sub>VP]<sub>S<sub>1</sub></sub>  $\nrightarrow$   
To entertain those people she did not attend  
 the meeting.

Thus, the generation of (3.163a) from (3.165) is correctly blocked through the filtering function of this transformation.

The above argument can be extended to benefactive adverbials with respect to negation. To cite just one

example, observe the following:

(3.168) I did not do it for her sake.

Sentence (3.168) may be ambiguous and be synonymous with either of the following:

(3.169) It is not so that I did it for her sake.

(3.170) a. For her sake I did not do it.

b. It was for her sake that I did not do it.

In (3.169) the negation in the higher sentence includes the adverbial in its scope, while in (3.170) the adverbial is outside the scope of negation, especially in (3.170b), the adverbial is outside the sentence containing the negation. Thus, we hold that sentence (3.168) may be derived from either of the following structures, depending on its reading:

(3.171) [[[[[I]<sub>NP</sub> [past]<sub>Aux</sub> [[not]<sub>Neg</sub> [do]<sub>V</sub>  
[it]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[for her sake]<sub>Adv<sub>P</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

(3.172) [[[[[[[I]<sub>NP</sub> [past]<sub>Aux</sub> [[do]<sub>V</sub> [it]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>3</sub></sub>]<sub>NP</sub>  
[[for her sake]<sub>Adv<sub>P</sub></sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Applying Sentence-raising to (3.171), we derive sentence (3.168). Then, the optional movement of the adverbial gives sentence (3.170a). In turn, the derivation of (3.168) from (3.172) requires the application of Sentence-raising and Negative-attachment. Furthermore, if the adverbial in (3.172) is optionally moved to precede the subject noun phrase, the resulting structure is:

(3.173) [[[[for her sake]<sub>Adv<sub>P</sub></sub> I past do it]<sub>S<sub>2</sub></sub>]<sub>NP</sub>  
[[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Next,  $S_2$  is raised up into  $S_1$ , but the subsequent application of Negative-attachment is blocked; not cannot be attached to the verb preceded by the adverbial, as in the following:

(3.174) [[for her sake]<sub>Adv<sub>P</sub></sub> I past do it  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>  $\nrightarrow$

For her sake I did not do it.

In this way, the derivation of (3.170a) from (3.172) is correctly blocked by the filtering function of Negative-attachment.

Now, in order to derive the underlying structures (3.148), (3.149), (3.157), (3.158), (3.164), (3.165), (3.171) and (3.172), we will need the following base rules:

(3.175) a.(=3.136a)  $S \rightarrow NP (Aux) VP$

b.  $VP \rightarrow Adv_{R.P}$

Rule (3.175b) may conjoin with (3.137) into:

(3.176)  $VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$

Summarizing the foregoing discussion, we have demonstrated that adverbials of reason and adverbials of purpose including benefactive adverbials in English also behave similarly to quantifiers with respect to negation: they show semantic differences depending on whether they co-occur with sentential or verb-phrase negation. This

constitutes additional support for the distinction between sentential and verb-phrase negation and also shows the validity of the analysis proposed in Chapter II.

### 3.5. Negation and Manner Adverbials

Somewhat different from those adverbials previously discussed, manner adverbials do not occur with both types of negation, sentential and verb-phrase: they may co-occur with one of them. Nevertheless, because there is still a significant similarity of manner adverbials to the above-cited adverbials as well as to quantifiers with respect to negation, we need to discuss them in this section.

#### 3.5.1. Negation and Manner Adverbials in Japanese

In section 2.2 we have briefly considered manner adverbials in connection with negation in Japanese, citing the following example:

(3.177)(=2.40) kanozyo wa koohukuni sina nakatta.  
                   she                  happily die not-did  
                   'She did not die happily.'

It has been noted that sentence (3.177) is synonymous with (3.178) in which the negative in a higher sentence includes the manner adverbial in its scope:

(3.178)(=2.41) [[kanozyo wa koohukuni sinda wake]<sub>S</sub>  
                   she                  happily died that  
                   de wa nai]<sub>S</sub>  
                   is not  
                   'It is not so that she died happily.'

At first sight, sentence (3.177) seems to pose no relevant problem, especially when we take into consideration the fact that the scope of negation is the whole sentence in which it occurs. To clarify the point, let us compare (3.177) with the following:

(3.179) kare wa kinoo sono siken o uke nakatta.  
 he yesterday the examination take not-did  
 'He did not take the examination yesterday.'

(3.180) boku wa tosyokan de sawaga nakatta.  
 I library in make a noise not-did  
 'I did not make a noise in the library.'

In both (3.179) and (3.180) the negative includes in its scope the adverbial kinoo "yesterday" and tosyokan de "in the library," respectively, so they are synonymous with (3.181) and (3.182), respectively:

(3.181) [[kare wa kinoo sono siken o uketa wake]<sub>S</sub>  
 he yesterday the examination took that  
 de wa nai]<sub>S</sub>  
 is not  
 'It is not so that he took the examination yesterday.'

(3.182) [[boku wa tosyokan de sawaida wake]<sub>S</sub> de  
 I library in made a noise that is  
 wa nai]<sub>S</sub>  
 not

'It is not so that I made a noise in the library.'

The comparison of (3.177) with (3.179) and (3.180) presents no apparent differences between them. On closer examination, however, a certain difference can be observed: sentence



(3.177) does not mean that she did not die, while sentences (3.179) and (3.180) mean that he did not take the examination and that I did not make a noise, respectively. This difference is made clearer by reference to the ungrammaticality of (3.183) and the grammaticality of (3.184) and (3.185):

(3.183) \*kanozyo wa koohukuni sina nakatta, sunawati  
 she happily die not-did that is  
 kanozyo wa sina nakatta.  
 she die not-did  
 'She did not die happily, that is, she did not die.'

(3.184) kare wa kinoo sono siken o uke nakatta,  
 he yesterday the examination take not-did  
 sunawati kare wa sore o uke nakatta.  
 that is he it take not-did  
 'He did not take the examination yesterday, that is, he did not take it.'

(3.185) boku wa tosyokan de sawaga nakatta,  
 I library in make a noise not-did  
 sunawati boku wa sawaga nakatta.  
 that is I make a noise not-did  
 'I did not make a noise in the library, that is, I did not make a noise.'

Clearly this difference must be accounted for somehow in a Japanese grammar, if the grammar is to be descriptively adequate. In the present framework, this difference can be explained in terms of the distinction between sentential and verb-phrase negation.<sup>17</sup> That is to say, our proposal is as in the following:

(3.186) The negation in sentence (3.177) originates from sentential negation, while that in (3.179) and (3.180) is verb-phrase negation.

To support this proposal, the following can be cited:

A. The negative in (3.177) cannot combine with the verb in any context. If it does, the resulting sentence is ungrammatical as follows:

(3.187) \*[[kanoz<sub>yo</sub> ga sina-nakatta no]<sub>S</sub> wa koohukuni  
she die not-did that happily

da]<sub>S</sub>  
is

'Lit. It is happily that she did not die.'

As contrasted with (3.187), both of the following are quite grammatical:

(3.188) [[kare ga sono siken o uke-nakatta no]<sub>S</sub>  
he the examination take not-did that

wa kinoo da]<sub>S</sub>  
yesterday is

'Lit. It is yesterday that he did not take the examination.'

(3.189) [[boku ga sawaga-nakatta no]<sub>S</sub> wa tosyokan  
I make a noise not-did that library

(de) da]<sub>S</sub>  
in is

'Lit. It is in the library that I did not make a noise.'

In (3.187) the adverbial koohukuni "happily" in the higher sentence includes the negation in its scope, and the ungrammaticality of (3.187) supports the observation in

section 2.2 that manner adverbials cannot include negation in their scope.<sup>18</sup>

B. The difference observed in A between sentential and verb-phrase negation is also observed in those sentences with negation and quantifiers, discussed in Chapter II. For instance, let us reexamine the following examples from this viewpoint:

(3.190) a. subeteno oobosya ga sintaikensa o  
           all       applicant   physical-examination  
           uke       nakatta.  
           undergo   not-did

'All the applicants did not undergo a  
 physical-examination.'

b. oobosya ga subete sintaikensa o  
      applicant   all       physical-examination  
      uke       nakatta.  
      undergo   not-did

'All the applicants did not undergo a  
 physical-examination.'

(3.191)(=2.140) oobosya ga subete wa sintaikensa o  
                   applicant   all       physical-examination  
                   uke       nakatta.  
                   undergo   not-did

'Not all the applicants underwent a  
 physical-examination.'

The negation in (3.190) is verb-phrase negation, while that in (3.191) is sentential negation, as discussed in section 2.7. Sentence (3.191) does not mean, though (3.190) means, that the applicants did not undergo a physical-examination. Accordingly, (3.190), but not

(3.191), is synonymous with (3.192):

(3.192) [[sintaikensa o uke nakatta no]<sub>S</sub> wa  
 physical-examination undergo not-did that  
subeteno oobosya da]<sub>S</sub>  
 all applicant is

'Lit. It is all the applicants that did not  
 undergo a physical-examination.'

The non-synonymy of (3.191) with (3.192) indicates that sentential negation in (3.191) cannot negate the verb alone. Thus, although in (3.191) the negative is apparently combined with the verb, it does not negate the verb itself but the whole sentence, as is demonstrated by the synonymy of (3.191) with (3.193) involving sentential negation:

(3.193)(=2.141) [[subeteno oobosya ga sintaikensa  
 all applicant physical-examination  
 o uketa wake]<sub>S</sub> de wa nai]<sub>S</sub>  
 underwent that is not

'It is not so that all the applicants  
 underwent a physical-examination.'

The comparison between (3.190) and (3.191) demonstrates that sentential negation cannot negate the verb alone even when the negation is directly combined with the verb, as in (3.191), as opposed to verb-phrase negation that is not only combined directly with the verb but also negates the verb itself, as in (3.190). It is important to note a striking parallel between (3.191) and (3.177). Sentence (3.191) cannot have the interpretation in which the negative negates the verb alone. This is exactly the case with

(3.177); as shown by the ungrammaticality of (3.183) and (3.187), sentence (3.177) cannot have the interpretation in which the negative negates the verb alone. This consideration further supports the proposal in (3.186).

C. In comparison with (3.177), examine the following:

(3.194) kanozyo wa koohukunimo sina nakatta.

she happily die not-did

'She, happily, did not die.'

The only difference between (3.177) and (3.194) is the minor morphological one of koohukuni "happily as a manner adverbial" versus koohukunimo "happily as a sentential adverbial," and the latter presumably analyzes into koohukuni + mo, though it is interpreted as a single formative unit. This minor difference causes a clear semantic difference between (3.177) and (3.194); (3.194) means, though (3.177) does not mean, that she did not die. Thus, as contrasted with the ungrammaticality of (3.183), (3.195) is quite grammatical:

(3.195) kanozyo wa koohukunimo sina nakatta, sunawati

she happily die not-did that is

kanozyo wa sina nakatta.

she die not-did

'She, happily, did not die, that is, she did not die.'

If the negation in (3.177) is sentential negation, that in (3.194) is verb-phrase negation. This is further confirmed by the fact that sentence (3.194) is not synonymous with (3.196) involving sentential negation:

(3.196) ?[[kanozyo wa koozukunimo sinda wake]<sub>S</sub> de wa  
 she happily died that is

nai<sub>S</sub>  
 not

'It is not so that she, happily, died.'

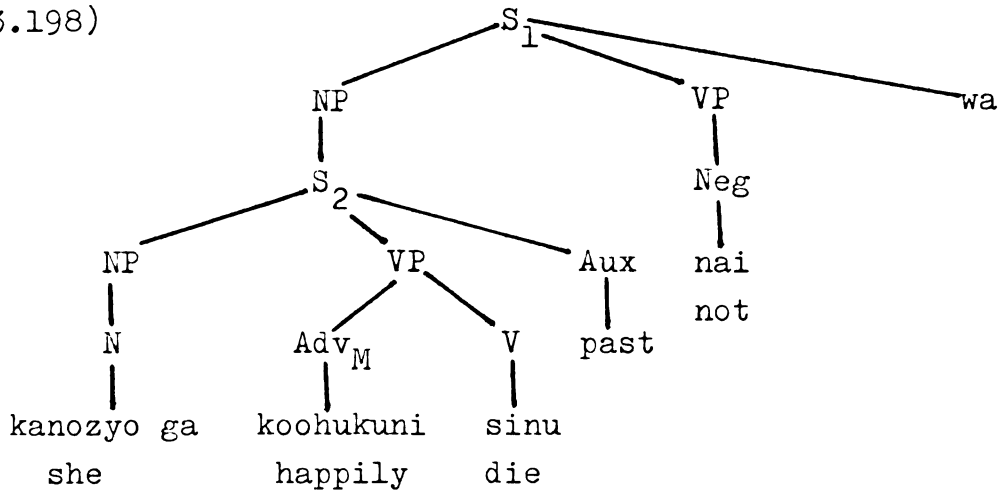
Apart from the acceptability of (3.196), sentence (3.196) is not synonymous with (3.194). This difference between (3.194) and (3.177) is quite parallel to that between verb-phrase negation and sentential negation observed in those sentences discussed in sections 2.6, 3.1, 3.2 and 3.3.

These observations will be sufficient to support and establish the proposal (3.186). Then, we can propose another putative universal by the use of the twofold distinction of negation--verb-phrase negation in this case:

(3.197) Manner adverbials cannot co-occur with  
 verb-phrase negation.

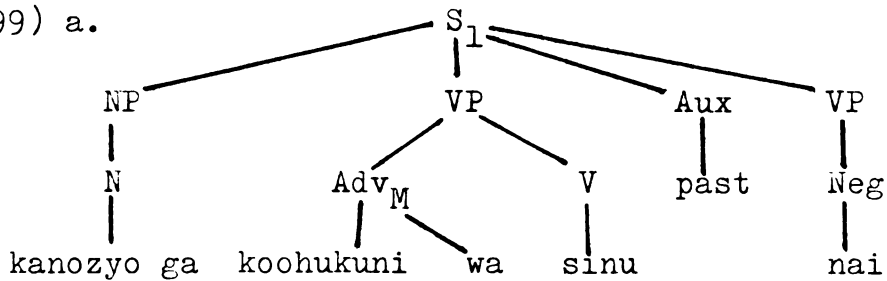
Returning to sentence (3.177), the foregoing discussion demonstrates that its underlying structure will be as follows:

(3.198)

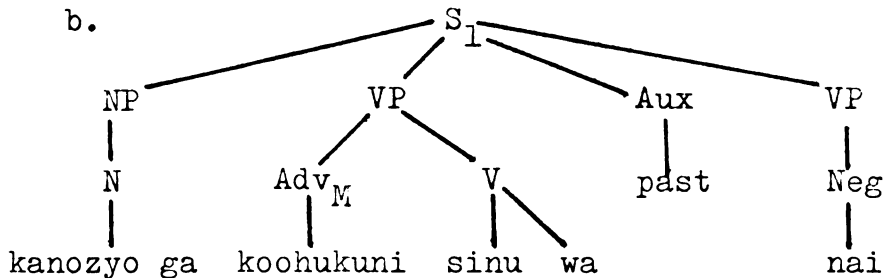


Applying Sentence-raising and Contrastive wa-attachment in (2.114) of Chapter II to attach wa to the adverbial or to the verb modified by the adverbial, we derive either of the following intermediate structures:

(3.199) a.



b.



Then, Negative-attachment applies to (3.199), giving the following sentences:

(3.200) a. kanozyo wa koohukuni wa sina nakatta.  
 she happily die not-did

'She did not die happily.'

b. kanozyo wa koohukuni sini wa si nakatta.  
 she happily die do not-did

'She did not die happily.'

In the case of (3.200a), the wa may be optionally deleted, giving sentence (3.177). This wa deletion cannot apply to (3.200b) since the resulting sentence is ungrammatical as follows:

(3.201) \*kanozyo wa koohukuni sini si nakatta.  
 she happily die do not-did

In turn, if  $S_2$  of (3.198) is not raised up into  $S_1$ , the complementizer wake "that" and the copula da "is" are inserted into  $S_2$  and  $S_1$ , respectively, as in the derivation of the sentences discussed in section 2.6, yielding sentence (3.178).

In order to derive the underlying structure (3.198), we will need the following base rules:

(3.202) a.(=3.86a)  $S \rightarrow NP VP (Aux) (wa)$

b.  $VP \rightarrow (Adv_M) (NP) V$

Rule (3.202b) may conjoin with (3.87) into:

(3.203)

$$VP \rightarrow \left\{ \begin{array}{l} (Adv_M) (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$$

The above discussion demonstrates that no new



transformation is necessary to derive sentences (3.177), (3.178), (3.200a) and (3.200b) from the structure (3.198). Furthermore, this analysis can account for a number of above-noted different behaviors of manner adverbials from time and location adverbials with respect to negation. In sum, the analysis proposed in Chapter II has its validity further confirmed when applied to manner adverbials in connection with negation.

### 3.5.2. Negation and Manner Adverbials in English

The foregoing discussion regarding manner adverbials in Japanese is largely true of English manner adverbials as well. To start with, consider the following:

(3.204) a. Bill did not answer wisely.

b. It is not so that Bill answered wisely.

We observe that sentence (3.204a) is synonymous with (3.204b). So, apparently the relation of (3.204a) and (3.204b) seems similar to that of (3.205a) and (3.205b) or that of (3.206a) and (3.206b):

(3.205) a. Bill did not answer yesterday.

b. It is not so that Bill answered yesterday.

(3.206) a. Bill did not answer in the class.

b. It is not so that Bill answered in the class.

A closer examination of them, however, shows some differences between (3.204) and (3.205) or (3.206). First, compare the ungrammaticality of (3.207) with the grammaticality of (3.208) and (3.209):

(3.207) \*Bill did not answer wisely, that is, he did not answer.

(3.208) Bill did not answer yesterday, that is, he did not answer.

(3.209) Bill did not answer in the class, that is, he did not answer.

Second, observe the ungrammaticality of (3.210) and the grammaticality of (3.211) and (3.212):

(3.210) \*It was wisely that Bill did not answer.

(3.211) It was yesterday that Bill did not answer.

(3.212) It was in the class that Bill did not answer.

In addition, the manner adverbial wisely in (3.204) cannot be preposed jumping over the negative. If it is so preposed, the resulting sentence is ungrammatical as in (3.213) or the adverbial ceases to be a manner adverbial as in (3.214):

(3.213) \*How wisely Bill did not answer!

(3.214) Wisely Bill did not answer.

By comparison, yesterday and in the class may be so preposed without affecting the semantic contents of (3.205) and (3.206):

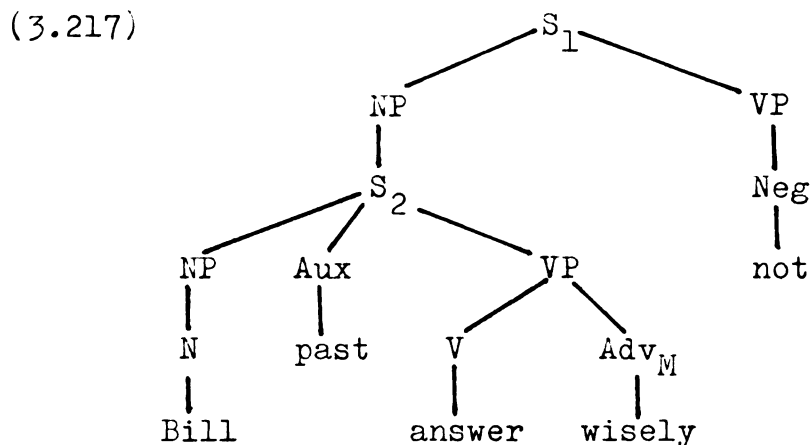
(3.215) Yesterday Bill did not answer.

(3.216) In the class Bill did not answer.

Sentence (3.214) is not synonymous with (3.204), whereas (3.215) and (3.216) may be synonymous with (3.205) and (3.206), respectively. Comparing (3.214) with (3.204), a difference is observed in the surface order of not and wisely: in (3.204) wisely follows the negative, while in

(3.214) wisely precedes the negative. Moreover, we note that wisely in (3.214) is not a manner adverbial any more but a sentential adverbial. This difference of the surface order of not and wisely corresponds to the slight morphological difference between kenmeini "wisely as a manner adverbial" and kenmeinimo "wisely as a sentential adverbial" in Japanese, as noted in connection with koohukuni "happily as a manner adverbial" versus koohukunimo "happily as a sentential adverbial" in section 3.5.1. In English, manner adverbials in general cannot precede a negative, as shown by the ungrammaticality of (3.213) and the non-synonymy of (3.214) with (3.204), and this is exactly the reflection of the observation made in 3.5.1: manner adverbials cannot include negation in their scope. These observations together suggest that the negation in (3.204) is different from that in (3.205) and (3.206). In our analysis, if the negation in (3.205) and (3.206) is verb-phrase negation, that in (3.204) is sentential negation. In particular, the ungrammaticality of (3.207) and (3.210) indicates that the negative in (3.204) cannot combine with the verb alone, as opposed to the negative in (3.205) and (3.206) that can negate the verb alone, as is shown by the grammaticality of (3.208), (3.209), (3.211) and (3.212). Furthermore, if the negation in (3.204) is sentential, as proposed here, this provides further support for the putative universal stated in (3.197), namely: manner adverbials cannot co-occur with verb-phrase negation.<sup>19</sup>

The preceding argument leads us to set up (3.217) as the structure underlying both (3.204a) and (3.204b):



The application of Sentence-raising and Negative-attachment to assign not to the verb yields sentence (3.204a). In particular, suppose wisely is optionally shifted to precede the verb as in (3.218b):

- (3.218) a. [[[[Bill]<sub>NP</sub> [past]<sub>Aux</sub> [[answer]<sub>V</sub> [the question that perplexed everyone]<sub>NP</sub> [wisely]<sub>Adv<sub>M</sub></sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub> →
- b. [[[[Bill]<sub>NP</sub> [past]<sub>Aux</sub> [[wisely]<sub>Adv<sub>M</sub></sub> [answer]<sub>V</sub> [the question that perplexed everyone]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

Then, after S<sub>2</sub> is raised into S<sub>1</sub>, Negative-attachment may attach not to the adverbial to derive sentence (3.219), but not to the verb following the adverbial to derive (3.220):

- (3.219) Bill did not wisely answer the question that perplexed everyone.

(3.220) Bill wisely did not answer the question that perplexed everyone.

Thus, Negative-attachment in (3.153) will have to be slightly revised to:

(3.221) a. 
$$X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \underline{\text{Adv}_M} \end{array} \right\} Y \text{ Neg} \rightarrow$$

$$X \text{ Neg+} \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \underline{\text{Adv}_M} \end{array} \right\} Y$$

b.(=3.153b) 
$$\begin{array}{l} X \quad V \quad Y \quad \text{Neg} \rightarrow \\ X \quad \text{Neg+V} \quad Y \end{array}$$

where X and Y are variables, and X contains no Neg, Quant, Adv<sub>F</sub>, Adv<sub>N</sub> such as only, Adv<sub>R.P</sub> or Adv<sub>M</sub>

The revised Negative-attachment rule can correctly block the following derivation:

(3.222) [Bill past wisely answer the question that perplexed everyone [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S</sub>  $\nrightarrow$   
 Bill wisely did not answer the question that perplexed everyone.

Returning to (3.217), if S<sub>2</sub> is not raised into S<sub>1</sub>, that, it, is and so will be inserted, as in the derivation of similar sentences discussed in Chapter II, to derive sentence (3.204b). Thus, no new transformation is necessary to derive sentences (3.204a) and (3.204b) from the same underlying

structure, (3.217), nor is a new transformation necessary to block the derivation of non-synonymous sentences.

In order to derive the underlying structure (3.217), we will need the following base rules:

(3.223) a.(=3.175a)  $S \longrightarrow NP (Aux) VP$

b.  $VP \longrightarrow V (NP) (Adv_M)$

Rule (3.223b) may conjoin with (3.176) into:

(3.224)  $VP \longrightarrow \left\{ \begin{array}{l} (Neg) V (NP) (Adv_M) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$

### 3.6. Conclusions

In this chapter we have discussed four classes of adverbials with respect to negation in both Japanese and English. These discussions demonstrate that:

1. Nominal adverbials, adverbials of frequency and adverbials of reason and purpose including benefactive adverbials behave similarly to quantifiers with respect to negation in that, depending upon whether they co-occur with sentential or verb-phrase negation, they show semantic differences. This constitutes another motivation for the twofold distinction of negation, sentential versus verb-phrase.
2. The validity of the analysis in terms of Sentence-raising, Negative-attachment and Quantifier-attachment

is further confirmed in this chapter, since these rules are useful in accounting for a number of facts concerning the interrelations of negation and those adverbials discussed above.

3. Both 1 and 2 are observed in both Japanese and English. This fact lends additional confirmation to the proposed analysis.
4. The discussion of manner adverbials in regard to negation provides further support for the proposed analysis and for the twofold distinction of negation. Moreover, we have proposed a presumably universal constraint that is, at least, applicable to both Japanese and English: manner adverbials cannot co-occur with verb-phrase negation.
5. The discussion of these adverbials with respect to negation requires a slight revision of Negative-attachment, Quantifier-attachment and Sentence-raising. This revision makes these transformations more general in that they are made applicable to the derivation of sentences involving these adverbials and negation.
6. Finally, the base rules stated in section 2.12 must be further expanded so that they may cover these adverbials. They are as follows:

Japanese: a.  $S \rightarrow NP VP (Aux) (wa)$

b. 
$$VP \rightarrow \left\{ \begin{array}{l} (Adv_M) (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$$

c. 
$$NP \rightarrow \left\{ \begin{array}{l} (S) (Adv_N) (Quant) (Det) N \\ S (NP) \end{array} \right\}$$

English: a.  $S \rightarrow NP (Aux) VP$

b. 
$$VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) (Adv_M) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$$

c. 
$$NP \rightarrow \left\{ \begin{array}{l} (Adv_N) (Quant) (Det) N (S) \\ (NP) S \end{array} \right\}$$



### CHAPTER III

#### FOOTNOTES

1. After dake "only" is attached to  $\Delta$ , giving dake sono syoonen ga, dake must be obligatorily shifted to follow sono syoonen "that boy" to derive sono syoonen dake ga "only that boy." This shift may be treated in a way similar to that of quantifiers to derive, for instance, (b) from (a):

(a)(=2.225a) sono kurasu no subeteno gakusei ga  
the class in all student  
sono sensei o sonkeisi nakatta.  
that teacher respect not-did  
'All the students in the class did not  
respect that teacher.'

(b)(=2.225b) sono kurasu no gakusei ga subete sono  
the class in student all that  
sensei o sonkeisi nakatta.  
teacher respect not-did  
'All the students in the class did not  
respect that teacher.'

The relevant difference is that the shift of quantifier subete "all" is optional, as shown by the grammaticality of (a), and this is usually the case with quantifiers. But in the case of some quantifiers, the shift is obligatory. For instance, consider the following:

(c)(=2.224) \*sono kurasu no minnano gakusei ga sono  
 the class in all student that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did

'All the students in the class did not  
 respect that teacher.'

(d)(=2.213) sono kurasu no gakusei ga minna sono  
 the class in student all that  
 sensei o sonkeisi nakatta.  
 teacher respect not-did

'All the students in the class did not  
 respect that teacher.'

The ungrammaticality of (c) indicates that the shift of minna "all" is obligatory as in the case of nominal adverbials.

2. With the use of rule (3.19) we can distinguish a semantic difference, for instance, between (a) and (b):

(a) sono syoozyo dake ga kare o kiratteiru.  
 that girl only him dislike  
 'Only that girl dislikes him.'

(b) sono syoozyo wa kare dake o kiratteiru.  
 that girl him only dislike  
 'That girl dislikes only him.'

The semantic difference between them is due to the difference in the position where dake "only" occurs. This is correctly predicted by the difference of their underlying structures as follows:

- (c) [[dake]<sub>Adv<sub>N</sub></sub> [sono]<sub>Det</sub> [syoozyo ga]<sub>N<sub>NP</sub></sub>  
 only that girl  
 [[kare o]<sub>NP</sub> [kiratteiru]<sub>V<sub>VP</sub></sub> [pres]<sub>Aux<sub>S</sub></sub>  
 him dislike
- (d) [[[sono]<sub>Det</sub> [syoozyo ga]<sub>N<sub>NP</sub></sub> [[dake]<sub>Adv<sub>N</sub></sub>  
 that girl only  
 [kare o]<sub>N<sub>NP</sub></sub> [kiratteiru]<sub>V<sub>VP</sub></sub> [pres]<sub>Aux<sub>S</sub></sub>  
 him dislike

Furthermore, we note that rule (3.19) derives underlying structures for sentences such as (e):

- (e) ?sono syoonen dake ga kanozyo dake o sitteiru.  
 that boy only her only know  
 'Lit. Only that boy knows only her.'

If this sentence is acceptable (which seems to be the case with some native speakers of Japanese), then no problem occurs for the base rule (3.19). But sentence (e) sounds unacceptable to some other native speakers including me. If so, the derivation of sentences like (e) must be blocked in some way. This may be done perhaps in terms of a constraint such as:

- (f) Nominal adverbials may not occur more than once in a simplex sentence.

But consider next the following sentence:

- (g) sono syoonen dake ga kanozyo saemo sitteiru.  
 that boy only her even know  
 'Only that boy knows even her.'

Sentence (g) sounds acceptable though it involves two occurrences of nominal adverbials dake "only" and saemo

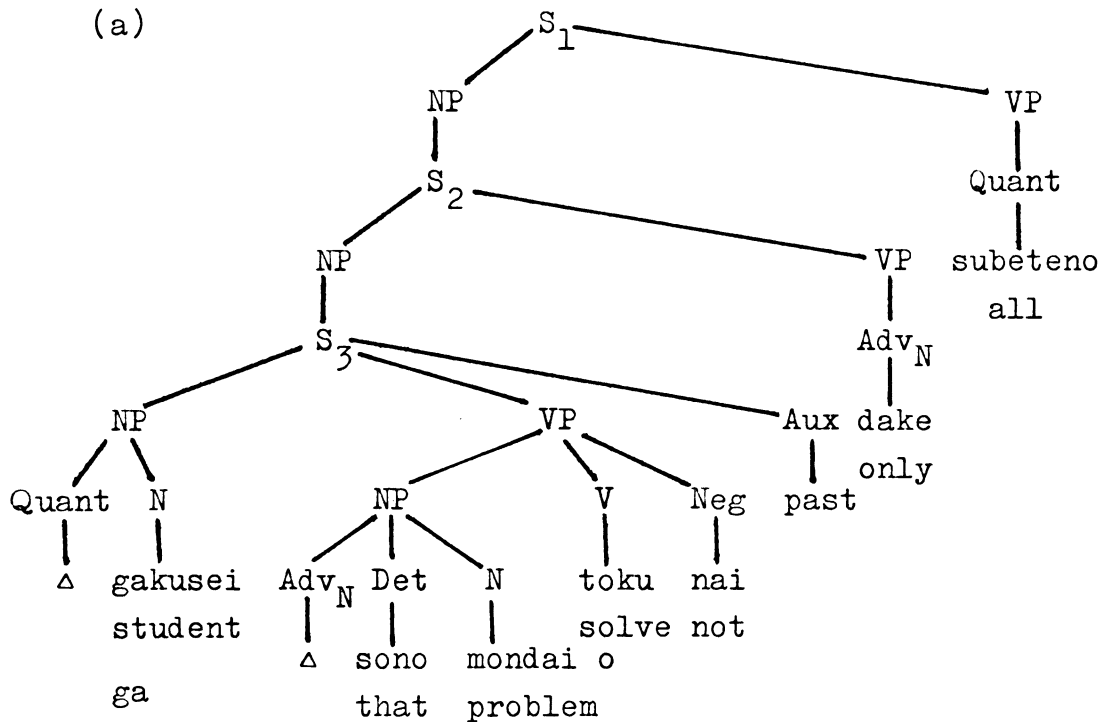
"even." Thus the constraint (f) is too strong and needs to be revised to (h):

- (h) The same nominal adverbial may not occur more than once in a simplex sentence.

With this constraint along with the base rule (3.19) we can generate grammatical sentences involving nominal adverbials and also block the generation of unacceptable sentences such as (e). Needless to say, constraint (h) is unnecessary for the grammar of the speakers who accept sentences such as (e).

On the other hand, if one attempts to take care of the semantic difference between sentence (a) and (b) by means of a transformation, such as Kuroda's (1969b) Attachment transformation, this transformation obviously is not meaning-preserving. This analysis has a clear disadvantage: to give up the meaning-preserving condition on transformations is to increase the descriptive power of transformations, which in turn contributes to making more serious the defect of the theory of transformational grammar (see Chomsky (1972:124-125)).

3. Rule (3.20) along with (3.21) can also derive structures such as (a) (underlying sentence (b)):



(b) subeteno gakusei ga sono mondai dake wa  
 all student that problem only  
 toka nakatta.  
 solve not-did

'Only that problem, all the students did not solve.'

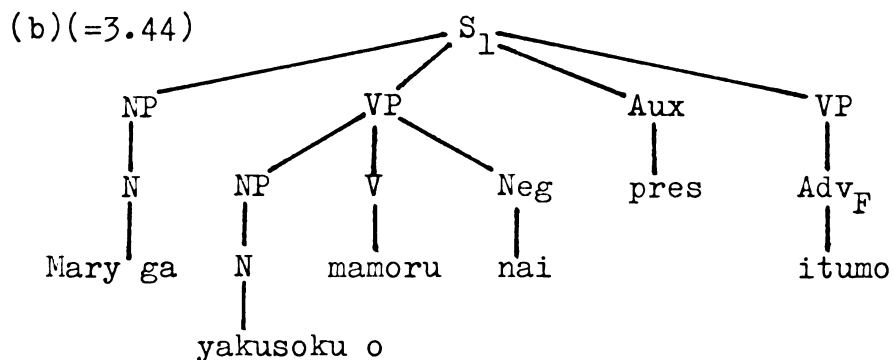
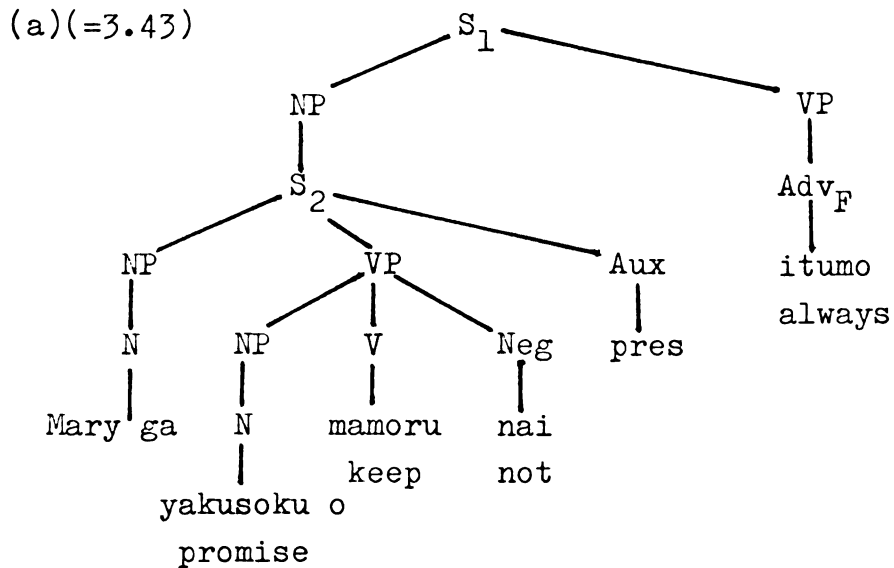
Note the two occurrences of  $\Delta$  in (a). Moreover, notice that there is no need for the specific distinction of  $\Delta$  for an unspecified nominal adverbial from  $\Delta$  for an unspecified quantifier, because they are dominated by distinct constituents,  $\text{Adv}_N$  and Quant, in underlying structure.

4. If the literal English translation for both (3.24) and (3.25) sounds unacceptable, this is due to the difference of even from saemo with respect to negation, as will be



discussed in section 3.4.1.

5. If Sentence-raising does not apply to (3.43), the complementizer no "that" and the copula da "is" as well as the topic wa are inserted, giving sentence (3.42).
6. Notice that Adverbial-movement follows Sentence-raising in application. For instance, it applies to (b) which is derived from (a) by the preceding application of Sentence-raising:



Thus, the NP in question is immediately dominated by the

$S_1$ . In general, a subject NP is immediately dominated by S.

7. If  $S_2$  of (3.61) is not raised up into  $S_1$ , the copula da "is," the complementizer no "that" and the topic-marking wa will be inserted, deriving sentence (3.60).

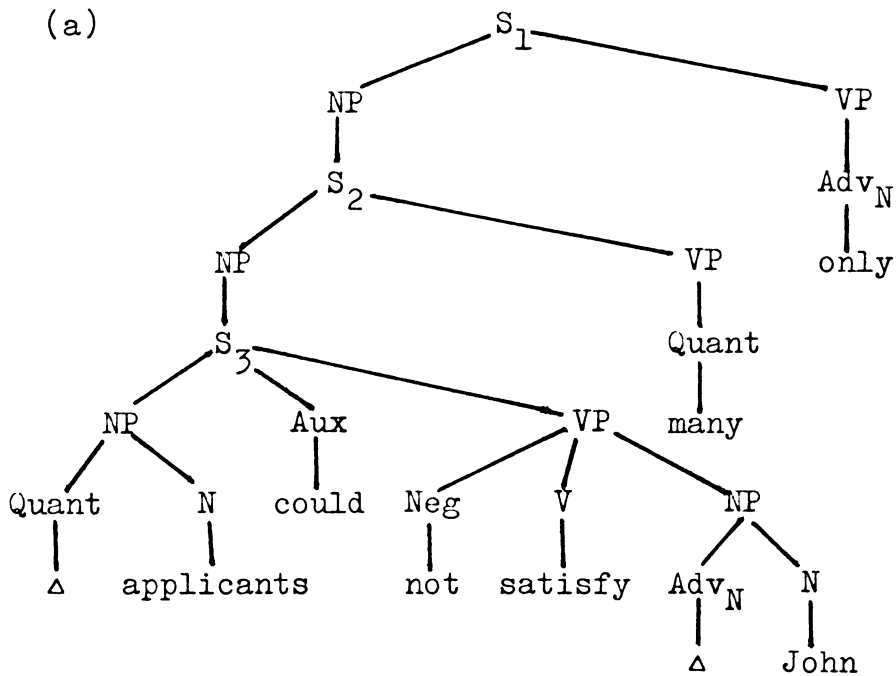
8. Incidentally, notice that the attachment of only to  $\Delta$  in (3.97) is blocked since  $\Delta$  follows not. But if Passivization applies to (3.97), it derives the following structure:

(a) [[ $\Delta$  that man in the group is not liked by  
Jane] $_{S_2}$ ] $_{NP}$  [[only] $_{Adv_N}$ ] $_{VP}$ ] $_{S_1}$

Then only may be attached to  $\Delta$ , after the raising of  $S_2$  into  $S_1$ , giving sentence (3.95).

9. Rule (3.104a) along with (3.104b) can also derive underlying structures such as (a) (underlying sentence (b)):





(b) Only John, many applicants could not satisfy.

Notice that there is no need for the specific distinction of  $\Delta$  for an unspecified nominal adverbial from  $\Delta$  for an unspecified quantifier, since they are dominated by different constituents in underlying structure. When Topicalization applies to  $S_3$ , it will derive the intermediate structure:

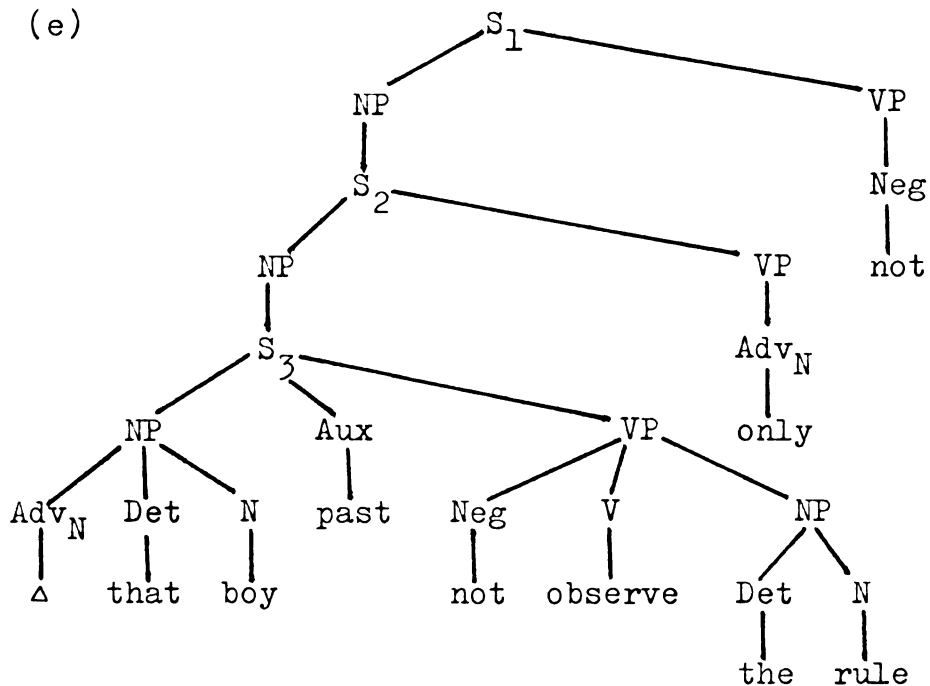
(c) [[[[[[[[ $\Delta$ ]<sub>Adv<sub>N</sub></sub> John]<sub>NP</sub> [[ $\Delta$ ]<sub>Quant</sub> applicants]<sub>NP</sub> could not satisfy]<sub>S<sub>3</sub></sub>]<sub>NP</sub> [[many]<sub>Quant</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub> [[only]<sub>Adv<sub>N</sub></sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>

After  $S_3$  is raised into  $S_2$ , Quantifier-attachment assigns many to  $\Delta$ . Then,  $S_2$  is further raised into  $S_1$ , and only is attached to  $\Delta$ , generating sentence (b).

Moreover, observe the following sentence:

(d) Not only that boy did not observe the rule.

If this sentence is acceptable, it is derived from the underlying structure (e), which is also derived by the rules (3.104a) and (3.104b):



The structure (e) also underlies sentence (f):

(f) It is not so that only that boy did not observe the rule.

10. We ignore here, as irrelevant, the fact that both (3.120) and (3.121) may be ambiguous. Sentence (3.121) may occur, for instance, in both of the following:

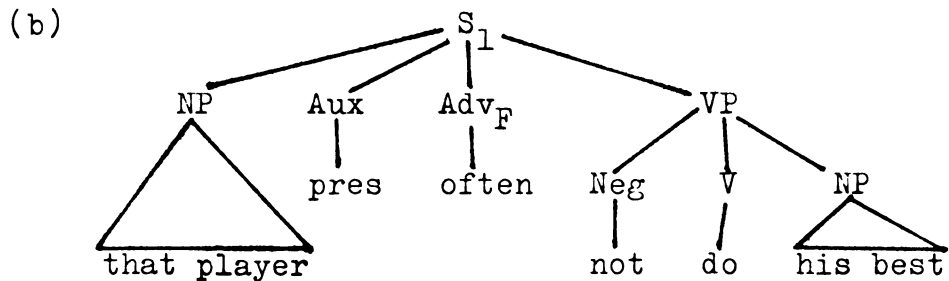
(a) Bill did not kiss Mary and the boy did not kiss Mary, either.

(b) In addition to refusing to kiss Helen, the boy did not kiss Mary, either.

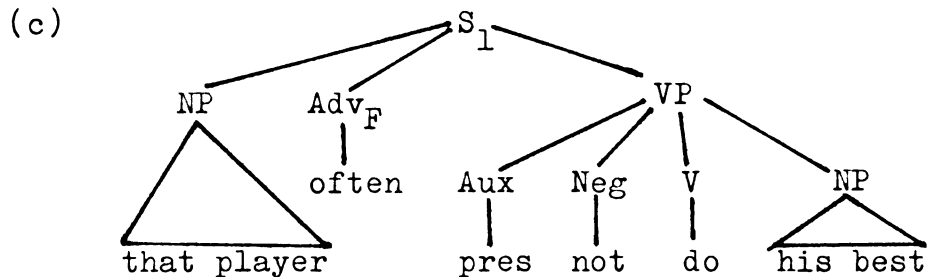
11. To be more exact, often is shifted to follow the auxiliary since adverbials of frequency like often usually follow auxiliaries (see footnote 12):

- (a) That player will  $\left\{ \begin{array}{l} \text{often} \\ \text{always} \\ \text{usually} \end{array} \right\}$  do his best.

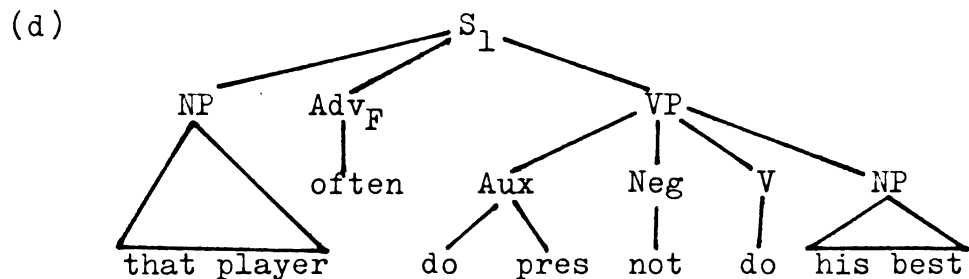
Thus the shift of often in (3.129) to follow the auxiliary derives the following structure:



Then the tense pres is attached to the VP, giving:



Next, do is inserted by what Klima (1964, 256) calls Do-support (such as Tense  $\rightarrow$  do + Tense), giving:



The structure (d) becomes sentence (3.123).

The tense-attachment transformation to derive structures such as (c) from (b) will be formulated as:

(e) i.  $X \begin{Bmatrix} \text{pres} \\ \text{past} \end{Bmatrix} Y [ \text{Neg } V \ Z ]_{VP} \longrightarrow$

$X \ Y \ [ \begin{Bmatrix} \text{pres} \\ \text{past} \end{Bmatrix} \text{Neg } V \ Z ]_{VP}$

ii.  $X \begin{Bmatrix} \text{pres} \\ \text{past} \end{Bmatrix} Y [ V \ Z ]_{VP} \longrightarrow$

$X \begin{Bmatrix} \text{pres} \\ \text{past} \end{Bmatrix} Y [ V+ \begin{Bmatrix} \text{pres} \\ \text{past} \end{Bmatrix} Z ]_{VP}$

where X, Y and Z are variables, and Y contains no Neg or NP

This transformation has no relation to Klima's Tense-attachment (see Klima (1964, 256)). Needless to say, the Do-support transformation must follow the application of rule (e.i).

On the other hand, rule (e.ii) is applicable when a verb phrase contains no negative as in the following:

(f)  $[\text{that player}]_{NP} [\text{pres}]_{Aux} [\text{often}]_{Adv_F}$

$[\text{do his best}]_{VP} \longrightarrow$

$[\text{that player}]_{NP} [\text{often}]_{Adv_F} [\text{do+pres his best}]_{VP}$

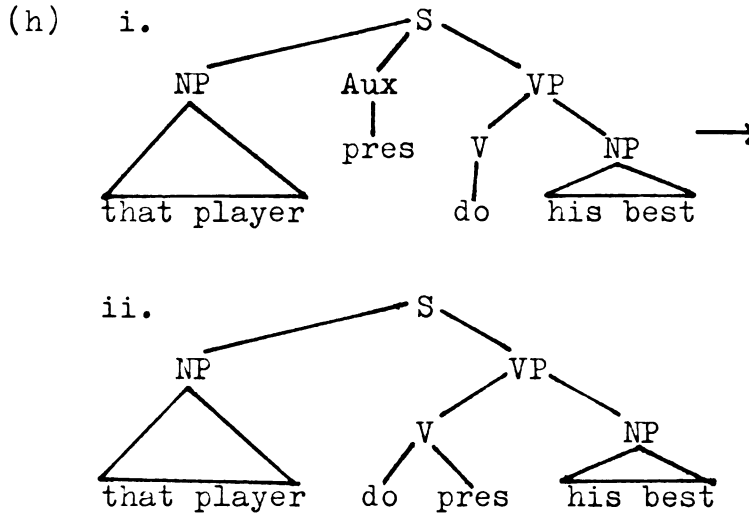
( $\longrightarrow$  That player often does his best.)

Moreover, it should be noted that rule (e) is in any case necessary to generate ordinary sentences in the present or past tense such as:

(g) i. That player does his best.

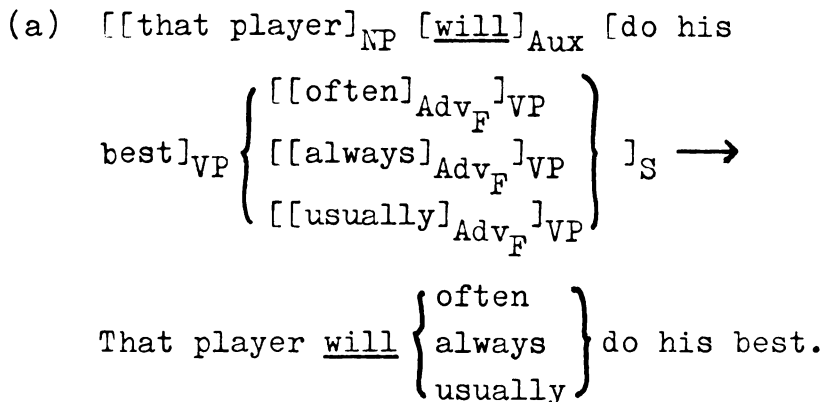
ii. That player did his best.

The generation of sentence (g.i), for instance, goes through the following derivation:



Note that the derivation of (h.ii) from (h.i) is taken care of by rule (e.ii) with Y being null.

12. It should be noticed that in rule (3.131) Adv<sub>F</sub> is shifted to follow Aux rather than the subject NP, so that (3.131) is general enough to cover derivations such as:



13. Notice that the transformation (3.131) correctly blocks the following derivation:

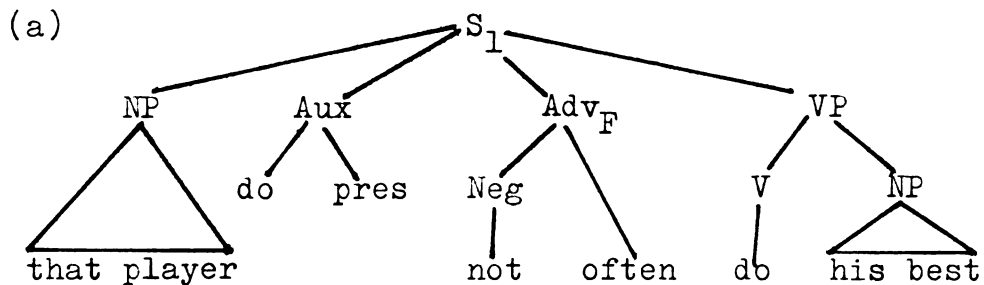
(a) [[that player]<sub>NP</sub> [pres]<sub>Aux</sub> [not do his best]<sub>VP</sub>  
 [[often]<sub>Adv<sub>F</sub></sub>]<sub>VP</sub>]<sub>S</sub>  $\nrightarrow$

That player pres not often do his best.

( $\rightarrow$  (3.124) That player does not often do his best.)

Thus the derivation of (3.124) from (3.127) is blocked by the filtering function of (3.131).

14. It should be noted that the tense-attachment transformation (e) in footnote 11 cannot apply to (3.134); the presence of not outside the VP in (3.134) does not satisfy the condition "Y contains no Neg" of this transformation. Then the Do-support transformation applies to (3.134), deriving:



The structure (a) becomes sentence (3.124).

15. Notice that the shift of adverbials of reason and purpose can be taken care of by the Adverbial-movement rule in (3.132), if it is slightly revised to:

$$(a) \quad [ X \quad NP \quad (Aux) \quad Y \quad \left\{ \begin{array}{l} Adv_F \\ Adv_{R.P} \end{array} \right\} ]_S \rightarrow$$

$$X \quad \left\{ \begin{array}{l} NP \quad (Aux) \quad Adv_F \\ \left\{ \begin{array}{l} Adv_F \\ Adv_{R.P} \end{array} \right\} \quad NP \quad (Aux) \end{array} \right\} \quad Y$$

where X and Y are variables, and NP is immediately dominated by S

16. To be more exact, sentence (3.161) is three-ways ambiguous and its third reading is that she did not attend the meeting which was held as an entertainment for those people. But we ignore the third reading as irrelevant to our discussion here.
17. One might argue that manner adverbials are more closely tied to the verb than time and location adverbials, and that this causes their differences noted in this section, by supposing that the negative in (3.177) negates the verb and the manner adverbial as a unit. But this argument is not very convincing when we consider examples such as:

$$(a) \quad \begin{array}{l} \text{kanozyo wa } [[\underline{\text{zyoozuni}}]_{Adv_M} \text{ [sono uta o]}_{NP} \\ \text{she} \quad \quad \quad \text{well} \quad \quad \quad \text{the song} \\ \\ \text{[utatta]}_V ]_{VP} \\ \text{sang} \\ \\ \text{'She sang the song well.'} \end{array}$$

Those who make this argument will not deny that an object noun phrase is more closely tied to a verb than a manner adverbial in that a manner adverbial modifies

a unit of an object noun phrase and a verb.

Next, observe the following:

(b) kanozyo wa sono uta o utawa nakatta.  
       she           the song sing not-did  
       'She did not sing the song.'

(c) kanozyo wa zyoozuni utawa nakatta.  
       she           well sing not-did  
       'She did not sing well.'

The negation in (b) may negate the verb alone, as is seen from the fact that (b) may be synonymous with:

(d) [[kanozyo ga utawa nakatta no]<sub>S</sub> wa sono uta da]<sub>S</sub>  
       she           sing not-did that     the song is  
       'Lit. It is the song that she did not sing.'

This is further confirmed by the grammaticality of (e):

(e) kanozyo wa sono uta o utawa nakatta, sunawati  
       she           the song sing not-did that is  
       (uta o) utawa nakatta.  
       song sing not-did  
       'She did not sing the song, that is, she did not sing.'

Compare (d) and (e) with (f) and (g), respectively:

(f) \*[[kanozyo ga utawa nakatta no]<sub>S</sub> wa zyoozuni da]<sub>S</sub>  
       she           sing not-did that     well is  
       'Lit. It is well that she did not sing.'

(g) \*kanozyo wa zyoozuni utawa nakatta, sunawati  
       she           well sing not-did that is  
       (uta o) utawa nakatta.  
       song sing not-did  
       'Lit. She did not sing well, that is, she did not sing.'



The ungrammaticality of (f) and (g) indicates that the negative in (c) cannot negate the verb alone.

Furthermore, consider sentence (h):

- (h) kanozyo wa zyoozuni sono uta o utawa nakatta.  
 she well the song sing not-did  
 'She did not sing the song well.'

Compare the grammaticality of (i) with the ungrammaticality of (j) and (k):

- (i) [[kanozyo ga zyoozuni utawa nakatta no]<sub>S</sub> wa  
 she well sing not-did that  
sono uta da]<sub>S</sub>  
 the song is  
 'Lit. It is the song that she did not sing well.'

- (j) \*[[kanozyo ga sono uta o utawa nakatta no]<sub>S</sub> wa  
 she the song sing not-did that  
zyoozuni da]<sub>S</sub>  
 well is

'Lit. It is well that she did not sing the song.'

- (k) \*kanozyo wa zyoozuni sono uta o utawa nakatta,  
 she well the song sing not-did  
 sunawati sono uta o utawa nakatta.  
 that is the song sing not-did

'Lit. She did not sing the song well, that is,  
 she did not sing the song.'

If the ungrammaticality of (f) and (g) is explained by supposing that a manner adverbial is so closely connected with a verb that a negative cannot negate a verb alone but a unit of a verb and a manner adverbial, then there is no reason why (d), (e) and (i) are not

ungrammatical: an object noun phrase is more closely related to a verb than a manner adverbial, so a negative should negate a unit of a verb and an object noun phrase, but not a verb alone. Yet, as a matter of fact, as the grammaticality of (d), (e) and (i) shows, a negative can negate a verb alone, in addition to negating a unit of a verb and an object noun phrase.

From this consideration we must conclude that the above assumption based on the close relation of manner adverbials to a verb cannot give a satisfactory explanation for the behavior of manner adverbials with respect to negation.

18. We may consider here the reason why a manner adverbial cannot include negation in its scope. We note first that a manner adverbial can be associated only with verbs (excluding stative verbs) but not with adjectives, adverbs etc.. More specifically, it can modify only a concrete action described by a verb or verb phrase, and in this sense it can include a verb or verb phrase in its scope:

(a)  $[[ X ]_{VP} \text{ Adv}_M ]$

where X contains a verb with the feature

$[- \text{stative}]$

This very nature or function of manner adverbials has much to do with their inability to include negation in their scope. Suppose, for example, a manner adverbial

includes negation in its scope:

(b) [[ Neg X ]<sub>VP</sub> Adv<sub>M</sub> ]

where X contains a verb with the feature  
[- stative]

Then, it follows that manner adverbials can modify a negated action that has no reference at all:

[ Neg X ]<sub>VP</sub> describes no concrete action at all, as "not answer," for instance, refers to no action in answering. In other words, (b) says that manner adverbials can modify the way an action is not performed.

But how can we describe the way an action is not performed if the action is not performed at all? Thus it seems to be a linguistic universal that a manner adverbial cannot include negation in its scope, since it is based on the factual knowledge that we cannot describe the way an action is not performed.

19. There seem to be some counter-examples to this constraint. For instance, observe the following:

(a) She reluctantly did not answer the telephone.

If sentence (a) is acceptable, this is clearly a counter-example to this constraint in that the manner adverbial reluctantly co-occurs with verb-phrase negation. Semantically, "not answer" in (a) refers to an action such as "refrain from answering" rather than no action at all. Thus sentence (a) will be semantically close to sentence (b):

- (b) She reluctantly refrained from answering the telephone.

The same is true of the following examples:

- (c) He hesitantly did not accept the offer.  
 (d) He regretfully did not accept the offer.

That is to say, they are semantically close to (e) and (f), respectively:

- (e) He hesitantly refused the offer.  
 (f) He regretfully refused the offer.

Thus, it seems to be the case that certain manner adverbials like reluctantly, hesitantly and regretfully can co-occur with negated verbs which have non-negative equivalents such as:

- (g) i. not answer — refrain from answering  
 ii. not accept — refuse

Another matter to consider is that these manner adverbials have some negative element of meaning.

In any case, the fact still remains that sentences such as (a), (c) and (d) are counter-examples to this constraint. If there are a considerable number of counter-examples like them, we will have to revise this constraint so that it may cover those counter-examples in some way. At present the author cannot offer a satisfactory solution to this problem, partly because he cannot find a sufficient number of counter-examples of this kind.

Incidentally, note that sentences such as (a),

(c) and (d) are not counter-examples to our analysis regarding negation and adverbials. The discussion in this chapter demonstrates that only manner adverbials cannot co-occur with verb-phrase negation. This will be summarized as:

(d)

Adverbials Negation	Adv <sub>N</sub>	Adv <sub>F</sub>	Adv <sub>R.P</sub>	Adv <sub>M</sub>
Sentential	X	X	X	X
Verb-phrase	X	X	X	

Counter-examples such as (a), (c) and (d) exactly serve to fill up this gap.

Viewed from another standpoint, we may say that the grammars of the speakers who find sentences like (a), (c) and (d) acceptable are undergoing a kind of simplification in that they are generalizing the occurrence of adverbials with respect to both types of negation and further limiting the exception. Furthermore, it should be noted that there is a limit to how far such simplification can proceed.

## CHAPTER IV

### NEGATIVE RAISING

Negative-raising or Negative transportation<sup>1</sup> is discussed by both generative and interpretive semanticists, such as R. Lakoff (1969a), G. Lakoff (1970a), Lindholm (1969), and Jackendoff (1971). Generative semanticists like G. Lakoff and R. Lakoff propose Negative-raising as a syntactic rule, while interpretive semanticists like Jackendoff reject this approach but try to account for a number of facts regarding Negative-raising in terms of a semantic interpretation rule.

It is not our concern here to support or deny Negative-raising as a syntactic rule, but to demonstrate that our proposed analysis may take care of a number of facts concerning Negative-raising without using this rule. To be more specific, our proposal is that if we adopt the analysis proposed in Chapter II, we may dispense with a minor rule such as Negative-raising in both Japanese and English grammars. If this proposal becomes established, it provides another support for the analysis proposed in Chapter II, in addition to eliminating the minor rule of Negative-raising.

4.1. Negative-Raising Versus  
the Proposed Analysis  
in Japanese

If we follow R. Lakoff (1969a), Lindholm (1969), G. Lakoff (1970a) and others, and apply their analysis to Japanese, sentence (4.2) will be derived from the structure underlying (4.1) by the application of Negative-raising:

(4.1) (watasi wa) John ga Mary o syootaisi nai to omou.  
I invite not that think  
'I think that John will not invite Mary.'

(4.2) (watasi wa) John ga Mary o syootaisuru to  
I invite that  
omowa nai.<sup>2</sup>  
think not

'I don't think that John will invite Mary.'

But, as they admit, Negative-raising is a minor rule in that it is applicable to a small class of verbs, namely, non-factive verbs of mental action such as think, suppose, believe, guess and want in English or their equivalents in Japanese. Our concern here is to explore an analysis that may account for the synonymy of (4.1) and (4.2) without using a minor rule such as Negative-raising.

To start with, consider the following examples and compare them with (4.1) and (4.2):

(4.3) (watasi wa) John ga Mary o syootaisuru no de wa  
I invite that is  
nai to omou.  
not that think

'I think that it is not so that John will invite Mary.'

(4.4) (watasi wa) John ga Mary o syootaisuru to wa  
 I invite that  
 omowa nai.  
 think not

'I don't think that John will invite Mary.'

We observe that both (4.3) and (4.4) are synonymous with (4.1) and (4.2). By synonymy we mean that sentences (4.1), (4.2), (4.3) and (4.4) are synonymous in the sense that active and passive sentences are synonymous. To clarify the point, observe the following:

(4.5) John wa Mary o aisa nakatta.  
 love not-did

'John did not love Mary.'

(4.6) Mary wa John ni aisare nakatta.  
 by loved not-was

'Mary was not loved by John.'

First, the synonymy of (4.5) and (4.6) permits us to conjoin them in terms of sunawati "that is" as follows:

(4.7) a. John wa Mary o aisa nakatta, sunawati Mary wa  
 love not-did that is

John ni aisare nakatta.  
 by loved not-was

'John did not love Mary, that is, Mary was not loved by John.'

b. Mary wa John ni aisare nakatta, sunawati John  
 by loved not-was that is

wa Mary o aisa nakatta.  
 love not-did

'Mary was not loved by John, that is, John did not love Mary.'



We observe that both (4.7a) and (4.7b) are grammatical.

Next, if we negate one of (4.5) and (4.6), and conjoin it with the other in terms of sunawati "that is," we get an ungrammatical sentence in either case:

- (4.8) a. \*John wa Mary o aisita, sunawati Mary wa John  
loved that is

ni aisare nakatta.

by loved not-was

'John loved Mary, that is, Mary was not loved  
by John.'

- b. \*Mary wa John ni aisareta, sunawati John wa  
by was loved that is

Mary o aisa nakatta.

love not-did

'Mary was loved by John, that is, John did not  
love Mary.'

Clearly both (4.8a) and (4.8b) are ungrammatical or semantically anomalous.

Third, any of the following sentences can occur following both (4.5) and (4.6):

- (4.9) a. sikasi Bill wa Mary o aisita  
but loved

'but Bill loved Mary'

- a'. sikasi Mary wa Bill ni aisareta  
but by was loved

'but Mary was loved by Bill'

- b. sikasi John wa Jane o aisita  
but loved

'but John loved Jane'

- b'. sikasi Jane wa John ni aisareta  
       but                               by was loved  
       'but Jane was loved by John'
- c. sikasi John wa Mary to kekkonsita  
       but                               married  
       'but John married Mary'
- c'. sikasi Mary wa John to kekkonsita  
       but                               married  
       'but Mary married John'

In this sense, active and passive sentences are synonymous with each other.

Our next step is, then, to show that in a similar sense (4.1) and (4.2) are synonymous. First, let us conjoin (4.1) and (4.2) in terms of sunawati "that is" as in:

- (4.10) (watasi wa) John ga Mary o syootaisi nai to  
       I                               invite not that  
       omou, sunawati (watasi wa) John ga Mary o  
       think that is I  
       syootaisuru to omowa nai.  
       invite that think not

'I think that John will not invite Mary, that is,  
 I don't think that John will invite Mary.'

- (4.11) (watasi wa) John ga Mary o syootaisuru to omowa  
       I                               invite that think  
       nai, sunawati (watasi wa) John ga Mary o  
       not that is I  
       syootaisi nai to omou.  
       invite not that think

'I don't think that John will invite Mary, that  
 is, I think that John will not invite Mary.'

We observe that both (4.10) and (4.11) are grammatical.

Next, let us negate one of (4.1) and (4.2), and conjoin it with the other as in:

(4.12) \*(watasi wa) John ga Mary o syootaisi nai to  
 I invite not that  
 omowa nai, sunawati (watasi wa) John ga Mary o  
 think not that is I  
 syootaisuru to omowa nai.  
 invite that think not  
 'I don't think that John will not invite Mary,  
 that is, I don't think that John will invite  
 Mary.'

(4.13) \*(watasi wa) John ga Mary o syootaisuru to  
 I invite that  
 omou, sunawati (watasi wa) John ga Mary o  
 think that is I  
 syootaisi nai to omou.  
 invite not that think  
 'I think that John will invite Mary, that is,  
 I think that John will not invite Mary.'

In either case, the resulting sentence is unacceptable.

Third, we observe that any of the following sentences may occur following both (4.1) and (4.2):

(4.14) a. (watasi wa) Bill ga Mary o syootaisuru to  
 I invite that  
 omou  
 think  
 'I think that Bill will invite Mary'

- b. (watasi wa) John ga Jane o syootaisuru to  
 I invite that

omou  
 think

'I think that John will invite Jane'

- c. (watasi wa) John ga Mary o musisuru to  
 I ignore that

omou  
 think

'I think that John will ignore Mary'

These observations will be sufficient to indicate the synonymy of sentences (4.1) and (4.2).

Next, let us reconsider (4.3) and (4.4), repeated here as (4.15) and (4.16), respectively:

- (4.15)(=4.3) (watasi wa) John ga Mary o syootaisuru no  
 I invite that

de wa nai to omou.  
 is not that think

'I think that it is not so that John will  
 invite Mary.'

- (4.16)(=4.4) (watasi wa) John ga Mary o syootaisuru to  
 I invite that

wa omowa nai.  
 think not

'I don't think that John will invite Mary.'

We observe that sentences (4.15) and (4.16) are synonymous with sentences (4.1) and (4.2). This can be easily demonstrated in a way similar to the synonymy of (4.1) and (4.2). First, observe the grammaticality of the following

derived by conjoining (4.2) with (4.15) or (4.16):

(4.17) (watasi wa) John ga Mary o syootaisuru to omowa  
 I invite that think  
 nai, sunawati (watasi wa) John ga Mary o  
 not that is I  
 syootaisuru no de wa nai to omou.  
 invite that is not that think  
 'I don't think that John will invite Mary, that  
 is, I think that it is not so that John will  
 invite Mary.'

(4.18) (watasi wa) John ga Mary o syootaisuru to omowa  
 I invite that think  
 nai, sunawati (watasi wa) John ga Mary o  
 not that is I  
 syootaisuru to wa omowa nai.  
 invite that think not  
 'I don't think that John will invite Mary, that  
 is, I don't think that John will invite Mary.'

Next, negating (4.2) and conjoining it with (4.15) or  
 (4.16), we will get:

(4.19) \*(watasi wa) John ga Mary o syootaisuru to omou,  
 I invite that think  
sunawati (watasi wa) John ga Mary o syootaisuru  
 that is I invite  
 no de wa nai to omou.  
 that is not that think  
 'I think that John will invite Mary, that is,  
 I think that it is not so that John will invite  
 Mary.'

- (4.20) \*(watasi wa) John ga Mary o syootaisuru to omou,  
           I  invite  that  think  
           sunawati (watasi wa) John ga Mary o syootaisuru  
           that  is          I  invite  
           to  wa  omowa  nai.  
           that  think  not  
           'I think that John will invite Mary, that is, I  
           don't think that John will invite Mary.'

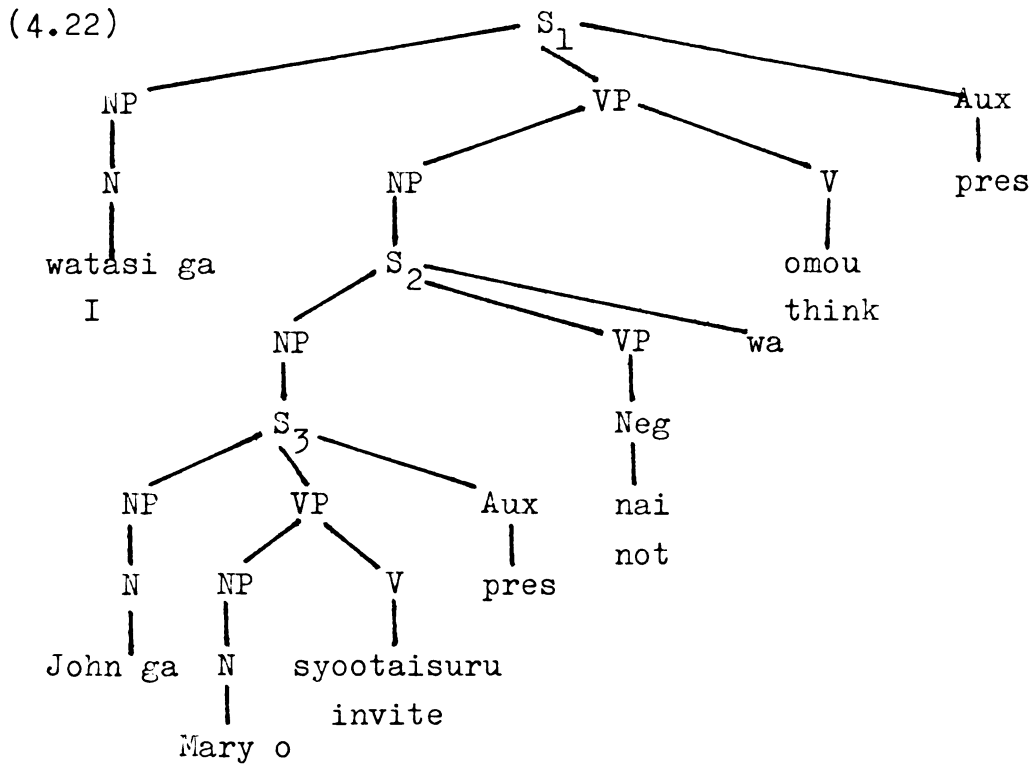
Both (4.19) and (4.20) are unacceptable.

Third, we observe that any of the sentences in (4.14) can occur following both (4.15) and (4.16).

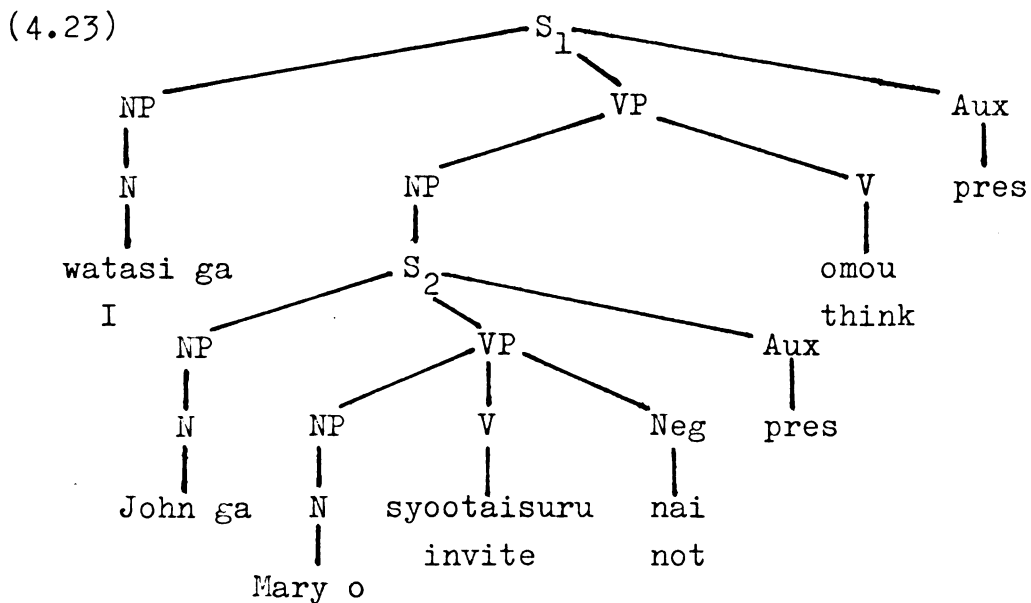
These observations indicate that (4.15) and (4.16) are synonymous with (4.2), and so with (4.1), because (4.1) and (4.2) are synonymous as noted above. If this line of argumentation is acceptable, we will have to account for the synonymy of (4.1), (4.2), (4.15) and (4.16) rather than the synonymy of (4.1) and (4.2) only. It is clear that the approach in terms of Negative-raising, applied to Japanese, may account for the synonymy of (4.1) and (4.2) but not the synonymy of (4.1), (4.2), (4.15) and (4.16). Our proposal here is that:

- (4.21) Sentences (4.15) and (4.16) are more closely related to (4.2) than to (4.1): in fact, (4.2), (4.15) and (4.16) are derived from the same underlying structure that is slightly different from the structure underlying (4.1).

More specifically, sentences (4.2), (4.15) and (4.16) will be derived from the underlying structure (4.22):



On the other hand, sentence (4.1) will be derived from (4.23):



Notice, in particular, that nai "not" in (4.22) is

sentential negation, while nai "not" in (4.23) is verb-phrase negation.

First of all, we must be able to account for the synonymy of sentence (4.1) with (4.2), (4.15) and (4.16). This is not difficult within our framework. Recall that we have proposed in (2.150) of Chapter II a presumably universal constraint that the scope of negation, whether sentential or verb-phrase, is the whole sentence in which it occurs. Thus, the scope of nai in (4.22) is  $S_2$ , while that in (4.23) is also  $S_2$ :

(4.24) [[[[John ga]<sub>NP</sub> [[Mary o]<sub>NP</sub> [syootaisuru]<sub>V</sub>]<sub>VP</sub>  
invite  
[pres]<sub>Aux</sub>]<sub>S<sub>3</sub></sub>]<sub>NP</sub> [[nai]<sub>Neg</sub>]<sub>VP</sub> wa]<sub>S<sub>2</sub></sub>  
not

(4.25) [[John ga]<sub>NP</sub> [[Mary o]<sub>NP</sub> [syootaisuru]<sub>V</sub> [nai]<sub>Neg</sub>]<sub>VP</sub>  
invite not  
[pres]<sub>Aux</sub>]<sub>S<sub>2</sub></sub>

The comparison between (4.24) and (4.25) shows that the relevant parts included in the scope of negation in (4.24) are the same as in (4.25). This explains why sentence (4.1) derived from (4.23) may be synonymous with sentences (4.2), (4.15) and (4.16) derived from (4.22). Furthermore, this explains why sentence (4.26) derived from (4.24) and sentence (4.27) derived from (4.25) are synonymous with each other:

(4.26) [[John wa Mary o syootaisuru no]<sub>S</sub> de wa nai]<sub>S</sub>  
invite that is not

'It is not so that John invites Mary.'



(4.27) [John wa Mary o syootaisi nai]<sub>S</sub>  
 invite not

'John does not invite Mary.'

Sentences (4.26) and (4.27) are synonymous in the following sense. First, conjoining (4.26) and (4.27) in terms of sunawati "that is," we will get a grammatical sentence, (4.28):

(4.28) a. John wa Mary o syootaisuru no de wa nai,  
 invite that is not

sunawati John wa Mary o syootaisi nai.

that is invite not

'It is not so that John invites Mary, that is, John does not invite Mary.'

b. John wa Mary o syootaisi nai, sunawati John  
 invite not that is

wa Mary o syootaisuru no de wa nai.

invite that is not

'John does not invite Mary, that is, it is not so that John invites Mary.'

Second, conjoining (4.26) with an affirmative counterpart of (4.27) or conjoining (4.27) with an affirmative counterpart of (4.26), we will get an ungrammatical sentence in either case:

(4.29) a. \*John wa Mary o syootaisuru no de wa nai,  
 invite that is not

sunawati John wa Mary o syootaisuru.

that is invite

'It is not so that John invites Mary, that is, John invites Mary.'

- b. \*John wa Mary o syootaisi nai, sunawati John  
invite not that is

wa Mary o syootaisuru no da.

invite that is

'John does not invite Mary, that is, it is  
that John invites Mary.'

Third, any of the following sentences can occur  
following both (4.26) and (4.27):

- (4.30) a. Bill ga Mary o syootaisuru  
invite

'Bill invites Mary'

- b. John wa Jane o syootaisuru  
invite

'John invites Jane'

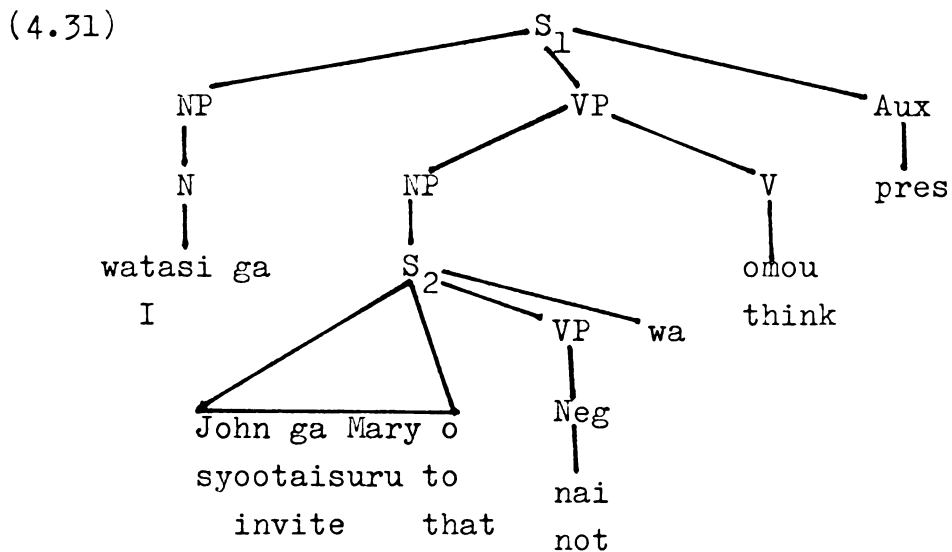
- c. John wa Mary o musisuru  
ignore

'John ignores Mary'

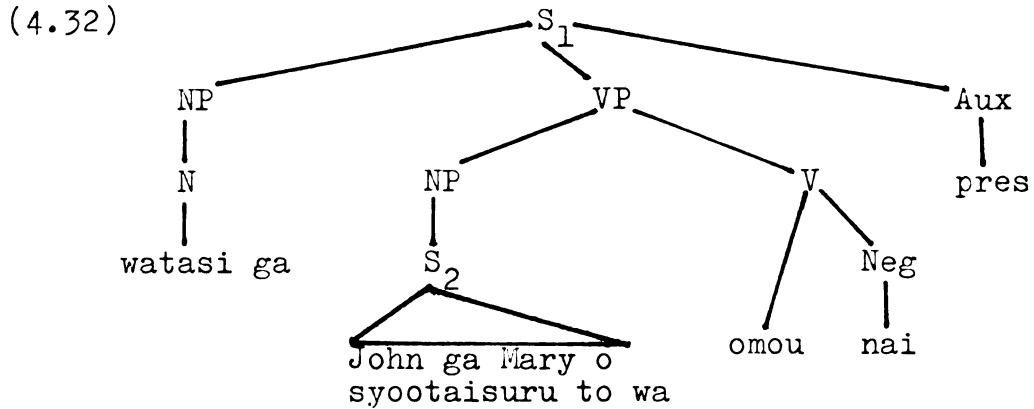
Thus, the difference between sentential and verb-  
phrase negation does not cause a semantic difference in  
cases such as (4.24) and (4.25). That is to say, in spite  
of some apparent difference between (4.24) and (4.25),  
sentences (4.26) and (4.27) derived from (4.24) and (4.25),  
respectively, may be synonymous because the scope of nega-  
tion is the whole sentence in which it occurs. If (4.26)  
and (4.27) derived from (4.24) and (4.25), respectively, are  
synonymous, it follows that sentences derived from (4.22)  
and (4.23), respectively, are synonymous. Thus, the  
synonymy of (4.1) with (4.2), (4.15) and (4.16) may be  
accounted for in terms of the putative universal constraint

regarding the scope of negation, proposed in (2.150) of Chapter II.

Second, if sentences (4.2), (4.15) and (4.16) are derived from the same underlying structure, (4.22), their synonymy is automatically explained. Now, let us consider their derivation from the structure (4.22). If Sentence-raising does not apply to raise  $S_3$  into  $S_2$ , the complementizer no "that" and the copula da "is" are inserted into  $S_3$  and  $S_2$ , respectively, deriving sentence (4.15). In turn, if  $S_3$  of (4.22) is raised into  $S_2$ , it gives the intermediate structure (4.31):



Next, the negative nai is attached to the verb omou, giving:



The structure (4.32) becomes sentence (4.16). To cover the derivation of (4.32) from (4.31), we will need a rule such as:

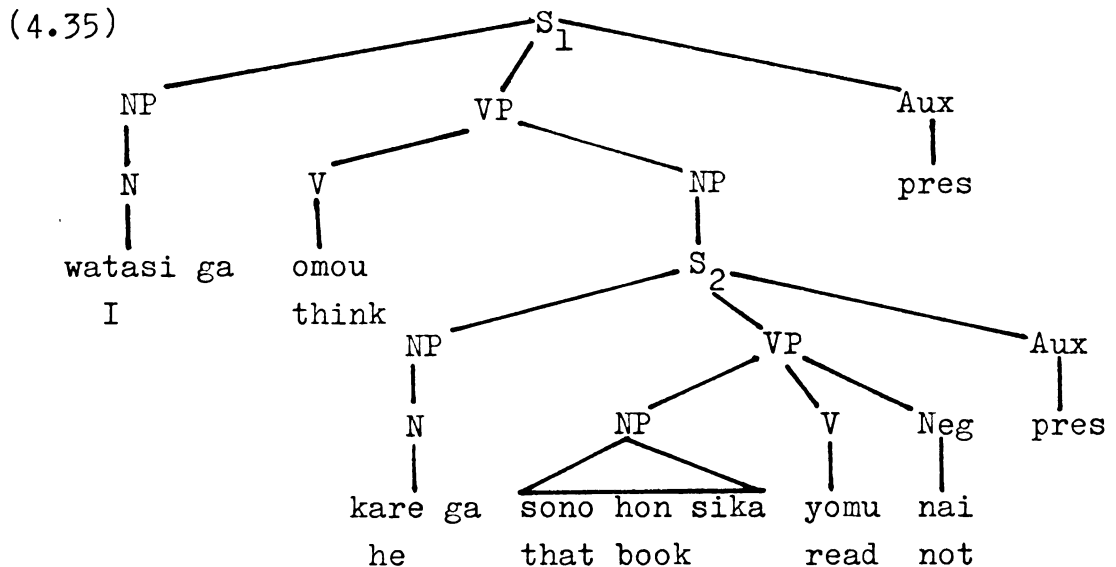
$$(4.33) \quad X \quad [W \text{ Neg}]_S \quad Y \quad V_{Th} \quad Z \longrightarrow \\ X \quad [W]_S \quad Y \quad V_{Th+Neg} \quad Z$$

where W, X, Y and Z are variables, Z contains no Neg, and Neg is exhaustively dominated by a VP

Rule (4.33) is applicable to  $V_{Th}$ , a small class of non-factive verbs of mental action such as omou "think, suppose," sinzuru "believe" and kangaeru "think." This rule is very similar to the Negative-raising rule but the relevant difference is that (4.33) is restricted to negatives which are exhaustively dominated by a verb phrase, that is, sentential negatives in our analysis. This is no small difference, as will be discussed in detail in the next section. To mention just one example, consider the following:<sup>3</sup>

- (4.34) a. [(watasi wa) [kare ga sono hon sika yoma  
 I he that book read  
nai to]<sub>S</sub> omou]<sub>S</sub>  
 not that think  
 'I think that he will read only that book.'
- b. \*[(watasi wa) [kare ga sono hon sika yomu  
 I he that book read  
 to]<sub>S</sub> omowa nai]<sub>S</sub>  
 that think not  
 'I don't think that he will read \_\_\_\_\_ book.'

Negative-raising, applied to Japanese, will optionally apply to the structure underlying (4.34a), deriving (4.34b), which is not a grammatical sentence in Japanese. In contrast, rule (4.33) cannot apply to the structure underlying (4.34a), that is, (4.35):



It should be noticed that the negative in (4.35), which is not exhaustively dominated by a verb phrase, does not meet the condition of rule (4.33). Thus, the generation of

(4.34b) from (4.35) is blocked by the filtering function of this rule.

Furthermore, considering (4.33), we note that it may be conjoined with Negative-attachment in (2.116). The conjoined rule will be:

(4.36) a.(=2.116)

$$X \left\{ \begin{array}{l} P \\ Q + wa \end{array} \right. \left. Y \left\{ \begin{array}{l} V \\ Adj \end{array} \right\} + wa \right\} Z \text{ Neg} \longrightarrow$$

$$X \left\{ \begin{array}{l} P \\ Q + wa \end{array} \right. \left. Y \left\{ \begin{array}{l} V \\ Adj \end{array} \right\} + wa + \text{Neg} \right\} Z$$

$$\begin{array}{l} \text{b.(=4.33)} \quad X \quad [W \text{ Neg}]_S \quad Y \quad V_{Th} \quad Z \longrightarrow \\ \quad \quad \quad X \quad [W]_S \quad Y \quad V_{Th+Neg} \quad Z \end{array}$$

where P, Q, W, X, Y and Z are variables, Z contains no Neg, P includes Adv<sub>M</sub> or Adv<sub>D</sub>, Q includes Quant, Adv<sub>M</sub> or Adv<sub>D</sub>, and Neg is exhaustively dominated by a VP

It should be recalled that (4.36a) as well as (4.36b) is restricted to sentential negation, exhaustively dominated by a verb phrase. Furthermore, note the condition that Z contains no Neg. If Z contains a Neg and Negative-attachment (4.36b) applies, it derives an ungrammatical sentence as in the following:

$$\begin{array}{l} (4.37) \quad [\text{watasi ga } [[\text{John ga Mary o syootaisuru to} \\ \quad \quad \quad \text{I} \quad \quad \quad \text{invite} \quad \text{that} \\ \quad \quad \quad [[\underline{\text{nai}}]_{\text{Neg}}]_{\text{VP}} \text{ wa}]_{\text{S}_2}]_{\text{NP}} \text{ omou } \underline{\text{nai}} \text{ pres}]_{\text{S}_1} \longrightarrow \\ \quad \quad \quad \text{not} \quad \quad \quad \text{think not} \end{array}$$

\*[watasi wa [John ga Mary o syootaisuru to wa]<sub>S</sub>  
 I invite that  
 omowa nai nai]<sub>S</sub>  
 think not not

The same is true in the case of (4.36a).

Turning back to sentence (4.16), the optional deletion of wa in (4.16) generates sentence (4.2), as desired. This wa-deletion may be compared with that relating sentences such as (4.38a) and (4.38b):

(4.38) a.(=3.200a) kanozyo wa koohukuni wa sina nakatta.  
 she happily die not-did  
 'She did not die happily.'

b.(=3.177) kanozyo wa koohukuni sina nakatta.  
 she happily die not-did  
 'She did not die happily.'

It is to be noted that no new transformation is necessary, though we need some revision of Negative-attachment, to derive sentences (4.2), (4.15) and (4.16) from the same underlying structure, (4.22). This means that the analysis in terms of Negative-raising can be refined and incorporated into a more general analysis, that is, our analysis proposed in Chapter II. Those transformations used in the derivation of (4.2), (4.15) and (4.16) are independently motivated to cover the derivation of sentences involving negation and quantifiers or certain classes of adverbials, as discussed in Chapter II and III. In this sense, our analysis is more general and well-motivated than the Negative-raising analysis.

#### 4.2. Advantages of the Proposed Analysis in Japanese

To confirm the point at the end of the preceding section, let us consider some clear advantages of our analysis.

We note that there are a number of cases in which sentences of the type "NP wa [ X - Y ]<sub>S</sub> omowa nai/omotte inai (= NP do(es) not think [ X - Y ]<sub>S</sub>)" are not synonymous with their counterparts of the type "NP wa [ X - Y - nai ]<sub>S</sub> omou/omotteiru (= NP think(s) [ X - not - Y ]<sub>S</sub>)." It is clear that Negative-raising, if it is to be a meaning-preserving transformation, cannot apply in these cases. A reasonable way to block its application in the cases will be to impose a constraint on the rule. Then, the approach in terms of Negative-raising will have to set up two different underlying structures for sentences of the two types in question, because they are not synonymous. Thus, the approach in terms of Negative-raising must distinguish two cases, cases where sentences of the two types are synonymous and those where they are not synonymous. Moreover, if sentences of one type are grammatical and their counterparts of another type are ungrammatical, they pose another problem of a similar kind for Negative-raising. Clearly it will be preferable if we can treat them in a unitary way. In this section, we will cite a number of cases in which sentences of the two types are different in meaning or grammaticality and demonstrate that our analysis can explain them in the





(4.41) (watasi wa) subeteno oobosya ga sintaikensa o  
 I all applicant physical-  
 examination

uketa no de wa nai to omou.

underwent that is not that think

'I think that it is not so that all the  
 applicants underwent a physical-examination.'

(4.42) (watasi wa) subeteno oobosya ga sintaikensa o  
 I all applicant physical-  
 examination

uketa to wa omowa nai.

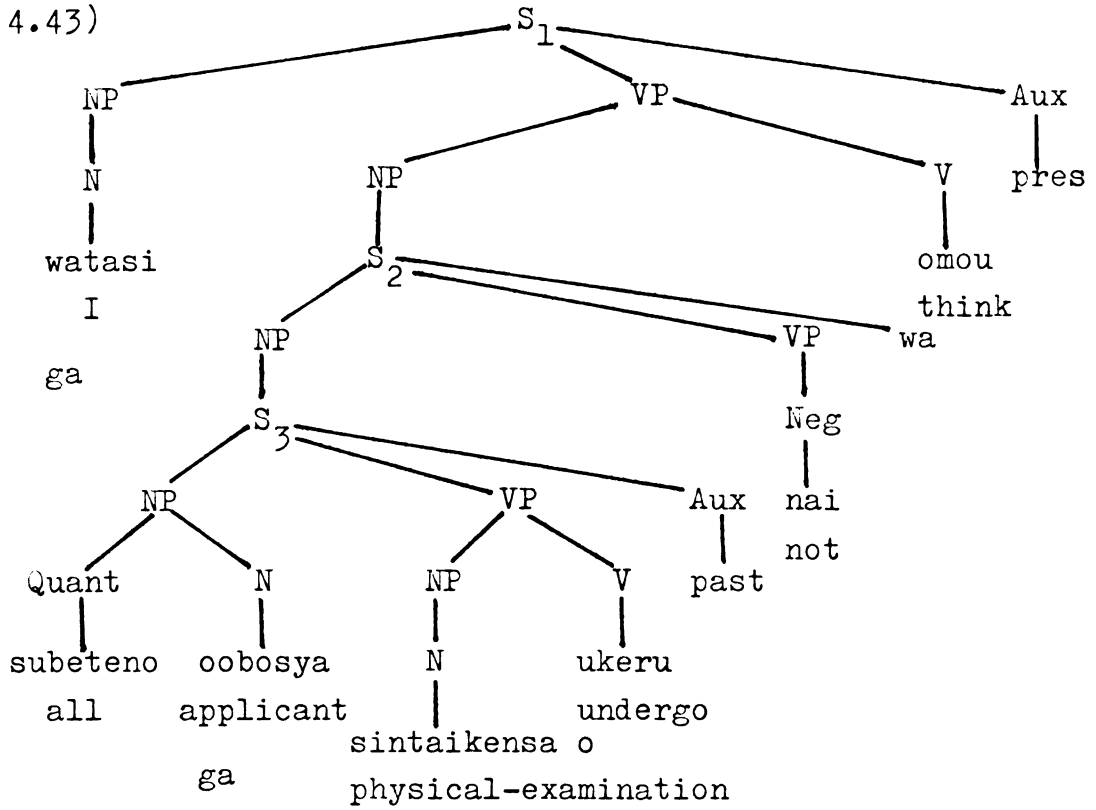
underwent that think not

'I don't think that all the applicants underwent  
 a physical-examination.'

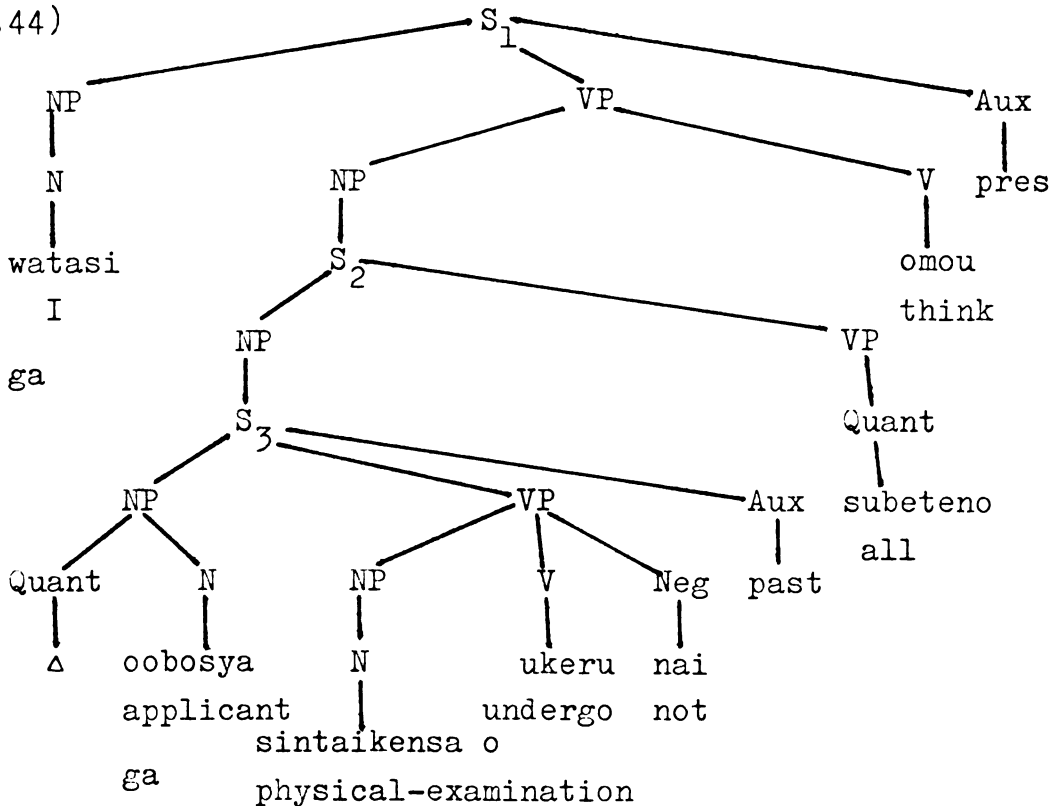
We observe that (4.41) and (4.42) are synonymous and they  
 are in turn synonymous with (4.40). Thus, our proposal is  
 that (4.40), (4.41) and (4.42) are derived from one  
 underlying structure, and (4.39) is derived from another.

Applying the analysis of the preceding section, we  
 hold that sentences (4.40), (4.41) and (4.42) are derived  
 from the underlying structure (4.43), whereas sentence  
 (4.39) is derived from (4.44):

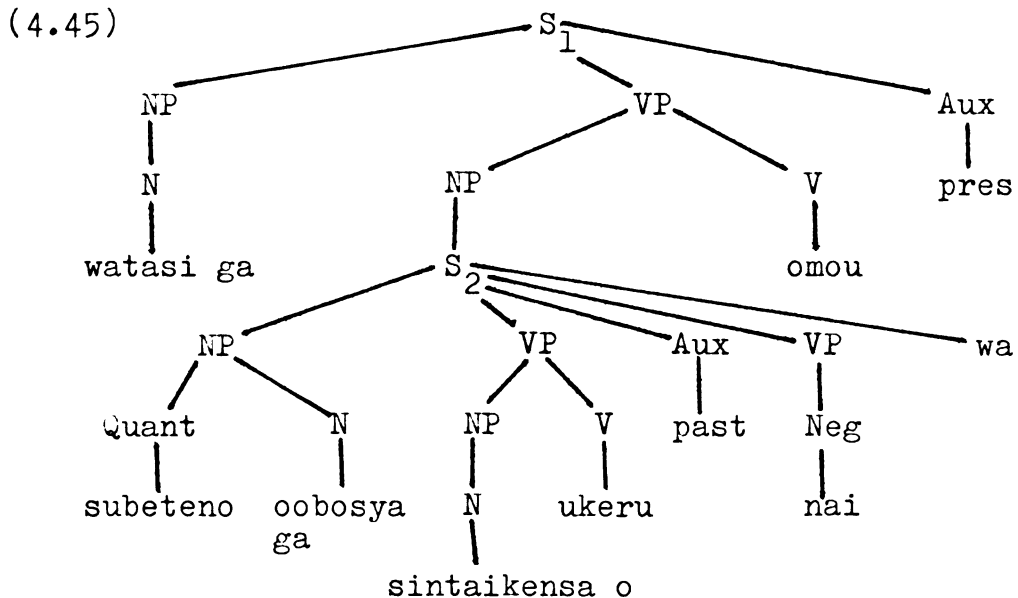
(4.43)



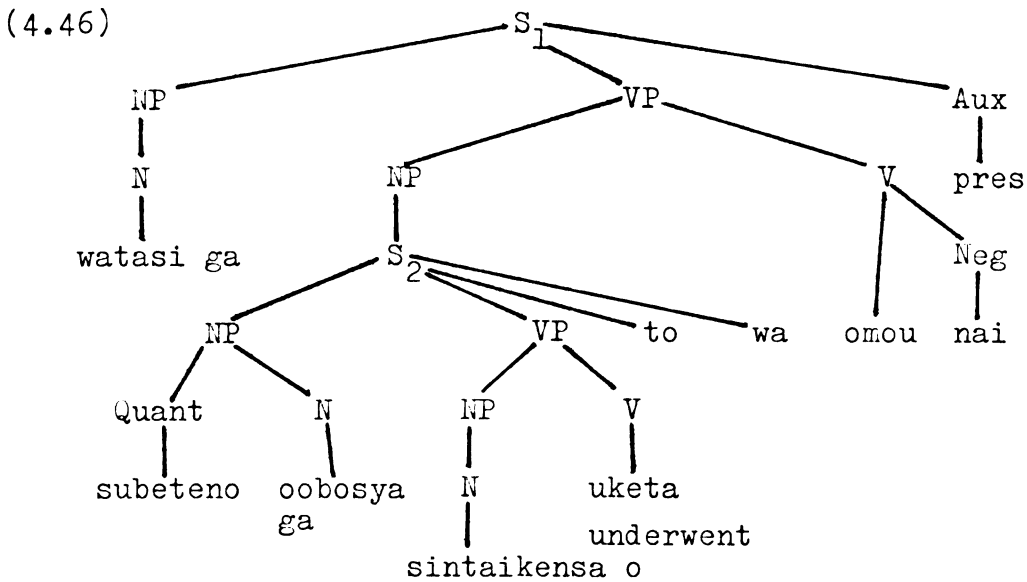
(4.44)



The structure (4.43) indicates that the negative nai, whose scope is  $S_2$ , includes the quantifier subeteno "all" in its scope. In contrast, the structure (4.44) shows that the scope of the negative is  $S_3$  and the quantifier in  $S_2$  is outside of its scope. This difference reflects the semantic difference between the sentences derived from them. Now, considering the derivation involving (4.43), if Sentence-raising does not apply, the complementizer no "that," and the copula da "is" and the complementizer to "that" are inserted into  $S_3$  and  $S_2$ , respectively, yielding sentence (4.41). In turn, if  $S_3$  is raised up into  $S_2$ , it derives the intermediate structure:

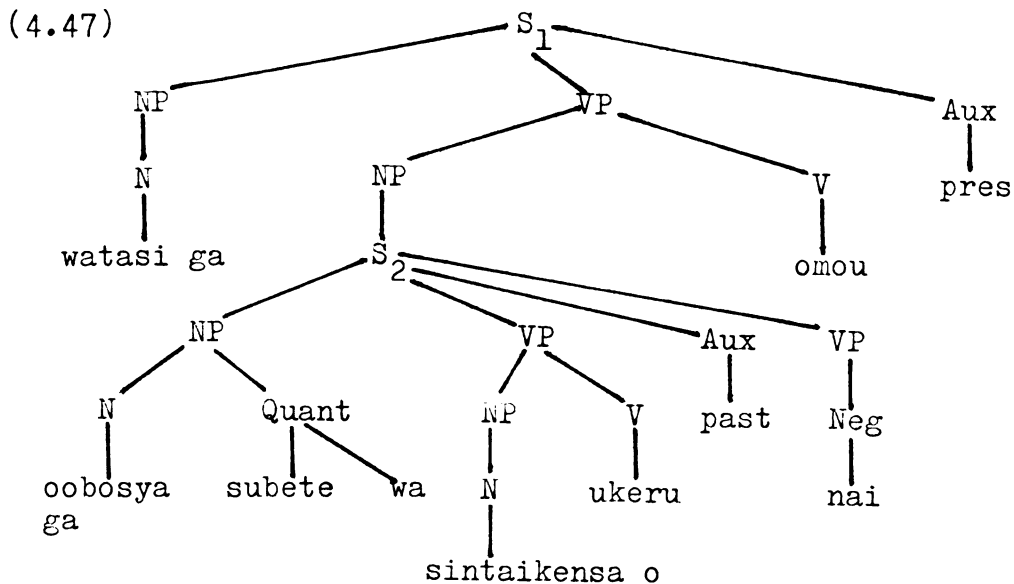


Then, applying Negative-attachment (4.36b) to attach nai "not" to omou "think" as well as the complementizer-insertion rule, we derive:

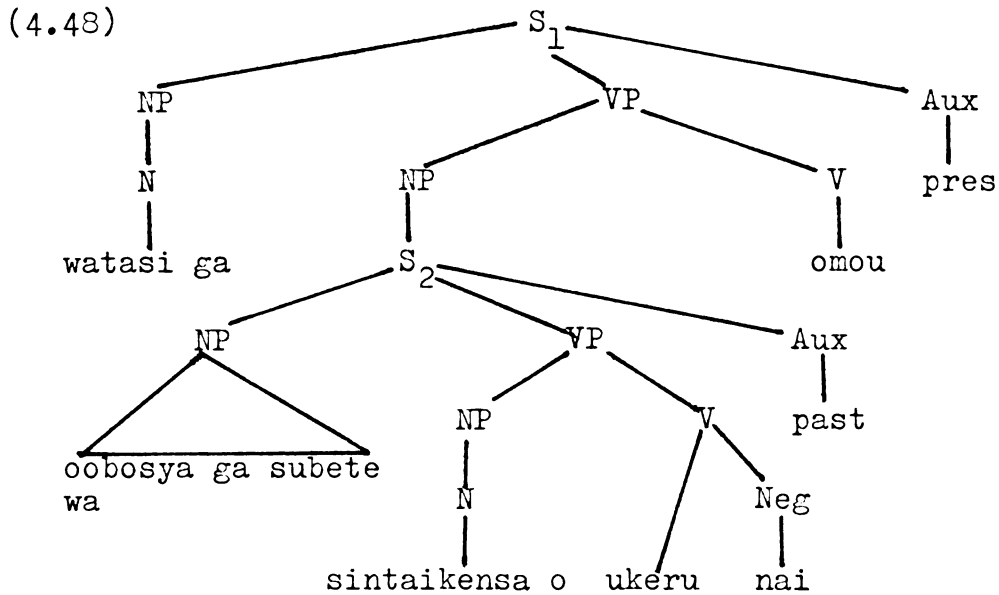


The structure (4.46) generates sentence (4.42). Then, the optional deletion of wa gives sentence (4.40).

On the other hand, if the quantifier in (4.45) is optionally shifted to follow the subject noun phrase and the contrastive wa is attached to the quantifier in a way discussed in section 2.6, the following intermediate structure is derived:



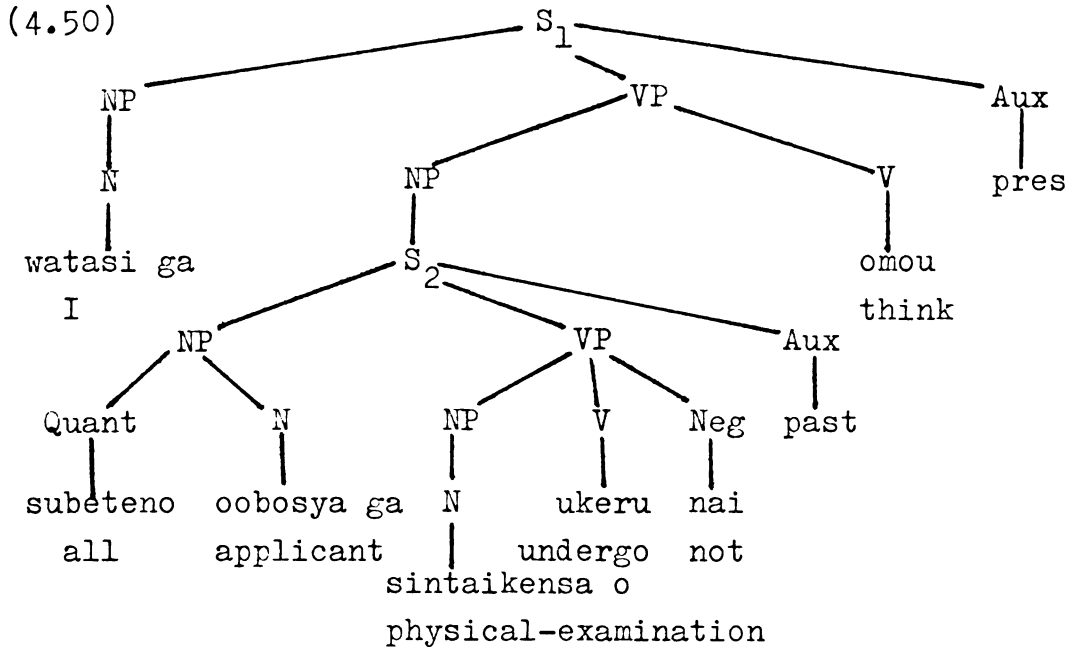
Then, Negative-attachment (4.36a) can apply to attach nai "not" to the verb ukeru "undergo," deriving:



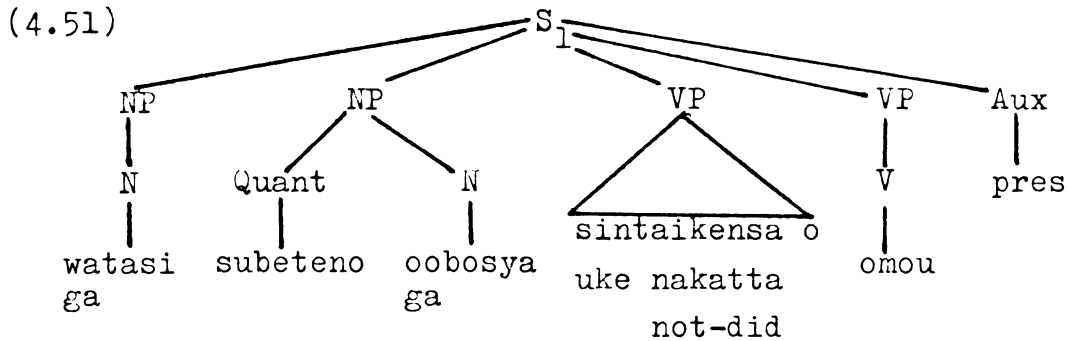
The structure (4.48) yields sentence (4.49):

(4.49) (watasi wa) oobosya ga subete wa sintaikensa o  
 I applicant all physical-  
 examination  
 uke nakatta to omou.  
 undergo not-did that think  
 'I think that not all the applicants underwent  
 a physical-examination.'

Next, let us turn to the derivation of (4.39) from (4.44). First,  $S_3$  is raised into  $S_2$  and the quantifier subeteno "all" is attached to  $\Delta$  in a way discussed in section 2.9.1, deriving the intermediate structure (4.50):



The structure (4.50) becomes sentence (4.39). It should be noted that the negative in (4.50) has no chance of combining with the verb omou "think" to derive sentence (4.40), since it is not exhaustively dominated by a verb phrase. As stated in Negative-attachment in (4.36), negatives must be exhaustively dominated by a verb phrase, that is, they must be sentential negatives to combine with a higher verb of mental action such as omou. Furthermore, notice that the condition of Sentence-raising is satisfied in (4.50), since the higher verb omou "think" belongs to the class of verbs of saying and thinking. Thus, the optional application of Sentence-raising gives the intermediate structure:



Then, attaching the adverbial marker ni to omou "think" and moving it to follow the subject watasi ga in a way discussed in section 2.6, we get sentence (4.52):

(4.52) watasi ga omou ni, subeteno oobosya ga  
 I think all applicant  
 sintaikensa o uke nakatta.  
 physical-examination undergo not-did

'All the applicants, I think, did not undergo a physical-examination.'

From the foregoing discussion we see that there is no chance of generating sentence (4.40) from the structure underlying (4.39). Thus, our analysis can explain why (4.39) is not synonymous with (4.40) as well as account for the synonymy of sentences (4.40), (4.41) and (4.42) without introducing any new transformation. Furthermore, we can relate sentences such as (4.49) and (4.52) to (4.40) and (4.39), respectively.

The second major type involves negation and the adverbials discussed in Chapter III, specifically, nominal adverbials, adverbials of frequency and adverbials of reason and purpose. To take a concrete example, consider sentences such as (4.53) and (4.54) involving a nominal adverbial:



(4.53) (watasi wa) sono syoonen dake ga ohiru o tabe  
 I that boy only lunch eat  
nakatta to omou.  
 not-did that think

'I think that only that boy did not eat lunch.'

(4.54) (watasi wa) sono syoonen dake ga ohiru o tabeta  
 I that boy only lunch ate  
 to omowa nai.  
 that think not

'I don't think that only that boy ate lunch.'

Clearly (4.53) is not synonymous with (4.54). Moreover, compare them with (4.55):

(4.55) a. (watasi wa) sono syoonen dake ga ohiru o  
 I that boy only lunch  
 tabeta no de wa nai to omou.  
 ate that is not that think

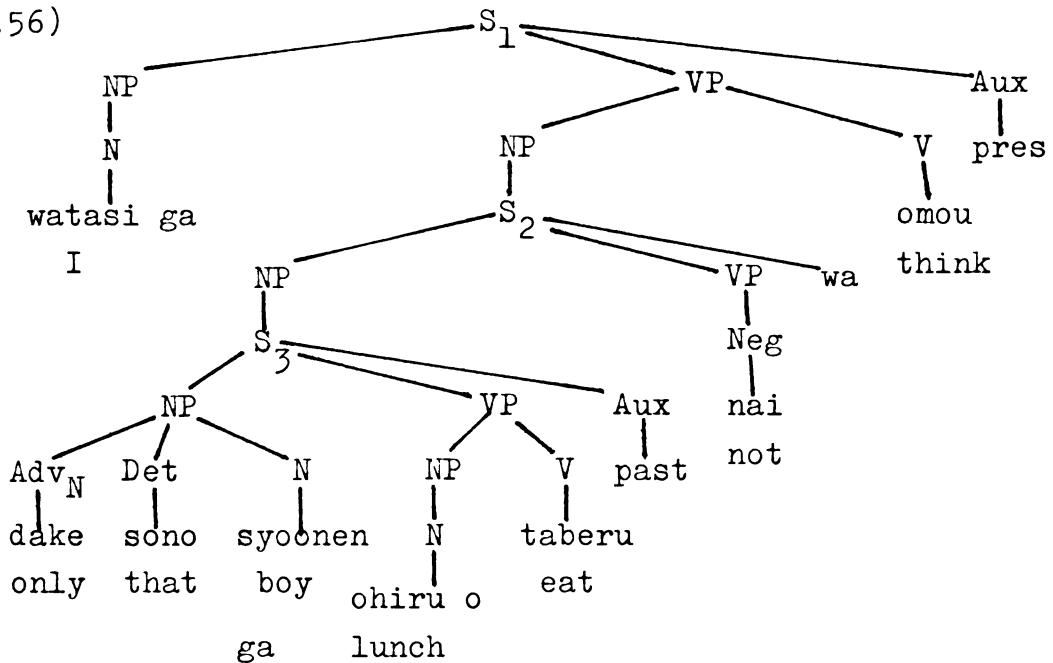
'I think that it is not so that only that boy ate lunch.'

b. (watasi wa) sono syoonen dake ga ohiru o  
 I that boy only lunch  
 tabeta to wa omowa nai.  
 ate that think not

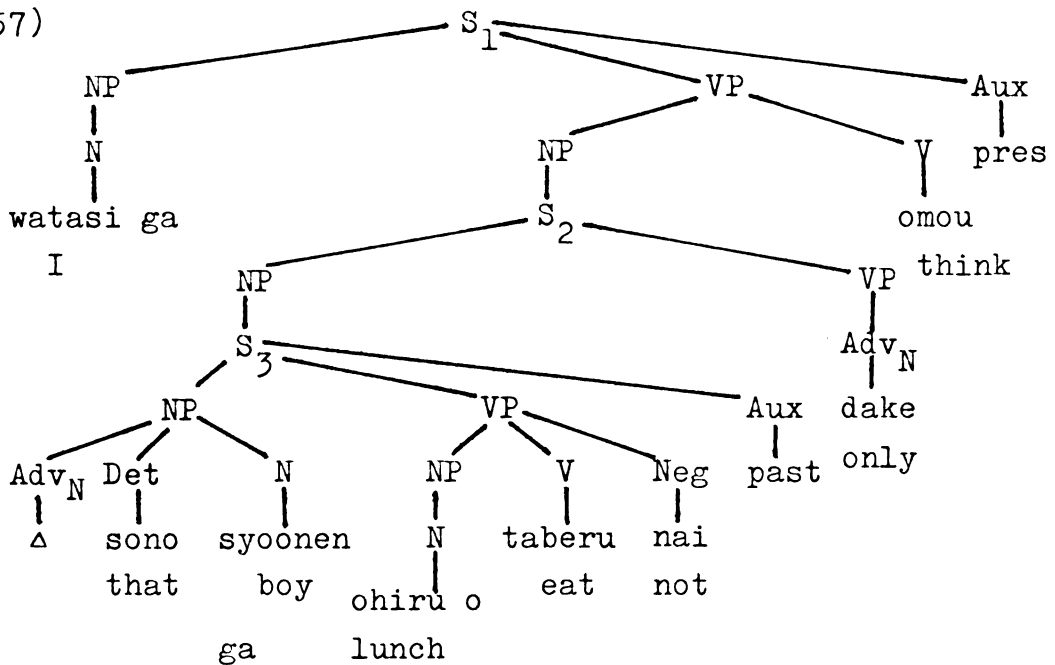
'I don't think that only that boy ate lunch.'

We observe that (4.55a) and (4.55b) are synonymous and they are in turn synonymous with (4.54), not (4.53). Under our analysis, the structure underlying (4.54) and (4.55) is (4.56), while that underlying (4.53) is (4.57):

(4.56)



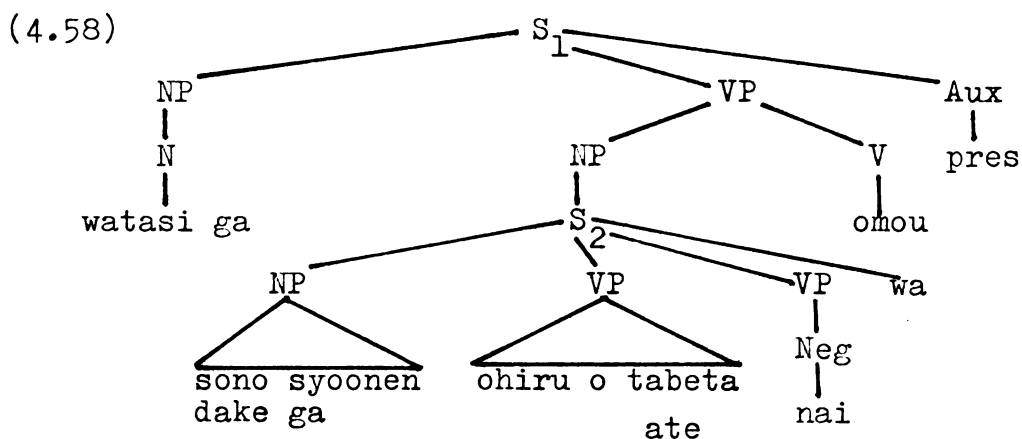
(4.57)



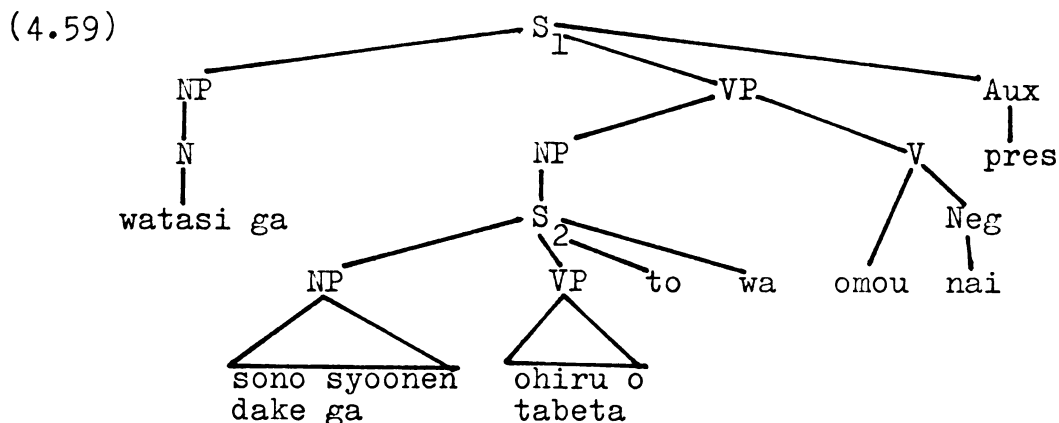
The structure (4.56) shows that the negative nai, whose scope is S<sub>2</sub>, includes the adverbial dake "only" in its scope, whereas the structure (4.57) indicates that the scope of the negative is S<sub>3</sub> and the adverbial dake is outside of its scope. This relevant difference accounts for the semantic

difference between the sentences derived from them.

Now, considering the derivation involving (4.56), the insertion of the complementizer no "that" into  $S_3$ , and the copula da "is" and the complementizer to "that" into  $S_2$  generates sentence (4.55a). If, on the other hand, Sentence-raising applies to raise  $S_3$  up into  $S_2$ , it derives the following intermediate structure:

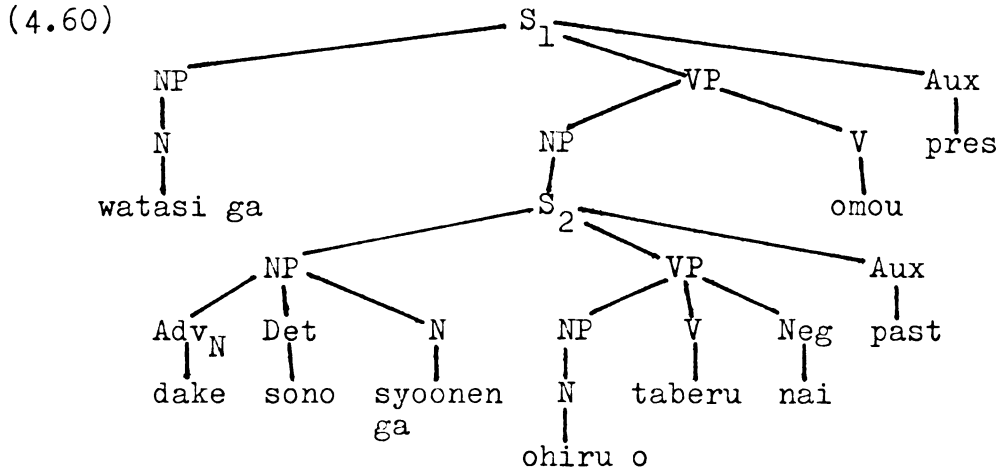


Then, applying Negative-attachment (4.36b) as well as the complementizer-insertion rule, we get (4.59):

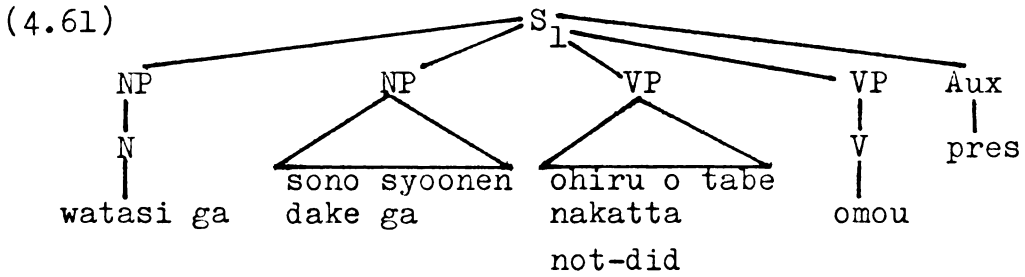


The structure (4.59) becomes sentence (4.55b). Then, the optional deletion of wa gives sentence (4.54).

Turning next to the derivation of (4.53) from (4.57), Sentence-raising applies to raise  $S_3$  into  $S_2$  and Quantifier-attachment assigns dake "only" to  $\Delta$ , giving the intermediate structure (4.60):



Inserting the complementizer to "that" into  $S_2$ , we derive sentence (4.53). It is to be noted that since Neg in (4.60) is not exhaustively dominated by a verb phrase, Negative-attachment cannot apply to attach the negative to the verb omou "think." Thus, the derivation of sentence (4.54) from (4.60) is correctly blocked through the filtering function of Negative-attachment. We further note that the condition of Sentence-raising is satisfied in (4.60). Applying optionally this transformation, after the application of the relevant transformations in the  $S_2$ -cycle, we derive (4.61):



The structure (4.61) generates sentence (4.62), which is synonymous with (4.53):

- (4.62) watasi ga omou ni, sono syoonen dake ga ohiru  
 I think that boy only lunch  
 o tabe nakatta.  
 eat not-did

'Only that boy, I think, did not eat lunch.'

The foregoing discussion demonstrates that our analysis can explain why sentences (4.53) and (4.54) are not synonymous as well as account for the synonymy of (4.54) with (4.55).

A similar argument holds for adverbials of frequency and adverbials of reason and purpose with respect to negation. To mention one example for each, consider next the following involving an adverbial of frequency:

- (4.63) (watasi wa) Bill ga itumo yakusoku o mamora  
 I always promise keep  
nakatta to omou.  
 not-did that think

'Lit. I think that Bill always did not keep his promise.'

(4.64) (watasi wa) Bill ga itumo yakusoku o mamotta  
 I always promise kept  
 to omowa nai.  
 that think not

'I don't think that Bill always kept his promise.'

Clearly (4.63) and (4.64) are not synonymous. Next, compare them with (4.65):

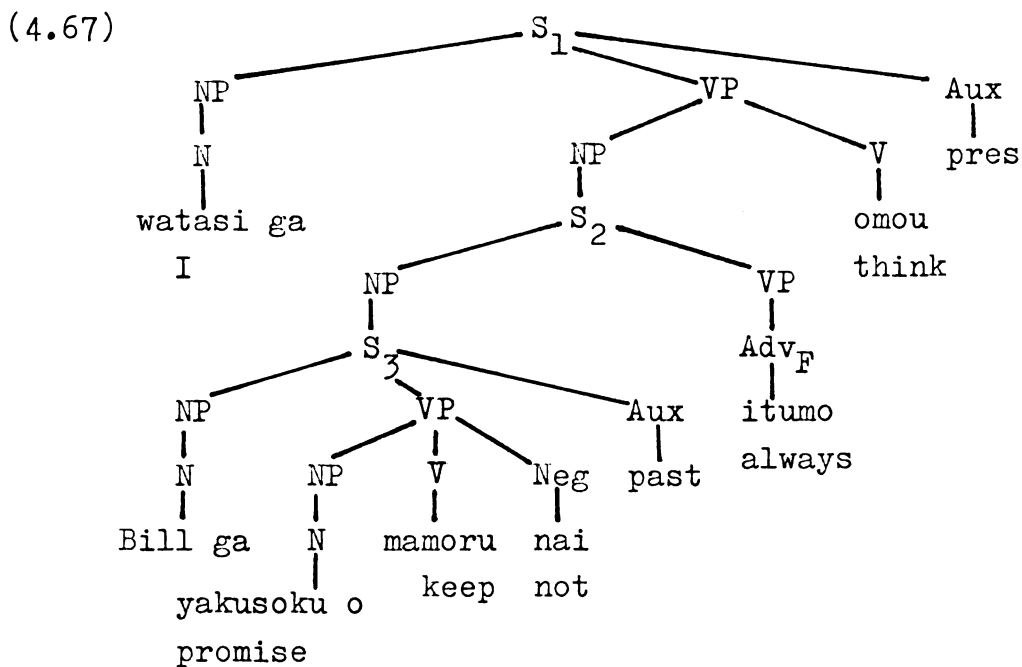
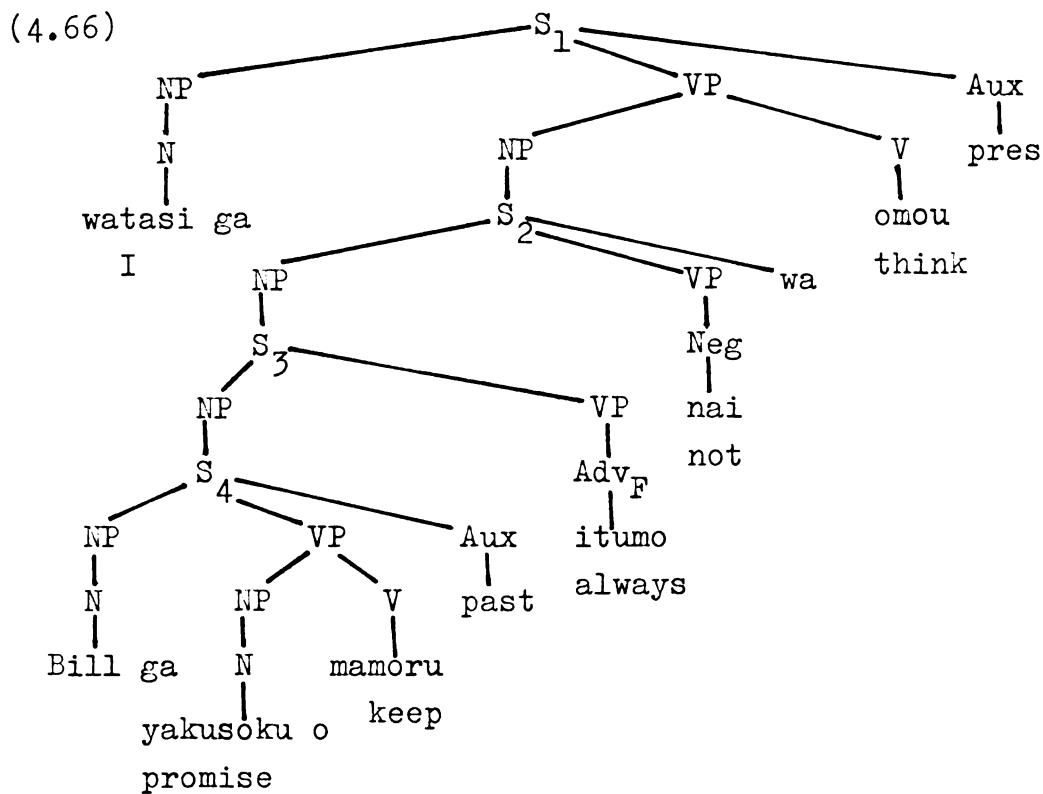
(4.65) a. (watasi wa) Bill ga itumo yakusoku o mamotta  
 I always promise kept  
 wake de wa nai to omou.  
 that is not that think

'I think that it is not so that Bill always kept his promise.'

b. (watasi wa) Bill ga itumo yakusoku o mamotta  
 I always promise kept  
 to wa omowa nai.  
 that think not

'I don't think that Bill always kept his promise.'

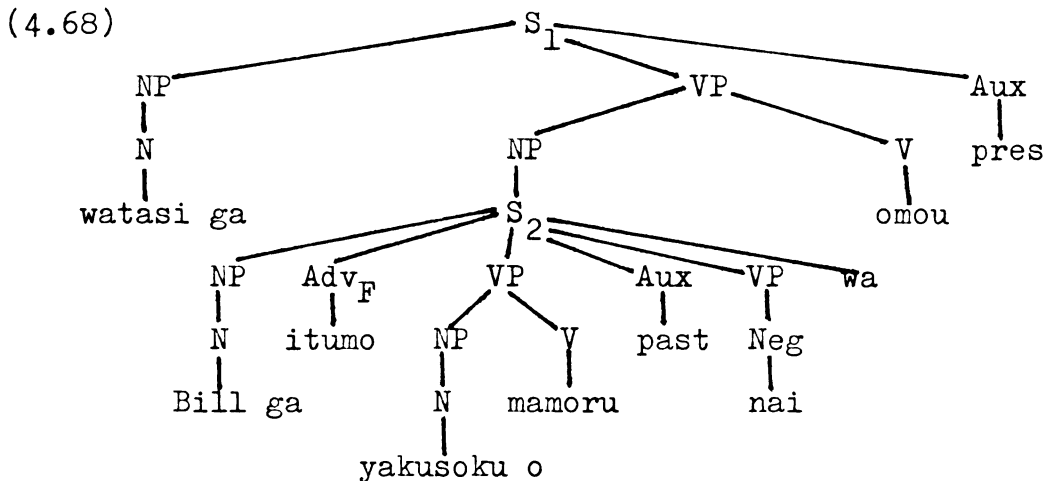
We observe that (4.65a) is synonymous with (4.65b) and that they are synonymous with (4.64), not (4.63). Within our framework sentences (4.64) and (4.65) are derived from the underlying structure (4.66), whereas (4.63) is derived from (4.67):



Observe the relevant difference between them: in (4.66) the negative, whose scope is  $S_2$ , includes the adverbial itumo

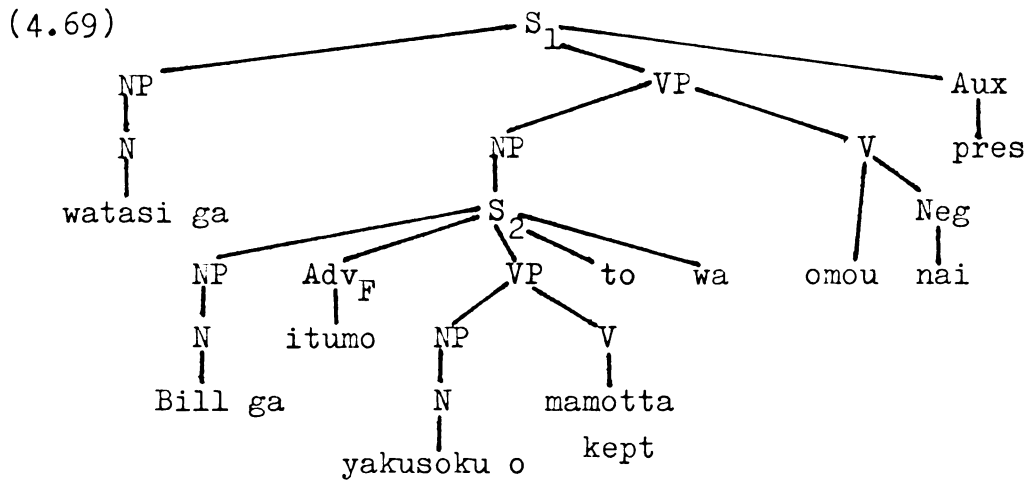
"always" in its scope, whereas in (4.67) the scope of the negative is  $S_3$  and the adverbial is outside of its scope.

Now, let us turn to the derivation involving (4.66).  $S_4$  is first raised into  $S_3$  and the adverbial is moved to follow the subject noun phrase. Then, the insertion of the complementizer wake "that" into  $S_3$ , and the copula da "is" and the complementizer to "that" into  $S_2$  gives sentence (4.65a). If, on the other hand, Sentence-raising further applies to raise  $S_3$  into  $S_2$ , it derives (4.68):



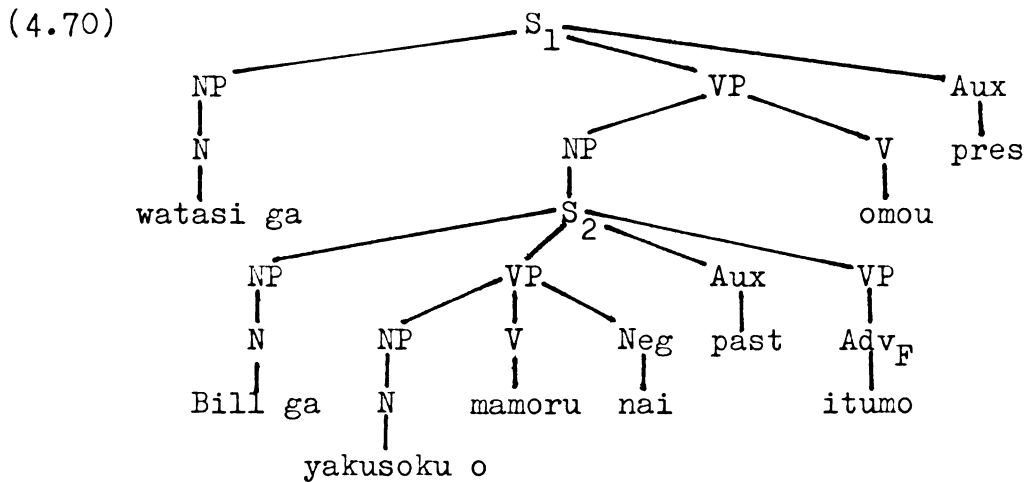
Next, Negative-attachment (4.36b) applies as well as the insertion of the complementizer to "that" into  $S_2$ , giving (4.69):





The structure (4.69) becomes sentence (4.65b). Then, the optional deletion of wa gives sentence (4.64).

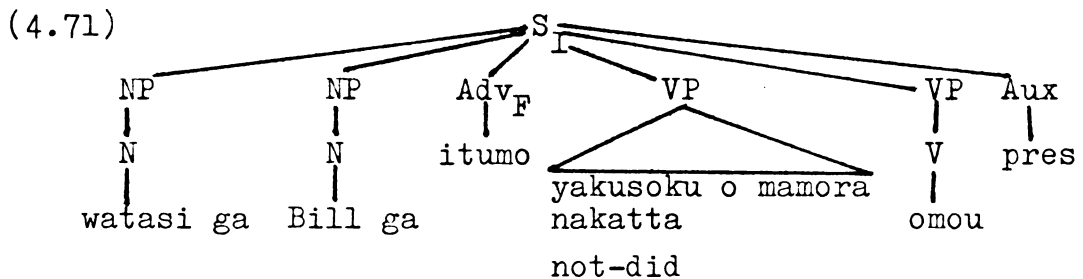
Turning next to the derivation of (4.63) from (4.67), Sentence-raising applies to raise  $S_3$  into  $S_2$ , giving the intermediate structure (4.70):



Then, the adverbial is shifted to follow the subject noun phrase, giving sentence (4.63). We note that since Neg in (4.70) is not exhaustively dominated by a verb phrase, Negative-attachment (4.36b) cannot apply to attach the

negative to the verb omou "think." Thus, the generation of sentence (4.64) from (4.70) is blocked through the filtering function of Negative-attachment.

We further note that the structure (4.70) meets the condition of Sentence-raising, because the verb omou belongs to the class of verbs of saying and thinking. The optional application of Sentence-raising, after the shift of the adverbial to follow the subject noun phrase, gives (4.71):



The structure (4.71) generates sentence (4.72), which is synonymous with (4.63):

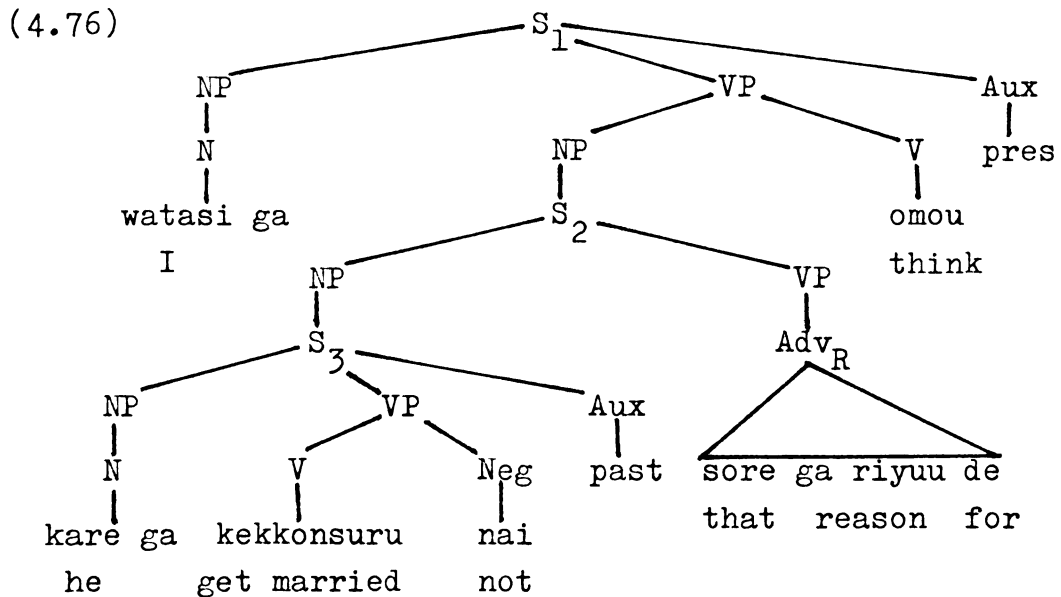
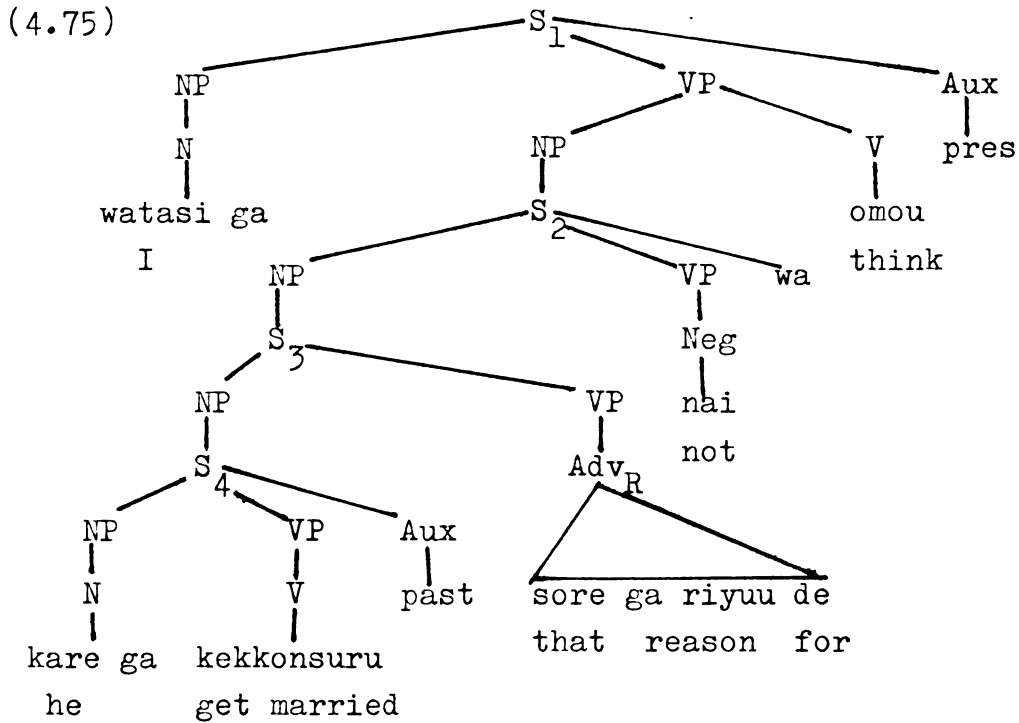
- (4.72) watasi ga omou ni, Bill wa itumo yakusoku o  
 I think always promise  
 mamora nakatta.  
 keep not-did  
 'Bill, I think, always did not keep his promise.'

Next, consider sentences such as (4.73) and (4.74) involving an adverbial of reason:

- (4.73) (watasi wa) kare ga sore ga riyuu de kekkonsi  
 I he that reason for get married  
nakatta to omou.  
 not-did that think  
 'Lit. I think that for that reason he did not get married.'

- (4.74) a. (watasi wa) kare ga sore ga riyuu de  
 I he that reason for  
 kekkonsita to omowa nai.  
 got married that think not  
 'Lit. I don't think that he got married for  
 that reason.'
- b. (watasi wa) kare ga sore ga riyuu de  
 I he that reason for  
 kekkonsita no de wa nai to omou.  
 got married that is not that think  
 'Lit. I think that it is not so that he got  
 married for that reason.'
- c. (watasi wa) kare ga sore ga riyuu de  
 I he that reason for  
 kekkonsita to wa omowa nai.  
 got married that think not  
 'Lit. I don't think that he got married for  
 that reason.'

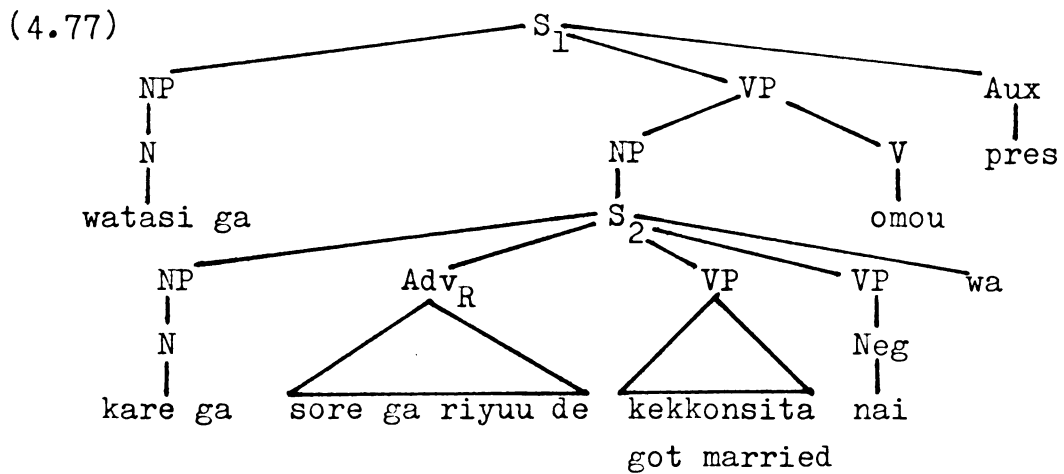
Comparing them, we see that the sentences of (4.74) are synonymous with each other, but not with (4.73). Under our analysis, the sentences in (4.74) have the same underlying structure, which is different from that underlying (4.73). More specifically, sentences (4.74) and (4.73) are derived from (4.75) and (4.76), respectively:



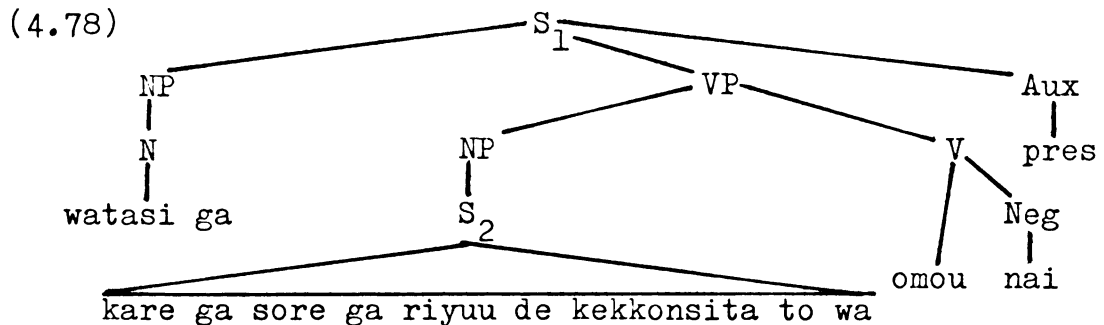
The structure (4.75) indicates that the negative, whose scope is  $S_2$ , includes the adverbial in its scope, whereas the structure (4.76) shows that since the scope of the negative is  $S_3$ , the adverbial is outside of its scope. This difference reflects the semantic difference between (4.74)

and (4.73).

Now, let us consider the derivation involving (4.75). After the raising of  $S_4$  into  $S_3$  and the shift of the adverbial to follow the subject noun phrase, the insertion of no "that" into  $S_3$ , and da "is" and to "that" into  $S_2$  gives sentence (4.74b). If, on the other hand, Sentence-raising further applies to raise  $S_3$  into  $S_2$ , the intermediate structure (4.77) is derived:

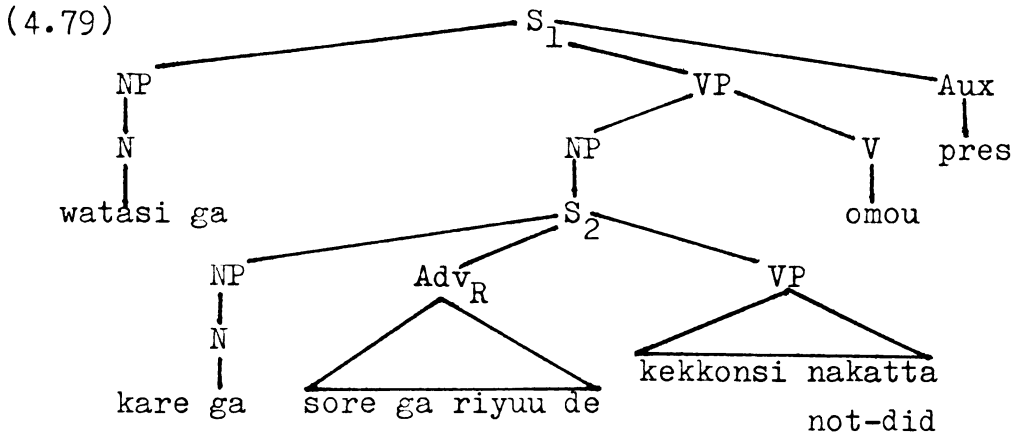


Next, applying Negative-attachment (4.36b) and the complementizer-insertion rule, we get (4.78):

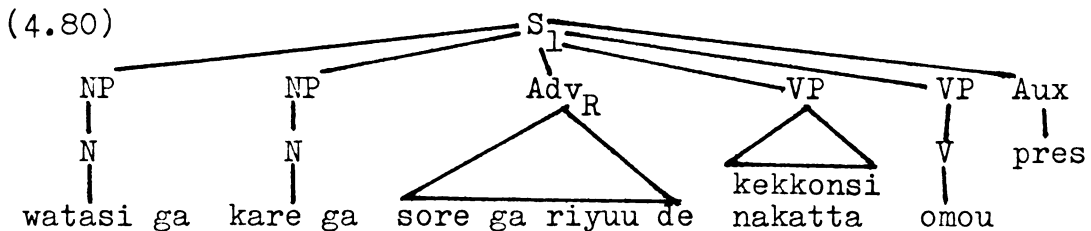


The structure (4.78) generates sentence (4.74c). Then, the optional deletion of wa gives sentence (4.74a).

Turning next to (4.76), the application of Sentence-raising and Adverbial-movement to shift the adverbial to follow the subject noun phrase derives the intermediate structure:



The structure (4.79) yields sentence (4.73). Moreover, Sentence-raising can further apply to raise  $S_2$  into  $S_1$ , giving:



Then, the structure (4.80) generates sentence (4.81), which is synonymous with (4.73):

- (4.81) watasi ga omou ni, kare wa sore ga riyuu de  
 I think he that reason for  
 kekkonsi nakatta.  
 get married not-did

'For that reason, I think, he did not get married.'

The foregoing discussion shows that no new relevant transformation is necessary to take care of the cases in which sentences of the two types in question are not synonymous when they involve quantifiers or certain classes of adverbials.

We further note that there are a number of cases in which sentences of one type are grammatical, but their counterparts of another type are not. Such a discrepancy in grammaticality between sentences of the two types is observed, for instance, when they involve the Japanese equivalents of the English incomplete negatives such as seldom, hardly, rarely, only, few and little. As already discussed in section 2.1, the Japanese counterparts of the English incomplete negatives consist of "adverbial + negative" and this adverbial cannot occur in affirmative environments. To illustrate with a concrete example, observe the following:

(4.82) a. Tom wa furansugo sika hanasa nai.  
                         French                        speak not

'Tom speaks only French.'

b. \*Tom wa furansugo sika hanasu.  
                         French                        speak

In (4.82a) "sika + nai" as a unit corresponds to only, so there is no equivalent of the adverbial sika in English. In (4.82b) sika occurs in an affirmative environment, which makes the sentence ungrammatical.

Now, consider the following:

- (4.83) [(watasi wa) [Tom ga furansugo sika hanasa nai  
 I French speak not

to]S omou]S  
 that think

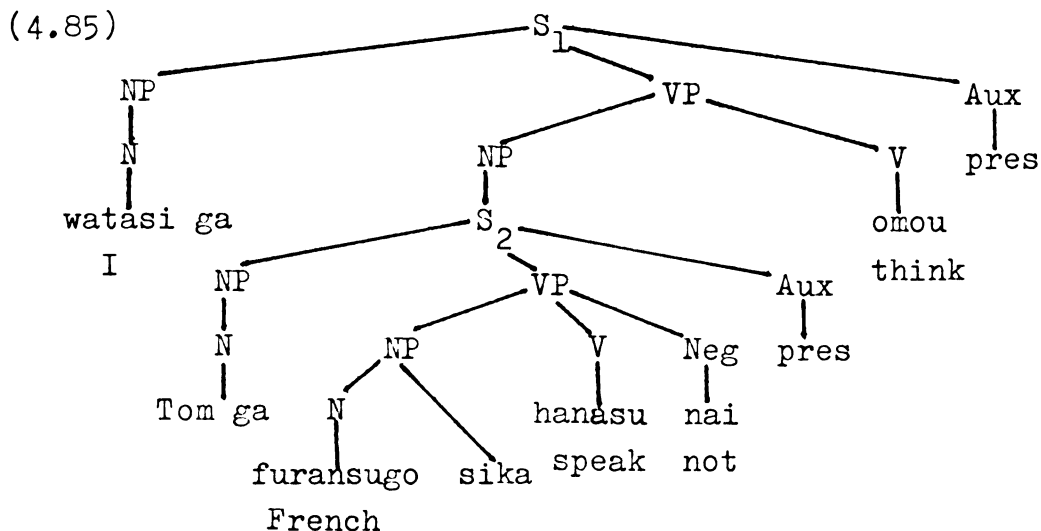
'I think that Tom speaks only French.'

- (4.84) \*[(watasi wa) [Tom ga furansugo sika hanasu to]S  
 I French speak that

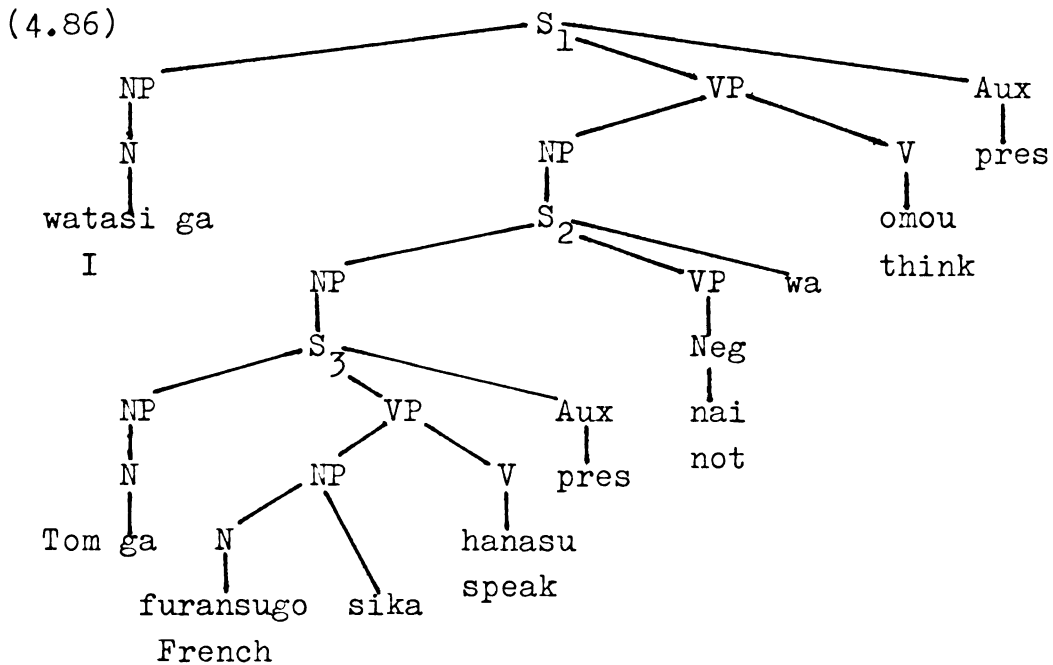
omowa nai]S  
 think not

'Lit. I don't think that Tom speaks \_\_\_\_ French.'

Sentence (4.84) sounds ungrammatical, as is expected from the ungrammaticality of (4.82b). If we assume, following R. Lakoff (1969a), Lindholm (1969) and others, that (4.84) is derived from the structure underlying (4.83) by the application of Negative-raising, we cannot account for the difference in grammaticality between (4.83) and (4.84). According to our analysis, on the other hand, sentences (4.83) and (4.84) are derived from different structures such as (4.85) and (4.86), respectively:







It should be observed that in (4.86) the adverbial sika occurs in  $S_3$  containing no negative, which causes the ungrammaticality of the resulting sentence (4.84). In contrast, in (4.85) sika occurs in  $S_2$  containing a negative, thus deriving the grammatical sentence in (4.83). Then, to block the generation of ungrammatical sentences such as (4.84) from (4.86), we need a constraint as follows:

(4.87) The Japanese incomplete negatives such as mettani, hotondo and sika cannot occur in a simplex affirmative sentence.

This constraint is in any case necessary to block the generation of sentences such as (4.82b). Moreover, the constraint also blocks the generation of the following ungrammatical sentences from (4.86):

- (4.88) a. \*[(watasi wa) [[Tom ga furansugo sika hanasu  
I French speak

no]<sub>S</sub> de wa nai to]<sub>S</sub> omou]<sub>S</sub>  
that is not that think

'Lit. I think that it is not so that Tom  
speaks \_\_\_\_\_ French.'

- b. \*[(watasi wa) [Tom ga furansugo sika hanasu  
I French speak

to]<sub>S</sub> wa omowa nai]<sub>S</sub>  
that think not

'Lit. I don't think that Tom speaks \_\_\_\_\_  
French.'

Thus, our analysis can take care of the difference in grammaticality between (4.83) on the one hand and (4.84) and (4.88) on the other. It is clear that the approach in terms of Negative-raising will need to impose another constraint on the rule to block its application to structures underlying sentences like (4.83) to derive (4.84).

A few more similar examples may be cited in the following:<sup>4</sup>

- (4.89) a. [sensei wa [Mary ga mettani naka nai to]<sub>S</sub>  
teacher weep not that

omotteiru]<sub>S</sub>  
think

'The teacher thinks that Mary seldom weeps.'

- b. \*[(sensei wa [Mary ga mettani naku to]<sub>S</sub>  
teacher weep that

omotte inai]<sub>S</sub>  
think not

'Lit. The teacher doesn't think that Mary  
\_\_\_\_\_ weeps.'

- (4.90) a. [(watasi wa) [musuko ga hotondo benkyoosi  
I son study

nai to]S omou]S  
not that think

'I think that my son studies little.'

- b. \*[(watasi wa) [musuko ga hotondo benkyoosuru  
I son study

to]S omowa nai]S<sup>5</sup>  
that think not

'Lit. I don't think that my son studies \_\_\_\_.'

Constraint (4.87) can block the generation of ungrammatical sentences such as (4.89b) and (4.90b), and also (4.91) and (4.92) which will otherwise derive from the structures underlying (4.89b) and (4.90b), respectively:

- (4.91) a. \*[sensei wa [[Mary ga mettani naku no]S de wa  
teacher weep that is

nai to]S omotteiru]S  
not that think

'Lit. The teacher thinks that it is not so  
that Mary \_\_\_\_ weeps.'

- b. \*[sensei wa [Mary ga mettani naku to]S wa  
teacher weep that

omotte inai]S  
think not

'Lit. The teacher doesn't think that Mary \_\_\_\_  
weeps.'

(4.92) a. \*[(watasi wa) [[musuko ga hotondo benkyoosuru  
I son study

no]S de wa nai to]S omou]S  
that is not that think

'Lit. I think that it is not so that my son  
studies \_\_\_\_.'

b. \*[(watasi wa) [musuko ga hotondo benkyoosuru  
I son study

to]S wa omowa nai]S  
that think not

'Lit. I don't think that my son studies \_\_\_\_.'

In addition to those adverbials, there are some other words in Japanese which cannot occur in affirmative environments, such as daremo "anybody," nanimo "anything," kessite "ever," and tootei "(not) possibly." They may be included in the category of incomplete negatives here. A similar difference in grammaticality is observed in the cases involving these words, for instance, between (4.93) and (4.94):

(4.93) [(watasi wa) [daremo sono kawa o koe nakatta  
I anybody the river cross not-did .

to]S omou]S  
that think

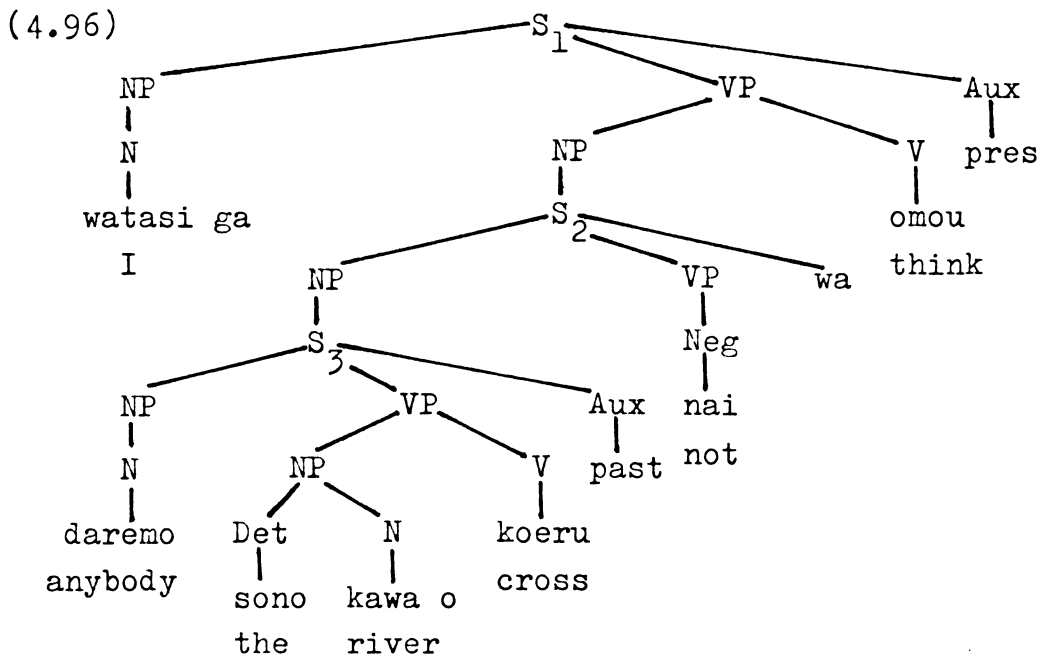
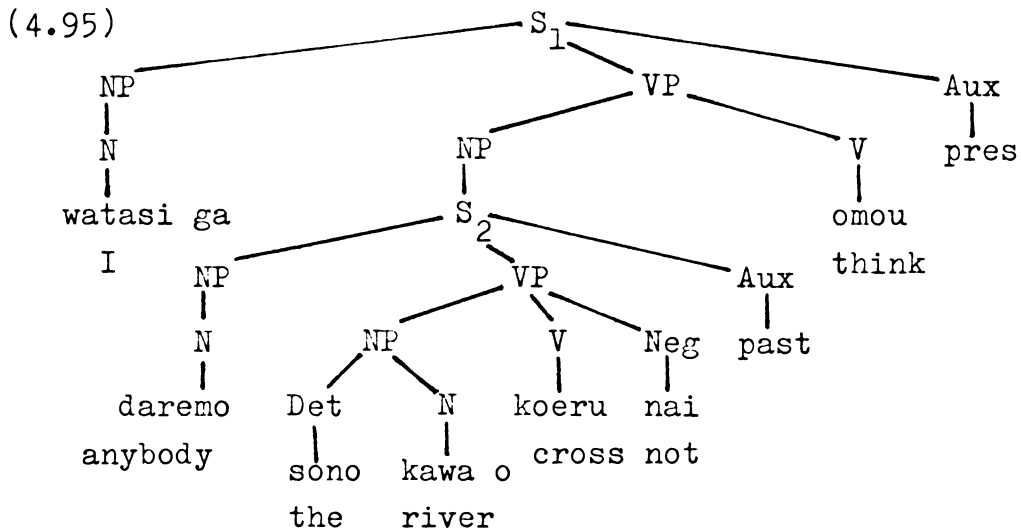
'Lit. I think that anybody did not cross the  
river. (= I think that nobody crossed the  
river.)'

(4.94) \*[(watasi wa) daremo sono kawa o koeta to]S  
I anybody the river cross that

omowa nai]S  
think not

'Lit. I don't think that anybody crossed the river.'

Within our framework, sentences (4.93) and (4.94) are derived from (4.95) and (4.96), respectively:



The structure (4.96) indicates that daremo occurs in a sentence containing no negative. Thus, constraint (4.87)

excludes it as an ill-formed structure, thereby blocking the generation of ungrammatical sentences such as (4.94) and also (4.97) which will otherwise derive from (4.96):

(4.97) a. \*[(watasi wa) [[daremo sono kawa o koeta no]<sub>S</sub>  
 I anybody the river crossed that  
 de wa nai to]<sub>S</sub> omou]<sub>S</sub>  
 is not that think

'Lit. I think that it is not so that anybody crossed the river.'

b. \*[(watasi wa) [daremo sono kawa o koeta to]<sub>S</sub>  
 I anybody the river crossed that  
wa omowa nai]<sub>S</sub>  
 think not

'Lit. I don't think that anybody crossed the river.'

A similar discrepancy in grammaticality is observed between the paired sentences in (4.98) through (4.100):

(4.98) a. [anata wa [nanimo okora nakatta to]<sub>S</sub>  
 you anything happen not-did that  
 omotteiru]<sub>S</sub>  
 think

'Lit. You think that anything did not happen.  
 (= You think that nothing happened.)'

b. \*[anata wa [nanimo okotta to]<sub>S</sub> omotte inai]<sub>S</sub>  
 you anything happened that think not

'Lit. You don't think that anything happened.'

(4.99) a. [(watasi wa) [Jones ga kessite wareware o  
 I ever us  
 uragira nai to]<sub>S</sub> omou]<sub>S</sub>  
 betray not that think  
 'Lit. I think that Jones will not ever betray  
 us. (= I think that Jones will never  
 betray us.)'

b. \*[(watasi wa) [Jones ga kessite wareware o  
 I ever us  
 uragiru to]<sub>S</sub> omowa nai]<sub>S</sub>  
 betray that think not  
 'Lit. I don't think that Jones will ever  
 betray us.'

(4.100) a. [kare wa [kimino risoo ga tootei zitugensare  
 he your ideal possibly is realized  
nai to]<sub>S</sub> omotteiru]<sub>S</sub>  
 not that think  
 'Lit. He thinks that your ideal will not  
 possibly be realized.'

b. \*[kare wa [kimino risoo ga tootei zitugensareru  
 he your ideal possibly is realized  
 to]<sub>S</sub> omotte inai]<sub>S</sub>  
 that think not  
 'Lit. He does not think that your ideal will  
 possibly be realized.'

Constraint (4.87) can also block the generation of ungram-  
 matical sentences such as (4.101), (4.102) and (4.103) which  
 will otherwise derive from the structures underlying (4.98b),  
 (4.99b) and (4.100b), respectively:

(4.101) a. \*[anata wa [[nanimo okotta no]<sub>S</sub> de wa nai  
 you anything happened that is not  
 to]<sub>S</sub> omotteiru]<sub>S</sub>  
 that think

'Lit. You think that it is not so that  
 anything happened.'

b. \*[anata wa [nanimo okotta to]<sub>S</sub> wa omotte  
 you anything happened that think  
inai]<sub>S</sub>  
 not

'Lit. You don't think that anything happened.'

(4.102) a. \*[(watasi wa) [[Jones ga kessite wareware o  
 I ever us  
 uragiru no]<sub>S</sub> de wa nai to]<sub>S</sub> omou]<sub>S</sub>  
 betray that is not that think

'Lit. I think that it is not so that Jones  
 will ever betray us.'

b. \*[(watasi wa) [Jones ga kessite wareware o  
 I ever us  
 uragiru to]<sub>S</sub> wa omowa nai]<sub>S</sub>  
 betray that think not

'Lit. I don't think that Jones will ever  
 betray us.'

(4.103) a. \*[kare wa [[kimino risoo ga tootei  
 he your ideal possibly  
 zitugensareru no]<sub>S</sub> de wa nai to]<sub>S</sub> omotteiru]<sub>S</sub>  
 is realized that is not that think

'Lit. He thinks that it is not so that your  
 ideal will possibly be realized.'



b. \*[kare wa [kimino risoo ga tootei  
 he your ideal possibly  
 zitugensareru to]<sub>S</sub> wa omotte inai]<sub>S</sub>  
 is realized that think not

'Lit. He doesn't think that your ideal will possibly be realized.'

We may also add made "until" here in that it cannot occur in affirmative environments. For example, observe the ungrammaticality of (4.105), as opposed to the grammaticality of (4.104):

(4.104) ootoo wa kuzi made oki nakatta.  
 brother nine until get up not-did  
 'My brother did not get up until nine.'

(4.105) \*otooto wa kuzi made okita.  
 brother nine until got up  
 'Lit. My brother got up until nine.'

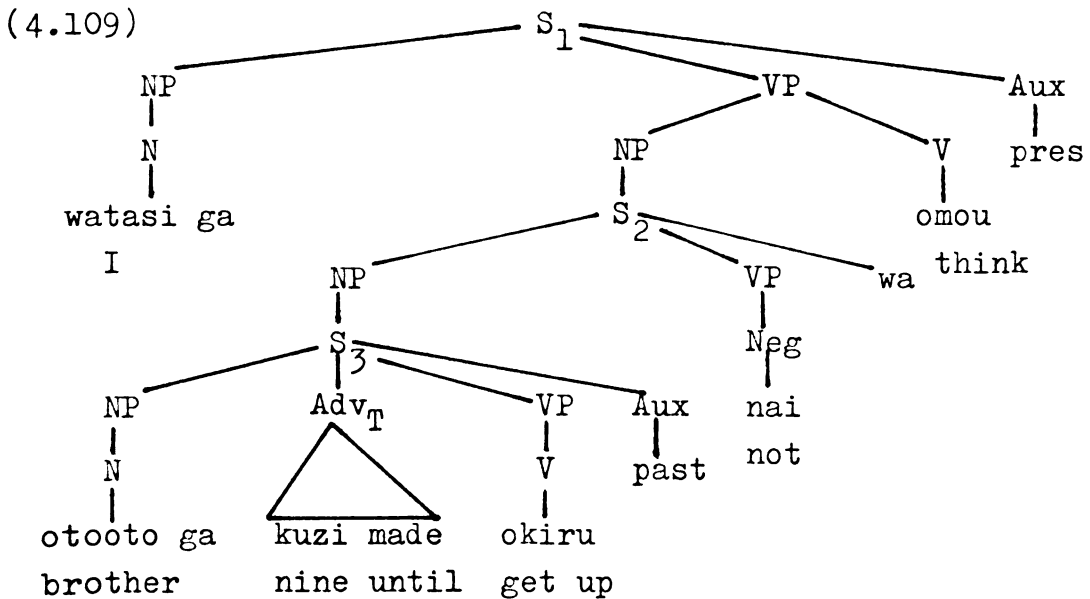
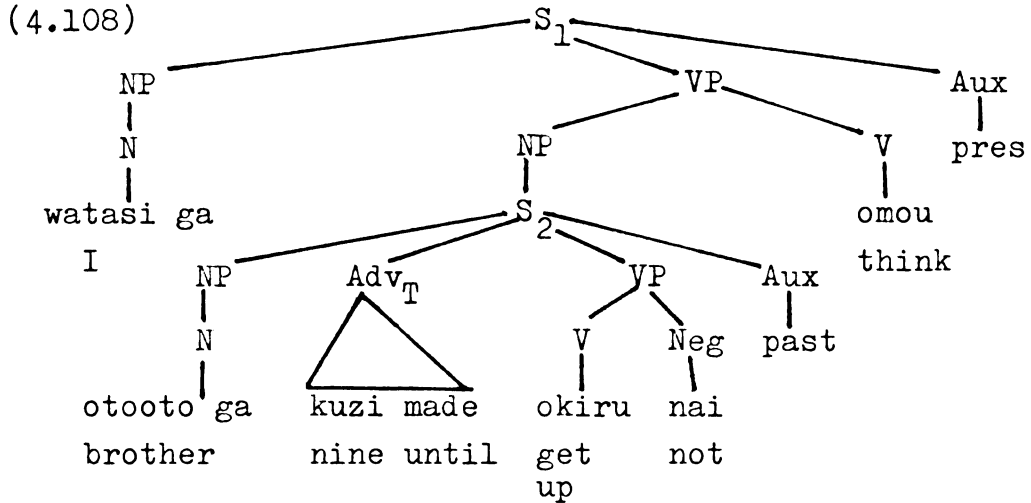
Thus, a similar difference in grammaticality is observed between (4.106) and (4.107):

(4.106) [(watasi wa) [otooto ga kuzi made oki  
 I brother nine until get up  
nakatta to]<sub>S</sub> omou]<sub>S</sub>  
 not-did that think  
 'I think that my brother did not get up until nine.'

(4.107) \*[(watasi wa) [otooto ga kuzi made okita to]<sub>S</sub>  
 I brother nine until got up that  
 omowa nai]<sub>S</sub><sup>6</sup>  
 think not

'Lit. I don't think that my brother got up until nine.'

According to our analysis, (4.106) and (4.107) are derived from different underlying structures such as (4.108) and (4.109), respectively:



The structure (4.109) indicates that made "until" occurs in a sentence containing no negative, thereby violating the constraint in (4.87). Thus, constraint (4.87) excludes (4.109) as an ill-formed structure, and by so doing it

blocks the generation of ungrammatical sentences such as (4.107) and also (4.110) which will otherwise derive from (4.109):

(4.110) a. \*[(watasi wa) [[otooto ga kuzi made okita  
I brother nine until got up  
no]<sub>S</sub> de wa nai to]<sub>S</sub> omou]<sub>S</sub>  
that is not that think

'Lit. I think that it is not so that my  
brother got up until nine.'

b. \*[(watasi wa) [otooto ga kuzi made okita  
I brother nine until got up  
to]<sub>S</sub> wa omowa nai]<sub>S</sub>  
that think not

'Lit. I don't think that my brother got up  
until nine.'

Thus, our analysis based on the analysis proposed in Chapter II can account for the difference in grammaticality between sentences of the type "NP wa [ X - Y - nai ]<sub>S</sub> omou/omotteiru (= NP think(s) [ X - not - Y ]<sub>S</sub>)" and the type "NP wa [ X - Y ]<sub>S</sub> omowa nai/omotte inai (= NP do(es) not think [ X - Y ]<sub>S</sub>)" as well as account for the semantic difference between sentences of the two types involving negation and quantifiers or those adverbials cited in Chapter III. What is more, our analysis can treat them in the same way as those cases in which the two types are synonymous: one type involves verb-phrase negation, whereas the other type involves sentential negation, regardless of whether they are synonymous or not. In addition, our analysis can take care of them without resorting to any new

transformation, that is, in a relatively general way.

In contrast, if we are to account for them in terms of the Negative-raising rule, a very complicated constraint must be imposed on the rule to block its application in these cases. Moreover, the approach in terms of Negative-raising will have to treat them in a different way from those cases where the two types are synonymous: only when sentences of the two types are synonymous may they be derived from the same underlying structures by the application of Negative-raising. That is to say, in the above-discussed cases where sentences of the two types are not synonymous or are different in grammaticality, they will have to be derived from different underlying structures without using the rule of Negative-raising. Thus, this approach has a number of disadvantages, or put differently, our analysis has a number of advantages over the approach in terms of Negative-raising.

#### 4.3. The Application of the Proposed Analysis to English with Respect to Negative-Raising

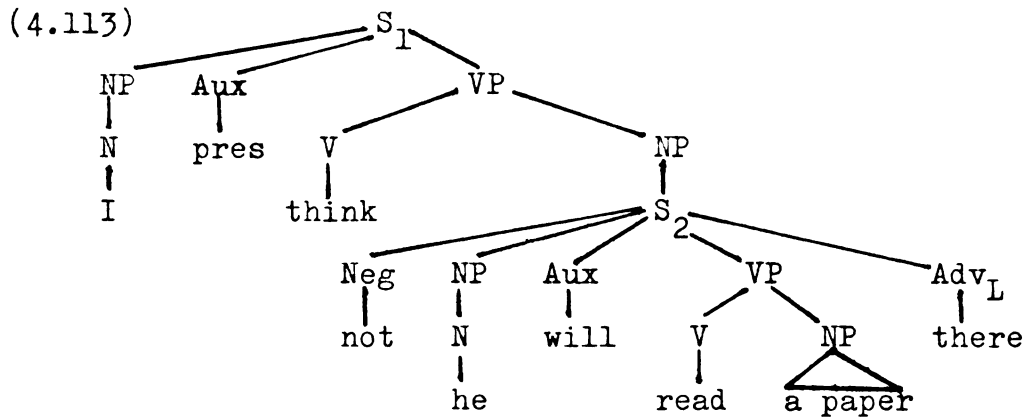
In this section we will apply the analysis of the preceding sections to English sentences of the type "NP think(s) [ X - not - Y ]<sub>S</sub>" and the type "NP do(es) not think [ X - Y ]<sub>S</sub>."

To start with, consider the following:

(4.111) I think that he will not read a paper there.

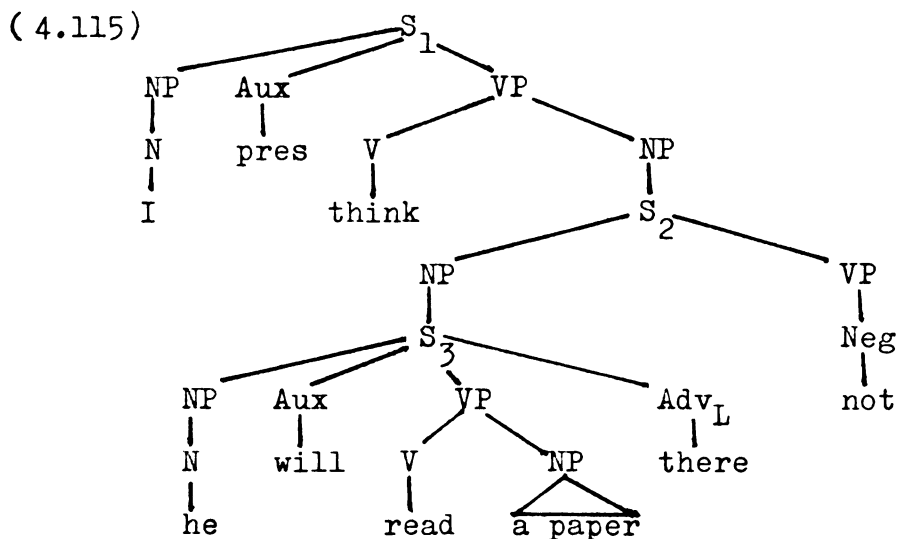
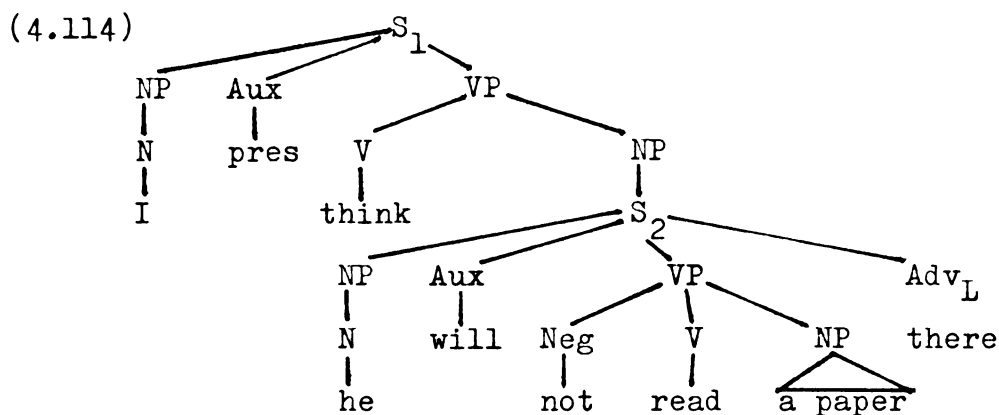
(4.112) I don't think that he will read a paper there.<sup>7</sup>

If we accept Negative-raising as a syntactic rule, they will be derived from the same underlying structure:

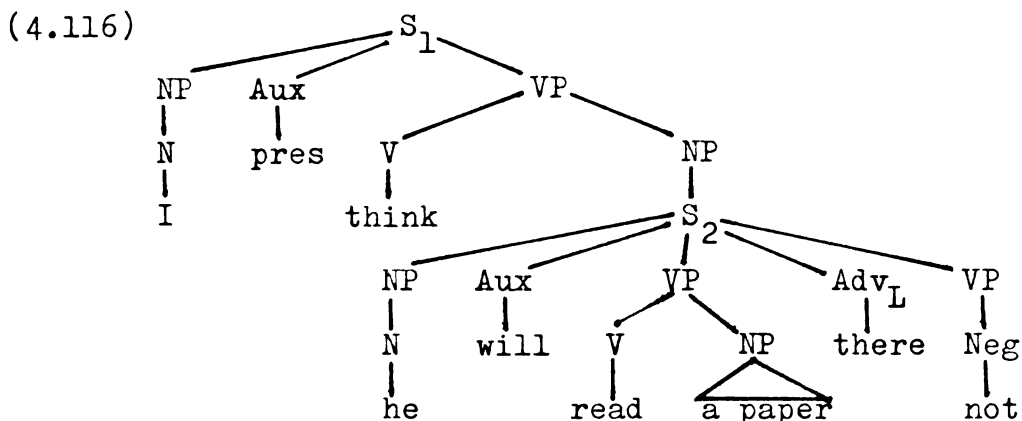


The optional raising of the negative into  $S_1$  yields sentence (4.112). Otherwise, it gives sentence (4.111). Thus, this approach can account for the synonymy of sentences (4.111) and (4.112) in a natural way. But there are a number of cases in which this analysis is inapplicable, as will be discussed in the next section.

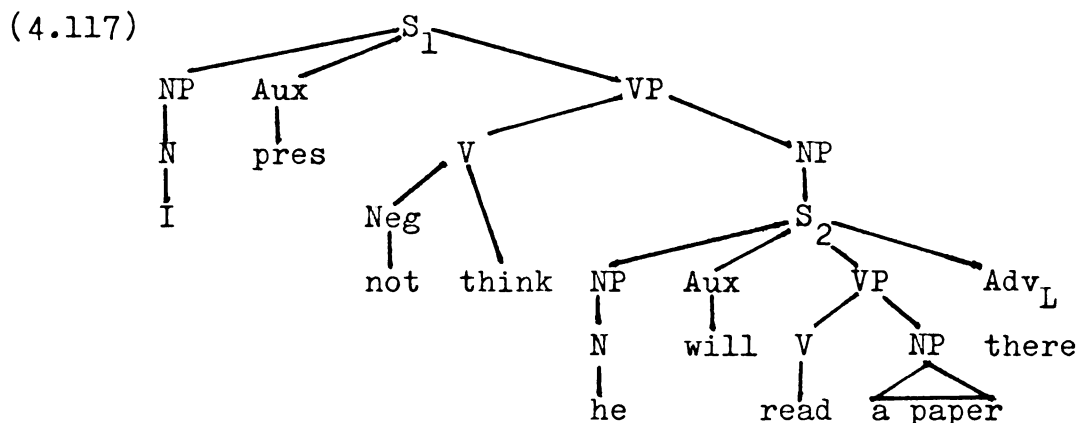
On the other hand, applying our analysis in the preceding sections, we derive sentences (4.111) and (4.112) from different underlying structures such as (4.114) and (4.115), respectively:



The derivation of (4.111) from (4.114) is too straightforward to need any explanation. As for the derivation of (4.112) from (4.115), the application of Sentence-raising to raise  $S_3$  into  $S_2$  gives the intermediate structure:



Then, Negative-attachment applies to attach the negative to the verb think, deriving:



This becomes sentence (4.112). To take care of the derivation of (4.117) from (4.116), we need a rule such as:

$$(4.118) \quad X \quad V_{Th} \quad [ W \quad Neg ]_S \quad Y \rightarrow \\ X \quad Neg+V_{Th} \quad [ W ]_S \quad Y$$

where W, X and Y are variables, X contains no

Neg, and Neg is exhaustively dominated by a VP

Rule (4.118) is restricted to a small class of verbs,  $V_{Th}$ , such as think, suppose, believe, guess and want. Note the condition "X contains no Neg," which is necessary to block

the generation of ungrammatical sentences as in:

- (4.119) [[I]<sub>NP</sub> [pres]<sub>Aux</sub> [[not]<sub>Neg</sub> [think]<sub>V</sub> [[[he]<sub>NP</sub>  
 [will]<sub>Aux</sub> [read a paper]<sub>VP</sub> [there]<sub>Adv<sub>L</sub></sub>  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>  $\nrightarrow$

\*I don't not think that he will read a paper there.

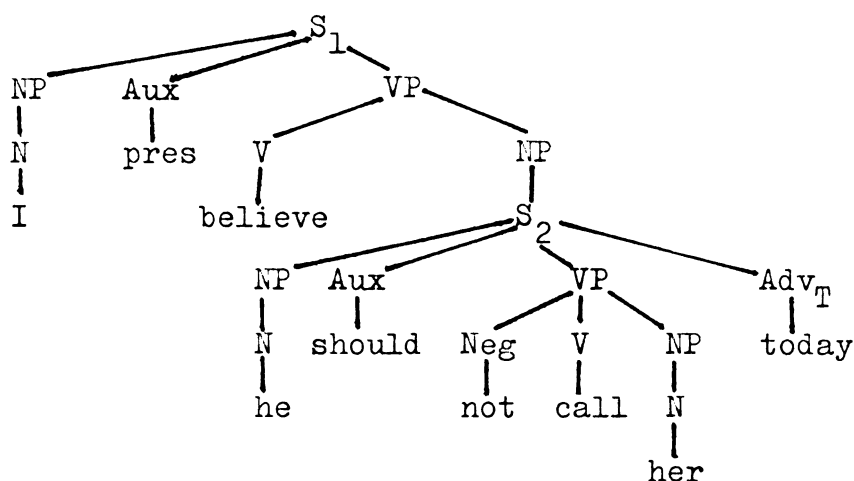
Moreover, we note that though (4.118) is quite similar to Negative-raising, the relevant difference is that (4.118) operates on the negatives which are exhaustively dominated by a verb phrase, thus limiting itself to a subclass of negatives, sentential negatives in our analysis. To illustrate the difference with an example, consider the following:

- (4.120) a. I believe that he should not call her today.  
 b. I don't believe that he should call her  
 today.

If Negative-raising is an optional rule, there is no reason to block its application in this case. Thus, its optional application to the structure underlying (4.120a) gives sentence (4.120b). But the trouble with this analysis is that sentence (4.120b) is not synonymous with (4.120a). In contrast, our rule (4.118) cannot so apply to derive (4.120b) because the negative in (4.120a) is not exhaustively dominated by a verb phrase, as shown in (4.121) underlying (4.120a):



(4.121)



Under our analysis, the negative in (4.121) is verb-phrase negation and only sentential negation, exhaustively dominated by a verb phrase, may undergo rule (4.118).

Considering rule (4.118), we note its striking similarity in operation to Negative-attachment in (3.221), especially (3.221b): both of them attach a sentential negative to a verb. Thus, we may conjoin them into:

(4.122) a.(=3.221a)

$$X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \text{Adv}_M \end{array} \right\} Y \text{ Neg} \rightarrow$$

$$X \text{ Neg+} \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \text{Adv}_M \end{array} \right\} Y$$

b.(=3.221b) X V Y Neg  $\rightarrow$ 

X Neg+V Y

c.(=4.118) X V<sub>Th</sub> [ W Neg ]<sub>S</sub> Y  $\rightarrow$ X Neg+V<sub>Th</sub> [ W ]<sub>S</sub> Y

where W, X and Y are variables, Neg is

exhaustively dominated by a VP, and X contains no Neg, Quant, Adv<sub>F</sub>, Adv<sub>N</sub> such as only, Adv<sub>R.P</sub> or Adv<sub>M</sub>

The conjoinability of (4.118) with Negative-attachment means that in our analysis a minor rule, similar to Negative-raising, can be incorporated into a more general rule, Negative-attachment. We may retain the name Negative-attachment for rule (4.122).

Now, let us consider the synonymy of (4.111) with (4.112). In fact, the synonymy of (4.111) and (4.112) can be accounted for in terms of the scope of negation which extends over the whole sentence in which it appears. Observe that the scope of negation in (4.114) underlying (4.111) is S<sub>2</sub>, and that in (4.115) underlying (4.112) is also S<sub>2</sub>:

(4.123) [[he]<sub>NP</sub> [will]<sub>Aux</sub> [[not]<sub>Neg</sub> [read]<sub>V</sub>  
[a paper]<sub>NP</sub>]<sub>VP</sub> [there]<sub>Adv<sub>L</sub></sub>]<sub>S<sub>2</sub></sub>

(4.124) [[[[he]<sub>NP</sub> [will]<sub>Aux</sub> [[read]<sub>V</sub> [a paper]<sub>NP</sub>]<sub>VP</sub>  
[there]<sub>Adv<sub>L</sub></sub>]<sub>S<sub>3</sub></sub>]<sub>NP</sub> [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>

The relevant parts included in the scope of negation in (4.123) are the same as in (4.124). Accordingly, sentences (4.111) and (4.112) are as synonymous as are sentences (4.125) and (4.126) derived from (4.123) and (4.124), respectively:

(4.125) He will not read a paper there.

(4.126) It is not so that he will read a paper there.

The synonymy of (4.125) and (4.126) may be tested in a number of ways. First, if we conjoin them with that is, we get a grammatical sentence as in:

- (4.127) a. He will not read a paper there, that is, it is not so that he will read a paper there.  
 b. It is not so that he will read a paper there, that is, he will not read a paper there.

Second, if we negate one of them and conjoin it with the other in terms of that is, we get an ungrammatical sentence as in the following:

- (4.128) a. \*He will read a paper there, that is, it is not so that he will read a paper there.  
 b. \*It is so that he will read a paper there, that is, he will not read a paper there.

Third, any of the following sentences may occur following both (4.125) and (4.126):

- (4.129) a. but she will  
 b. but he will write a paper  
 c. but he will read a magazine  
 d. but he will read a paper here

This behavior of (4.125) and (4.126) indicates their synonymy. To confirm the point, we note that a synonymous pair of sentences of other types, for instance, active and passive sentences behave quite similarly to sentences (4.125) and (4.126). To mention just one example, consider the following:

- (4.130) They did not murder the pickpocket.

(4.131) The pickpocket was not murdered by them.

First, conjoin them in terms of that is as in:

(4.132) a. They did not murder the pickpocket, that is,  
the pickpocket was not murdered by them.

b. The pickpocket was not murdered by them, that is, they did not murder the pickpocket.

We observe that the sentences of (4.132) are grammatical.

Second, negating one of them and conjoining it with the other, we get an ungrammatical sentence in either case:

(4.133) a. \*They murdered the pickpocket, that is, the pickpocket was not murdered by them.

b. \*The pickpocket was murdered by them, that is, they did not murder the pickpocket.

Third, any of the following sentences may occur following both (4.130) and (4.131):

(4.134) a. but you murdered him

a'. but he was murdered by you

b. but they examined him

b'. but he was examined by them

c. but they murdered the burglar

c'. but the burglar was murdered by them

Thus, if sentences (4.130) and (4.131) are synonymous, then (4.125) and (4.126) are also synonymous on the same ground. If (4.125) and (4.126) are synonymous, then it follows that (4.111) and (4.112) are synonymous.

Summarizing so far, we have demonstrated that our analysis can account for the synonymy of sentences (4.111)

and (4.112) on the general principle that can also take care of the synonymy of sentences such as (4.125) and (4.126).

#### 4.4. Advantages of the Proposed Analysis in English

The discussion in the preceding section does not show clear advantages of our analysis over the rule of Negative-raising. In this section, however, we will demonstrate that the approach in terms of Negative-raising runs into difficulties when extended. It is clear that if sentences of the type "NP think(s) [ X - not - Y ]<sub>S</sub>" are not synonymous with their counterparts of the type "NP do(es) not think [ X - Y ]<sub>S</sub>," they become counter-examples to Negative-raising. Although Negative-raising may take care of counter-examples of that kind by including a constraint, a minor rule with a constraint will be of little interest. Moreover, in such counter-examples, the approach in terms of Negative-raising will have to set up two distinct underlying structures for sentences of the two types in question, since they are not synonymous. Thus, the approach must distinguish two cases, cases where sentences of the two types are synonymous and those where they are not synonymous. Clearly it will be preferable if we can treat them in a unitary way. In this section, we will cite a number of cases in which sentences of the two types are not synonymous, and demonstrate that in our analysis they can be explained in the same way as those cases where sentences of the two types

are synonymous.

First of all, we note that there are a number of cases in which sentences of the two types are not synonymous. This is the case especially when they involve quantifiers and those adverbials discussed in Chapter III. Let us consider first the cases involving quantifiers. To take a concrete example, consider the following:

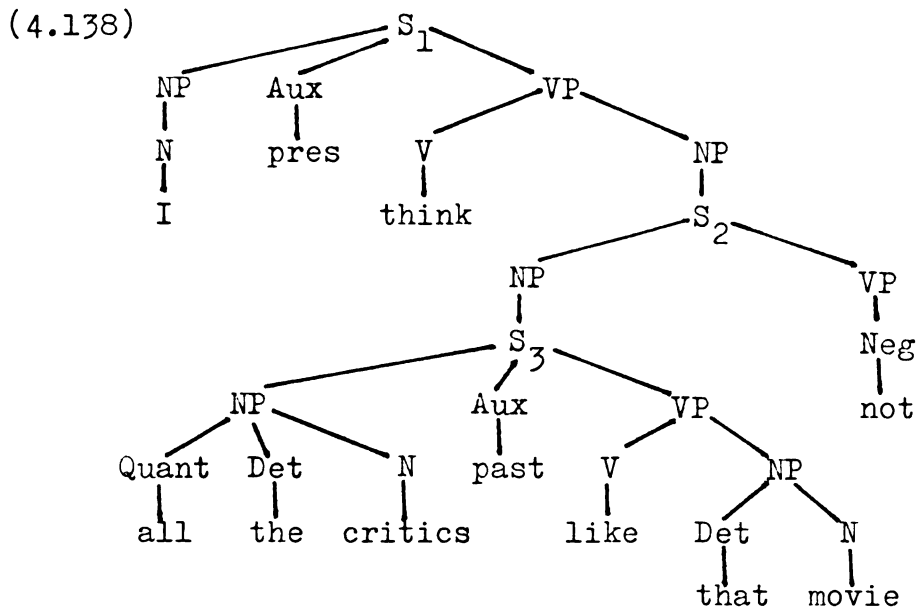
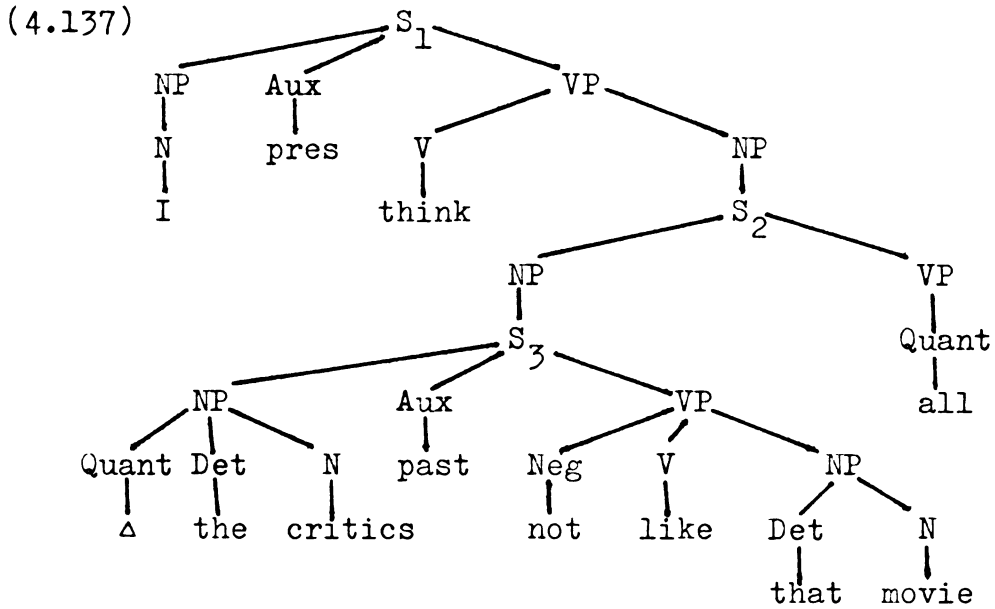
(4.135) I think that all the critics did not like that movie.

(4.136) I don't think that all the critics liked that movie.

We observe that sentence (4.136) is not synonymous with (4.135). If we extend the analysis in terms of Negative-raising to this case, they will be derived from the same underlying structure: the optional application of Negative-raising will give (4.136). The trouble with this analysis is obvious, since (4.135) and (4.136) are not synonymous. Or otherwise, Negative-raising needs some constraint to block its application in cases such as this. Then, the approach in terms of Negative-raising will have to derive sentences (4.135) and (4.136) from different underlying structures. Thus, it fails to treat sentences such as (4.135) and (4.136) in the same way as sentences such as (4.111) and (4.112) in which the two types are synonymous.

Under our analysis, on the other hand, sentences (4.111) and (4.112) are derived from different underlying structures, as discussed above: the former involves

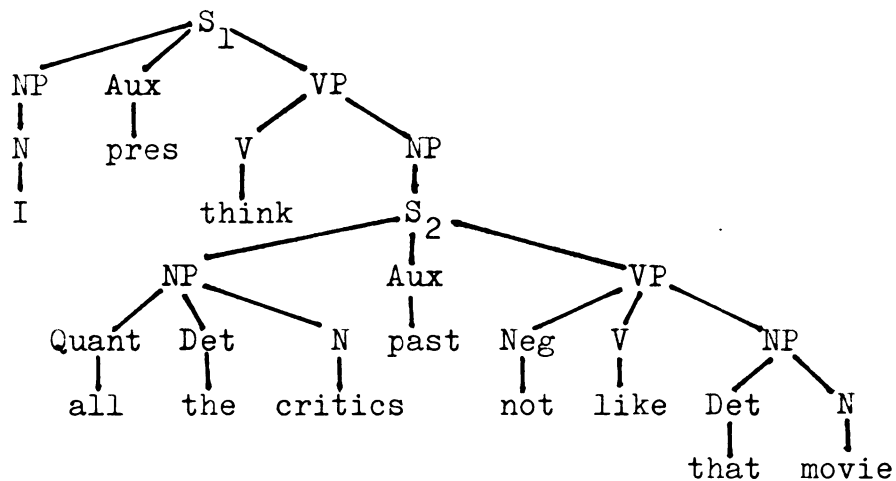
verb-phrase negation, while the latter involves sentential negation. Extending this analysis, sentences (4.135) and (4.136) are derived from correspondingly different structures such as (4.137) involving verb-phrase negation and (4.138) involving sentential negation, respectively:



Thus, the semantic difference between (4.135) and (4.136) is reduced to the relevant difference between (4.137) and (4.138): in (4.137) the scope of the negative is  $S_3$  and the quantifier is outside of its scope, whereas in (4.138) the negative, whose scope is  $S_2$ , includes the quantifier in its scope.

Now, turning to the derivation of (4.135) from (4.137), Sentence-raising applies to raise  $S_3$  into  $S_2$  and Quantifier-attachment assigns all to  $\Delta$ , giving the intermediate structure (4.139):

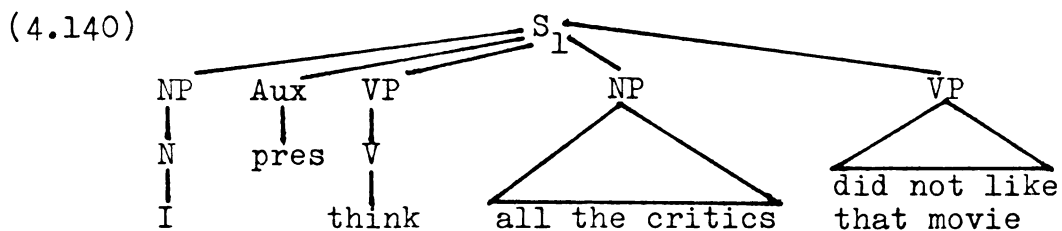
(4.139)



The structure (4.139) generates sentence (4.135). Observing (4.139), we see that it satisfies the condition of Sentence-raising. If this transformation optionally applies to (4.139), the following intermediate structure is derived:



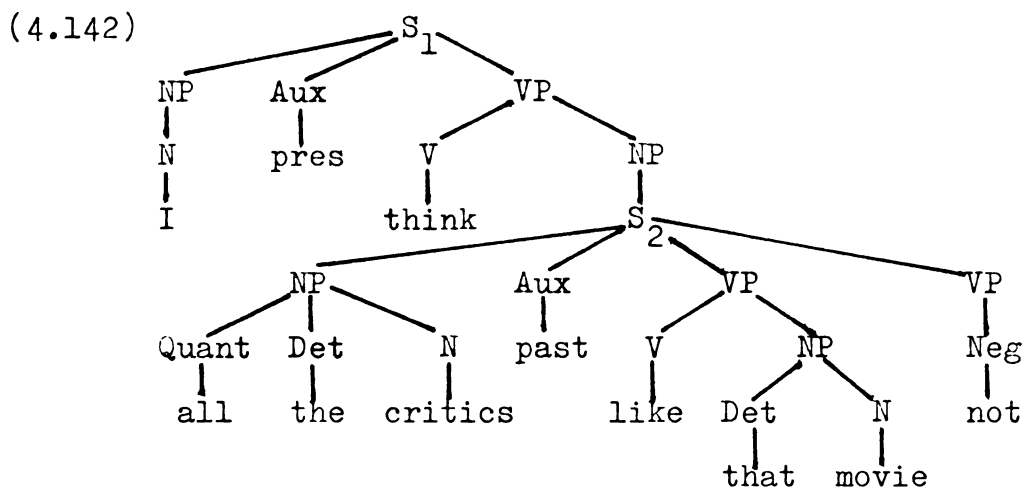




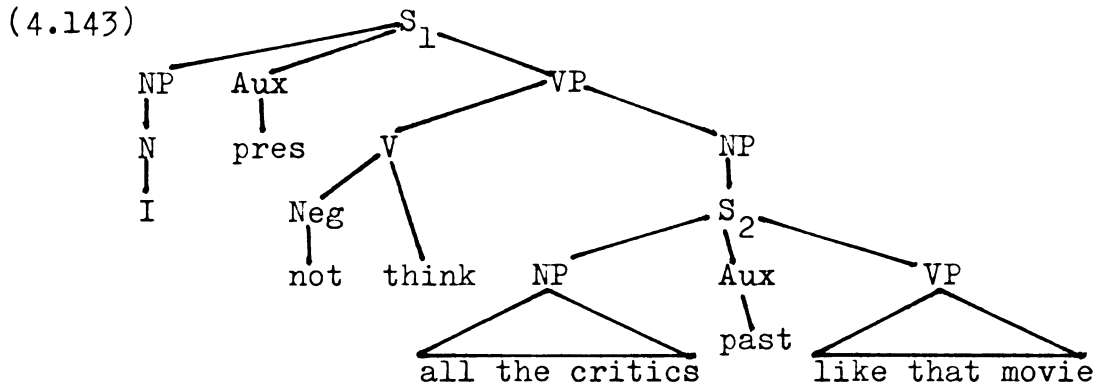
Then, moving "I think" to follow the subject noun phrase, we get sentence (4.141), which is synonymous with (4.135):

(4.141) All the critics, I think, did not like that movie.

On the other hand, in the case of (4.138), the application of Sentence-raising derives the intermediate structure:



Then, Negative-attachment (4.122c) applies to attach not to the verb think, giving (4.143):



The structure (4.143) becomes sentence (4.136).

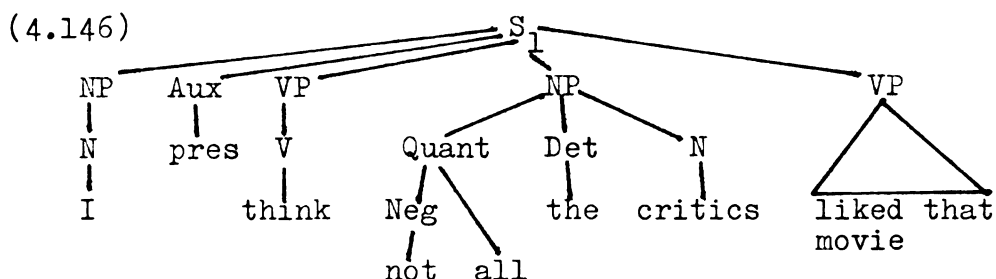
Considering (4.142), we note that the negative not can also be attached to the quantifier by the application of Negative-attachment (4.122a), generating sentence (4.144), which is synonymous with (4.136):

(4.144) I think that not all the critics liked that movie.

In contrast, the attachment of not to the verb like is blocked through the filtering function of Negative-attachment. Thus, we can block the following derivation:

(4.145)  $[[[I]_{NP} [pres]_{Aux} [[think]_V [[[\underline{all}]_{NP} \text{the critics}]_{NP} [past]_{Aux} [[like]_V [that \text{ movie}]_{NP}]_{VP} [[\underline{not}]_{Neg}]_{VP}]_{S_2}]_{NP}]_{VP}]_{S_1} \nrightarrow$   
 I think that all the critics did not like that movie.

Furthermore, we note that (4.142) meets the condition of Sentence-raising. The optional application of this transformation, after the attachment of not to all, gives (4.146):



Shifting "I think" to follow the subject noun phrase, we derive sentence (4.147), which is synonymous with (4.136):

(4.147) Not all the critics, I think, liked that movie.

Returning to (4.138), if Sentence-raising does not apply, the complementizer that, and it, is and so are inserted into  $S_3$  and  $S_2$ , respectively, yielding sentence (4.148):

(4.148) I think that it is not so that all the critics liked that movie.

Thus, our analysis can account for the derivation of sentences (4.136), (4.144), (4.147) and (4.148) from the structure (4.138) as well as the derivation of sentences (4.135) and (4.141) from the structure (4.137) without resorting to any new transformation. By so doing, the non-synonymy of (4.136) with (4.135) is automatically explained, since they are derived from the distinct underlying structures (4.138) and (4.137): not in (4.138) includes all in its scope, while not in (4.137) does not so include all.

Next, let us turn to the cases involving negation and the adverbials cited in Chapter III, specifically, nominal

adverbials, adverbials of frequency and adverbials of reason and purpose. To start with, consider examples such as (4.149) and (4.150) involving a nominal adverbial:

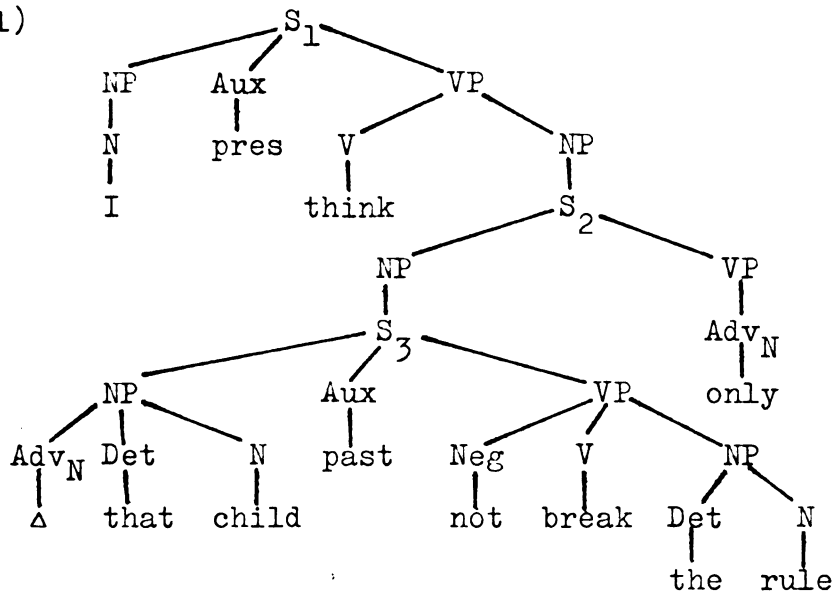
(4.149) I think that only that child did not break the rule.

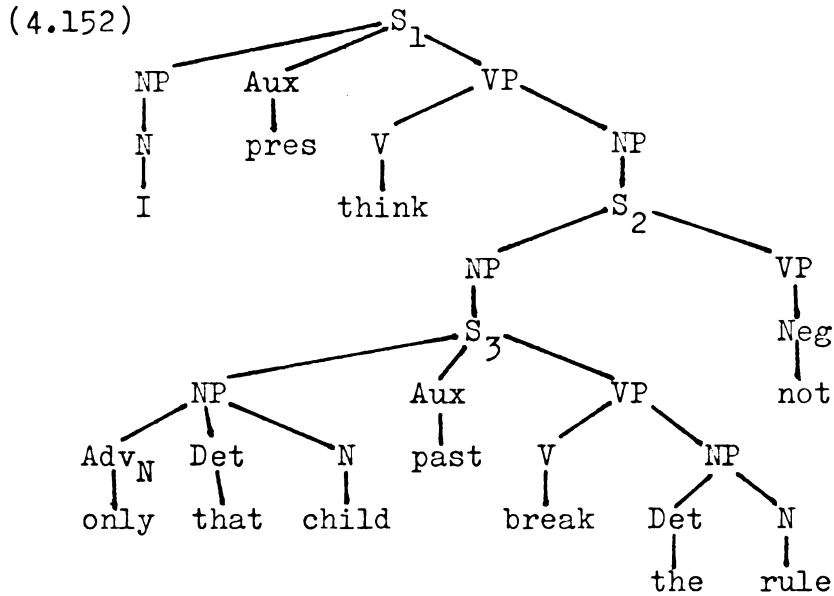
(4.150) I don't think that only that child broke the rule.

Clearly these two sentences are not synonymous, thus presenting another problem for Negative-raising.

Within our framework, sentences such as (4.149) and (4.150) pose no problem: they are derived from different underlying structures such as (4.151) and (4.152), respectively:

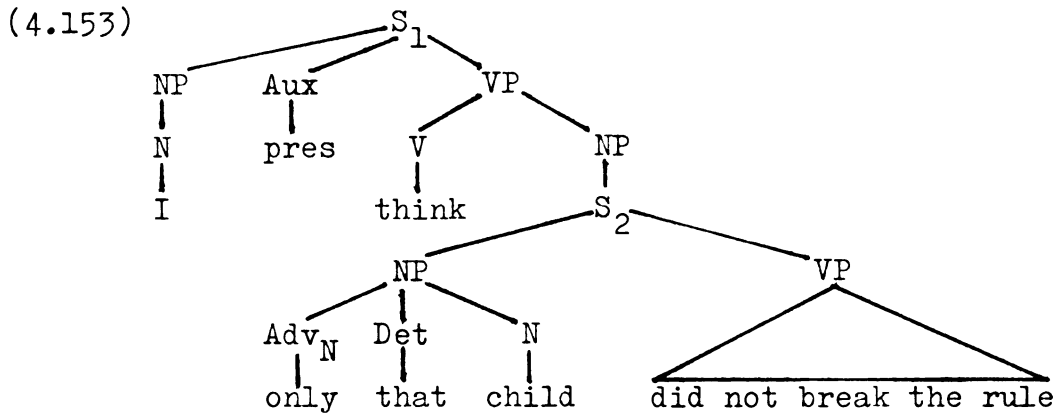
(4.151)



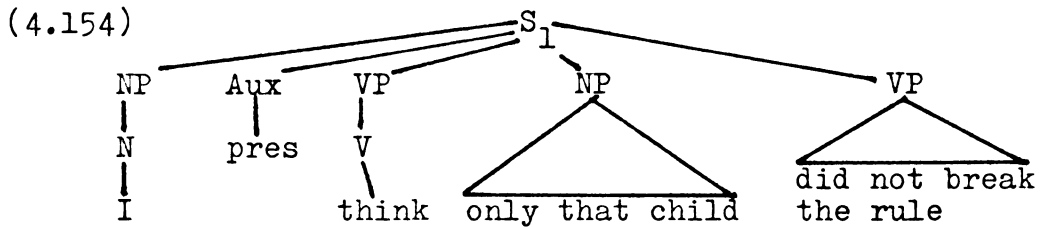


The structure (4.151) shows that the scope of the negative is  $S_3$  and the adverbial only is outside of its scope, whereas the structure (4.152) indicates that the negative, whose scope is  $S_2$ , includes only in its scope. This relevant difference reflects the semantic difference between (4.149) and (4.150).

Now, let us consider the derivation involving (4.151). Applying Sentence-raising and Quantifier-attachment to assign only to  $\Delta$ , we derive the intermediate structure (4.153):



This structure becomes sentence (4.149). Moreover, (4.153) meets the condition of Sentence-raising. Thus, its application gives (4.154):

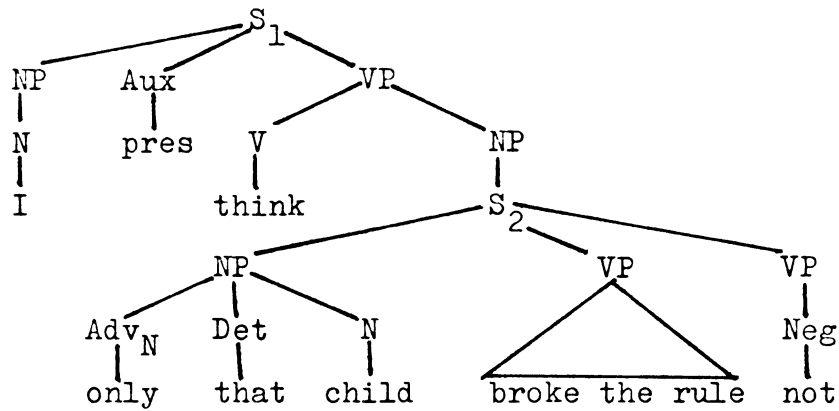


Then, shifting "I think" to follow the subject noun phrase, we derive sentence (4.155):

(4.155) Only that child, I think, did not break the rule.

Turning next to (4.152), the application of Sentence-raising gives the intermediate structure (4.156):

(4.156)

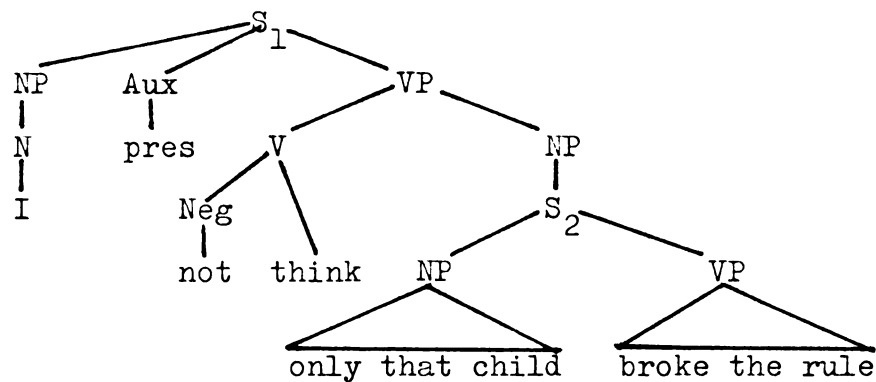


Then, if Negative-attachment (4.122a) applies to attach not to only, it gives sentence (4.157):

(4.157) I think that not only that child broke the rule.

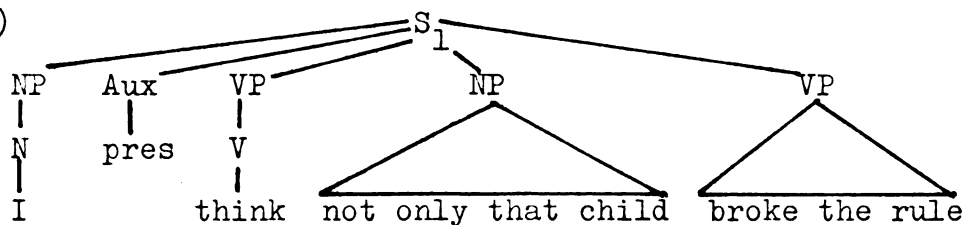
If, on the other hand, Negative-attachment (4.122c) applies, the intermediate structure (4.158) is derived:

(4.158)



The structure (4.158) generates sentence (4.150). Moreover, Sentence-raising may further apply to (4.156), after the attachment of not to only, raising  $S_2$  into  $S_1$  to derive:

(4.159)





Then, shifting "I think" to follow the subject noun phrase, we get sentence (4.160):

(4.160) Not only that child, I think, broke the rule.

Returning to (4.152) once again, if  $S_3$  is not raised into  $S_2$ , the complementizer that, and it, is and so are inserted into  $S_3$  and  $S_2$ , respectively, deriving sentence (4.161):

(4.161) I think that it is not so that only that child  
broke the rule.

In this way, our analysis can take care of the derivation of sentences (4.150), (4.157), (4.160) and (4.161) from (4.152) as well as that of sentences (4.149) and (4.155) from (4.151) without resorting to any new transformation.

Next, let us consider sentences such as (4.162) and (4.163) involving an adverbial of frequency:

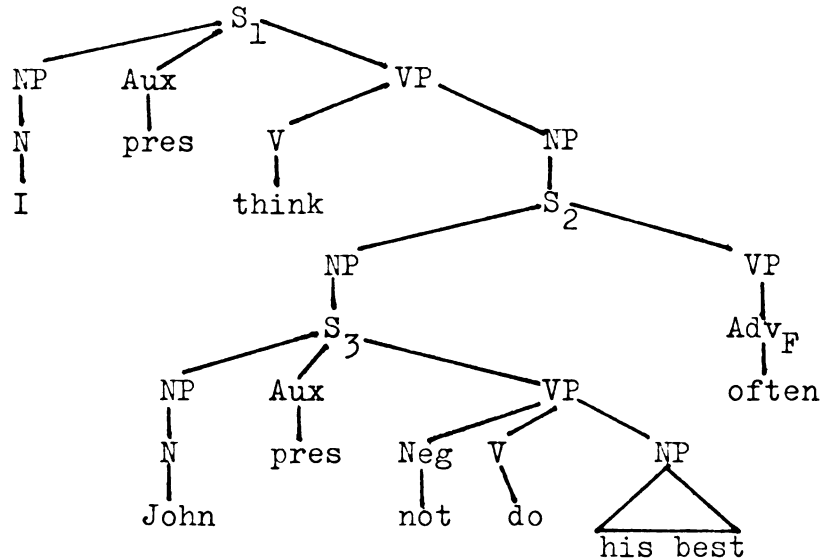
(4.162) I think that John often does not do his best.

(4.163) I don't think that John often does his best.

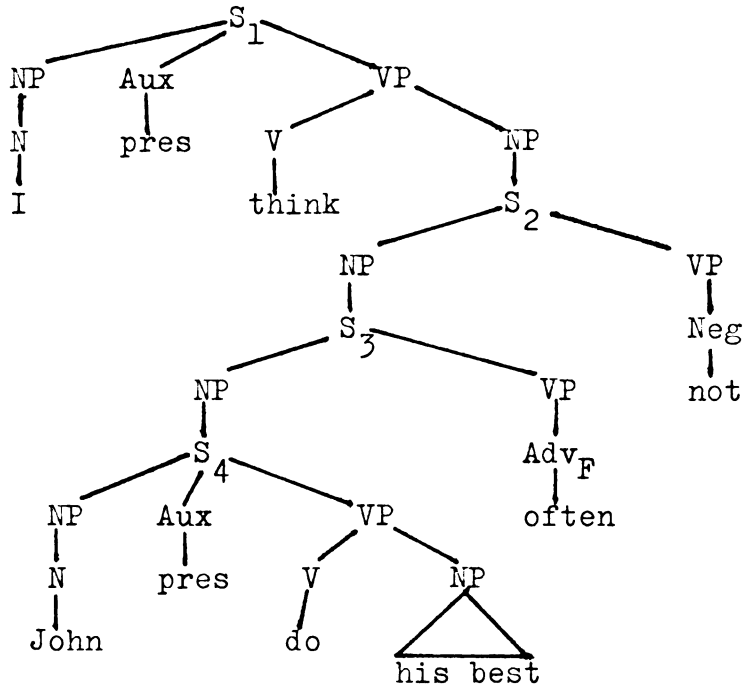
Clearly (4.162) and (4.163) are not synonymous, thus providing still another problem for the approach in terms of Negative-raising.

Within our framework, they will be derived from different underlying structures such as (4.164) and (4.165), respectively, with unrelated details aside:

(4.164)



(4.165)



The structure (4.164) indicates that the scope of not is  $S_3$  and often is outside of its scope, whereas the structure (4.165) shows that the negative, whose scope is  $S_2$ , includes often in its scope. This difference accounts for the semantic difference between (4.162) and (4.163).

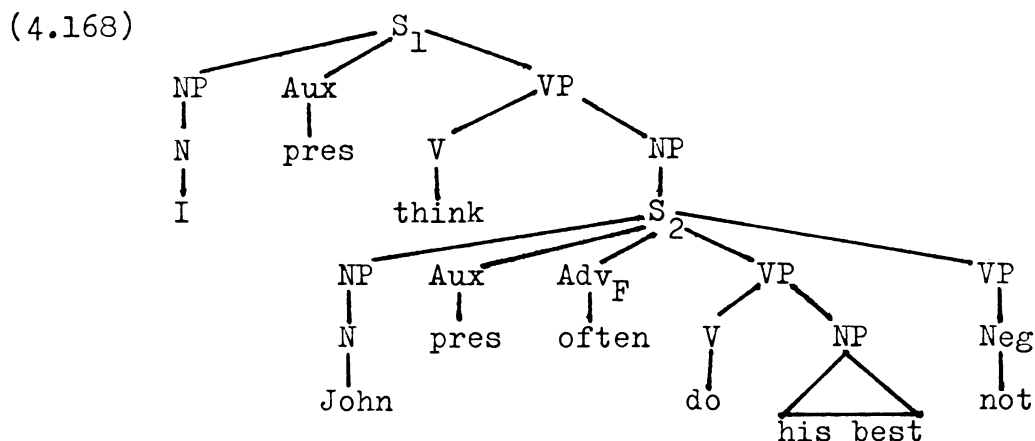
Now, let us consider the derivation involving (4.164). Applying Sentence-raising and Adverbial-movement, we derive sentence (4.162). If Sentence-raising further applies to raise  $S_2$  into  $S_1$ , it derives sentence (4.166):

(4.166) John, I think, often does not do his best.

On the other hand, if Sentence-raising does not apply to raise  $S_3$  into  $S_2$ , the complementizer that and the copula is are inserted, yielding the following sentence:

(4.167) I think that it is often that John does not do his best.

In the case of (4.165), applying Sentence-raising to raise  $S_4$  into  $S_3$ , Adverbial-movement and Sentence-raising to raise  $S_3$  into  $S_2$ , we get (4.168):



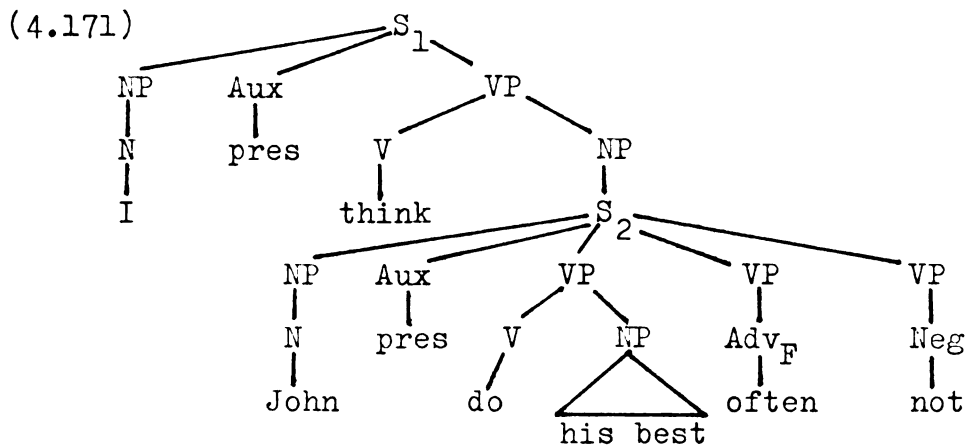
Then, the application of Negative-attachment (4.122c) gives sentence (4.163). If, on the other hand, Negative-attachment (4.122a) applies to (4.168), attaching not to often, it yields sentence (4.169):

(4.169) I think that John does not often do his best.

After the application of Negative-attachment, if  $S_2$  is further raised up into  $S_1$ , it derives sentence (4.170):

(4.170) John, I think, does not often do his best.

Let us return to (4.165) once again. After  $S_4$  is raised into  $S_3$ , if the adverbial is not shifted but  $S_3$  is further raised into  $S_2$ , the resulting structure is as follows:



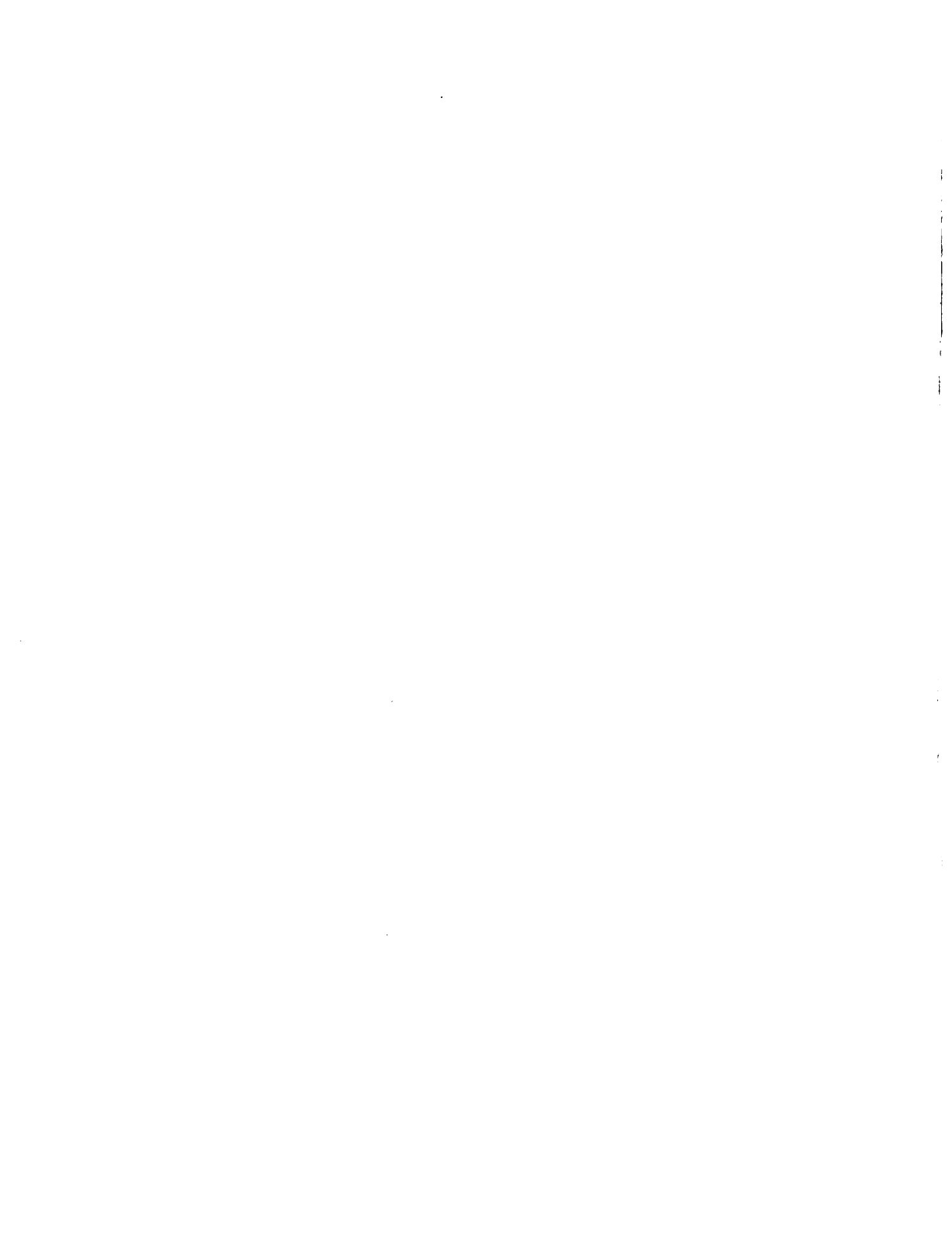
Then, Negative-attachment (4.122b) applies to attach not to the verb do, giving sentence (4.172):

(4.172) I think that John does not do his best often.

Furthermore, if  $S_3$  in (4.165) is not raised into  $S_2$ , we get sentence (4.173):

(4.173) I think that it is not so that John often does his best.

Thus, our analysis can derive the synonymous sentences (4.163), (4.169), (4.170), (4.172) and (4.173) from the underlying structure (4.165) as well as generate the synonymous sentences (4.162), (4.166) and (4.167) from the



structure (4.164) without involving any new rule.

Next, let us consider sentences such as (4.174) and (4.175) involving an adverbial of reason:

(4.174) I believe that the president will not employ you for that reason.

(4.175) I don't believe that the president will employ you for that reason.

At first sight, it seems that the Negative-raising analysis can relate the sentences by deriving them from the same underlying structure: the optional application of Negative-raising gives sentence (4.175). On closer examination, however, we note that (4.174) may be ambiguous, while (4.175) is unambiguous. This clearly poses another problem for the rule of Negative-raising.

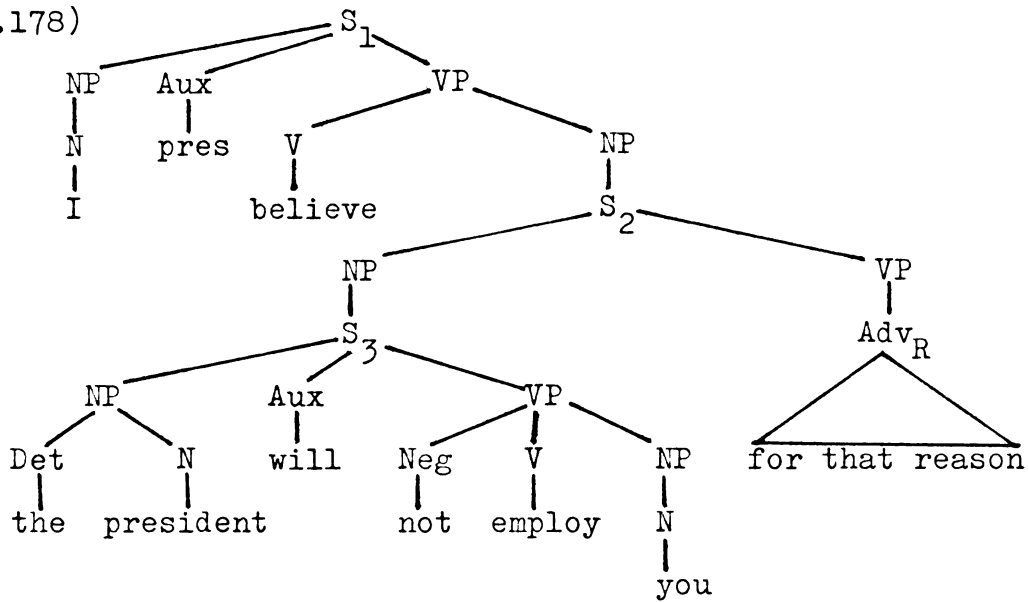
Furthermore, consider the following:

(4.176) I believe that for that reason the president will not employ you.

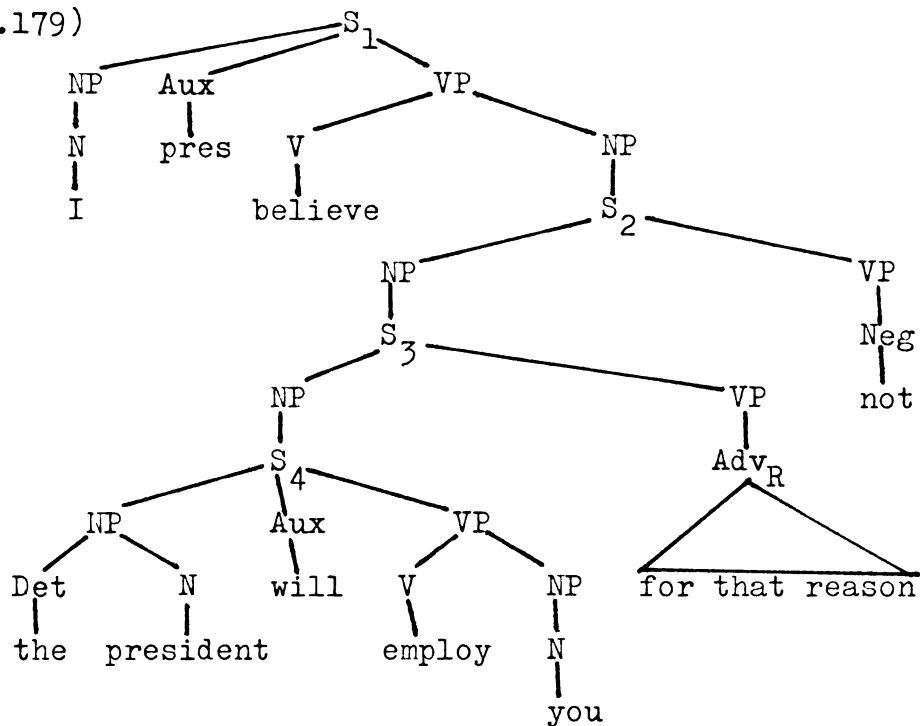
(4.177) I don't believe that for that reason the president will employ you.

Sentence (4.176) is clearly not synonymous with (4.177), which presents still another problem for the Negative-raising rule. Under our analysis, since they are not synonymous, they are derived from different underlying structures such as (4.178) and (4.179), respectively:

(4.178)



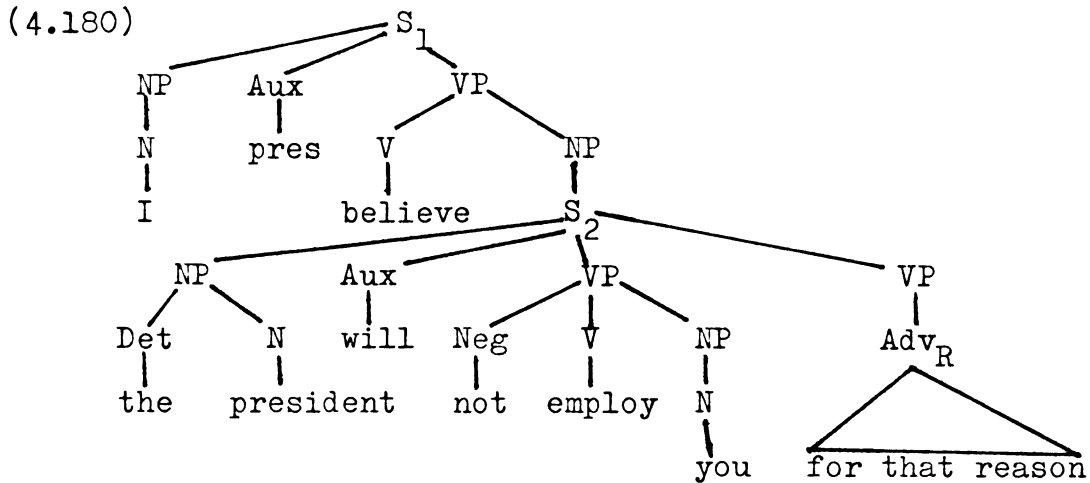
(4.179)



The relevant difference between them is that in (4.178) the scope of the negative is S<sub>3</sub> and the adverbial is outside of its scope, whereas in (4.179) the negative, whose scope is S<sub>2</sub>, includes the adverbial in its scope. This difference

reflects the semantic difference between (4.176) and (4.177).

Now, let us consider the derivation involving (4.178). Applying Sentence-raising to raise  $S_3$  into  $S_2$ , we get the intermediate structure (4.180):



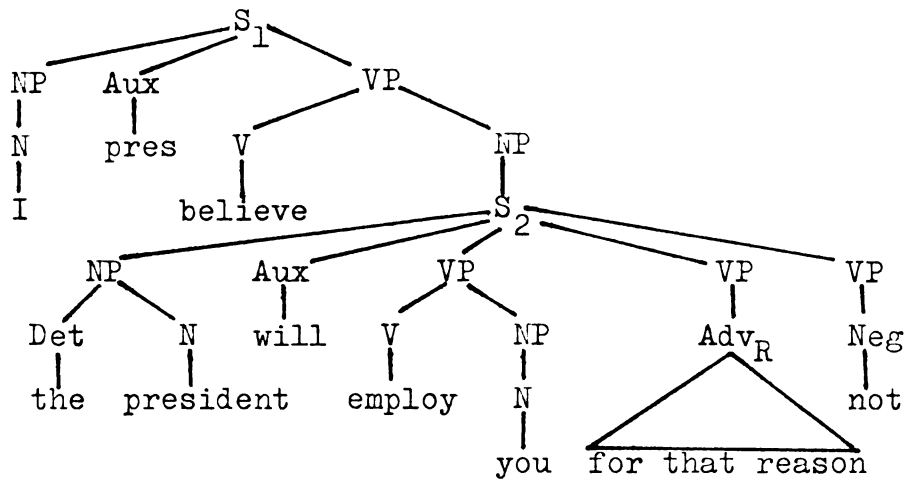
The structure (4.180) becomes sentence (4.174) with a reading synonymous with (4.176). If the adverbial in (4.180) is optionally shifted to precede the subject noun phrase, it gives sentence (4.176). Moreover, if Sentence-raising further applies to raise  $S_2$  into  $S_1$ , it yields sentence (4.181):

(4.181) For that reason, I believe, the president will not employ you.

In the case of (4.179), on the other hand, applying Sentence-raising twice to raise  $S_4$  into  $S_3$  and  $S_3$  into  $S_2$ , we get the intermediate structure (4.182):



(4.182)



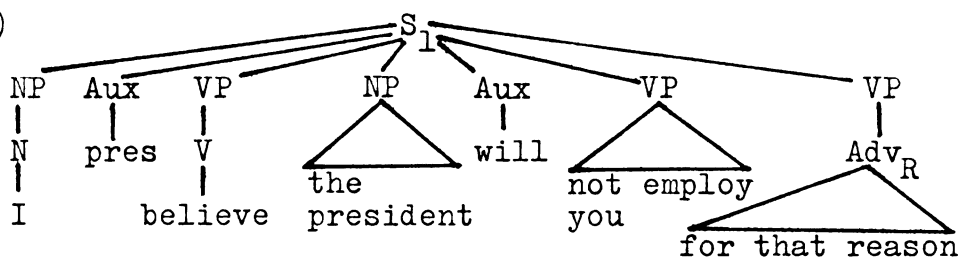
Then, applying Negative-attachment (4.122b), we get sentence (4.174) with a reading synonymous with (4.177). This provides an explanation for the ambiguity of sentence (4.174): it is derived from (4.179) as well as (4.178).

What is more, if  $S_2$  in (4.182) is optionally raised into  $S_1$ , it gives sentence (4.183):

(4.183) The president, I believe, will not employ you for that reason.

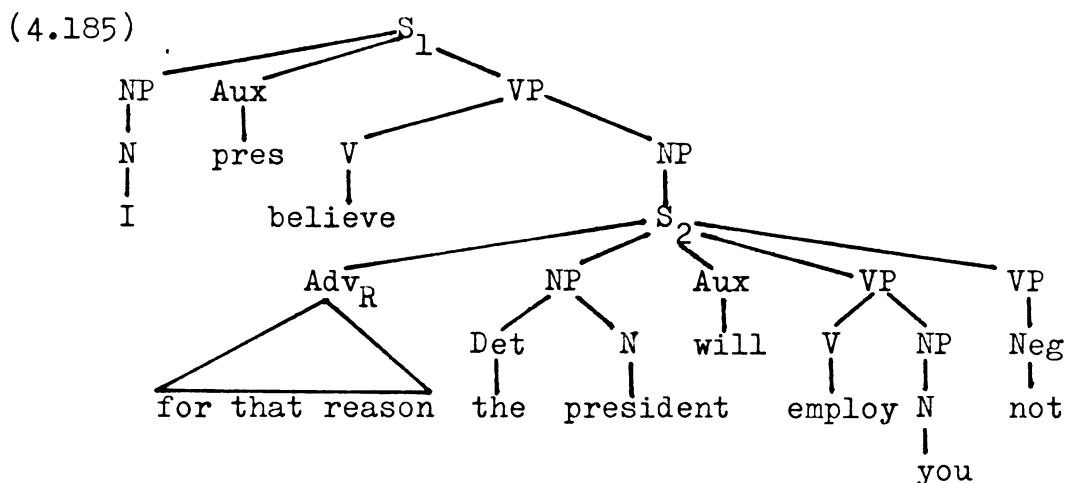
This sentence is also ambiguous. When it has another reading synonymous with (4.176), it is derived from (4.184), which is in turn derived from (4.180) by raising  $S_2$  into  $S_1$ :

(4.184)

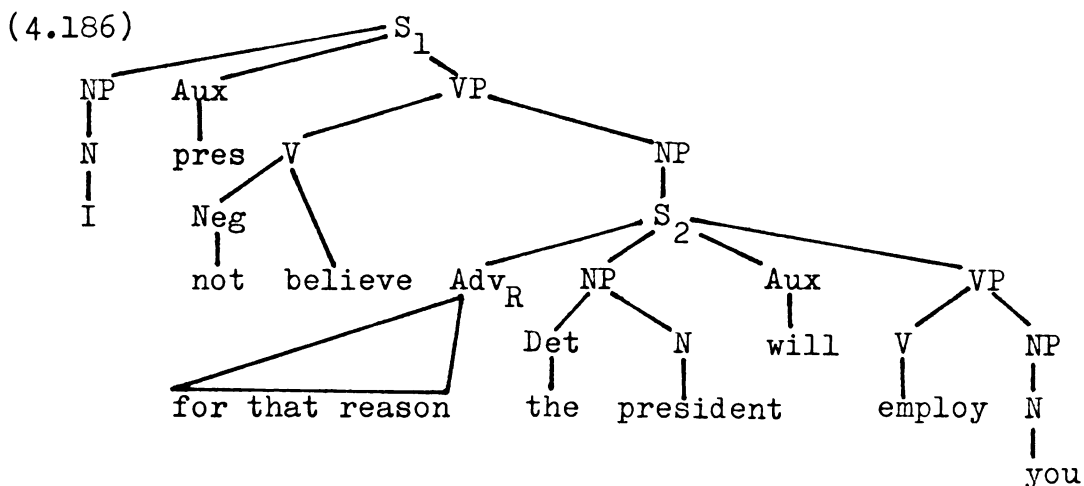


Moving I believe to follow the subject noun phrase, we get sentence (4.183) with a reading synonymous with (4.176).

Now, let us return to (4.179). After  $S_4$  is raised into  $S_3$ , if the adverbial of reason is optionally shifted to precede the subject noun phrase, and  $S_3$  is further raised into  $S_2$ , the resulting structure is as follows:



Observing (4.185), we note that Negative-attachment (4.122b) cannot apply to attach not to employ, since the adverbial of reason precedes the verb employ. But, Negative-attachment (4.122c) can apply, attaching not to believe to derive (4.186):



The structure (4.186) generates sentence (4.177). Thus, our analysis can explain the semantic difference between (4.174) and (4.175), and between (4.176) and (4.177). In addition, this analysis can account for the ambiguity of sentences such as (4.174) and (4.183).

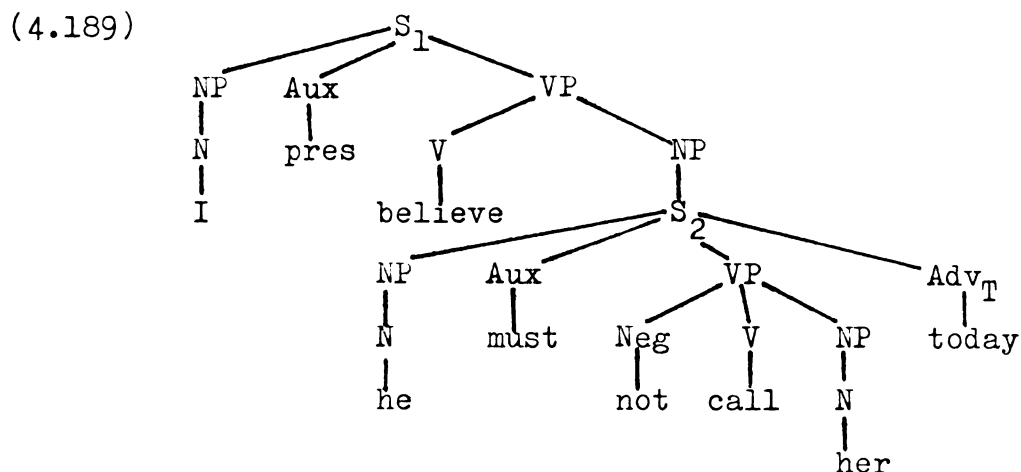
This analysis can be extended to the cases involving adverbials of purpose including benefactive adverbials.

In addition to them, we may cite the following sentences involving a modal auxiliary:

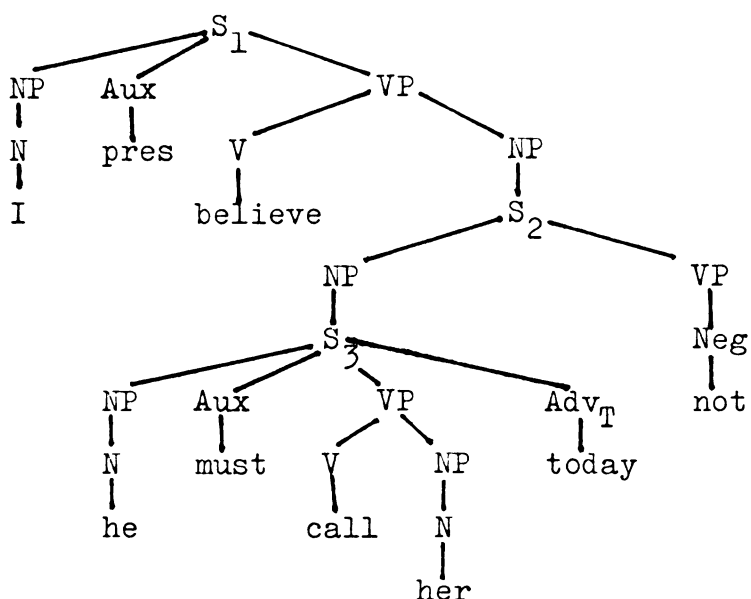
(4.187) I believe that he must not call her today.

(4.188) I don't believe that he must call her today.

Clearly (4.187) is not synonymous with (4.188), thus presenting another problem for Negative-raising. Under our analysis, however, they present no problem: they are derived from different underlying structures such as (4.189) and (4.190), respectively:



(4.190)



It should be noted that in (4.189) the negative, which is not exhaustively dominated by a verb phrase, does not meet the condition of Negative-attachment. Thus, there is no chance of not in (4.189) being attached to believe to derive (4.188). On the other hand, the structure (4.190) indicates that the negative meets the condition of Negative-attachment, thus yielding sentence (4.188). It also generates the following sentence:

(4.191) I believe that it is not so that he must call her today.

Sentence (4.191), though a little wordy, is synonymous with (4.188), not with (4.187). Quite similarly, the non-synonymy of (4.192) with (4.193) may be explained in our analysis:

(4.192) I believe that she { should not / ought not to } attend the ceremony.

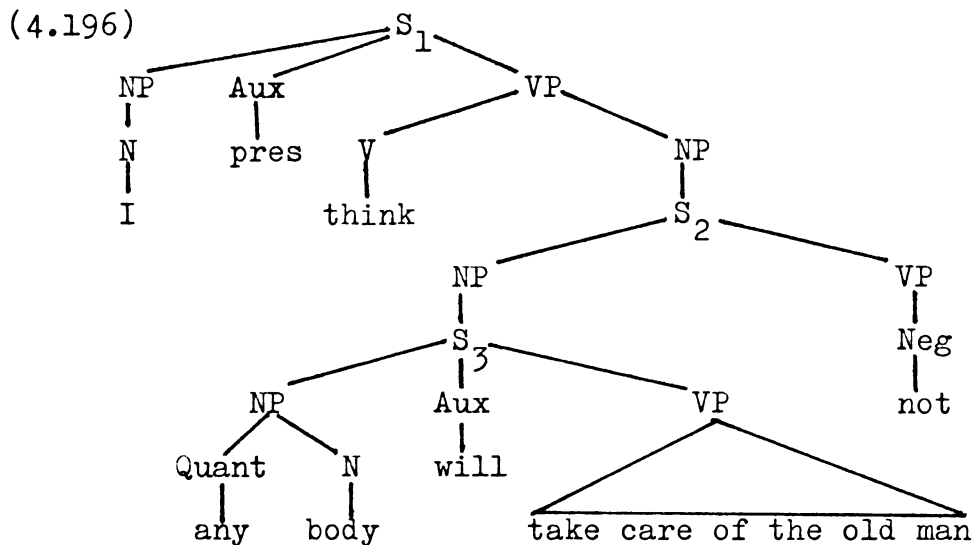
- (4.193) I don't believe that she { should  
ought to } attend  
the ceremony.

Expanding this discussion, we may now go on to consider examples such as (4.194) and (4.195):

- (4.194) I think that nobody will take care of the old man.

- (4.195) I don't think that anybody will take care of the old man.

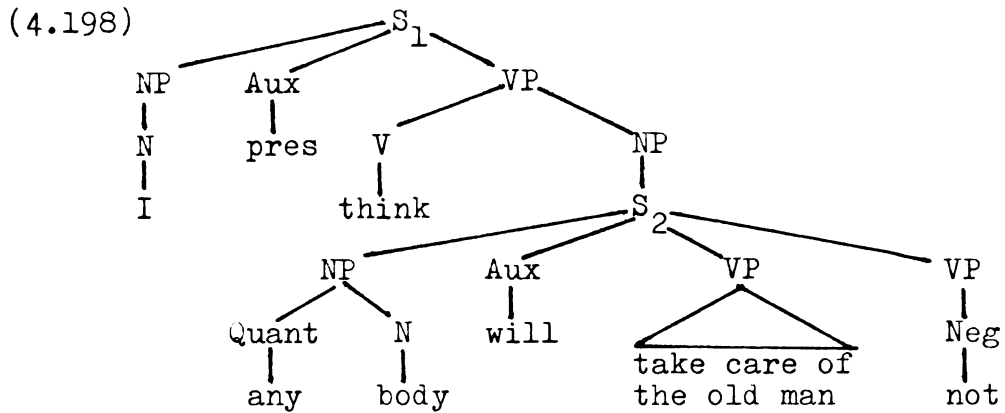
We have already discussed in section 2.8 that the embedded sentence of (4.194) contains sentential negation rather than verb-phrase negation. Thus, both (4.194) and (4.195) are derived from the same underlying structure:



If  $S_3$  is not raised into  $S_2$ , we get sentence (4.197):

- (4.197) I think that it is not so that anybody will  
take care of the old man.

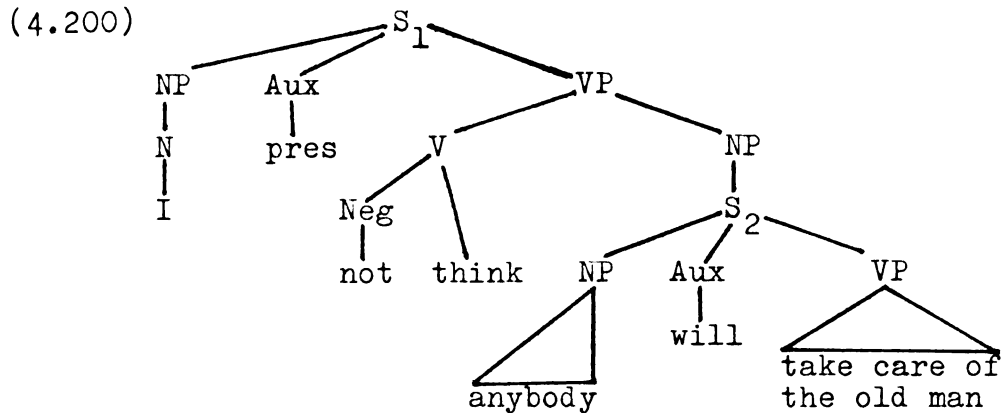
If, on the other hand,  $S_3$  is raised into  $S_2$ , it derives the intermediate structure (4.198):



Then, Negative-attachment (4.122a) applies to attach not to any, deriving sentence (4.199):

(4.199) I think that not anybody will take care of  
the old man.

Next, not is incorporated into anybody, yielding sentence (4.194). Furthermore, Negative-attachment (4.122c) can also apply to (4.198), attaching not to think to derive:



The structure (4.200) becomes sentence (4.195).

Incidentally, notice that Negative-attachment (4.122b) cannot apply to (4.198), since the quantifier any precedes the verb take. Thus, it blocks the following derivation:

(4.201) [[I]<sub>NP</sub> [pres]<sub>Aux</sub> [[think]<sub>V</sub> [[[anybody]<sub>NP</sub>  
 [will]<sub>Aux</sub> [take care of the old man]<sub>VP</sub>  
 [[not]<sub>Neg</sub>]<sub>VP</sub>]<sub>S<sub>2</sub></sub>]<sub>NP</sub>]<sub>VP</sub>]<sub>S<sub>1</sub></sub>  $\nrightarrow$

\*I think that anybody will not take care of the  
 old man.

In this way, examples (4.194) and (4.195) provide additional confirmation for the existence of sentential negation opposed to verb-phrase negation as well as show the validity of the analysis in this section.

In this connection, the following example may be cited from Jackendoff (1971, 290):

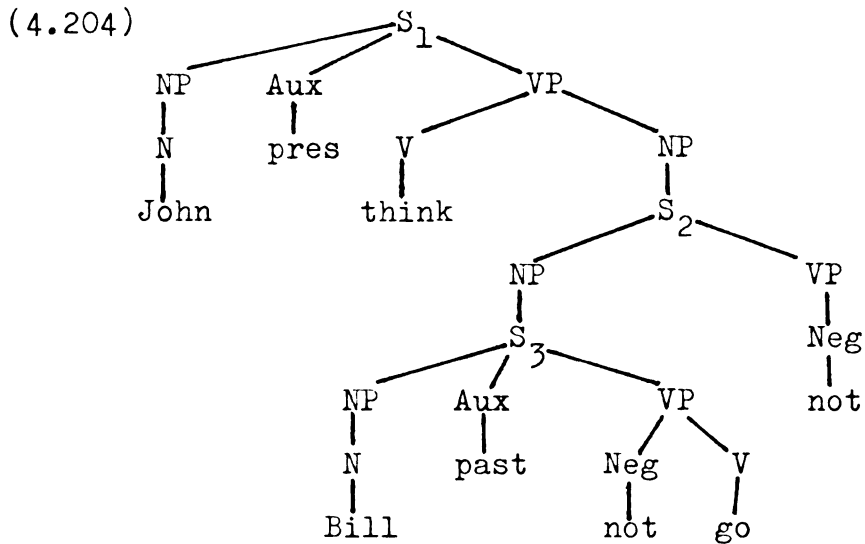
(4.202) John doesn't think that Bill didn't go.

Jackendoff argues that if (4.202) is derived by the application of Negative-raising, the source of the committal sense of (4.202) has to be an ungrammatical sentence as follows:

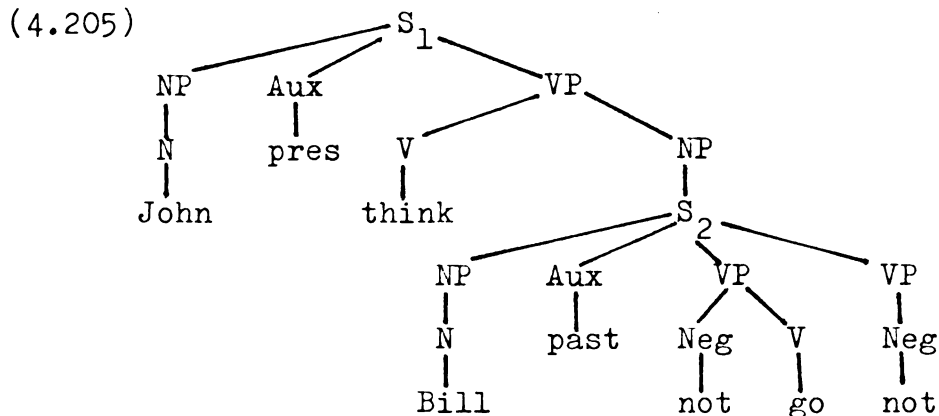
(4.203) \*John thinks that Bill didn't not go.

He argues that as Negative-raising is an optional rule, one would expect (4.203) to be grammatical.

Now, let us consider (4.202) within our framework. Sentence (4.202) is derived, under our analysis, not from (4.203) but from (4.204):



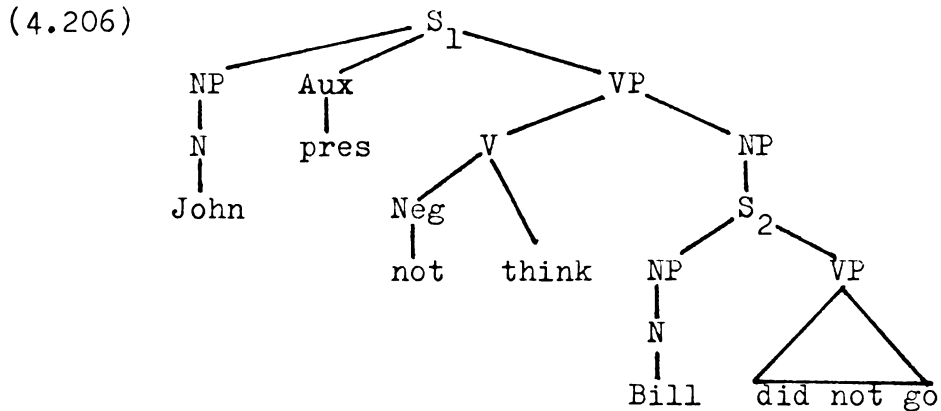
It should be noted that (4.204) contains both sentential and verb-phrase negation. If  $S_3$  of (4.204) is raised into  $S_2$ , the resulting structure is:



Observing (4.205), we note that the sentential negative not cannot be attached to the verb go, since the occurrence of another negative preceding go violates the condition of Negative-attachment (4.122b). Thus, the generation of sentence (4.203) is correctly blocked in our analysis. Furthermore, Negative-attachment (4.122c) can apply to (4.205), attaching the sentential negative not to think to



derive (4.206):



The structure (4.206) generates sentence (4.202).

Returning to (4.204) once again, if  $S_3$  is not raised into  $S_2$ , it derives sentence (4.207):

(4.207) John thinks that it is not so that Bill did not go.

Sentence (4.207), though wordy, is synonymous with (4.202). In this way, example (4.202) further confirms the validity of our analysis involving the twofold distinction of negation.

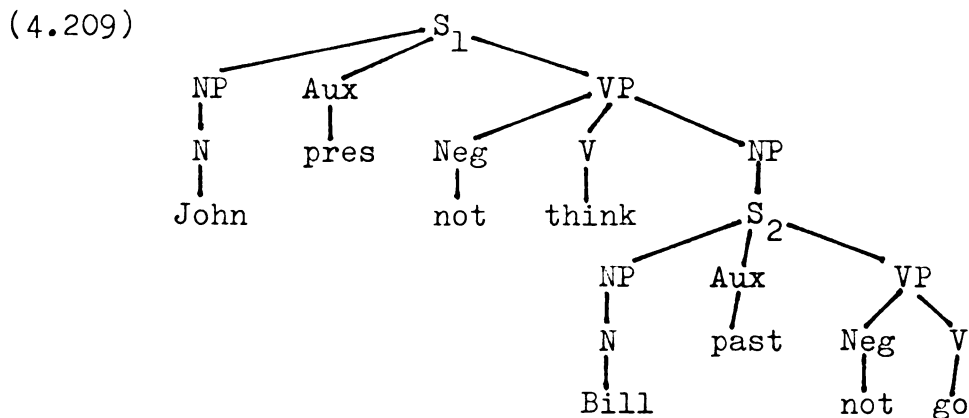
Amplifying the above argument, let us consider (4.202) from a different viewpoint. If Negative-raising is an optional rule, there is no reason to block its application to derive (4.208) from the structure underlying (4.202), unless some ad hoc constraint is imposed on the rule to block it:

(4.208) \*John doesn't not think that Bill went.

This problem does not occur within our framework. Negative-attachment to attach a negative to a higher verb is

restricted to sentential negatives, namely, negatives exhaustively dominated by a verb phrase, as stated in (4.122). Under our analysis, the structure (4.204) underlies (4.202) and the second negative in (4.204) cannot be attached to the higher verb think, since it is verb-phrase negation, not exhaustively dominated by a verb phrase.

Furthermore, we note that sentence (4.202) has another reading and in that case it is derived from (4.209) under our analysis:



The structure (4.209) indicates that the negative in  $S_2$ , which is not exhaustively dominated by a verb phrase, cannot undergo the Negative-attachment rule. Therefore, there is no chance of sentence (4.208) being generated from (4.209).

Thus, our analysis can block the generation of ungrammatical sentences such as (4.203) and (4.208), in addition to deriving grammatical sentences such as (4.202).

4.5. Conclusions

From the discussion in this chapter, we may conclude that:

1. Sentences of the type "NP think(s) [ X - not - Y ]<sub>S</sub>" and their counterparts of the type "NP do(es) not think [ X - Y ]<sub>S</sub>" are derived from different underlying structures: the former involves verb-phrase negation, while the latter involves sentential negation.
2. The synonymy or the non-synonymy of sentences of the two types in question, as the case may be, can be accounted for in terms of the presumably universal constraint: the scope of negation, sentential or verb-phrase, is the whole sentence in which it occurs.
3. The advantage of our analysis is that it can take care of a number of cases where sentences of the two types are different in meaning or grammaticality in the same way as those cases where sentences of the two types are synonymous: one type involves verb-phrase negation and the other type involves sentential negation, regardless of whether they are synonymous or not. This constitutes another motivation for the twofold distinction of negation.
4. Another advantage is that in our analysis the derivation of sentences of these two types from their distinct underlying structures involves no new transformation except those which are shown to be independently motivated in Chapter II and III, such as

Sentence-raising, Negative-attachment and Quantifier-attachment. Thus, our analysis can treat them in a relatively general way. In particular, a minor rule such as Negative-raising can be incorporated into the general rule of Negative-attachment in our analysis. The minor rule of Negative-raising, therefore, can be eliminated from both Japanese and English grammars.

5. The analysis proposed in Chapter II has its validity further confirmed in that it can take care of those facts regarding the Negative-raising rule. Furthermore, the proposed analysis has several advantages over the rule of Negative-raising in that it can account for a number of other cases that cannot be explained in terms of Negative-raising.

CHAPTER IV

FOOTNOTES

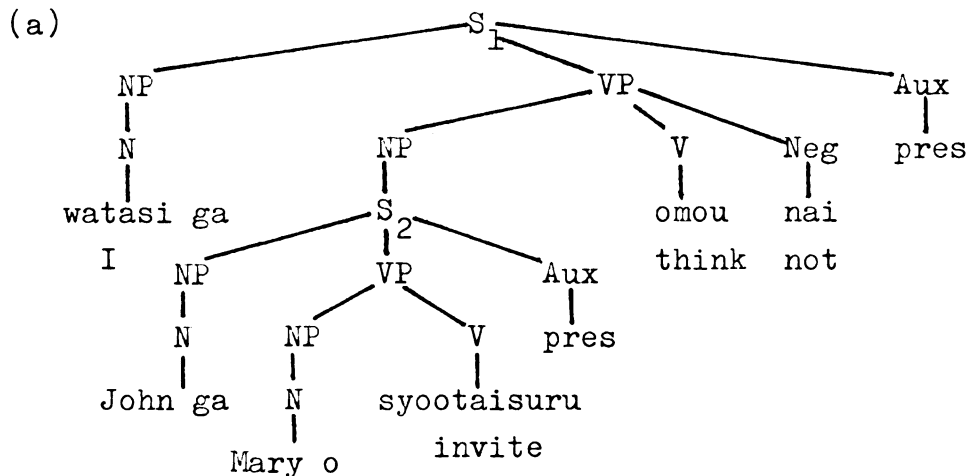
1. Negative-raising or Negative transportation is a rule to relate sentences such as:

(a) I think that Bill doesn't like Mary.

(b) I don't think that Bill likes Mary.

If Negative-raising optionally applies to the structure underlying (a), it gives sentence (b).

2. This sentence may be ambiguous. When it has another reading in which the verb omou "think" is negated, it is derived from a different underlying structure such as:



The negation in (a) is verb-phrase negation which negates the higher verb omou "think." Throughout this chapter, we ignore, as irrelevant, the readings of the

(a) type in which the higher verb omou "think" is negated.

3. Notice that there is no correspondent of sika in English since "sika . . . nai" as a unit corresponds to only, as noted in section 2.1.
4. Japanese distinguishes the verb omou from omotteiru in the present tense: omou may be used only when the subject is in the first person, as opposed to omotteiru which may occur regardless of the person of the subject. Thus, the following correspondence may be observed between the Japanese omou/omotteiru and the English think in the present tense:

(a) i. Japanese: watasi wa X to omou / omowa nai

English: I think / don't think that X

ii. Japanese: watasi wa X to omotteiru /

omotte inai

English: I think / don't think that X

(b) Japanese: NP wa X to omotteiru / omotte inai

English: NP think(s) / do(es) not think  
that X

where NP is not in the first person

Thus, when the subject is in the first person, both omou and omotteiru may be used but with a different meaning. For instance, compare the following examples:

(c) (watasi wa) Bill ga kokoni ko nai to omou.  
 I here come not that think  
 'I think that Bill will not come here.'

(d) watasi wa Bill ga kokoni ko nai to omotteiru.  
 I here come not that think  
 'I think that Bill will not come here.'

We observe first that watasi wa may be optionally deleted in (c) but not in (d). Moreover, there is some semantic difference between (c) and (d): watasi wa omou in (c) often expresses the probability of the contents of the embedded sentence, viewed from the standpoint of the speaker, so sentence (c) is almost synonymous with:

(e) tabun Bill wa kokoni ko nai daroo.  
 probably here come not will  
 'Probably Bill will not come here.'

On the other hand, sentence (d) asserts or focuses the speaker's mental action of thinking, so it is in the same class with sentences such as (f) and (g) in which the subject is in the second or third person:

(f) anata wa Bill ga kokoni ko nai to omotteiru.  
 you here come not that think  
 'You think that Bill will not come here.'

(g) kanozyo wa Bill ga kokoni ko nai to omotteiru.  
 she here come not that think  
 'She thinks that Bill will not come here.'

Furthermore, if soo da ne "is it so?", a kind of tag question, is attached to (c) and (d), there is some difference in grammaticality between the resulting

sentences (h) and (i):

(h) (watasi wa) Bill ga kokoni ko nai to omou,  
I here come not that think

soo da ne.

so is Q(uestion) M(arker)

'I think that Bill will not come here, is it so?'

(i) ?watasi wa Bill ga kokoni ko nai to omotteiru,  
I here come not that think

soo da ne.

so is QM

'I think that Bill will not come here, is it so?'

We observe that (h) is grammatical in Japanese, while (i) does not sound as grammatical as (h). In this connection, consider the following:

(j) tabun Bill wa kokoni ko nai daroo, soo da ne.  
probably here come not will so is QM

'Lit. Probably Bill will not come here, is it so?'

As noted above, sentence (e) is almost synonymous with (c), so (j) is almost synonymous with (h). Then, it follows that as soo da ne "is it so?" in (j) refers to "Bill wa kokoni ko nai daroo (= Bill will not come here)," so soo da ne "is it so?" in (h) refers to the embedded sentence "Bill wa kokoni ko nai (= Lit. Bill does not come here)." This fact makes sentence (h) acceptable, since it does not violate the constraint, pointed out by R. Lakoff (1969a, 143), that for verbs of mental action such as think it is impossible for the subject to ask whether they are true of him.



In contrast, sentence (i) is in the same class with (k) and (l):

(k) anata wa Bill ga kokoni ko nai to omotteiru,  
 you here come not that think

soo da ne.

so is QM

'You think that Bill will not come here, is it so?'

(l) kanozyo wa Bill ga kokoni ko nai to omotteiru,  
 she here come not that think

soo da ne.

so is QM

'She thinks that Bill will not come here, is it so?'

As soo da ne "is it so?" in (k) and (l) cannot refer to the embedded sentence but to the matrix sentence, so soo da ne in (i) usually cannot refer to the embedded sentence but to the matrix sentence. Then (i) is a sentence in which the speaker asks whether his own mental action is true or not, thus violating R. Lakoff's constraint. In this way, the difference in grammaticality between (h) and (i) is explained in terms of R. Lakoff's constraint. Yet, (i) does not sound completely ungrammatical. This seems to be partly due to the analogy of (h).

To take this argument one step further, consider the following examples, cited from R. Lakoff (1969a):

(m) I suppose you think you're real smart, don't you?

(n) I suppose John isn't here, is he?



(o) I don't suppose the Yankees will win, will they?  
 Assuming that these sentences are acceptable, as R. Lakoff says, we note that they involve the subject in the first person and suppose in the present tense. Moreover, their tag questions refer to the embedded sentences, not the matrix sentences. Accordingly, I suppose in (m) and (n) corresponds to watasi wa omou, not watasi wa omotteiru in Japanese, that is, I suppose in (m) and (n) belongs to (a.i), not (a.ii). Similarly, I don't suppose in (o) corresponds to watasi wa omowa nai rather than watasi wa omotte inai in Japanese, thus belonging to (a.i), not (a.ii).

Summarizing the discussion, we see that when the tense is in the present and the subject is in the first person, Japanese distinguishes omou and omotteiru as in (a.i) and (a.ii) and that only (a.i) may have a tag question attached to it. Correspondingly, though English makes no apparent distinction between (a.i) and (a.ii), only the English equivalent of (a.i) may have a tag question attached to it, as shown by the grammaticality of (m), (n) and (o).

5. Incidentally, Japanese has another adverbial hotondo that is the homonym of the hotondo in question here. This homonym means "almost," "nearly" or the like and it may occur in affirmative environments, as follows:

- (a) tatemono wa hotondo kanseisita.  
 building almost completed

'The building is almost completed.'

Therefore, sentence (b) may be grammatical if hotondo in (b) is interpreted as meaning "almost, nearly" by the help of the accompanying context, as in (c):

- (b) musuko wa hotondo benkyoosuru.  
 son study

- (c) itinitizyuu ie ni tozikomotte musuko wa  
 all day long house in stay son  
hotondo benkyoosuru.  
 almost study

'My son stays indoors all day long and studies almost all the while.'

We notice that sentence (b) is not exactly complete by itself but some element understood to be modified by hotondo is deleted. For instance, sentence (b) may be synonymous with either of the following, according to the context in which it occurs:

- (d) i. musuko wa sono aida hotondo benkyoosuru.  
 son the while almost study  
 'My son studies almost all the while.'
- ii. musuko wa hotondo itinitizyuu benkyoosuru.  
 son almost all day long study  
 'My son studies almost all day long.'
- iii. musuko wa hotondo mainiti benkyoosuru.  
 son almost every day study  
 'My son studies almost every day.'

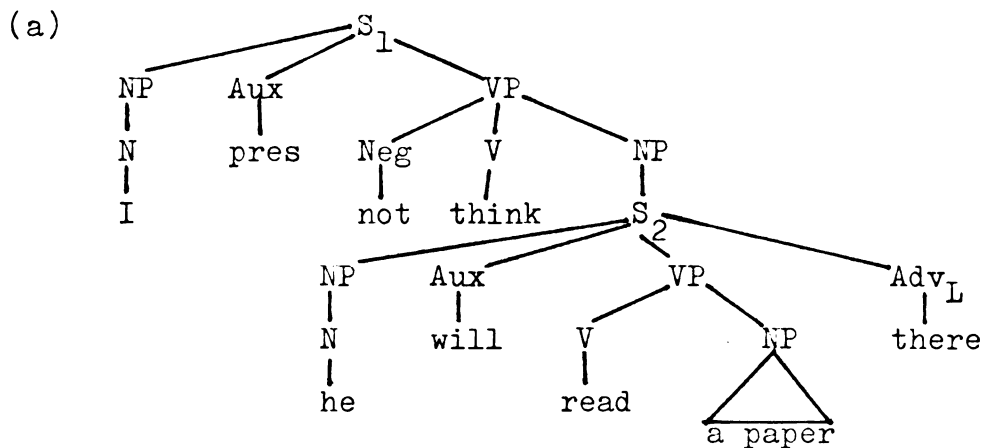
On the other hand, sentences like the embedded sentence

of (4.90b) involving hotondo of another kind are complete by themselves and no element to be modified by hotondo can be inserted in any context.

6. If the literal translation of (4.107) is grammatical, this is partly due to the difference between the Japanese made and its English equivalent until or till. Moreover, it seems to be partly due to the word order made . . . nai in Japanese and not . . . until/till in English; notice that in (4.107) made precedes the negative nai, while in its English translation the negative precedes until. Thus, as far as the word order is concerned, a more exact counterpart of (4.107) will be as in the following:

(a) \*My brother got up until nine, I don't think.

7. This sentence may be ambiguous. When it has another reading in which the verb think is negated, it is derived from a structure of the following form:



The negation in (a) is verb-phrase negation that negates the higher verb think. Throughout the subsequent sections, we ignore, as irrelevant, the readings of the (a) type in which the higher verb think is negated.

Incidentally, as for the ambiguity, R. Lakoff (1969a, 146) notes as follows:

There is another interpretation, of course, with the higher verb itself being negated. Thus, "John doesn't think Bill likes Harriet" might have two interpretations: (1) "John thinks Bill doesn't like Harriet" (John has a definite opinion): (2) "It isn't so that John thinks Bill likes Harriet" (John need not have any opinion; he might, in fact, not know anything about either Bill or Harriet or the feelings of the former for the latter. In this case, of course, negative-transportation has not occurred. [sic.])

## CHAPTER V

### CONCLUSIONS

This thesis has been an attempt to formulate an analysis of negation that is applicable to both Japanese and English. The major findings of the thesis may be summarized as follows:

1. The proposed analysis involves the following base rules in Japanese and English:

(5.1) Japanese:

a.  $S \rightarrow NP VP (Aux) (wa)$

b.  $VP \rightarrow \left\{ \begin{array}{l} (Adv_M) (NP) V (Neg) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$

c.  $NP \rightarrow \left\{ \begin{array}{l} (S) (Adv_N) (Quant) (Det) N \\ S (NP) \end{array} \right\}$

(5.2) English:

a.  $S \rightarrow NP (Aux) VP$

b.  $VP \rightarrow \left\{ \begin{array}{l} (Neg) V (NP) (Adv_M) \\ Neg \\ Quant \\ Adv_N \\ Adv_F \\ Adv_{R.P} \end{array} \right\}$

$$c. \quad NP \longrightarrow \left\{ \begin{array}{l} (\text{Adv}_N) (\text{Quant}) (\text{Det}) N (S) \\ (NP) S \end{array} \right\}$$

These rules are supported and justified by the putative universals concerning the scope of negation and that of quantifiers.

In addition, this analysis involves the following transformational rules which are shown to be independently motivated in Japanese and English:

(5.3) Japanese:

a. Sentence-raising

$$\text{OPT} \quad [ M [ X ]_{S_2} N ]_{S_1} \longrightarrow [ M X N ]_{S_1}$$

where M, N and X are variables, and M or N dominates  $V_{S.T}$  or exhaustively dominates  $\text{Adj}_S$ ,  $\text{Adv}_N$ ,  $\text{Adv}_F$ ,  $\text{Adv}_{R.P}$ , Quant or Neg

b. Contrastive wa-attachment

$$X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_M \\ [\text{Adv}_M \dots V]_{VP} \\ \text{Adv}_D \\ [\text{Adv}_D \dots \text{Adj}]_{VP} \end{array} \right\} Y \text{ wa } Z \longrightarrow$$

$$X \left\{ \begin{array}{l} \text{Quant+wa} \\ \text{Adv}_M+\text{wa} \\ [\text{Adv}_M \dots V+\text{wa}]_{VP} \\ \text{Adv}_D+\text{wa} \\ [\text{Adv}_D \dots \text{Adj}+\text{wa}]_{VP} \end{array} \right\} Y \quad Z$$

where X, Y and Z are variables



## c. Negative-attachment

$$i. \quad X \left\{ \begin{array}{ll} P & Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + wa \\ Q + wa & Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} \end{array} \right\} Z \quad \text{Neg} \longrightarrow$$

$$X \left\{ \begin{array}{ll} P & Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + wa + \text{Neg} \\ Q + wa & Y \left\{ \begin{array}{l} V \\ \text{Adj} \end{array} \right\} + \text{Neg} \end{array} \right\} Z$$

$$ii. \quad X \quad [ W \text{ Neg} ]_S \quad Y \quad V_{Th} \quad Z \longrightarrow \\ X \quad [ W ]_S \quad Y \quad V_{Th+Neg} \quad Z$$

where P, Q, W, X, Y and Z are variables, Z contains no Neg, P includes Adv<sub>M</sub> or Adv<sub>D</sub>, Q includes Quant, Adv<sub>M</sub> or Adv<sub>D</sub>, and Neg is exhaustively dominated by a VP

## d. Quantifier-attachment

$$X \quad [ \Delta \text{ (Det) } N ]_{NP} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \longrightarrow$$

$$X \quad \left[ \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \text{ (Det) } N \right]_{NP} \quad Y$$

where X and Y are variables, and X contains no Quant, Adv<sub>N</sub> or Neg

## e. Adverbial-movement

$$[ X \text{ NP } Y \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} ]_S \longrightarrow X \left\{ \begin{array}{l} NP \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} \\ \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{R.P} \end{array} \right\} NP \end{array} \right\} Y$$

where X and Y are variables, and NP is immediately dominated by S

(5.4) English:

a.(=5.3a) Sentence-raising

$$\text{OPT } [ M [ X ]_{S_2} N ]_{S_1} \longrightarrow [ M X N ]_{S_1}$$

where M, N and X are variables, and M or N dominates  $V_{S.T}$  or exhaustively dominates  $\text{Adj}_S$ ,  $\text{Adv}_N$ ,  $\text{Adv}_F$ ,  $\text{Adv}_{R.P}$ , Quant or Neg

b. Negative-attachment

$$\text{i. } X \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \text{Adv}_M \end{array} \right\} Y \text{ Neg} \longrightarrow$$

$$X \text{ Neg+} \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \\ \text{Adv}_F \\ \text{Adv}_M \end{array} \right\} Y$$

$$\text{ii. } X \quad V \quad Y \quad \text{Neg} \longrightarrow$$

$$X \quad \text{Neg+V} \quad Y$$

$$\text{iii. } X \quad V_{Th} \quad [ W \text{ Neg } ]_S \quad Y \longrightarrow$$

$$X \quad \text{Neg+V}_{Th} \quad [ W ]_S \quad Y$$

where W, X and Y are variables, Neg is exhaustively dominated by a VP, and X contains no Neg, Quant,  $\text{Adv}_F$ ,  $\text{Adv}_N$  such as only,  $\text{Adv}_{R.P}$  or  $\text{Adv}_M$

## c.(=5.3d) Quantifier-attachment

$$X \quad [ \Delta \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \rightarrow$$

$$X \quad \left\{ \begin{array}{l} \text{Quant} \\ \text{Adv}_N \end{array} \right\} \quad (\text{Det}) \quad N ]_{\text{NP}} \quad Y$$

where X and Y are variables, and X contains no Quant, Adv<sub>N</sub> or Neg

## d. Adverbial-movement

$$[ X \quad \text{NP} \quad \text{Aux} \quad Y \quad \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{\text{R.P.}} \end{array} \right\} ]_S \rightarrow$$

$$X \quad \left\{ \begin{array}{l} \text{NP} \quad \text{Aux} \quad \text{Adv}_F \\ \left\{ \begin{array}{l} \text{Adv}_F \\ \text{Adv}_{\text{R.P.}} \end{array} \right\} \quad \text{NP} \quad \text{Aux} \end{array} \right\} \quad Y$$

where X and Y are variables, and NP is immediately dominated by S

It should be noted that Sentence-raising and Quantifier-attachment have the same form and are applicable to both Japanese and English.

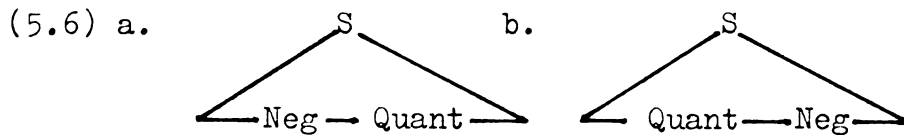
2. The proposed analysis incorporates, among others, the putative universals we noted regarding the scope of negation and that of quantifiers:

(5.5) a) The scope of negation, sentential or verb-phrase, is the whole sentence in which it occurs.

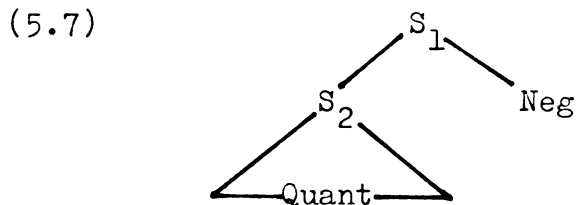
b) The scope of a quantifier, sentential or nominal, is the whole sentence in which it occurs.

3. From the putative universals it follows that if a

constituent is not included in the scope of negation or a quantifier, it must be outside the sentence containing the negation or the quantifier in the underlying structure. We noted that in sentences of the (5.6) type involving a negative and a quantifier in a simplex sentence there are only two possibilities: either Quant is included in the scope of Neg or not:

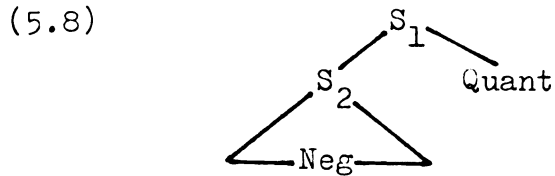


More specifically, when Quant is included in the scope of Neg, Quant cannot include Neg in its scope. Thus, the structure underlying (5.6) in that case is:



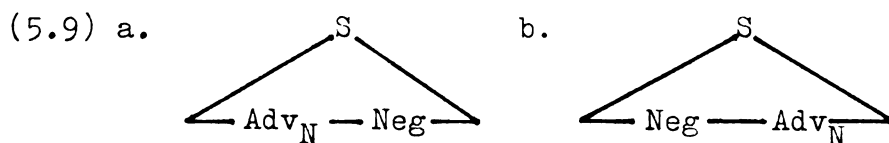
The structure indicates that Neg, whose scope is  $S_1$ , includes Quant in its scope. Furthermore, (5.7) indicates that since the scope of Quant is  $S_2$ , Neg is outside of its scope.

In turn, when Quant in (5.6) is not included in the scope of Neg, Quant includes Neg in its scope. Thus, the structure underlying (5.6) in this case is:



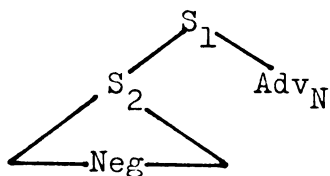
The structure (5.8) indicates that Quant, whose scope is  $S_1$ , includes Neg in its scope and that since the scope of Neg is  $S_2$ , Quant is outside of its scope. These considerations led us to make a twofold distinction for negation and quantifiers: as Neg in (5.7) is sentential but Neg in (5.8) is verb-phrase, so Quant in (5.8) is sentential but Quant in (5.7) is nominal. Only sentential Neg and Quant, "commanding" the sentences they modify, can include another Quant or Neg in their scope.

4. Next, noting that three classes of adverbials, nominal adverbials, adverbials of frequency and adverbials of reason and purpose, behave quite similarly to quantifiers with respect to negation, we presented a similar argument for them. For instance, in sentences of the (5.9) type, containing negation and a nominal adverbial in a simplex sentence, if Adv<sub>N</sub> is not included in the scope of Neg, it must be outside the sentence containing Neg in the underlying structure, since the scope of Neg is the whole sentence in which it occurs:



Thus, the structure underlying (5.9) is:

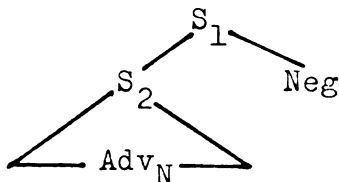
(5.10)



The structure (5.10) indicates that since the scope of Neg is  $S_2$ , Adv<sub>N</sub> is outside of its scope.

On the other hand, when Adv<sub>N</sub> in (5.9) is included in the scope of Neg, it is synonymous with the sentence derived from the underlying structure of the (5.11) type:

(5.11)



The structure (5.11) indicates that Neg, whose scope is  $S_1$ , includes Adv<sub>N</sub> in its scope. Based on these considerations, we made a twofold distinction for Adv<sub>N</sub>, similar to that for Quant: only sentential Adv<sub>N</sub> as in (5.10) can include negation in its scope.

We also demonstrated that a similar analysis holds for adverbials of frequency and adverbials of reason and purpose in that, depending upon whether they occur with sentential or verb-phrase negation, they show similar semantic differences.

5. The discussion of manner adverbials in Chapter III presents the following constraint which is another candidate for a language universal:

(5.10)



The structure (5.10) is a sentence structure. It is a tree diagram showing the hierarchical organization of the sentence "The man is walking to the store". The root node is 'S', which branches into 'NP' (Noun Phrase) and 'VP' (Verb Phrase). The 'NP' node branches into the words "the" and "man". The 'VP' node branches into "is" and another 'VP' node. This second 'VP' node branches into "walking" and "to the store".

(5.11)



The structure (5.11) is a sentence structure. It is a tree diagram showing the hierarchical organization of the sentence "The man is walking to the store". The root node is 'S', which branches into 'NP' (Noun Phrase) and 'VP' (Verb Phrase). The 'NP' node branches into the words "the" and "man". The 'VP' node branches into "is" and another 'VP' node. This second 'VP' node branches into "walking" and "to the store".

The discussion of manner adverbs in Chapter 11 presents the following constraints which are another candidate for a language universal:

- (5.12) Manner adverbials cannot co-occur with verb-phrase negation.

The constraint involves the distinction between sentential and verb-phrase negation, thus providing further motivation for the twofold distinction of negation.

6. The proposed analysis can also take care of a number of facts regarding the rule of Negative-raising. Under our analysis, sentences of the type "NP think(s) [ X - not - Y ]<sub>S</sub>" and their counterparts of the type "NP do(es) not think [ X - Y ]<sub>S</sub>" are derived from different underlying structures: the former type involves verb-phrase negation, while the latter involves sentential negation, regardless of whether they are synonymous or not.

The synonymy or the non-synonymy of sentences of the two types, as the case may be, can be predicted in terms of the presumably universal constraint: the scope of negation, sentential or verb-phrase, is the whole sentence in which it occurs. This additionally confirms the validity of the constraint.

7. The advantage of the proposed analysis is that it can account for a number of cases that cannot be explained in terms of Negative-raising, namely, those cases where sentences of the two types are different in meaning or grammaticality; it can explain them in the same way as those cases where sentences of the two types are



synonymous, in terms of the twofold distinction of negation.

Another advantage is that in our analysis the derivation of sentences of the two types involves no new transformation except those which are shown to be independently motivated in Chapter II and III. In particular, the minor rule of Negative-raising can be incorporated into the general rule of Negative-attachment in our analysis. Thus, our analysis can treat sentences of the two types in a relatively general way.

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