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A LEXICAL INTERPRETIVE THEORY WITH EMPHASIS ON THE ROLE OF
SUBJECT

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A Lexical Interpretive Theory with Emphasis

On the Role of Subject

by

Nobuko Hasegawa

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of the requirements for the degree of

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Doctoral Dissertation

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INTRODUCTION

The primary purpose of this thesis is to introduce my version of a Lexical Interpretive Theory (LIT) and to show that it accounts for major syntactic phenomena of two radically different language types, 'configurational' and 'nonconfigurational.' As representatives of these language types, I take English and Japanese.

This thesis is organized in the following way. In Chapter 1, I will review past analyses of Japanese and English. First, the traditional transformational analysis or the Aspects model of Japanese is briefly reviewed, which is the only analysis that deals with various syntactic phenomena in Japanese.¹ Then, as a representative of current linguistic theories, I will take up the Extended Standard Theory (EST), which accounts for major syntactic phenomena in English. It will be revealed that the Japanese phenomena cannot be naturally incorporated in the EST, even if we assume that the EST succeeds in describing English and other 'configurational' languages. The discussion in Chapter 1 leads to the conclusion that a new theory must be developed in order to account for both English and Japanese or both 'configurational' and 'nonconfigurational' languages on the same ground. The rest of this thesis is devoted to developing such a theory.

In Chapter 2, the outline of my version of a lexical interpretive theory will be introduced. The assumption underlying this theory is that the difference between 'configurational' and

'nonconfigurational' languages is reduced to a difference in the system of encoding grammatical functions; 'configurational' languages possess configurationally defined positions for grammatical functions such as subject, object, etc., whereas 'nonconfigurational' languages do not specify grammatical functions in terms of configuration. There do not seem to be any other differences between two types of languages which are significantly related to various linguistic phenomena. In the LIT framework, the difference in configurations and case or inflection systems is expressed in the component which I call the C(onstituent)-Structure. The C-Structure is built up by composition rules which utilize the subcategorizational information in the lexicon. English composition rules build up constituents which correspond to NP, PP, AP, VP, and S in a traditional sense. Grammatical functions are determined from the C-Structure representation in English; on the other hand, in Japanese, configurational structures do not play a crucial role in determining grammatical functions. Instead, case markers, which are assigned in the lexicon, do this job. Once grammatical functions are read on a string of words in the C-Structure, lexical restrictions of each lexical item ultimately determine whether the string is well-formed. I call this component the F(unctional)-Structure, where sentences or phrases are actually interpreted. In principle, the F-Structure representation is equivalent to a collection of relevant lexical items with their lexical specifications. However, the F-Structure is more than a lexicon to the extent that the actual interpretation of the phrase

and sentence is carried out by means of indexing.

In the rest of this thesis, I will analyze major syntactic phenomena of English and Japanese within the framework proposed in Chapter 2. The phenomena under consideration include the 'control' and 'predication' constructions, the predicate raising structure and related phenomena (case arrays and honorification), bound anaphora, passives, and the relative and topic constructions.

One of the most important claims made in the LIT is that there is an asymmetry among the argument types of the predicate argument structure. A predicate external argument, an argument associated with the subject function, is not selected, though it is specified, by the predicate. On the other hand, predicate internal arguments, arguments associated with complements of the predicate, must be chosen and specified by the predicate. Hence, the presence of the external argument is not guaranteed by the presence of the predicate, whereas internal arguments must be present if the predicate exists. This asymmetry among argument types explains the existence of the 'predication' construction, under which the Equi/Raising structure and the structure of predicate attributes are subsumed in the LIT framework. The characteristic of this construction is that it does not possess a syntactic subject. Since the subject argument is not syntactically chosen by the predicate, it is not surprising that we find 'subjectless' structures. The missing subject is uniformly interpreted by the Subject Interpretation Rule which operates in F-Structure. The predicate raising construction

in Japanese is also a sub-case of the predication construction, which involves a morphological rule of compound verb formation, operating in the lexicon. The predication construction and relevant phenomena will be discussed in Chapter 3.

In the same chapter, I will characterize the difference between English and Japanese observed in the syntactic representation of an argumentless subject. English, a configurational language, possesses a configurationally defined subject position. Because of this property, a subject function without argument is syntactically expressed by an expletive use of it in English. Japanese, on the other hand, does not possess a configurationally specified subject position. Hence, there is no reason for an argumentless subject to be syntactically realized in Japanese.

In Chapter 4, the phenomena of bound anaphora are considered. In past literature, it has been claimed that Japanese reflexives are 'qualitatively' different from English bound anaphora. Contrary to this claim, I will argue that they are of the same type when a bound anaphor refers to the subject of the same argument structure. This is an instance of the obligatory anaphora. Language differences are observed when it refers to some other argument (optional anaphora). The universal and language-specific characteristics of bound anaphora are thus nicely incorporated in the LIT.

In Chapter 5, I will discuss the passive structure with a special reference to the passive with a sentential complement. The passive operation is of a two-fold nature: deletion of the object function and deletion of the argument associated with the subject

function of the active predicate. Due to these two deletion operations in the lexicon, the subject function is left without an argument and the argument that used to be connected with the object function is left without a grammatical function. They are connected by a universal convention. This process, in effect, gives rise to the same result as what Move α does by movement and what relational grammar proposes as a universal passive operation. This analysis has an advantage over other analyses in accounting for the passive with a sentential complement. The passive operation proposed in this framework does not necessarily change grammatical functions (object into subject). If the argument associated with the subject is deleted but the argument associated with the sentential complement is not freed, the subject alone is left argumentless. Then, this is the same situation as other cases with an argumentless subject. Hence, this analysis predicts that the subject is syntactically realized as it in English and the subject is not present in Japanese in the passive construction with a sentential complement.

The advantage of the LIT is, perhaps, most clearly seen in Chapter 6, where I attempt to characterize the difference between English and Japanese observed in the relative and topic constructions. It has been claimed in the past that Japanese does not observe the Complex NP Constraint (CNPC) or Subjacency. This is not quite true. A close examination of the case of the CNPC violation reveals that only when the subject is involved in a crucial way, CNPC is violated in Japanese. Hence, if conditions on the relative and topic con-

structions cannot incorporate the difference between the subject and other grammatical functions in a principled way, the fact in Japanese cannot be explained. Moreover, a grammar must be able to account for why Japanese but not English violates CNPC, when the subject is involved. In the LIT framework, (i) the special status of the subject argument is incorporated in analyzing the predication construction, and (ii) the difference between English and Japanese is most fundamentally characterized by the fact that English but not Japanese possesses a configurational subject. Thus, the difference between English and Japanese observed in the relative and topic constructions is not described by the difference in conditions imposed on each language but by these two independently motivated principles. In the LIT framework, English and Japanese obey the same conditions on the binding procedure operative for the construction in question. Yet, the language difference is appropriately described.

Most of the phenomena discussed in this thesis crucially involve the notion of 'subject.' Without a means which uniformly specifies the 'subject' grammatical function in a grammar, the syntactic phenomena of different language types cannot be accounted for. The property of the subject which I characterize in this thesis enables us to explain various linguistic phenomena observed in both English and Japanese. How the subject is syntactically realized differentiates these languages.

Throughout this thesis, I maintain the position that the

phenomena commonly observed in both English and Japanese must be accounted for by basically the same mechanisms. The language differences, unless they are solely relevant to lexical facts, follow from a fundamental difference underlying different language types; that is, English possesses configurational structure in which the subject position is specified but Japanese does not depend on configuration in identifying grammatical relations.

FOOTNOTES TO INTRODUCTION

¹There are a few works on Japanese carried out within the Extended Standard Theory (EST) framework. None of them deal with a wide range of syntactic phenomena in Japanese (cf. Oshima (1979), Farmer (1980), Thomas-Flinders (1980), Chomsky (1980b)). I will refer to these analyses in the subsequent chapters, when they are relevant to the main discussion.

Chapter 1

JAPANESE GENERATIVE GRAMMAR AND THE EXTENDED STANDARD THEORY

In what follows, I will first give a review of the past analyses of Japanese syntax in the traditional transformational framework. Several rules are under consideration which have been proposed to account for major syntactic phenomena of Japanese. Then, I will briefly outline the Extended Standard Theory (EST), the representative of the transformational grammar of English and other configurational languages. Finally I will show why the EST cannot deal with Japanese phenomena adequately. By then it will become apparent that a theory which can deal with both Japanese and English is necessary.

1.1. Major Syntactic Operations in Japanese¹

As mentioned above, most of the syntactic rules reviewed below were proposed before the EST started dictating linguistic research. The assumed framework is the Standard Theory, in which deep structure determines meanings and transformations do not change meanings. The major syntactic operations under consideration are Predicate Raising (PR), Causatives, Passives, Reflexivization, Case Marking, and Relativization. Although there are other phenomena which fall outside the scope of these operations, they eventually cover most of the well-studied syntactic phenomena in Japanese.

The most popularly-assumed sentence expansion rule is something like (1).

$$(1) \quad S \rightarrow NP (NP)^* (S) V$$

As will be seen shortly, the proposed transformations can delete, insert, permute, and alter constituents and lexical items rather freely, in so far as structural descriptions of rules are met, though virtually no rules that have been proposed have been formalized in explicit ways. Due to the dependence on such powerful transformational operations, the importance of initial phrase markers and lexical specifications has been ignored. Whatever structure there is at deep structure, it does not have to be reflected on the surface. In such a framework, a generalization we may obtain on the surface would be considered accidental.

1.1.1. Predicate Raising, Causatives, Reflexives, and Passives

The major characteristics of Japanese syntax are the constructions classified by a rule called Predicate Raising (PR) or Verb Raising. There are other languages that exhibit similar operations (e.g., Turkish, French, etc.) However, as Aissen (1974) notes, Japanese PR is different from that of other languages in that PR in Japanese interacts with other syntactic phenomena (Passive and Reflexivization), while PR in other languages can be considered precyclic or lexical (see also Newmeyer (1975, 1976)). PR in Japanese has been claimed to be a cyclic rule and it is responsible for

deriving causatives, indirect or adversity passives, aspectual constructions, etc. What this rule does is attach a lower verb to a higher verb, converting complex structures into simplex sentences by way of an S-Pruning convention, which is triggered only when PR applies. To illustrate this operation, causatives are examined.²

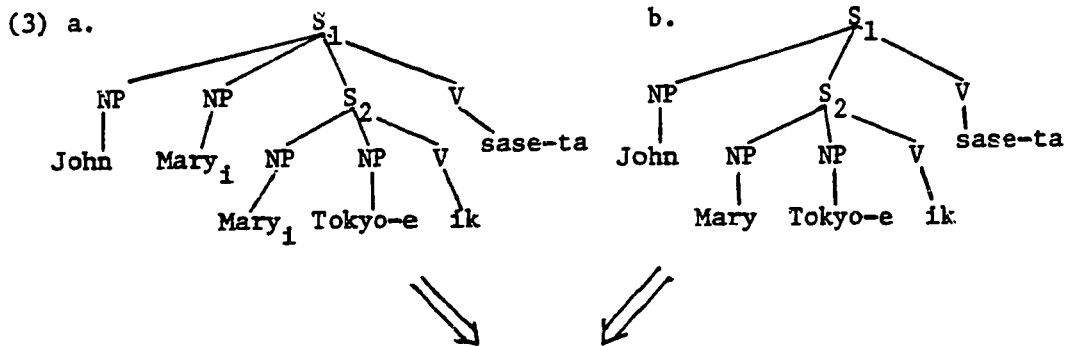
(2) a. The O-Causative

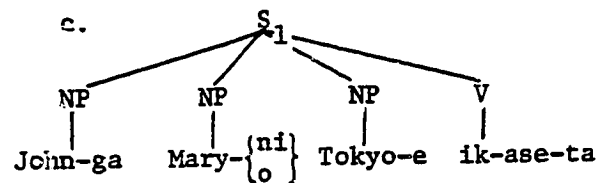
John-ga Mary-o Tokyo-e ik-ase-ta.
 subj obj to go-cause-past
 'John made Mary go to Tokyo.'

b. The Ni-Causative

John-ga Mary-ni Tokyo-e ik-ase-ta.
 subj dat to go-cause-past
 'John let Mary go to Tokyo.'

Details aside (cf. Hasegawa (1980a), 3.2.1 of this thesis), Kuno (1973, 1978) and Shibatani (1978), for example, assume (3a) to be a deep structure for the O-Causative (2a) and (3b) for the Ni-Causative (2b), which will be converted into a simplex structure (3c).





To (3a), Equi NP Deletion, PR, and S-Pruning apply, and PR and S-Pruning apply to (3b). Several arguments have been proposed for setting up complex deep structures for these predicates (causative (s)ase, indirect passive (r)are, potential rareve, aspectual verbs, polite causative moraw, etc.) The strongest argument relates to the behavior of reflexives.

Reflexives in Japanese have been assumed to be derived from full lexical NPs under identity with the antecedent (subject). This is done cyclically by Reflexivization, whose standard formulation is roughly as follows. (Cf. Kuroda (1965b), Kuno (1973), Oyakawa (1973, 1974), McCawley (1976), Inoue (1976b), etc.)

(4) Reflexivization (RFLX)

$$\begin{array}{ccc} \text{NP} & - & \text{X} & - & \text{NP} & \longrightarrow & 1 & 2 & \underline{\text{jibun}} \\ 1 & & 2 & & 3 & & & & \end{array}$$

Cond. 1: 1 = 3

Cond. 2: 1 is a subject.

Cond. 3: 1 commands 3.

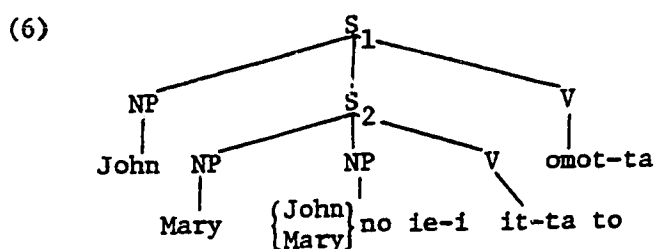
Cond. 4: 1 is a human or higher animate noun.

(Notes: 1 and 3 do not have to be clause mates.
Obligatory when 1 and 3 are clause mates and 3 is not directly dominated by another NP.)

As (4) indicates, the antecedent does not have to be a clause mate. Hence, the sentence such as (3) is ambiguous in readings on jibun.

- (5) John_i-ga [_S Mary_j-ga jibun_{i,j}-no ie-e it-ta] to omot-ta.
 subj subj self 's house-to go-past CMP think-
 'John_i thought that Mary_j went to self_{i,j}'s house.' past

The assumed underlying structure is (6).



The ambiguity of jibun can be accounted for in the following way. If the house is Mary's (=Mary no ie in (6)), RFLX applies in the S₂ cycle and in the S₁ cycle, it does not apply because there is no NP coreferential to John. As for the reading of NP = John, RFLX does not apply in S₂ but in S₁.

By positing complex underlying structures for causatives, the ambiguity on jibun in (7) can be described in the same way as (6).

- (7) John_i-ga Mary_j- $\left\{ \begin{matrix} \text{ni} \\ \text{o} \end{matrix} \right\}$ jibun_{i,j}-no ie-e ik-ase-ta.
 'John_i $\left\{ \begin{matrix} \text{let} \\ \text{made} \end{matrix} \right\}$ Mary_j go to self_{i,j}'s house.'

Compare (7) with (8) where jibun is not ambiguous.

- (8) John_i-ga Mary_j-ni jibun_{i,*j}-no ie-o mise-ta.
 dat show-past
 'John_i showed Mary_j self_{i,*j}'s house.'

The surface configurations of these examples are more or less the same. However, in (7), Mary can be the antecedent of jibun, whereas it cannot in (8). Given RFLX as (4), this difference can never be explained, unless different deep structures are posited for (7) and (8).

In Japanese, two types of passives have been described; direct (or pure) passives and indirect (or adversity) passives. Direct passives normally have active counterparts. They involve only transitive verbs. On the other hand, indirect passives do not have active counterparts. They involve both transitive and intransitive verbs. Examples follow.

(9) a. Direct Passive

John-ga sensei-ni shikar-are-ta.
 subj teacher-by scold-passive-past
 'John was scolded by the teacher.'

b. Indirect Passive with a transitive verb

John-ga sensei-ni musuko-o shikar-are-ta.
 subj teacher-by son-obj scold-passive-past
 '(Lit.) John was scolded his son by the teacher.'
 'John was affected by the teacher's scolding of his son.'

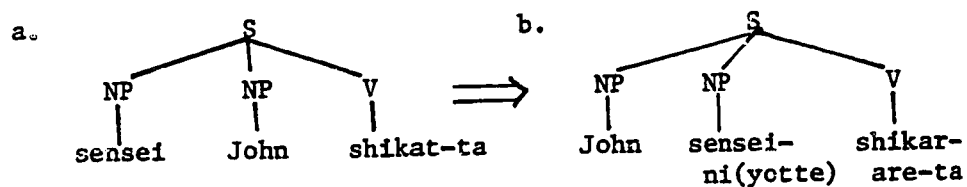
c. Indirect Passive with an intransitive verb

John-ga ame-ni hur-are-ta.
 subj rain-by fall-passive-past
 '(Lit.) John was fallen on by rain.'
 'John was affected by rain's falling onto him.'

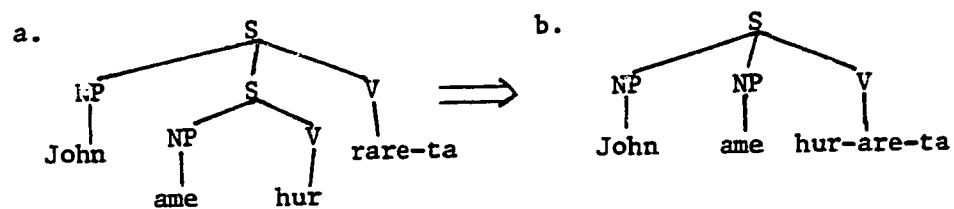
In order to capture the relation between the active and the passive, the direct passive is assumed to be derived from its active counter-

part via Direct Passive Formation, which permutes the order of the subject and the object and attaches (r)are to the stem of the verb. On the other hand, the indirect passive is derived from the structure such as (3b) via PR and S-Pruning. The derivation of (9a) and (9c), for example, is given in the following.

(10) Direct Passive (for (9a))



(11) Indirect Passive (for (9c))



The deep structure difference between two types of passives is motivated by the different behavior of reflexives. A reflexive in the direct passive is not ambiguous, while that in the indirect passive is.

(12) a. Direct Passive

John_i-ga sensei_j-ni jibun_{i,*j}-no ie-de shikar-are-ta.
 subj teacher-by self 's house-in scold-passive-
 'John_i was scolded by the teacher_j in self_{i,*j}'s house.'^{past}

b. Indirect Passive

John_i-ga sensei_j-ni musuko-o jibun_{i,j}-no ie-de
 subj teacher-by son-obj self 's house-in
 shikar-are-ta.

scold-passive-past

'(Lit.) John_i was scolded his son by the teacher_j in
 self_{i,j}'s house.'

'John_i was affected by the teacher_j's scolding of his son
 in self_{i,j}'s house.'

The nonambiguity on jibun in (12a) is accounted for if RFLX applies after Direct Passive Formation. The ambiguity in (12b) can be accounted for in the same way as causatives (7): (i) in the embedded S, RFLX applies with sensei 'teacher' as a trigger; (ii) after PR and S-Pruning, RFLX applies under identity with John.

Five transformations are introduced, which are cyclic and strictly ordered in the following way. Rules connected by a line are crucially ordered.

- (13)
- ┌ Direct Passive Formation
 - ├ Reflexivization (RFLX)
 - ├ Equi NP Deletion
 - ├ Predicate Raising (PR)
 - └ S-Pruning

1.1.2. Case Marking

The case marking system of Japanese is quite complicated and there are a number of approaches to various case arrays. (e.g., Kuno (1973), Tonoike (1975-76), Kuroda (1978), Shibatani and Cotton (1976-

77), Shibatani (1978), Farmer (1980), Hoji (1980b), Ostler (1980), etc.) I will not go over all these past analyses. I will simply take up Kuno's (1973) as representative of transformational accounts of the case system in Japanese. Cases are divided into two classes; those generated in the base and those inserted by transformations. The former class involves markers which are most properly translated by prepositions in English, designating time, place, instrument, direction, etc. The latter includes ga, o, and ni, whose semantic content has been considered to be almost nothing. The distinction between these two classes is not controversial. What is in question is how ga, o, and ni are assigned by transformations.

The string generated by a sentence expansion rule such as (1) gives as many NPs as possible, though the order of these NPs supposedly reflects a basic word order, which is subject-(adverbial NPs)-indirect object-object. Noncase-marked NPs will receive case markers by the following rules.

- (14) a. Indirect Object Marking: Attach ni to the second of three unmarked NP's (noun phrases), that is, the NP's that do not yet have a particle.
- b. Subject Marking: Attach ga to the subject NP.
- c. Object Marking: Attach o to the first nonsubject unmarked NP to the left of the main verb if it is [-stative], and ga if it is [+stative].
- (Kuno (1973:330))

These rules apply cyclically. One of the reasons why these case

markers have to be given by transformations in a cyclic fashion is that the embedded constituents that are marked certain ways may have to appear with different case markers if structures undergo PR.

There are some other rules operating in connection with case assignment. They are given below.

- (15) a. Agentive Ni Attachment: Mark the subject of the constituent clause with ni.
- b. Ga/Ni Conversion: Attach ni to the first NP-ga of the NP-ga NP-ga Verbal construction.
- c. Ga/O Deletion: Delete ga and o if they are followed by some other particle.
- (Kuno (1973:349-350))

The order of the above rules is (15a)-(14a)-(14b)-(14c)-(15b)-(15c). To show how these rules operate, let us examine the following sentences.

- (16) a. John-ga Mary-ni hon-o age-ta.
 subj dat. book-obj give-past
 'John gave a book to Mary.'
- b. John-ni nihongo-ga wakar-u.
 subj Japanese-obj understand-pres.
 'John understands Japanese.'
- c. John-ni nihongo-ga hanas-e-ru.
 subj Japanese-obj speak-can-pres.
 'John can speak Japanese.'
- d. John-ga Mary-ni ik-ase-ta.
 subj dat. go-cause-past
 'John let Mary go.'

The derivations of these sentences are as follows.

(17) a. (= 16a)

D.S. John Mary hon age-ta.
[-stative]

(14a) Mary-ni

(14b) John-ga

(14c) hon-o

S.S. John-ga Mary-ni hon-o age-ta.

b. (= 16b)

D.S. John nihongo wakar-u.
[+stative]

(14b) John-ga

(14c) nihongo-ga

(15b) John-ga-ni

(15c) \emptyset

S.S. John-ni nihongo-ga wakar-u.

c. (=16c)

D.S. [_{S₂} John [_{S₁} John nihongo hanas] e-ru]
[-stative] [+stative]

S₁(14b) John-ga

(14c) \emptyset nihongo-o

S₂Equi

PR & S-Prun

hanas-e-ru.
[+stative]

(14b) John-ga

(14c) nihongo-o-ga

(15b) John-ga-ni

(15c) \emptyset \emptyset

S.S. John-ni nihongo-ga hanas-e-ru.

d. (= 16d)

D.S.	[_{S₂} John	[_{S₁} Mary	ik]	sase-ta.]
			[-stative]	[-stative]
S ₁ (14b)			Mary- <u>ga</u>	
S ₂ (15a)			Mary-ga- <u>ni</u>	
PR & S-Prun			↓	ik-ase-ta.
			↓	[-stative]
(14b)	John- <u>ga</u>		↓	
(15c)			∅	
S.S.	John-ga	Mary-ni		ik-ase-ta.

Several things have to be mentioned. First, the embedded subject will never be realized with the subject marker ga, if the structure undergoes PR. It is either deleted by Equi (as in (17c)) or by Ga/O Deletion if Agentive Ni Attachment (15a) applies (as seen in (17d)). Note that Equi must be blind to the existence of case markers. The deleted subject John-ga in (17c) is case-marked, while its stigger, the matrix subject, does not have a case marker. This operation seems to violate the general restriction on deletion rules, which utilizes the notion of 'structural identity': strings with different case markers cannot be considered structurally identical.

Second, Agentive Ni Attachment (15a) violates a general constraint on strict cyclicity. After passing the lower cycle S₁, this rule, which applies in the higher cycle S₂, alters a constituent in S₁.

Third, the status of 'unmarked' in rule (14c) is not at all clear. Notice that (14c) attaches the object marker ga to the NP that is marked with o in (17c). Kuno (1973:334) simply mentions, "Let us assume that NP's that are followed by ga or o are unmarked."

without defending this assumption. Without a clear definition of 'unmarked', the entire case assignment system cannot be evaluated.

Fourth, the role of (15c) Ga/O Deletion is to ensure that the case-marker attached by later rules is to be preserved on the surface. This means that if case markers are given at the very end of the derivation, rather than giving them cyclically and then deleting those that are placed in early cycles, the correct result would be obtained. In other words, Japanese surface case arrays are describable, if case markers are given to the surface structure or if they are identified on the surface string. In fact, Hoji (1980a, 1980b) and Farmer (1980) independently develop frameworks where Japanese case markers are analyzed only on the surface structure.

• There are a number of problems that are associated with these case-marking rules. I have just mentioned a few, which I think are the most serious.

1.1.3. Relatives

Japanese does not possess relative pronouns which correspond to which, who, that, etc. in English. Relative clauses are formed by embedding a sentence in front of the head noun and deleting a constituent identical to the head noun. The operation of this process is roughly as follows.

- (18) a. [John-ga hon-o yon-da] hon
 subj book-obj read-past book
 [John-ga ∅ yon-da] hon
 'the book that John read'

- b. [otoko-ga inu-o katte-i-ru] otoko
 man-subj dog-obj keep(ger)-prog.-pres. man
 [\emptyset inu-o katte-i-ru] otoko
 'the man who keeps a dog'

Again here, this rule, Relativization, deletes an NP regardless of its case-marker. Note that in the traditional transformational framework, case-markers are present when Relativization operates.

Kuno (1973) notices the strong correlation between Relativization and Topicalization: a topicalized phrase can be relativized. To express this relationship he proposes an analysis where an embedded sentence always involves a topic phrase, which is deleted by Relativization under identity with the head noun. His analysis of (18a), for example, is as follows.

- (19) D.S. [hon-wa [John-ga hon-o yon-da]] hon
 book-top. subj book-obj read-past book
 Topic. ↓ ↓
 Rel. \emptyset \emptyset
 S.S. [John-ga yon-da] hon

Here again, both Topicalization and Relativization must be blind to the presence or type of a case marker. A case marker has been considered irrelevant to establishing 'syntactic identity.'³

1.1.4. Summary

As a summary of the above discussion, a list of the rules discussed are provided below. In past literature, none of the rules,

except RFLX, has been formalized. Each rule needs to be conditioned in various ways, in order to apply appropriately. In the framework where they are postulated, no attempt has been made to set up general constraints or conditions by which all the rule applications are restricted. Without such general conditions, each rule has to refer to the structural description and structural change of the statement of the rule and to conditions under which they operate.

(20) a. Direct Passive Formation

A rule that involves permutation and attachment—it permutes the positions of the subject and the object and attaches a passive morpheme (r)are to the stem of the verb (i.e., inserts (r)are between the verb stem and a tense marker) and an agentive case marker ni(yotte) to the previous subject.⁴

b. Reflexivization (RFLX)

A rule that alters lexical items—it alters a full lexical NP to jibun under identity with the subject. The formalization of this rule and its conditions are in (4).

c. Equi NP Deletion

A deletion rule—it deletes the embedded subject under identity with either the matrix subject or object. This rule has to apply to only and all predicates that are marked [+like subject]. As has been well known, this condition must be met at the time this rule applies. In past literature the difficulty in formalizing this type of condition on 'intermediate structure' and the powerful nature of such conditions have been noted (cf. Perlmutter (1971), Jackendoff (1972)). (In fact, this is one of the

reasons Equi has been dropped from English syntax.) Furthermore, the condition [+like subject] must be coupled with the specification of the trigger (either the matrix object or subject) depending on the matrix verb.

d. Predicate Raising (PR)

A rule that alters phrase markers—it attaches the embedded verb to the matrix verb under a number of conditions: (i) PR has to apply to only and all PR verbs; (ii) the embedded S must not have Aux and Comp elements (Kuno (1973) posits Aux Deletion, which applies just in case the matrix verb is a PR verb). In Hasegawa (1980) and in 3.2.1 of this thesis, the peculiarities of PR as a transformation are discussed.

e. the S-Pruning Convention

A convention that alters a phrase marker—it deletes the S node when an S loses its verb, converting a complex structure into a simplex one. This convention is triggered only when PR has applied, in view of the fact that there are no other rules that delete or eliminate a verb in an S in Japanese (except Gapping). In case of Gapping, S-Pruning is not to be triggered.⁵ In other words, this convention coupled with PR is responsible for converting a complex structure to a simplex one.

f. Case Marking Rules

A set of rules that involves attachment ((14a), (14b), (14c), and (15a)), conversion (15b), and deletion (15c)—they place ga, c, and ni to appropriate NPs by referring to the order of constituents and grammatical relations. Some of the problems with these rules have been discussed in 1.1.2.

g. Relativization

A deletion rule—it deletes a phrase under identity with the head noun.

h. Topicalization

A deletion rule—it deletes a phrase under identity with the topic phrase.

As easily seen, all the above rules are difficult to formalize, to the extent that they have to be conditioned in divergent ways. In fact, it does not seem to be an accident that none of the past literature formalizes these rules (except RFLX). This fact is independent of the generative power of these rules. Note that various lexical items such as case markers and a passive morpheme are introduced by transformations. They are claimed to be meaningless. On the contrary, Inoue (1976) and Shibatani (1978) show that case markers are not meaningless but are closely related to the semantic roles of arguments in the predicate argument structure.

One of the most serious problems with these rules is that they often utilize terms 'under identity with X', while no definition of 'syntactic identity' has been put forth. A general understanding of this notion is 'referential identity' and 'structural identity.' However, as Brame (1976) and Hasegawa (in press) argue, the notion 'structural identity' cannot be easily defined, if it is ever possible. Without the definition of this basic notion, the entire grammar cannot even be evaluated.

After reviewing the EST in the next section, I will consider how Japanese syntactic phenomena could be treated in the EST frame-

work. The EST has been developed by analyzing languages that exhibit 'movement.' (Cf. Newmeyer (1980a)) The above discussion has shown that none of the major Japanese rules crucially utilize movement operations. Direct Passive Formation is the sole candidate for a movement rule. However, it is not quite clear whether this rule involves movement, since the permutation is not obligatory as long as case markers are correctly assigned. Even if the permutation of subject and object is supported, it is not an upgrading operation without a VP constituent. Without obvious evidence that Japanese exhibits movement operations, the EST seems to lose its attraction for Japanese.

1.2. The Extended Standard Theory

The EST summarized below is the so-called Government-Binding Framework, which is presented in Chomsky (1979a, 1979b, 1980a, 1980b) and summarized by Bennis and Groos (1980). This theory has developed along the lines that rules of a grammar are free, while how they apply is limited by general constraints, which are claimed to be universal.

1.2.1. An Overview of the Extended Standard Theory

It is assumed that universal grammar provides "core grammar", which is structured in the following way.

- (21)
- | | | |
|---|--------------------|--|
| ----- | 1. Base Rules | ----- |
| | 2. Transformations | |
| ----- | S-Structure | ----- |
| 3. Phonological
Representations

Deletion Rules
Filters
Phonology and
Stylistic Rules | | 4. Logical Form
Construal Rules
Interpretive Rules
Conditions on
Binding |
- (Chomsky (1979b, 1980a))

The rules in 1 and 2 of (21) constitute the syntax of core grammar. Rules of the syntax are optional and unordered. Each component of the above system obeys its particular conditions and conventions. The following brief sketch of the EST focuses on such conditions.

Base rules. Base rules follow some version of X-bar theory and their application is optional. This means that a category α may or may not be expanded to a terminal symbol. If it does not expand, the following rule applies, where \underline{e} is the identity element.

$$(22) \quad \alpha \rightarrow [{}_{\alpha} \underline{e}]$$

In Chomsky (1980a) and his earlier works (1973, 1975, 1977a, 1977b), PRO is the name given to an empty NP category ($=[{}_{NP} \underline{e}]$); however, in recent papers (Chomsky (1979a, 1979b, 1980b)) PRO is no longer an empty NP but has a set of features such as gender, number, and person, with no phonetic matrix. Hence, PRO is claimed to be the same as ordinary pronouns with respect to a syntactic feature complex and to be different from them with respect to a phonetic matrix. I will

return to the status of PRO later in this section (1.2.2).

The lexicon is considered to be part of the base, which gives the representation of D-Structure. The lexicon of a language specifies the complement structure which is filled with thematic roles (θ -roles), such as 'agent', 'goal', 'theme', 'patient', etc. D-Structure must obey a condition called "the θ -Criterion", which is a generalized version of Freidin's conditions of functional uniqueness and functional relatedness.⁶

(23) The θ -Criterion

(E)very θ -role determined by the lexical entries in the D-Structure must be filled by some lexical expression, and ... each lexical expression must fill exactly one θ -role, where we take a "lexical expression" to be a major category (NP, S, etc.) that contains lexical elements and is not an "idiom chunk," ...

(Chomsky (1980b:16-17))

Here PRO is qualified to be a 'lexical expression', because it is stipulated to be a category with pronominal features. Hence, this condition guarantees that only and all 'lexical expressions,' either PRO or real lexical items, are generated in argument positions at the D-Structure.

Transformational rules. Transformational rules are restricted to the single rule Move α , though there may be local rules in the sense of Emonds (1976). Move α is assumed to move a category in a structure-preserving fashion, leaving behind a trace, a co-indexed empty

category. (It is generally argued that structure-preservation follows from the θ -Criterion.) Move α is subject to the principle of Subjacency and some version of the A-over-A Principle (cf. Chomsky (1973), Bresnan (1976b)).

S-Structure. This is the end point of the syntax of core grammar, from which phonological representations (PR) and logical form (LF) are derived. At this stage, an important sub-theory, Case Theory, applies. Case is assigned by the following rules at S-Structure.

(24) Case Assignment Rules

- a. NP \rightarrow Nominative if governed by Tense.
- b. NP \rightarrow Objective if governed by [-N] (V or P).
- c. NP \rightarrow inherently case marked as determined by idiosyncratic properties of [-N].
- d. Special rule like of-insertion in English (e.g., the destruction of the city).
- e. $[_{NP} NP - \bar{X}] \rightarrow [_{NP} NP \textit{Genitive} - \bar{X}]$
- f. exception: participles, that is [+V] (and [-N]?), do not assign Case.
- g. condition: lexical α inherits its Case from its trace.

(Chomsky (1979a), Koster (1979))

An important notion 'government' must be defined.⁷

(25) the definition of 'government'

For two categories, α and β , α governs β iff α minimally c-commands β and there is no \bar{S} or NP between α and β .

$\alpha = [+N, \pm V]$ or +Tense.

(Chomsky (1979a), Koster (1979))

What the rules in (24) ensure is that all the NPs receive Case except those in the following two positions: the subject of the infinitival clause (which by definition does not have Tense); and the object of participles as (24f) stipulates. Note that these places are the ones where no lexical NPs occur in surface structure. If lexical NPs occur in such a position, a noncase-marked position, the following case filter rules them out.⁸

- (26) *_{[NP} phonetic matrix]
 -Case

The structure of a Subject-to-Object Raising sentence must be treated exceptionally, since the subject of such an embedded infinitival clause must be lexical. If it does not receive Case, as rules (24) now stand, it will be starred by the Case Filter (26). To remedy this situation, a rule of \bar{S} -Deletion is employed, which applies somewhere before S-Structure. \bar{S} is deleted if the higher predicate is appropriately marked. As a result, the higher predicate can govern the subject of the lower clause, assigning Case by (24b). (See fn. 7 and the following discussions for the illustration of \bar{S} -Deletion cases.)

Phonological representations. Not much discussion of this component has been made except as concerns filters in Chomsky and Lasnik (1977). Filters are a set of mechanisms that rules out certain strings otherwise generated by the syntax of core grammar and deletion rules.

There do not seem to be any restrictions with respect to forms and conditions (except that they involve properties of the COMP system and that they are local in the sense that they involve some continuous construction, as far as those discussed in Chomsky and Lasnik are concerned.) The filters introduced are conditioned in various ways. They are assumed to be subject to the A-over-A Principle.

The rules of deletion are of the following variety, due to the Recoverability Principle (cf. Chomsky (1965, Ch. 3 and 4)).

- (27) a. free deletion in some domain; e.g. the rule of free deletion in COMP of C & L;
- b. deletion of specific items; e.g. self-deletion under EQUI;
- c. deletion of specific categories; e.g. subject deletion in Spanish;
- d. deletion under identity, which is either governed by Subjacency (e.g. John went more often to Paris than (*I think) Bill to London) or is free of all rule conditions (e.g. John has some friends and I believe your claim that Bill has some ___ too, I don't think that Bill will win but I know a woman who does ___).

(Chomsky (1980a:5-6))

Logical form (LF). The rules and conditions in this component ultimately give the interpretation of a sentence generated by the syntax of core grammar. LF is assumed to have the basic properties of some variant of predicate calculus. No specific formalization of LF representations has ever been given (but see Chomsky (1979a, 1979b) and May (1977) for discussions on rules in LF such as wh-interpretation, focus-interpretation, and quantifier raising.) Indexing rules

are assumed to be operative which 'index freely.' The most important condition on LF is the Binding Theory (BT), which possesses the following three principles in conjunction with the assumption that anaphors comprise lexically specified anaphors (reciprocals and reflexives) and noncase-marked traces (traces of Move NP), while pronominals are lexically specified pronouns and R-expressions are any referential items including traces with Case (traces of Move WH).^{9, 10}

(28) The Binding Theory (BT)

- a. An anaphor is bound in its governing category.
- b. A pronominal is free in its governing category.
- c. An R-expression is free.

(Chomsky (1979a, 1979b, 1980c))

In (28), traces with Case are considered to be R-expressions, which must be free. However, they are different from other R-expressions such as names in that they need to be quantified by and coindexed with WH phrases in COMP. This characteristic of case-marked traces is made to follow from the stipulated assumption that traces with Case are variables and have to be bound in LF by an appropriate operator such as a WH-word in COMP. Due to the BT (28c), it is impossible to move a category from a case-marked position to an argument position (as in *John_i hit t_i) and it is also impossible to move a category from COMP to an argument position. Thus, it is claimed that the COMP-to-COMP movement follows from (28c).

Besides this variable property, case-marked traces are subject to the following condition.¹¹

- (29) The Empty Category Principle (ECP) or RESNIC (the residue of the Nominative Island Condition)

[_{NP} e] must be properly governed,
Case

where α properly governs β , iff α governs β and

(a) $\alpha = [+N, \pm V]$ or

(b) α is coindexed with β .

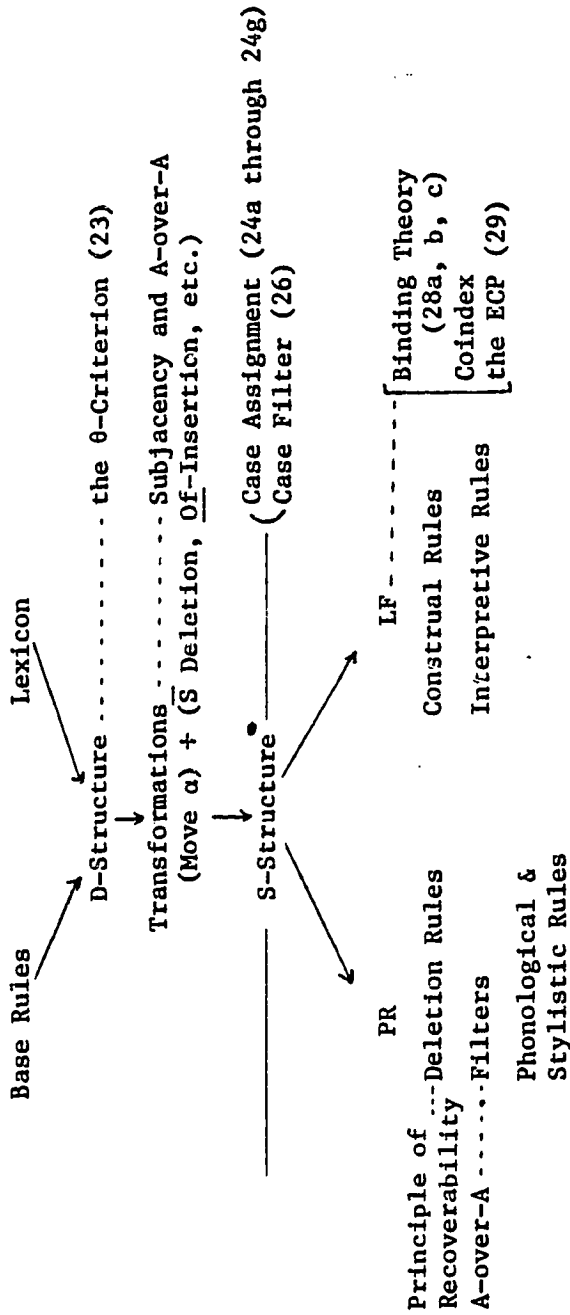
(Chomsky (1979a), Kostar (1979))

The case-marked traces governed by a lexical category—the object of V and P, for example—are always governed, which satisfies (29a). A Nominative trace (a trace in the subject position of a tensed S), however, is not governed by a lexical category. Thus, it is impossible to satisfy (29a). Instead, it is subject to (29b); a Nominative trace must be governed by and coindexed with a WH-element in COMP.

The organization of core grammar, which is claimed to be highly restricted, now has the structure given in (30) (compare (30) with (21)). When all the conditions, conventions, and principles are taken into account, the organization of the EST seems to be fairly complicated.

Before examining further how the entire system works, I will make a few remarks on the organization of the EST. It has been claimed that the ordering of rules does not have to be learned but follows from the form of the rules, given the structure such as (30). By assuming that D-Structure information is and must be preserved in

(30)



S-Structure by means of rewriting rules (base rules) and movement rules (transformations). Once the derivation reaches S-Structure, from which meaning is determined in LF, lexical items or categories can be deleted under the condition of the Recoverability Principle. Filters have the function of checking as to whether deletion operates properly without deleting too much or too little.

However, this 'neat' paradigm cannot be maintained, given the existence of the Case Filter (26) at S-Structure and \bar{S} Deletion as a transformation. While all the other filters and deletion rules are in PR, these two rules must be in the syntax of core grammar. This means that the form of rules or the rule type cannot determine where they operate. Some sort of ordering principle must be included in the grammar.¹²

Besides Move α , at least two other transformations are introduced; \bar{S} Deletion and Of-Insertion. They may be claimed to be 'local' or 'house keeping' rules, as opposed to major rules such as Move α . It is not clear how many more such rules are necessary in the EST.

The EST model sketched above is perhaps too brief to allow one to observe how the entire system works with respect to a range of empirical data. The following discussion mainly concerns the distribution of empty categories, PRO, and phonetically realized lexical categories.

The syntax of core grammar is claimed to maximize optional rule application. However, given various conditions and/or principles discussed above, rule application is not free. In fact Move α must

apply on fixed occasions and base rules must expand to terminal symbols except in a few positions. Let us see how the following ungrammatical sentences are ruled out in the EST.

- (31) a. * $[_{NP} \underline{e}]$ hit Bill.
 b. *John hit $[_{NP} \underline{e}]$.
 c. *John persuaded Mary $[_{\bar{S}} \text{Bill to visit Sue.}]$
 d. *John believes $[_S \text{PRO to be stupid.}]$
 e. *John asked Mary $[_{\bar{S}} \text{who}_i [_S [_{NP}_i \underline{e}] \text{to visit Bill.}]]$
 f. * John_i kicked $[_{NP}_i \underline{e}]$.

Examples (31a) and (31b) are ruled out by the θ -Criterion (23) and by the ECP (29). Example (31c) is out because Bill does not receive Case, (i.e. the subject of an infinitive is a noncase-marked position); hence, it is subject to the Case Filter (26). As for (31d), the situation is the opposite to (31c). The subject of an infinitive is normally noncase-marked; however, believe triggers \bar{S} Deletion, which allows believe to govern the embedded subject, giving it Objective Case. However, PRO is considered to be a pronominal anaphor, which must be bound according to the BT (28a) and at the same time free according to the BT (28b). To escape this contradiction, it is claimed that PRO should not have a governor; hence, it has no governing category. This means that PRO should not be governed and consequently it should not be case-marked. Because of this special status of PRO, (31d) must be ill-formed. Note that neither the θ -Criterion (23) nor the ECP (29) can rule out (31d), because PRO is not empty, according to Chomsky, but has pronominal features. Example (31e) is similar to

(31c), to the extent that the lexical item who does not receive Case, because its trace is in a noncase-marked position. Thus, (31e) is ruled out by the Case Filter (26). Example (31f) must be ruled out by the θ -Criterion (23), since the subject position used to be empty before John fills this position. It can also be ruled out by the BT (28c), if a case-marked trace $[_{NP} \underline{e}]_i$ is considered to be an R-expression, which must be free. What the above examples show is the following.

- (i) In D-Structure, no empty nodes are generated in argument positions. This is ensured by the θ -Criterion (23).
- (ii) In S-Structure, the distribution of empty nodes (traces of NP and WH), PRO and phonetically realized lexical expressions is determined by Case Theory and the BT: NP traces (traces without Case) must be in governed noncase-marked positions such as the object of the participle and the subject of the infinitival complement of an \bar{S} Deletion predicate; PRO must be in an ungoverned position such as the subject of the infinitive (and gerund); and phonetically realized lexical expressions and WH-traces (traces with Case) must be in a case-marked position or in a COMP.

In short, phonetically realized lexical expressions and WH-traces occupy case-marked positions and phonetically null items (NP traces and PRO) occur in noncase-marked positions. Hence, these two classes are in complementary distribution.

In fact, the role of Case is to guarantee this skewed distribution of 'different' types of NPs.

This important role played by the Case Theory ((24) and (26))

is precisely exemplified by the constructions of passive and Raising-to-Subject. Observe the following sentences.

(32) a. * $[_{NP} \underline{e}]$ seems Bill to like Mary.

b. Bill_i seems \underline{t}_i to like Mary.

c. *Bill seems John to like Mary.

(33) a. * $[_{NP} \underline{e}]$ was kicked Bill.

b. Bill_i was kicked \underline{t}_i .

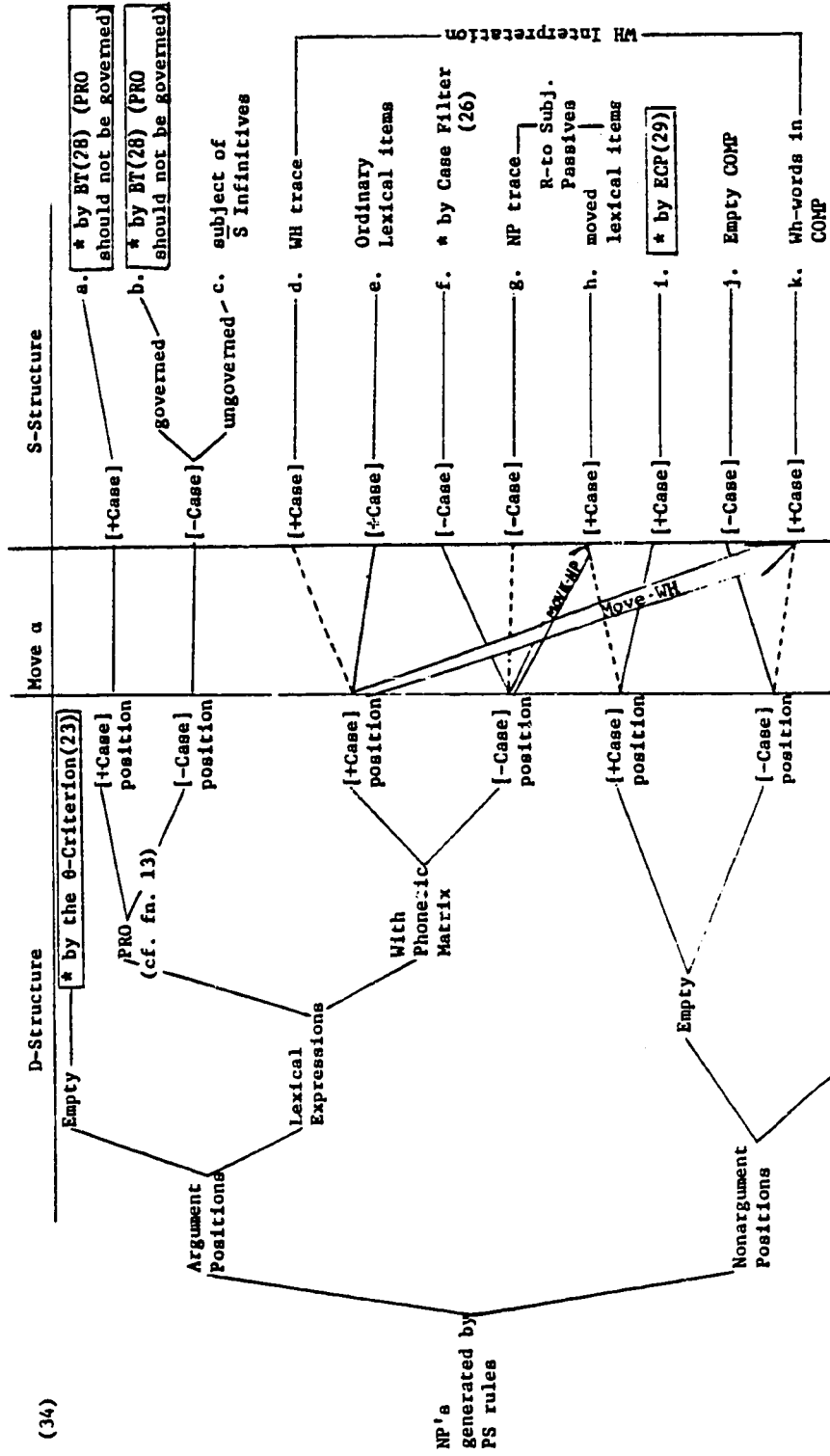
c. *Bill was kicked John.

Both (32a) and (33a) are out for two reasons: there is no Case on Bill, which is subject to the Case Filter (26); and $[_{NP} \underline{e}]$ is not properly governed, i.e., the ECP (29) applies. They are well-formed D-Structures, however. Hence, these structures must be generated by base rules and must be converted to (32b) and (33b), respectively, via Move NP (=Move α). Examples (32c) and (33c) are ill-formed D-Structures (the θ -Criterion is not met because the lexical expression Bill occupies a nonargument position) and ill-formed S-Structures (John does not receive Case.)

The above discussion is summarized in (34). All the possible NP positions, various types of NPs, and most of the movements are shown in (34).¹³ Diagram (34) is self-explanatory.

The generalization on S-Structure is quite simple: noncase-marked positions, the subject of the infinitival complement and the object of the passive participle, must not be phonetically realized (i.e., they must be occupied by PRO or NP traces) and case-marked

(34)



positions must be filled with lexical items or WH-traces.

1.2.2. Criticisms of the Extended Standard Theory

There are various ways to criticize the EST. Since, it possesses several components, various types of rules, and many elaborate conditions and subtheories, a close examination of each component, rule, or condition may reveal problems with the EST. Brame (1979b, 1981a) discusses problems with filters, Iwakura (1979) claims that the ordering of filters and deletion rules discussed in Chomsky and Lasnik (1977) cannot be maintained, and Iwakura (1980, in press) points out several problems with Move WH operations. In Hasegawa (1981a), I argue against postulating empty categories and PRO, both of which are treated as empty nodes in Chomsky (1980a). In what follows, I am concerned mainly with fundamental problems with the EST; contrary to what has been claimed, the form of the grammar that the EST prescribes possesses great generative power, which produces an infinite number of impossible sentences.

As has been seen above, most of the conditions and subtheories have been elaborated for describing NP behavior. Case is given only to NPs, the BT (28) is relevant only to NPs, and consequently NP movements are relatively accurately described. However, there has been virtually no discussion concerning other phrasal categories and lexical categories, except for the cases falling under the WH movement. If Move α is a general rule which freely moves any category anywhere (under the conditions of Subjacency and A-over-A), as the EST now stands, what will take care of the phenomena such as PP and/or

\bar{S} extraposition, AP movement, Adverb movement (discussed in Emonds (1976, Ch. 5), N, A, or P movement (cf. Newmeyer (1980b), Fiengo (1980)), etc., all of which seem to be restricted in various ways? How will such restricted movements be described by Move α ? To encompass NP behavior, a number of assumptions are made and diverse conditions, subtheories, and specific rules (\bar{S} Deletion, Of-Insertion) are proposed. How many more conditions, subtheories, and principles are required in describing the behavior of other phrasal categories?

In the EST, a single phrasal category NP is divided into at least four different classes, three of which are completely abstract: a lexical expression with phonetic matrix (an ordinary lexical NP which may be an anaphor, a pronoun, or a name); a lexical expression without phonetic matrix (=PRO); an empty NP without Case (=an NP trace and a base-generated empty NP); and an empty NP with Case (=a WH-trace). Depending on the class, an NP is subject to different conditions and subtheories. The number of classes is easily multiplied simply by adding assumptions and features, as is clear from the table (34). What is the limit of these different classes for a single phrasal category? What distinguishes an impossible classification from a possible classification? Without any restriction, one might as well propose a condition which applies to a lexical expression with phonetic matrix in the object of P but not to a lexical expression with phonetic matrix in the object of V, or which is sensitive only to a lexical expression without phonetic matrix with a feature [+animate] (=PRO with [+animate]) and a lexical expression with phonetic matrix with the same feature. It is absurd to subdivide NPs in a way just

mentioned; however, something like this is what has been done in the EST.

If we allow a grammar to freely divide a single category into various classes and to set up 'general' subtheories or conditions that are sensitive to the difference in divided classes, the single transformation Move α may apply only to one subclass, or to different subclasses completely differently. Then, the explanatory power of such a grammar is as low as that of the grammar which allows various conditions on each rule. The former may possibly be worse than the latter to the extent that it does not express the 'marked' or peculiar nature of the operation. But the EST is the former type of grammar. Recall that NP movement is a special case of Move α , which is relevant to noncase-marked NPs due to the stipulations on Case Theory, the BT and the classification given to an NP trace; that is, Case is not given to certain positions, an NP trace is defined to be an anaphor, and an anaphor must be bound in its governing category. All of these stipulations make proper NP movement possible.

In a very similar way, we can construct an impossible grammar which allows (35) but rules out (36), if we employ the EST and one more assumption that the conditions on the (passive) participle also applies to the present participle: the participle (both passive and present participles) does not assign Case.

- (35) a. The book_i was placed t_i on the table.
 b. *The book_i was placing t_i on the table.

- (36) a. *The book_i placed t_{-i} on the table.
 b. *John was placed the book on the table.
 c. John was placing the book on the table.

Given the form and organization of the EST type of grammar, a number of impossible grammars can be imagined. Suppose we have a class of NPs in addition to the four classes mentioned above; an NP with phonetic matrix but without semantic and syntactic features. This is opposite to PRO, which is without phonetic matrix but with pronominal features. Let us call this fifth class of NP 'PHONE.' Since it does not have semantic content, it is not a lexical expression but just like an empty NP. Thus, PHONE cannot occur in an argument position, due to the θ -Criterion. PHONE is not an anaphor, a pronominal, nor an R-expression; hence, the BT does not apply to it. But Case Theory and the Case Filter apply to PHONE, because it is an NP and it has phonetic matrix. Then, the only position where PHONE can occur is the nonargument position which is governed by a governor ([-N] or Tense). Thus, the grammar with PHONE generates the following sentences (37) and (38) and they mean the same thing.¹⁴

- (37) a. John died PHONE.
 b. John ate beans PHONE.
 c. PHONE seems that this grammar is biologically impossible of PHONE.
 d. Elephants are huge of PHONE.
 e. Sincerity of PHONE frightens boys.
 (Cf. Of-Insertion is triggered in (37c), (37d), and (37e) in order for PHONE to receive Case.)

- (38) a. John died.
 b. John ate beans.
 c. It seems that this grammar is biologically impossible.
 d. Elephants are huge.
 e. Sincerity frightens boys.

I suspect that the grammar I just made up is impossible as a human language. However, there is no qualitative difference between this grammar and the EST. Given the form of the EST, there is no way to explain why an imaginative category like PHONE is impossible in human languages. Note that PHONE is quite similar to what PRO is in the EST; PHONE is a made up category and so is PRO.

PRO is even more abstract than PHONE, because it cannot be observed. PRO is called a pronominal-anaphor and it is a lexical expression with no phonetic matrix. Due to such a stipulation, PRO belongs to none of the existing or independently motivated categories, even if traces (empty categories) are accepted: PRO \neq NP trace, PRO \neq WH-trace, PRO \neq lexical NP (including anaphors), PRO \neq pronoun or name. Furthermore, though PRO is a made up category in the theory, it obeys none of the principles in the theory; it cannot be governed—irrelevant to Case Theory; it cannot have a governing category—the BT cannot apply. The θ -Criterion is claimed to be relevant to PRO. However, this condition itself is responsible for the existence of PRO, in order to give sentence status to a nonsentence (an infinitive (and gerund)). That is, without PRO, it is not needed, independent of what can be stated with government. If infinitives are considered to be nonsentences as in Brame (1975, 1976, 1978b),

Bresnan (1978, 1979, 1980b), and Hasegawa (1981a), the need for PRO disappears and a grammar can be less abstract. PRO in the EST is abstract in a peculiar way: i) it is not observable; ii) it is subject to none of the fundamental subtheories of the EST; and iii) it is subject to a special rule of 'control', which does not concern other classes of NPs.¹⁵ Hence, if a grammar allows a category such as PRO, it seems to cease to make strong claims.¹⁶ Furthermore, the existence of PRO seems to create an empirical problem which would not otherwise arise.

In fn. 13 (ic), I have mentioned that if PRO moves from a [+Case] position to [-Case] position, problems arise. Such a movement is exemplified in (39).

(39) a. *John wondered [_S PRO_i [_S Bill bought t_i.]]

b. *[[_S PRO_i [_S did Bill buy t_i?]]

How can the EST rule out (39)? Example (39a) may be ruled out by a lexical condition on wonder, which needs [+wh] in COMP. But, if PRO is a complex feature matrix, what would prevent PRO from receiving [+wh] as one of its pronominal features? Even if (39a) can be ruled out by a lexical condition on wonder, then another verb, say believe, can be used, and (39b) is still a problem. None of the conditions or subtheories rule out this case. Note that (39a) and (39b) both satisfy the BT (28c), because t_i, a case-marked trace, is free. In fact, the situation similar to (39a) and

(39b) is allowed in the EST. Observe the following sentence.

(40) John bought a book [_S α_i [_S PRO to read t_i].]]

In a purpose clause like (40), α moves into COMP, according to the EST treatment of this structure (Chomsky (1980a, 1980c)). Then what is α here? Since it cannot be an empty category (if it is, the θ -Criterion rules it out), it seems to be PRO. In fact, Chomsky (1980a) treats this α as PRO. (Chomsky (1980c) suggests that α in (40) is PRO or a trace, but I do not see how α can be a trace.) If it is PRO, then the operation that derives (40) also generates ungrammatical (39a) and (39b). The problem with (39) is closely related to the existence of PRO. If PRO does not exist, (39) would never be generated.

Apart from PRO, let me mention a few words on Case. As has been observed in 1.2.1, Case Theory and the Case Filter play an important role in describing the NP movement phenomena: an NP moves from a noncase-marked position to a case-marked position. Case is assigned according to the stipulation in (24), which is motivated by the languages with no overt syntactic case (languages such as English and French).¹⁷ If we look into other types of languages, where morphological case is important in constructing sentences, it becomes clear that the system of Case is not as in (24). As has been discussed briefly in 1.1.2, the case system in Japanese cannot be accounted for by (24). For example, the nominative Case, the

best candidate for which is ga, occurs not only in the subject position but in the object position if the predicate is stative (cf. Kuno's rule (14c)). Dative Case ni, which is supposed to be an instance of Inherent Case (24c), marks 'the subject' as well as 'the indirect object' if the verb is in a certain class. In the past literature on Japanese syntax, it has been repeatedly noted that Case does not correspond to grammatical functions in a one-to-one fashion (cf. Inoue (1976a), Shibatani (1978)).

The Case Assignment Rules (24) cannot account for case systems of morphological case languages. Not only that, but also they are in many ways ad hoc. In (24f), it is stipulated that participles do not assign Case. However, this does not mean that participles do not assign any Case. They do assign Inherent Case but do NOT assign Objective Case. Observe the following double object structures.

- (41) a. [_{NP} e] was given Bill a book.
 b. Bill_i was given t_i a book.

Structure (41a) is a D-Structure of (41b). (41a) cannot appear on the S-Structure level, since Bill does not receive Case due to the stipulation of (24f). The S-Structure (41b) must be derived from (41a). Unless a book receives Case by some rule, (41b) should be ruled out. To reconcile this situation, Inherent Case, which is accusative, is given to a book, the second object of given. Hence, (24f) is stipulated in order to move the object to the subject position.

The peculiar nature of participles is also observed in their θ -role assignment. If the argument structure of a participle is the same as that of a normal active verb, the θ -Criterion (23) must be satisfied at D-Structure, which means that all the argument positions of a predicate must be represented at D-Structure. However, a participle should not impose a θ -role on its subject. The subject of a participle must be a nonargument position. Due to this stipulation, the object moves up to the subject position. Compare the following two sets of examples.

- (42) a. [_{NP} e] hit John.
 b. *John_i hit t_i.
- (43) a. [_{NP} e] was hit John.
 b. John_i was hit t_i.

In (42), Move α cannot move John into a subject position. If it does, John fills two θ -role positions, which is against the θ -Criterion (23). On the other hand, (43a) must be allowed, where John is moved to the subject position by Move α . This situation is allowed only when it is assumed that participle hit does not impose a θ -role on the subject. Hence, participles must be exempted from both the Case Assignment Rule (24b) and the θ -Criterion (23). This means that a passive participle is different or independent from an active predicate. This will be further discussed in Chapter 5.

If we consider whether differences in Case are necessary in any crucial way, it is realized that in the EST framework it does not

matter whether the subject is marked by Nominative, by Objective, or by Inherent Case. The only thing that counts is whether or not a given position is case-marked. There are no conditions, principles, or conventions that make use of a particular Case (except for the NIC in Chomsky (1980a), which is abandoned in later works). To put it differently, Case Theory is structured so as to differentiate two positions; one for phonetically realized items and their traces (WH-traces) and the other for phonetically null nodes (PRO and NP traces). By making this distinction, a theory can prevent phonetically realized lexical items or empty nodes from occupying undesirable positions. However, this distinction is, to begin with, unnecessary, if we consider noncase-marked positions null or nonexistent in grammar because nothing occurs there on the surface.

To conclude, the role of Case is to differentiate two obviously distinguishable items; one actually occurs and the other does not. In fact, the EST equates these two by freely generating empty nodes and PRO along with lexically filled nodes. The need for Case arises from the questionable assumption that lexically filled nodes, PRO, and empty nodes are the same. If we treat these differently from the beginning without utilizing Case, Case Theory and the Case Filter as formulated in (24) and (26) can be entirely dispensed with. The analysis proposed in the rest of this thesis deals only with lexical items. This is the clearest possible distinction between what occurs and what does not.¹⁸

1.3. The Extended Standard Theory and Japanese

Though I have argued that its underlying assumptions create many problems, the EST is a theory which can account for various syntactic phenomena of English (and other European languages). However, in the past literature, there are virtually no analyses of Japanese within the EST framework.¹⁹ It is not the overall purpose of this section or this thesis to develop an analysis of Japanese within the EST framework, but this section purports to examine how the Japanese syntactic phenomena discussed in 1.1 can be possibly analyzed in the EST framework.

First of all, base rules must be considered. As given in (1), which is reproduced as (44) here, a VP node is not motivated in Japanese (cf. Hinds (1973a, 1973b), Shwartz (1972)).

(44) $S \rightarrow NP (NP)^* (S) V$

Given a rule like (44), the basic notion of 'government' does not work in Japanese. Structurally, a V can govern both the subject and the object indiscriminately. The crucial aspect of 'government' is to distinguish the subject and the object by referring to 'c-command': a verb c-commands an object but not a subject in English. Because of this asymmetry, Case Theory plays an important role. If a clause is nontensed, the subject does not receive Case. But in Japanese, regardless of a tense feature, a verb governs both the subject and the object. Similarly, wherever Tense is generated, if it governs

the subject, it must govern the object as well. Hence, Case Theory does not work in Japanese if there is not a VP node.

Even if a VP is postulated at D-Structure, the actual case arrays in Japanese do not correspond to those assigned by rules (24). Independent case assignment rules must be postulated, which allow dispensing with 'abstract' Case rules (24).

Chomsky (1980b), referring to Farmer (1980), assumes a base expansion rule of Japanese to be (45).

$$(45) \quad \bar{X} \rightarrow \underline{W^*} \underline{X}$$

where $\underline{W^*}$ stands for a sequence of zero or more categories that are "maximal projections" (let us say, NP or S), and \underline{X} is the head of the maximal projection \bar{X} .

(Chomsky (1980b:40))

He tries to account for Japanese passives in a way similar to what he has proposed for English. He correctly assumes that Japanese passives do not involve movement. Movement is considered to be a characteristic of \bar{X} languages (i.e. configurational languages) and not of W^* languages (i.e. nonconfigurational languages). What is common in English and Japanese is that a passive predicate does not give Case to its object. Here, Chomsky assumes the same Case assignment rules in Japanese. How can correct Case be given without a VP node? Though it is not clear from his brief discussion on Japanese, he apparently assumes a VP node somewhere in a grammar by saying that "grammatical functions are represented exactly as in English: [NP,S]

for subject, [NP,VP] for object, [S,VP] for clausal complement in VP, etc. [underlining mine—NH]" (Chomsky (1980b:40)) Whatever this level is, it is clear that the EST, as it now stands, cannot easily apply to Japanese. Even if we accept this extra level of representing grammatical functions, Case Assignment Rules do not work. His analysis of causative-passive structures predicts the wrong Case, which he dismisses by saying "(f)or reasons that we may disregard" (Chomsky (1980b:44)). Then it is not at all clear how 'abstract' Case is relevant to 'concrete' or 'actual' Case.

By postulating (45), it is implied that no PRO (or no empty node) is generated in Japanese, since W supposedly corresponds to the actual existence of words. It has been observed in 1.1 that Equi has played an important role in analyzing Japanese. In English, so-called Equi predicates are analyzed as those selecting infinitives with a PRO subject. Then, Equi phenomena of Japanese cannot be accounted for in the same way as those in English. I do not know how Japanese Equi structures are to be accounted for in the EST.²⁰ In any case, Equi phenomena observed both in English and Japanese cannot be treated in a unified way.

Relative clauses are derived via a deletion rule in Japanese. Without relative pronouns, it is unlikely that it involves movement. Then, relative clauses in Japanese must be analyzed totally differently from those in English: the former by deletion in PR and the latter by Move α in the syntax of core grammar. If deletion rules are responsible for deriving relative clauses, the phrase which is to be deleted must be present at S-Structure from which LF representations are

constructed. Then as long as LF is well-formed, any NP correferential to the head noun can be deleted, which is not the case.

Thomas-Flinders (1980) analyzes Japanese relative and topic constructions within the EST framework, which will be reviewed in Chapter 6. She does not employ deletion rules but she assumes that 'gaps' are base-generated and they are variables because they are case-marked, which must be quantifier-bound in LF, just like WH-traces in English. Thus, she attempts to account for Japanese relatives and topic sentences in LF but not by Move α . This seems to explain the fact that Japanese relatives and topic sentences do not always observe the Complex NP Constraint or Subjacency, because Subjacency is imposed on Move α but not in LF. Her analysis is ingenious; however, it cannot explain the fact that only a few cases of the violation of Complex NP Constraint or Subjacency result in grammatical sentences and the majority of such violation must be prohibited in Japanese. It may be the case that a revision of her analysis will be promising within the EST framework; however, in Chapter 6 I will explore an alternative analysis within the framework which will be advanced in the rest of this thesis.

Reflexives in Japanese also pose a problem to the EST. Although Japanese reflexive jibun derives from a full NP via RFLX (4) in past transformational analyses, I assume that it is base-generated (cf. Hasegawa (1981a, in press), Inoue (1976b)). Let me further assume that jibun is subject to the Binding Theory (BT) (28), considering it to be an anaphor: an anaphor is bound in its governing category (28a). Although how governing categories in Japanese are

to be decided needs to be stipulated, along with Chomsky's (1980b) discussion on Japanese passives, Case Assignment Rules (24) apply to Japanese just like in English. Hence, governing categories are NP and S. Since the antecedent of jibun does not have to be a clause mate of jibun, as mentioned in RFLX (4), the BT (28a) is violated. Observe the following examples.

- (46) a. John_i-ga Mary-ga jibun_j-ni at-ta koto-o mitome-ta.
 subj subj self obj meet-past Nom.-obj admit-past
 'John_i admitted that Mary met self_i.'
- b. John_i-ga jibun_i-ga tsukut-ta yoohuku-o kite-i-ru.
 subj self-subj make-past clothes-obj wear-prog-pres.
 'John_i wears the clothes that self_i made.'

The assumed structures of (46) are given below.

- (47) a. John_i-ga [_S Mary-ga jibun_i-ni at-ta] koto-o mitome-ta.
 b. John_i-ga [_{NP} [_S jibun_i-ga tsukut-ta] yoohuku]-o kite-i-ru.

The embedded Ss are tensed, hence, governing categories are these Ss for jibun. Jibun in (47) is correferential to John, which is outside the S, a governing category. Hence, it is free in its governing category. This is against the BT (28a).

Chomsky is aware of this behavior of jibun and states:²¹

- (48) Both NIC and the Opacity Condition stipulate that certain anaphors cannot be free in some circumstances. One might

imagine that languages vary as to what elements count as "anaphors" for the binding conditions. Perhaps [_a e] (i.e. PRO and trace) fall under the binding conditions universally, and more "lexicalized" items less freely. There is evidence that the items naturally translated as "reflexives" in Japanese and Korean do not fall under these conditions, and in fact may be governed by conditions that do not belong to sentence-grammar at all; ...

(Chomsky (1980a:15))

Chomsky cites Oshima's as a study where the interpretation of the Japanese reflexive jibun is claimed to be outside sentence grammar.²² Oshima's (1979) primary argument for dropping jibun-interpretation from sentence grammar is dependent on the fact that jibun does not obey Chomsky's conditions (the Tensed S Condition and the Specified Subject Condition, which are roughly equivalent to NIC and the Opacity Condition, respectively). Thus, Chomsky cannot draw on Oshima for support in this regard. To relegate jibun outside sentence grammar simply restates a problem with the EST and its relevant conditions.

As a second argument, Oshima quotes a long passage from a novel in which the author describes a character's state of mind where the author almost identifies herself with the character. At the very end of the long passage, jibun appears without its antecedent in a sentence, which is regarded to be the evidence by Oshima that jibun is controlled not by sentence grammar but by discourse grammar (SI-2). I do not consider this particular occurrence of jibun in Oshima's example crucial, in light of the style of the novel he quotes.

The reader of the novel easily finds that the author describes the particular character that jibun refers to as his double, while other characters are described as third persons. Contrary to what Oshima claims, the fact that even in such a style it takes such long passages to set up the situation where jibun is used without the antecedent shows that jibun interpretation should not be done in discourse grammar but rather in sentence grammar.

When certain serious problems or counterexamples are presented (e.g. jibun interpretation violates the BT (or the Opacity Condition and NIC)), the research direction to be taken is toward developing a theory that can incorporate such cases, rather than neglecting them as irrelevant phenomena without careful consideration. In this regard, I reject Chomsky's speculation given in (48) and Oshima's claim. I continue to consider the behavior of Japanese reflexive jibun as a phenomenon describable in sentence grammar (cf. Hasegawa (1981a) and Chapter 4 of this thesis).

From the foregoing discussion, we observe that none of the syntactic phenomena of Japanese can be accounted for naturally, if the EST is assumed. This makes a clear contrast with English or other European languages for which the EST seems to provide more or less straightforward accounts, if we grant the conditions, conventions, and principles of the EST. The following constitutes a brief summary of the above discussion.

(i) It is not clear exactly how 'government' is stipulated in Japanese; consequently, how Case Assignment Rules (24) apply to Japanese; (ii) Case Assignment Rules cannot describe the occurring

case arrays of Japanese; (iii) Relative and topic constructions, if they are analyzed by deletion rules or by variable interpretation in LF, must escape Subjacency, which is imposed on the derivation of English relatives (Move WH). Hence, it is impossible to deal with relatives across languages in a unified fashion; (iv) The phenomenon of Japanese reflexive jibun is considered to be outside sentence grammar by Chomsky (1980a) and Oshima (1979), which means that the EST cannot deal with it.

Then, it is safe to say that the EST, if it works in English, is a theory which can describe only one type of language (so-called 'configurational' languages) and it does not apply to the grammar of other types of languages. If we still believe in the fundamental assumption that human language possesses a biologically determined structure, we need to come up with a theory that deals with all languages equally well. I do not know whether the analysis I will propose in subsequent chapters meets this challenge. Nonetheless, the research direction undertaken there is exactly along these lines: an attempt to construct a theory which accounts for all human languages in a unified fashion.

FOOTNOTES TO CHAPTER 1

¹The analysis introduced in this section mainly follows Kuroda (1965b), Kuno (1973), and Shibatani (1978), which seem to have been the most influential works on Japanese generative studies.

²In describing Japanese sentences with alphabets, I essentially make use of the system adopted in Alfonso (1974) throughout this thesis.

³In the Standard Theory, in which the Japanese generative grammar reviewed in the above is proposed, case markers are in general assigned by cyclic transformations (cf. Ross (1967)). Thus, the question whether the difference in case markers destroys 'structural identity' is relevant not only to Japanese but also to other languages with morphological case markers. If case markers can be ignored in constituting 'structural identity,' then I wonder whether it is ever possible to formulate this notion. See Brame (1976, Ch. 5) and Hasegawa (in press) for further discussions on this matter.

⁴Direct Passive Formation has to be globally conditioned, a matter which will be discussed in Chapter 5.

⁵Gapping is observed below.

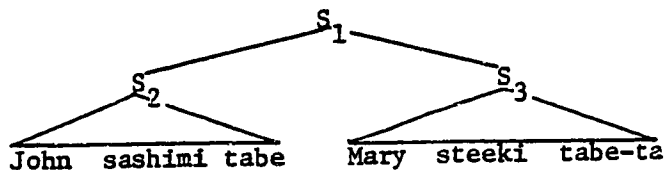
(i) a. John-ga sashimi-o tabe, Mary-ga steeki-o tabe-ta.
 subj raw fish-obj eat subj steak-obj eat-past

 'John ate raw fish and Mary ate steak.'

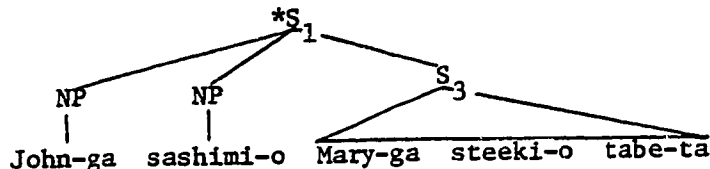
 b. John-ga sashimi-o \emptyset , Mary-ga steeki-o tabe-ta.

The gapped sentence (ib) has never been analyzed as (iib), but the node S_2 must be retained. Hence, the S-Pruning Convention does not apply to the gapping-construction in Japanese.

(ii) a.



b.



⁶Freidin's conditions are as follows.

(i) Functional Relatedness

In a sentence S_i , each lexical NP with nonnull semantic content must fill some argument position in the logical form of S_i .

(ii) Functional Uniqueness

In a sentence S_i , no lexical NP may fill more than one argument position for any given predicate in the logical form of S_i .

(Freidin (1978:537))

⁷The term 'minimally c-command' needs to be defined.

(i) α minimally c-commands β iff (a) α c-commands β (b) there is no γ such that α c-commands γ and γ c-commands β and it is not the case that γ c-commands α .

(Chomsky (1979a), Koster (1979))

where a node α c-commands a node β if neither dominates the other and if the first branching node dominating α dominates β .

(Reinhart (1976))

This definition of 'government' is slightly different from the one given in Chomsky (1980a), which is (ii).

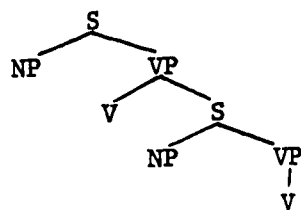
(ii) α is governed by β if α is c-commanded by β and no major category or major category boundary appears between α and β .

(Chomsky (1980a:25))

Both definitions (25) and (ii) ensure that a lexical category (or Tense in (25)) governs its sisters. The addition of the word 'minimally' in (25) further enables a lexical category (or Tense) to govern the nonsisters it c-commands if there is no intermediate

\bar{S} or NP boundary, and if there is no other lexical category or Tense that governs the nonsisters in question (Koster (1979)). In short, by adding 'minimally' in (25), a lexical category (say V) can govern the subject of its sentential complement if and only if there is no \bar{S} but an S boundary. Hence, believe, for example, can govern the subject of its infinitival complement, given the assumption that believe induces \bar{S} -Deletion (for further discussion see below). As Koster notes, the addition of 'minimally' creates a problem in the following situation.

(iif) a.



b. John believes [_S Mary to die.]

Certain verbs such as believe are allowed to govern the subject of the embedded (infinitival) clause, since they trigger \bar{S} -Deletion. Unless the embedded subject is governed by the main verb and receives Case, sentences such as (iifb) are to be ruled out by the Case Filter (26). However, given the structure (iifa) for (iifb), since V (die) serves as γ specified in (ib), believes (serving as α) cannot govern Mary (β). Hence, it should be ruled out by the Case Filter.

⁸ Filter (26) is meant to explain not only that lexical NPs cannot occur as the subject of 'control' verbs and as the object of the participle but also the following: (i) The NP complement of an A or N ([+N] category) must be preceded by a Case assigner ([-N]), otherwise the Case Filter (26) rules it out. Thus Of-Insertion (24d) is claimed to follow from this filter. (ii) The subject of an infinitive, if it is a lexical expression with a phonetic matrix, must be preceded by a Case assigner. Thus, the category (+P) of a complementizer for is claimed to follow from the Case Filter (26).

⁹The definitions of bound, free and governing category are given as follows.

(i) α is bound in β iff there is a category c -commanding it and coindexed with it in β , otherwise α is free in β .
(Chomsky (1980a:10))

(ii) Governing Category

α is a governing category for β , when α is the minimal category S or NP in which a governor of β appears.
(Chomsky (1979b:51))

¹⁰Chomsky, in his class lectures in fall 1980, argues that the BT must be at S-Structure rather than in LF. He proposes fairly convincing arguments for such a move. However, there seem to be undesirable consequences if the BT is placed at S-Structure. For example, a free indexing rule must be separated into two—one at S-Structure, which gives indices to anaphors and pronominals and the other in LF, which connects the head noun and a WH-element. Since I do not know how he treats this problem, I simply follow the model represented in Chomsky (1979a, 1979b, 1980a, and 1980b).

¹¹For the Nominative Island Condition (NIC) see fn. 21 and Chomsky (1980a).

¹²As for the ordering of deletion rules and filters in PR, Iwakura (1979) convincingly argues that "(s)urface filters are ordered after deletion rules except Gapping and Coordinate Deletion (p. 116)." If this is the case, we observe another instance of the proliferation of rule types.

One may argue that \bar{S} -Deletion is a different type of deletion rule, because it does not delete a lexical item but a category; hence, \bar{S} -Deletion is allowed in the syntactic component but not in PR. If this is the case, then a grammar must be equipped with an ad hoc statement which distinguishes 'deletion in syntax' from 'deletion in PR.'

¹³Diagram (34) does not show quite all the possible NP movement operations. Besides what is shown in (34), the following movements are possible. Most such movements do not affect the claim made by the EST that the conditions and subtheories correctly generate all and only the grammatical sentences; however, some seem to present problems. The problematic cases will be discussed in 1.2.2.

- (i) PRO is a lexical NP and it is subject to Move NP and WH, though I did not include the PRO movement in (34).
 - a. If PRO (in an either [+Case] or [-Case] position) moves to a [+Case] position, the result is the same as (34a).
 - b. If PRO in a [-Case] position moves to another [-Case] position, the result is either (34b) or (34c).
 - c. If PRO in a [+Case] position moves to a [-Case] position, problems arise, which will be discussed in the body of this thesis (cf. (39) and (40)).
- (ii) The lexical expression with a phonetic matrix may move from a [+Case] position to an argument position (either [-Case] or [+Case]). Such a movement seems to be subject to the θ -Criterion (23), because the argument position in which the lexical expression lands must have been empty prior to Move α . Or if a case-marked trace is considered to be an R-expression, the BT (28c) may prohibit such a movement.

¹⁴The use of the expletive it is in some way similar to PHONE (cf. (37c) and (38c)). An expletive use of it occurs in a non-argument subject position. Chomsky and Lasnik (1977) insert the expletive it by a transformation.

¹⁵In Chomsky (1979a, 1979b, 1980b), the operation of 'control' is not discussed. However, in Chomsky (1980a), he introduces the control rule (ii), which must apply in the context of control (i). If (ii) fails to apply, a PRO without an appropriate index must be ruled out. This is a special condition imposed on PRO.

(i) The Context of Control

... V ... [\bar{S} COMP ... [$_{NP}$ e] ...], where V and \bar{S} c-commands one another.

(ii) The Control Rule

- a. If $V = [+Subject\ Control]$ then $[_{NP} \underline{e}]$ is assigned the index of the subject NP, otherwise $[_{NP} \underline{e}]$ is assigned the index of the nearest NP properly related to the V (either a subject, object, or a certain complement).
- b. In $COMP \neq null$ and the V has no controller, then $[_{NP} \underline{e}]$ is assigned arb(itrary).

Note that in Chomsky (1980a) PRO is considered to be $[_{NP} \underline{e}]$.

¹⁶Emonds (personal communication) drew my attention to the analogy between PRO and some principle in physics. No 'real science' such as physics allows a theory to postulate a principle which i) has no observable properties, ii) is subject to none of the four fundamental forces of physics (gravity, electromagnetism, strong force, and weak force), and iii) is subject to a special rule.

¹⁷Articles by Klima (1964) and Emonds (1980) show that even pronouns in English do not have case in any transparent sense. Similarly, Emonds (1976, Ch. 6) argues that French pronouns have no case.

¹⁸It is claimed that Case Theory predicts that NPs cannot occur unless they are governed by appropriate governors, while other phrasal categories can occur without governors. One wonders whether this is a significant generalization. Note that Case Theory depends on the assumption that NPs but not other phrasal categories receive Case, while verbs and prepositions are Case assigners, which does not follow from anything but a stipulated assumption. The same assumption can be made without utilizing 'abstract' Case: NPs do not occur without function words such as verbs and prepositions. This generalization alone does not seem to motivate Case Theory.

¹⁹There are few works on Japanese in the EST framework. None of them deal with a wide range of syntactic phenomena in Japanese. Their scope is so limited that it is not clear how each analysis can

be extended to other parts of grammar. Oshima (1979) deals with disjoint reference and reflexive interpretation. Farmer (1980) takes up dependent verbs (Predicate Raising verbs) and relevant case assignment. Her analysis is not quite within the EST framework, though it is compatible with it. Thomas-Flinders (1980) deals with Relative and Topic constructions. Her analysis will be extensively reviewed in Chapter 6. Chomsky (1980b) gives a brief discussion on Japanese passives and the relevant case assignment, which will be criticized below.

²⁰Farmer (1980) proposes an analysis where an independent mechanism, Grammatical Case Linking, accounts for some phenomena of Predicate Raising predicates, most of which are Equi predicates. Its scope is limited not only to Japanese but also to few classes of verbs. Hence, there seem to be few implications for other languages (or language in general) as well as for other classes of verbs in Japanese. For example, her analysis does not seem to work for Equi verbs which are not PR predicates. In any case, Equi phenomena in Japanese seem to be treated totally differently from those in English within the framework proposed by Farmer.

²¹NIC and the Opacity Condition presented in Chomsky (1980a) are replaced with the BT (28) and the ECP (29) in Chomsky (1979a, 1979b, 1980b). NIC and the Opacity Condition are given as follows.

(i) NIC (the Nominative Island Condition)

A nominative anaphor cannot be free in \bar{S} .
(Chomsky (1980a:36))

(ii) The Opacity Condition

In the structure of ... [β ... α ...] ..., if α is an anaphor in the domain of the tense or the subject of β , β minimal, then α cannot be free in β , $\beta = \text{NP or } \bar{S}$.
(Chomsky (1980a:10))

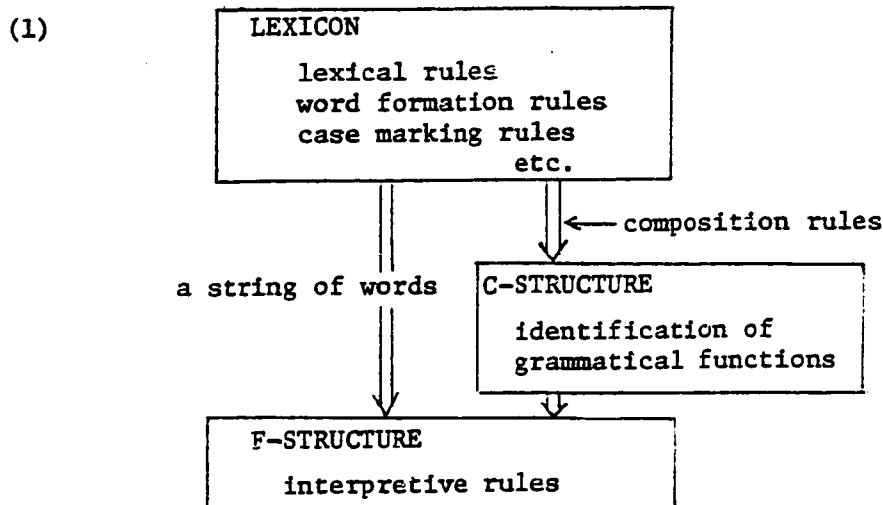
²²Oshima's paper (1975) "Trace Theory and the Ordering of SI-1

Rules" that Chomsky (1980a) cites is unavailable to me; however, in Oshima (1979) the same claim that Japanese reflexives are interpreted outside sentence grammar is made with a fair amount of discussion. To the extent that the preliminary version of Oshima (1979) was written while he was at MIT (1975-76) (according to its footnote), I assume these two papers are almost identical with respect to the claim in question.

Chapter 2

A SKETCH OF A LEXICAL INTERPRETIVE THEORY

In this chapter, I will introduce the basic organization of my version of a Lexical Interpretive Theory (LIT). This theory is based on the assumption that a given string of words is interpreted mainly by the lexical information. Any string of words is a possible input to the interpretive procedure. The following diagram shows the organization of the LIT I advocate in this thesis.



In the LIT, there are no deep/surface distinctions in the syntactic representation. An interpretive procedure is initiated by an actual string of words or an utterance. In carrying out this procedure, three major components are proposed; a lexicon, Constituent Structure (C-Structure), and Functional Structure (F-

Structure). A lexicon is a list of words with the specification of the predicate argument structure (PAS) and of syntactic representation of arguments. According to the lexical specification of the word in the string, the C-Structure is associated with the given string of words. This structure is built up by composition rules. Composition rules are subject to language-specific conditions. Instead of composition rules, languages may use case marking (or inflection) rules, which I assume operate in the lexicon. Languages may use both composition rules and case marking rules. The F-Structure is essentially a direct reflection of lexical information. This is the place where it is determined whether a certain string of words is well-formed. Relevant lexical items are collected in F-Structure. Each lexical item must fill an argument position in order for the string to be well-formed. In associating a lexical item and an argument, grammatical functions play a central role. The index of a lexical item occupies an argument position of the F-Structure representation, if the grammatical function of the lexical item, identified in C-Structure, is the same as that of the argument. The procedure here is similar to what is proposed in Bresnan (1980a, 1980b) and Brame (1978b, 1979a).

This introduction may be too brief to offer a concrete idea about how the LIT works. The entire chapter is devoted to a clearer sketch of this theory.

This chapter is organized in the following way. In 2.1, I will discuss the difference between 'configurational' and 'non-

configurational' languages. In Chapter 1, I have argued that the EST cannot adequately deal with 'nonconfigurational' languages such as Japanese. The characterization of the fundamental difference between these language types makes it possible to structure a grammar in a way that it can incorporate both types of languages. In 2.2, the organization of the lexicon will be discussed, which is a modified version of the type of lexicon recently proposed by Bresnan (1979, 1980a, 1980b). With lexical information and composition rules, C-Structure is built up, which is essentially the same as phrase structures in the sense of the transformational framework. This will be discussed in 2.3. In 2.4, interpretive procedures in F-Structure will be discussed.

2.1. Configurational vs. Nonconfigurational Languages

A grammar, in the transformational-generative framework, has been claimed to possess at least three components; a lexicon, phrase structure rules, and transformations. As discussed in 1.2, these three constitute the syntax of core grammar, which is 'universal' and 'unmarked' model of the syntactic component of language. PS rules together with lexical insertion give 'deep structure' representations, which are converted into 'surface (or S-) structure' representations by transformations. In such a framework, a sentence of a natural language has a syntactic 'deep' structure generated by PS rules. Grammatical functions are read from the generated deep structure; [NP, S] = subject, [NP, VP] = object, etc. This means

that a structure generated by PS rules plays two roles; one producing a certain syntactic string and the other determining grammatical functions. However, these two roles are not solely dependent on PS rules but rather on lexical specifications of a predicate. PS rules do not give syntactic strings independent from lexical information. An NP may be generated to the right of a V by PS rules and its grammatical function may be determined as object. However, such an NP should not be generated if a V is intransitive. Thus, how PS rules operate is dependent on lexical information. Although it is claimed that rules of the syntax (i.e. PS rules and transformations) are 'optional' (Chomsky (1980a)), their optionality is restricted by lexical specifications. The EST framework employs 'the θ -Criterion' to prohibit PS rules from freely generating certain nodes (cf. (23) of Chapter 1). To the extent that each θ -role is determined by lexical specifications of a predicate, this condition makes the application of PS rules completely dependent on how the predicate is represented in the lexicon.

It has been noted that since a lexicon gives the syntactic context for lexical insertion, how PS rules generate nodes can be reconstructed from the lexical specification and are thus redundant (Brame (1976:146, fn. 15), (1978:122, fn. 17)). Grammatical functions can also be reconstructed from lexical specifications. Hence, the roles of PS rules can be substituted for by lexical information.¹ Furthermore, the PS rules, of the form presented for English and other European languages, are not motivated in so-called

free word order languages.

Hale (1979) argues that typologically languages are to be divided into two classes with respect to base rules. Much studied languages such as English, French, German, etc. are categorized in one group and languages such as Walbiri, where the scrambling of not only constituents but words is allowed, are in the other group. Hale mentions:

One type is that appropriately referred to as the X-Bar type, in which the basic syntactic structures are defined by means of a set of phrase structure rules which impose a hierarchical, or "configurational", organization upon syntactic expressions. English is an X-Bar type language, presumably. I would like to suggest, however, that Walbiri is not an X-Bar language. Rather, Walbiri belongs to what might be called the "W-Star" type. There are no phrase structure rules of the conventional sort, I suggest. To the extent that there is a rule, or rule scheme, defining the basic syntactic structure of Walbiri sentences, it is of the following sort:

$$(4) \quad E \rightarrow W^*$$

That is to say, an expression (E) in Walbiri simply consists of a string of words (W), a string of arbitrary length.
(Hale (1979:3))

Walbiri has discontinuous structures and lexical elements are freely ordered provided the auxiliary is in the second position. Hence, expressions that form semantic units (e.g. expressions that correspond to noun phrases, infinitival clauses, etc. in English or 'X-Bar' languages) may be discontinuous in Walbiri. It is shown that nominal modifiers and a modified nominal can 'scramble' independently in (2) and that infinitival expressions can also be syntactically discontinuous in (3). ((2) and (3) are from Hale (1979:2).)

- (2) Kurdu-jarra-rlu ka-pala maliki wajilipi-nyi wita-jarra-rlu.
 (child-DUAL-ERG AUX:prs-du dog chase-NONPAST small-DUAL-ERG)
 Maliki ka-pala kurdu-jarra-rlu wajilipi-nyi wita-jarra-rlu.
 Wita-jarra-rlu ka-pala maliki wajilipi-nyi kurdu-jarra-rlu.
 (etc., any order, with AUX in second position)
 'The two small children are chasing the dog.'
- (3) Karli-ngkajinta O-rna-ju paju-rnu jarnti-rninja-rlajinta.
 (boomerang-REFLEX AUX:perf-1-1 cut-PAST trim-INF-REFLEX)
 'I cut myself while trimming the boomerang.'

Walbiri utilizes case inflections so extensively that semantic units can be identified from such inflections without configurational units. English, on the other hand, lacks such inflections. In general, it seems to be the case that if languages possess mechanisms other than syntactic configurations (more precisely, fixed word orders) to identify grammatical functions, so-called 'scrambling' is possible. How far the effect of 'scrambling' is allowed seems to be correlated with how extensive an inflectional case system a language possesses. Japanese is one of those languages for which the 'scrambling' rules have been proposed in the traditional transformational framework. Major constituents such as NPs and PPs can scramble; however, the effect of scrambling does not go into NP. Hence, we obtain the following data.

- (4) a. Chiisai kodomo-ga ookii inu-o oikakete-i-ru.
 small child-subj big dog-obj chase-prog-pres.
 'A small child is chasing a big dog.'

- b. Ookii inu-o chiisai kodomo-ga oikakete-i-ru.
- c. *Inu-o ookii kodomo-ga chiisai oikakete-i-ru.
- d. *Kodomo-ga ookii inu-o chiisai oikakete-i-ru. etc.

Based on these data, I assume that languages vary with respect to the means they utilize to express semantic units and to identify grammatical functions. These functions are served by PS rules in English, by morphological inflections in Walbiri, and by the combination of phrase structures and case markings in Japanese. Natural languages can be anywhere in the following scale provided that the combination of case system and configurational constituent system identifies semantic units and grammatical functions.²

(5) The Typological Continuum

Full Case or Inflection System

•
•
•
•

Full Constituent System

Walbiri is an example that shows one extreme end and English is the one that exhibits the other extreme. Japanese seems to fall in the middle of this continuum.

The above discussion leads to a conclusion that, depending on lexical specifications, languages may build up or compose 'constituents' and/or assign case or inflectional markings. This is a basic assumption of the LIT I advocate. English does not employ case marking rules but composition rules. Japanese employs both

types of rules. Languages like Walbiri seem to be heavily dependent on case or inflection marking rules.

Composition rules and/or case marking rules give rise to the C-Structure of a string of words where grammatical functions are identified. Grammatical functions play a major role in associating actual words in the string with argument positions in F-Structure, which leads to an interpretation of the string. In what follows, I will outline the basic organization of the LIT framework. Only simple examples will be discussed in this chapter. In subsequent chapters, more complex syntactic phenomena will be taken up.

2.2. The Lexicon

A lexical representation is a direct input to F-Structure, in which the interpretation of a phrase and a sentence is carried out. Hence, how lexical items are represented in the lexicon plays a major role in the LIT.

2.2.1. Predicate Internal and Predicate External Arguments

In the transformational framework, two types of lexical informations are attributed to a predicate; selectional restrictions and strict subcategorizations. The former impose restrictions on all the arguments that the predicate selects, which include subject and object. The latter specify the "syntactic context" of the predicate, referring to sisters of the predicate. This means that the predicate does not itself require the syntactic presence of its

subject. Hence, in the traditional transformational framework or in the EST framework, arguments of a predicate are divided into two types; arguments that are syntactically required (i.e. object and/or complements) and those which are not (i.e. subject). The distinction between these two types is blurred by the stipulation employed in those frameworks that a VP node should not be generated on the right side of PR rules, except in a sentence expansion rule. Due to this stipulation the presence of a verb always implies the presence of its subject. As a result, the presence of a verb necessarily leads to the presence of the object and/or complements, which are required by subcategorizational features, as well as the presence of the subject, which results from the accidental 'gap' in PS rules: all the phrasal categories except a VP appear in the right of PS rules. Since PS rules are direct reflections of lexical specifications, this gap in PS rules is created by the 'gap' in the subcategorization system of a lexical item: all the phrasal categories except a VP is selected as a complement. This argument is made in Brame (1975, 1976).

In fact, this distinction between the subject argument and other arguments which is motivated in 'subcategorization frames' of a lexical item is justified. The subject of a verb does not have to be syntactically present. In an earlier stage of transformational grammar, Equi NP Deletion has been proposed, by which the subject of an embedded clause is deleted under identity with the matrix object or subject. Similarly in the EST framework, PRO, an NP without a phonetic matrix, is employed only in the subject position. The fact

that there have been no serious proposals in which objects or arguments other than subject are regularly deleted aptly shows that the subject does not have to be syntactically present, whereas other arguments must be syntactically present.³

The distinction between the subject argument and other types becomes clearer, if we consider the function of verbs more closely. The verb has a dual function in a clause. In one function, when it is transitive, the verb assigns a semantic role to its selected arguments, co-forming a 'predicate.' In the other function, the verb, as a core of a formed 'predicate,' says something about the subject, completing a proposition. Chomsky (1980b) puts this distinction nicely, when he describes the relation between grammatical functions and θ -roles.

The object is assigned its θ -role by the verb within VP, the traditional "predicate." The subject is assigned its θ -role by the VP within S, the traditional "clause" or "proposition." There does, in fact, seem to be a significant asymmetry. Idioms apart, every element in the complement of VP is assigned a θ -role (though there remain some problematic cases), but this is not true of subjects. . . . , in (6) every element of the VP has a particular θ -role, but the subject has none; nor does the embedded subject:

(6) it [_{VP} seems to me [that it will rain]]

In Edwin Williams's terminology, the subject is an external argument of the verb, its complements, internal arguments.
(Chomsky (1980b:14))

Marantz (1980a), based on English, gives several arguments for differentiating what Williams calls 'predicate internal' and 'predicate external' semantic roles. Let me briefly summarize his

arguments. First, a simple transitive verb, say throw, assigns different semantic roles (or θ -roles) to the subject depending on the choice of the direct object. Compare the following predicates: throw a ball, throw a boxing match, throw a party, throw a fit (from Marantz (1980a:3)). On the other hand, changing the subject of a transitive verb does not affect a semantic role of the object.

Second, there are a number of idioms formed by involving a verb and predicate internal arguments, while there are few idioms, if any, that consist of the subject and a verb. This asymmetry implies that the bond between predicate internal arguments (Is) and a verb is much stronger than that between the predicate external argument (E) and a verb.

Third, the choice of a certain I affects the meaning of the verb. To take float for example, its subject can be either moving or stationary depending on the choice of locative phrase as in a leaf is floating in the river (stationary) vs. a leaf is floating down the river (moving). I add the case of put to exemplify this case further. The choice of a locative or directional phrase affects the meaning of this predicate, as in John put a letter in the box vs. John put a letter on the box. Only the former can be paraphrased as insert which shows that the object moves into a small confined place. In fact, Japanese uses two different verbs to describe the above actions; ire 'insert' vs. ok 'place.'

Arguments similar to Marantz's can be constructed based on Japanese. First, a transitive verb such as tor 'take' imposes

different semantic roles on its subject, depending on the choice of the direct object. Observe the following sentences.

- (6) a. Tsukue-ga basho-o tor-u.
desk-subj place-obj take-pres
'The desk occupies a lot of space.'
- b. Sono shigoto-ga jikan-o tor-u.
that job-subj time-obj take-pres
'That job takes a lot of time.'
'It takes a lot of time to do that job.'
- c. John-ga katsura-o tot-ta.
subj wig-obj take off-past
'John took off the wig.'
- d. Yamada-ke-ga muko-o tot-ta.
the Yamadas-subj gridegroom-obj take-past
'The Yamadas got a man for (their daughter's) husband.'
- e. John-ga sakana-o tot-ta.
subj fish-obj take-past
'John caught a fish.'

It is clear that the selection of the subject is dependent on what kind of object the verb tor has.

Second, idioms in Japanese as in English consist of a verb and Is.⁴ There are no idioms, to my knowledge, that are made up of a verb and its subject to the exclusion of Is, though there are some 'phrasal idioms' that involve all the arguments (both Is and E) along with a verb. Beside idioms, Japanese incorporates a process of compounding nouns with an infinitive verb and its object, which often involves the stems of Sino-Japanese verbs. Some examples are given below.

(7)	gunbi-shukushoo armaments-reduction	minoue-soodan personal matter-consulting
	jugyoo-sankan class-observing	eibun-kaishaku English sentence-explanation
	sensoo-hantai war-opposition	sara-arai dish-wash
	mayaku-torishimari dope-control	chin-age wage-raise

There are compounds with the subject and a verb, if a verb is intransitive. But if a verb is transitive, it seems impossible to form compounds only with a verb and its subject. Sometimes, the subject joins in forming compounds, such as chichioya-jugyoo-sankan 'father-class-observing.' In such cases an object must be present and the order of the subject, object, and verb is fixed; subj-obj-verb (i.e. *jugyoo-chichioya-sankan, *sankan-jugyoo-chichioya, etc.). These compounds show the bond between a verb and its Is. However, such a tight bond is not observed between a verb and E.

Third, the choice of a certain argument type affects the meaning of the verb. In Japanese, some motion verbs take an object specifying where the motion takes place. Such verbs may take a locative phrase instead of an object. Hence, we obtain the following pair.

(8) a.	kawa-o oyog-u river-obj swim-pres	'swim across (or up or down) the river'
b.	kawa-de oyog-u in	'swim in the river'

Example (8a) clearly designates a continuous and unidirectional

movement of the swimmer, whereas (8b) merely designates the action in the river, which may be described as swimming; the subject may well be just floating with slight or discontinuous movements of hands, arms, and legs (cf. Kuno (1973)). Thus, the change of complements of oyog 'swim' affects the meaning of this verb; however, such a meaning change is not observed if the subject is changed.

The above three arguments show that the bond between the verb and its complements or Is is much stronger than that between the verb and its subject or E. This distinction has to be expressed in the grammar. To the extent that it is relevant to semantics, I claim such a distinction is universal. In the traditional transformational framework, syntactic representations are utilized to express this distinction. A VP node is supposed to correspond to the bond in question and subcategorized items are the same as what I call Is. As everyone knows, a VP constituent and subcategorized items are not independently determined.

The symbol V is introduced by rules of the form: $VP \rightarrow V \dots$, and it is frames dominated by VP that determine strict subcategorization of Verbs. This suggests that we impose the following general condition on strict subcategorization rules: each such rule must be of the form

$$(47) A \rightarrow CS/\alpha - \beta, \text{ where } \alpha\beta \text{ is a } \sigma,$$

where, furthermore, σ is the category symbol that appears on the left in the rule $\sigma \rightarrow \dots A \dots$ that introduces A.

(Chomsky (1965:99))

If languages are all like English in that structural configurations correspond to the distinction between Is and E, the postula-

tion of a VP node may be sufficient to express a strong bond between a V and Is and a weak bond between a V and E. However, there are a number of languages which do not possess a VP constituent consisting of a V and Is (such as VSO languages) and hence the universal properties discussed above cannot be expressed in such languages.⁵

A VP constituent cannot be motivated in Japanese as easily as in English or other configurational languages (cf. Schwartz (1972), Hinds (1973a)). In Hasegawa (1980a), I claim that a VP constituent is necessary to adequately account for the facts involving Predicate Raising. What I argue for there can be reinterpreted as arguments for a bond between a V and its Is rather than for a purely structural constituent VP. In the traditional transformational framework, which I assumed in that paper, a syntactic VP node is the only means to express such a bond. In the framework proposed here I abandon a syntactic constituent VP in 'nonconfigurational' or 'free word order' languages according to the continuum in (5); this bond is expressed in the lexicon and F-Structure representations to the extent that they are direct reflection of lexical representations. Since I assume that the basic representation of lexical items and F-Structure is the same in all languages, the universal phenomenon that Is are more closely related to a V than E is best described in these representations. This will be discussed shortly below.

2.2.2. Lexical Representations

A lexicon contains information which is impossible to know

without individual listing. Among other things the following information is widely assumed to be in the lexicon.

- (9) a. Phonological features
- b. Lexical Categories
- c. Arguments inherently selected by the lexical item (the predicate argument structure)
- d. Semantic or thematic roles imposed on selected arguments.
- e. Syntactic forms imposed on selected arguments (syntactic contextual features)

I draw on the type of lexicon recently proposed by Bresnan (1979, 1980a, 1980b).⁶

- (10) Grammatical relations are lexically encoded by assigning grammatical functions to the predicate argument structures of lexical items. The predicate argument structure positions may be identified with thematic roles such as AGENT, THEME, INSTRUMENT, etc.; the grammatical function assignment then associates these thematic roles with grammatical functions (SUBJECT, OBJECT, etc.). Grammatical functions are universals of the lexical theory.

The possible mappings from thematic roles to grammatical functions are limited by Universal Grammar: in particular, function-argument biuniqueness (Bresnan, 1980) implies that all such mappings must assign a unique function to each thematic role (or predicate argument), and a unique thematic role (or predicate argument) to each function which is associated with a predicate argument. Grammatical functions and thematic roles are not in one-to-one correspondence, however, because there are nonthematic grammatical functions (for example, the "raised" subjects and idiomatic objects . . .). Further, the thematic roles of the grammatical functions associated with a predicate may be changed by lexical rules, such as the passive.

(Bresnan (1980b:3-4))

Along the lines of the above quote, a lexical entry includes

the predicate argument structure (PAS), which may be identified with thematic roles, and grammatical functions, such as SUBJ, OBJ, etc., which are associated with arguments in the PAS. A partial lexical entry of kick or ker 'kick', for example, is given below.

- (11) kick : V; [Agent Theme]
 ker 'kick' SUBJ OBJ

A representation such as (11) is considered to be universal, which I call a functional frame (FF) of a lexical entry. The mapping between the PAS and grammatical functions can be determined by Universal Grammar. Among various arguments in the PAS, only fixed thematic roles are realized as SUBJ or OBJ (cf. Jackendoff (1972, Ch. 2). Marantz (1980a) notes:⁷

- (12) (W)e should note that around five semantic roles emerge from previous studies as having privileged access to logical subject and logical object status. These are the causer in what may be analyzed as inherently causative verbs, the source from which the action of a verb stems, the thing whose movement is implied by the verb, the object whose creation is implied by the verb, and the thing onto which the action of the verb is directed.

(4)	causer	_____	<u>agent</u>
	source	_____	<u>source</u>
	thing moved	_____	<u>theme</u>
	thing created	_____	<u>created</u>
	thing onto which	_____	<u>patient</u>
	actions is directede		

... Languages seem to group together agents and sources on the one hand and themes, created, and patients on the other. Just as prepositions are each associated with some or some set of semantic roles which they confer on their objects, the roles in (4) are associated with verbs.

(Marantz (1980a:4-5))

Thus, the mapping between the PAS and grammatical functions could be done by some sort of lexical redundancy rules which are subject to Universal Grammar. I will not pursue the formalization of this mapping system in this thesis and will leave lexical representations as in (11). However, it must be understood that the redundancy observed in (11) or other lexical representations is an output of universal redundancy operations.

In 2.2.1, I have motivated the distinction between E and Is. The E normally serves as SUBJ(ect) and Is of a verb include OBJ(ect), OBJ-2 (the second object), COMP(lement) and PRED(icate). In the framework where sentences are generated by PS rules, these Is are normally generated under a VP node. Thus, there is a correspondence between the PAS and how arguments are represented in the syntactic configurations. Because of this correspondence, we have observed the redundancy in the functioning of PS rules and the specification of a lexical item in the lexicon. This redundancy is not part of the proposed system because PS rules are eliminated altogether. Constituency (=C-Structure) is not a product of PS rules but a direct reflection of lexical specifications. By differentiating E from Is, the distinction between the subject NP and the predicate VP can be made.

I assume that arguments of the PAS are ordered and this order gives rise to the distinction between E and Is. Following Bouchard (1979), I tentatively assume that the order of arguments of the PAS is the same or similar to the accessibility hierarchy for

relativization proposed by Keenan and Comrie (1977). I omit the last two functions of their scale. Arguments of the PAS, which are associated with grammatical functions, are ordered in the lexicon according to the following hierarchy.

(13) The Hierarchy of Grammatical Functions

$$\text{SUBJ} > \text{OBJ} > \left\{ \begin{array}{l} \text{OBJ-2} \\ \text{TO-OBJ} \end{array} \right\} > \text{OBLIQUE}$$

where OBLIQUE includes COMP and PRED.

Once the arguments in the PAS are ordered according to (13), the distinction between E and Is is easily made. The leftmost argument position (the argument associated with SUBJ) is for E and other positions are for Is. In order to show this distinction clearly in the lexical entry, I use angle brackets: the E is inside brackets and Is are outside. The representation given in (11) is now replaced by (14).

(14) kick : V; [Agnet> Theme]
ker 'kick' SUBJ OBJ

As Bouchard (1979) rightly argues, the assumption that the arguments of the PAS are ordered according to (13) goes against Bresnan (1979, 1980a, 1980b). She claims that "(t)he order of grammatical function symbols in a lexical form does not correspond to the left-to-right-order of constituents in phrase structure, but to the order of 'logical' or thematic arguments in the predicate argument

in the lexicon is directly reflected in the syntactic order. This seems to be the point expressed by Hust and Brame (1975) in criticizing Jackendoff (1972).

- (17) When J claims that the functional structure of John hit Bill is HIT (JOHN, BILL), we fail to see that he is saying anything beyond what the sentence John hit Bill already indicates.

(Hust and Brame (1975:274))

In (17), two representations, the syntactic representation associated with John hit Bill and the functional representation HIT (JOHN, BILL), are redundant, since the content they convey is the same. By eliminating PS rules, this redundancy can be avoided.

Besides the FF of a lexical entry (the representation illustrated in (14)), some syntactic information may be supplied, which specifies how arguments are syntactically realized. This is again, to a certain extent, predictable across languages; for example, the object function is often realized by a nominal; however, some language-particular information may be necessary. Such information is supplied in the syntactic frame (SF) of a lexical entry, which will be discussed later in this section.

So far, our discussion has been concerned with verbs and their arguments. Other categories also select arguments; prepositions or postpositions require their object, determiners select a noun, etc. In the present framework, I assume that verbs and adjectives (and certain nouns) are unique in that they specify both E and Is. Other categories select only Is. By definition, Is must be present if the

- d. to: P_{dir}; $\frac{[\text{OBJ}]}{\text{Det}}$ FF
SF
- e. Mary: Det; [--]
- f. John: Det; [--]

Exactly how this sentence is interpreted will be discussed in the next section; however, it is clear that the presence of the verb send guarantees the presence of necessary lexical items, given the above lexical entries. Now, let us turn to the C-Structure representation in English and Japanese.

2.3. Constituent Structure

In the LIT framework, sentences or phrases are not generated by PS rules but strings of words are interpreted. Any utterance or string of words is a possible input to C-Structure (and also to F-Structure) representations. There is no restriction on producing such strings. Of course, certain strings of words may be ill-formed. The decision whether a string of words is ill-formed is made in F-Structure, which will be discussed in 2.4.

At the beginning of this chapter, we have discussed that languages differ in the system of identifying grammatical functions. The grammar of each language must specify how grammatical functions represented in the lexicon are identified in strings of words. Languages such as English utilize constituent structures to identify grammatical functions. (To put it more precisely, the C-Structure representation of such languages is the direct reflection of the

lexical representation.) In languages such as Walbiri, case markers or inflections are responsible for identifying grammatical functions.¹⁰ Japanese, which seems to be placed between English and Walbiri with respect to the typological continuum (5), utilizes both constituent structure and case systems in identifying grammatical functions.

In the LIT framework, C-Structure is built up on a string of words by utilizing the lexical specifications of the relevant lexical items. This structure building operation is carried out by composition rules. Case markers or inflections directly incorporate grammatical functions (and perhaps thematic information) associated with the arguments of the PAS in the lexicon. Case markers or inflections are given to the SF of the lexical representation by case marking rules, which I assume are a special case of lexical redundancy rules.

2.3.1. Constituent Structures in English

The PAS specified in the lexicon is responsible for identifying grammatical functions in English (and other strictly configurational languages). Since the hierarchy of grammatical functions (13) determines the basic order of arguments in the PAS, what has to be stipulated in English is where a predicate or argument-selector occurs with respect to its arguments. The presence of Is is then, by definition, guaranteed by the presence of a selector. In English, a selector (such as V, N, A, Det, P) must precede its Is. Is are ordered according to the hierarchy (13). In an SOV language, if it does not have a case system, a selector normally follows its Is and

Is are ordered from the left according to the hierarchy (13). In general the more prominent or leftword an I is with respect to the hierarchy, the closer it is to a selector. This is a basic principle, I believe. Depending on its basic word order, a language must stipulate the position of a selector and of E. The composition rules introduced in this section are concerned with English.

The most basic composition rule in English, which gives rise to C-Structure representations, is a rule which combines a selector and its Is. I propose the following rule, whose function is essentially the same as that of 'Rules of Composition' in Brame (1979a).

(19) $X \equiv Y - \underline{I} - \underline{I} - \underline{I} - \dots$

where X is the category of a lexical item L_1 , Y is the phonological matrix of L_1 and Is are the categories of predicate internal arguments of L_1 .

Cond.: If there is more than one I, the order of Is must follow the hierarchy of grammatical functions (13).

Rule (19) guarantees the existence of Is if a selector is present. At the same time it specifies the order of Is and identifies constituency. Let us see how rule (19) accounts for the following strings of words, some of which are well-formed and some others are ill-formed.

- (20) a. *dog hit
 b. hit John
 c. into the house

- d. *house into
- e. *into the
- f. put the dog into the house
- g. *put into the house the dog.

Partial lexical representations of the relevant lexical items are given in (21).

- (21) a. dog: N; [--]
- b. hit: V; [<Agent> Theme]
- | | | |
|-------|-------|----|
| SUBJ | OBJ | FF |
| | | SF |
| ----- | ----- | |
| Det | Det | |
- c. John: Det; [--]
- d. into: P_{dir}; [OBJ]
- | |
|-------|
| |
| ----- |
| Det |
- e. the: Det; [N]
- f. house: N; [--]
- g. put: V; [<Agent> Theme Dir.]
- | | | | |
|-------|-------|------------------|----|
| SUBJ | OBJ | COMP | FF |
| | | | SF |
| ----- | ----- | ----- | |
| Det | Det | P _{dir} | |

To illustrate how (19) works with respect to the lexical representations in (21), I will take the (21e) and put (21g) as examples. The (21e), whose lexical category is Det, takes an N as its argument. The equation (19) produces (22a), similarly, from the lexical specification of the verb put (21g), the equation gives rise to (22b).

- (22) a. Det ≡ the - N
- b. V ≡ put - Det - P

Equation (22a) means that the determiner the must be followed by a lexical item whose category is N. Analogously the verb put must be followed by Det and P in this order. If these necessary items are correctly identified in a given string, the string is considered well-formed.

Now, let us go back to the examples in (20). Example (20a) is ill-formed, because kick must be followed by a Det, which is not present in (20a); whereas (20b) is well-formed because John (Det) follows kick. Similarly (20d) is out, for in is not followed by a Det. In (20e), the (Det) follows in; however, the is not followed by an N. In (20c) in is followed by the (Det), and the is followed by house (N); thus it is a well-formed string. In order to make it clear that (20f) is interpretable or a well-formed single constituent and (20g) is not, (23) is provided, which I call C-Structure.

(23) a. (for (20f))

```

      V
      |||
put - Det - P
           |||
           the - N into - Det
                   |||
                   dog           |||
                                   |||
                                   the - N
                                       |||
                                       house

```

b. (for (20g))

```

      V
      |||
put - Det - P
           |||
           into - Det
                   |||
                   the - N           Det
                                       |||
                                       the - N
                                           |||
                                           house           |||
                                                           |||
                                                           dog

```

In (23a), all the occurrences of words are connected, forming a

single constituent. On the other hand, in (23b) put is not immediately followed by Det, though it is followed by P (in). The constituent, the dog, is a well-formed individual constituent, but it does not form a single 'phrase' together with put in the house. Hence, (20g) is ill-formed as a single constituent. A formal mechanism that rules out ill-formed strings such as (20a), (20d), (20e), and (20g) will be introduced in 2.4.

Thus, rule (19) forms basic constituents which correspond to 'phrasal' categories. To form a constituent, which corresponds to an S, another special rule must be employed. In order to form a sentence, a verb is involved in English. Not only is of the verb but also its E must be present. The identification of an S constituent is processed by the following equation.

$$(24) \quad \begin{array}{l} \underline{E} - V \equiv S \\ (\text{Det}) \end{array} \quad \text{where } \underline{E} \text{ is an external argument of} \\ \text{the } V \text{ and the } V \text{ is [+Tense].}$$

Let us see how rule (24) works, by examining the following strings of words, where examples in (25) are well-formed and those in (26) are not.

- (25) a. John kicked the dog.
 b. The boy put a dog in the house.
- (26) a. *boy kicked the dog.
 b. *boy John put a dog in the house.

C-Structure representations of the above strings are as follows.

- (27) a. (for (25a)) Det - V \equiv S
 ^{|||} ^{|||}
 John kicked - Det
 ^{|||}
 the - N
 ^{|||}
 dog
- b. (for (25b)) Det - V \equiv S
 ^{|||} ^{|||}
 the - N put - Det - P
 ^{|||} ^{|||} ^{|||}
 boy a - N in - Det
 ^{|||} ^{|||} ^{|||}
 dog the - N
 ^{|||}
 house
- c. (for (26a)) N V
 ^{|||} ^{|||}
 boy kicked - Det
 ^{|||}
 the - N
 ^{|||}
 dog
- d. (for (26b)) N Det - V \equiv S
 ^{|||} ^{|||}
 boy John put - Det - P
 ^{|||} ^{|||} ^{|||}
 a - N in - Det
 ^{|||} ^{|||} ^{|||}
 dog the - N
 ^{|||}
 house

In (27a) and (27b), all the occurrences of words are connected to S; hence, they are identified as sentences. On the other hand, in (27c) and (27d), N \equiv boy cannot be connected to other words; hence, they cannot be identified as sentences.

Before introducing a formal mechanism to rule out ungrammatical strings or ill-formed strings, let us turn to Japanese sentences.

2.3.2. Constituent Structures in Japanese

Basic grammatical functions such as SUBJ and OBJ in Japanese are identified by case markers. However, this does not mean that

Japanese does not have constituents at all. As mentioned earlier, Japanese seems to be placed in the middle of the typological continuum (5), Languages like Walbiri may not utilize 'C-Structure' at all since its case or inflection system is so developed that 'semantic constituency' is identified by such case markers or inflections.

Japanese has been considered to be one of so-called free word order languages. But, as shown in (4), the order of words is not totally free. Unlike Walbiri, a semantic unit such as an NP, cannot be broken apart. Only the order of the major arguments of a predicate is unrestricted. Hence, we obtain the following sentences, which mean more or less the same thing.

- (28) a. John-ga Tokyo-de sushi-o tabe-ta.
 subj in obj eat-past
 'John ate sushi in Tokyo.'
- b. Tokyo-de John-ga sushi-o tabe-ta.
 c. Sushi-o John-ga Tokyo-de tabe-ta.
 d. John-ga sushi-o Tokyo-de tabe-ta.
 e. Sushi-o Tokyo-de John-ga tabe-ta.
 f. Tokyo-de sushi-o John-ga tabe-ta.

In the traditional transformational grammar, the scrambling rule is assumed to be responsible for various orders of major syntactic arguments (NPs, Postpositional Phrases (PstPs), Adverbs, etc.). And grammatical functions are identified from the 'basic' word order represented in deep structure. In such a framework, case

markers do not determine grammatical functions but rather grammatical functions determine case markers: the leftmost NP (the subject) is marked by ga, the rightmost NP (the direct object) is marked by o, etc. The basic word order is changed into a 'derived' or 'nonbasic' order by Scrambling. This analysis, even if it may be able to describe 'free word order' languages, cannot explain the following facts: (i) languages that possess a case-marking system typically exhibit a scrambling phenomenon, whereas those without case systems do not; (ii) the more extensive case or inflection system a language has, the freer its word order is. In short, the scrambling analysis cannot explain why Japanese but not English exhibits a scrambling phenomenon. In such a framework, grammatical functions are determined by base rules in both languages. Japanese possesses two extra operations; a case marking system and the scrambling rule. Hence, Japanese must be considered to be more complex than English, because it has two extra mechanisms. And more seriously, this analysis can not capture why the scrambling effect is observed only when a language possesses case markers or inflections or why case-marked items can scramble.

In the present analysis, languages possess more or less the same lexical representations. If some restriction is imposed on word order or C-Structure representation, composition rules are employed. If composition rules do not supply enough information to determine grammatical functions, languages employ case marking rules. Or if languages do not use composition rules, then extensive case-marking

rules should be utilized.

The restriction on word order in Japanese is that arguments must precede a selector. Unlike English, the order among arguments is free, provided that at least one argument must directly precede the selector. The following composition rule is thus assumed for Japanese.

(29) $X \equiv \{ \underline{A}, \dots, \underline{A} \} - Y$

where X is the category of a lexical item \underline{L}_1 , Y is the phonological matrix of \underline{L}_1 , and \underline{A} is the category of any argument of \underline{L}_1 . The notation $\{ \alpha, \beta, \gamma, \dots \}$ indicates a nonordered set of arguments.

Hence, this rule does not specify the order of arguments. It is impossible to determine grammatical functions from this composition rule. Case marking rules serve this end.

Case arrays in Japanese are fairly complex. In order to account for all the case arrays, various structures must be considered. For the purpose of outlining the basic case arrays, I introduce the following rules, which will be modified in Chapter 3.

(30) Case Marking Rules in Japanese (a preliminary version)

- a. SUBJ receives ga.
 - b. OBJ receives ga, if a verb is stative, and o elsewhere.
- They apply to the SF of SUBJ and OBJ arguments of a verb.

I consider here only ga and o (and later ni will be added) as case

markers. All others such as kara 'from,' de 'locative or instrumental,' to 'comitative,' made 'until' are considered to be postpositions (Pst).

The distinction between case markers and postpositions is not completely clear-cut. However, it can be motivated from the following facts: (i) case markers cannot be followed by the topic marker wa or the genitive marker no, whereas postpositions can occur with these markers; (ii) postpositions and semantic or thematic roles are closely related, while the relationship between case markers (ga, o, and some occurrences of ni) and semantic roles is not quite clear; (iii) a quantifier or numeral can be associated with a head noun with ga or o in the structure where a quantifier 'moves out' of the NP, but not with a head noun with a postposition. Based on these criteria, ga and o are case markers, and kara, de, to, made, etc. are postpositions. Ni falls somewhere between a case marker and a postposition. Hence, I assume that ni can be both a case marker and a postposition according to its behavior. I consider the criterion given as (iii) above most important in determining whether ni is a case marker or a postposition in a certain construction. As will be discussed in Chapter 3, I assume (iii) is attributed to the distinction between an N with a case marker and an N with a postposition.

Now, let us see how the following strings of words are represented in C-Structure. Partial lexical entries for the relevant lexical items are given in (32).¹¹

c. then, Composition Rule (29) produces

$$V \equiv \{ \langle N_{\underline{ga}} \rangle, N_{\underline{o}} \} - \underline{tabe}$$

Based on (33c), it is now clear that (31a) is well-formed, while (31c) is ill-formed. In (31c), sushi-o, which does not precedes tabe 'eat,' cannot be considered to be an argument of tabe.

Unlike English, a sentence constituency cannot be motivated so easily in Japanese. The 'scrambling' effect goes into an 'embedded' sentence. Observe the following examples.

- (34) a. Inu-o John-ga Mary-ga ket-ta to omot-ta.
 dog-obj subj subj kick-past CMP think-past
 'John thought that Mary kicked the dog.'
- b. Kono mondai-ga John-ga yasashi-i to it-ta.
 this problem-subj subj easy CMP say-past
 'John said that this problem is easy.'

In the above examples, the object of the embedded sentence precedes the subject of the matrix sentence. If an S constituent is selected as an argument of a matrix verb, it is impossible to interpret these sentences. Similarly, if Scrambling is a cyclic rule as in the traditional transformational framework, these sentences cannot be generated. I assume that the juxtaposition of arguments of an 'embedded' verb and a 'matrix' verb is allowed in Japanese as long as the string is interpretable.

Whether or not a string of words is interpretable is subject to various 'nonambiguity' constraints, which seem to be relevant to

some sort of perceptual strategy. How sentences are perceived or whether certain 'scrambled' sentences are interpretable depends on the context where they are uttered. To explore how strings of words are perceived is an interesting topic; however, to do so is beyond the scope of this paper.

There is one last thing to mention concerning the identification of grammatical functions in Japanese. This is the case where more than one N is marked by the same case marker. Examples (34a) and (34b) constitute such a case. The subject case marker ga appears in two places in these examples. An interesting fact is that these sentences are not ambiguous. According to the case marking rules and composition rule, N-ga must be understood as the subject of a nonstative verb or the object of a stative verb. In (34a), for example, John-ga must be the subject of ket-ta 'kick-past' or omot-ta 'think-past,' both of which are not stative, and similarly Mary-ga must be the subject of either verb. However, John-ga is associated only with omot-ta and Mary-ga with ket-ta. We need some stipulation to ensure such associations. Another examples of a similar case is observed in (35).

- (35) a. John-ga Mary-ga suki-da.
 subj obj like-pres.
 'John likes Mary.' (but not 'Mary likes John.')
- b. #Sushi-ga John-ga suki-da.
 obj subj like-pres.

The predicate suki-da 'like' is stative; hence, ga marks

both SUBJ and OBJ. Since arguments can occur in any order, (35a) should be ambiguous and (35b) must be interpretable as 'John likes sushi.' What these examples show is that if the same case marker is given to more than one N, OBJ is associated with the N which is closest to the predicate and SUBJ with the other N with ga. This fact has supplied the strongest argument for postulating a basic word order in Japanese; SUBJ - OBJ - Verb. Nonetheless, the approach which takes the basic word order to be determined at deep structure and nonbasic orders to be derived by Scrambling cannot explain why the N-ga N-ga string cannot scramble, since Scrambling is assumed to be blind to case markers.

An explanation of the data in (35) can be found in the hierarchy of grammatical functions which is motivated in determining the order of arguments in the PAS. The function of this universal hierarchy is to determine the order of arguments by utilizing grammatical functions. Because of this hierarchy, a grammatical function is assigned to a word in a certain string and the word can occupy the argument position of the PAS. Thus, the hierarchy plays an important role in noncase-marked languages. It is by no means strange if this hierarchy is referred to when case markers cannot indicate which word occupies which argument position. I assume that the following principle among others is at work in Japanese.

- (36) a. In a string W_1, W_2, \dots, W_n , when all the W(ord)s are undeterminable with respect to grammatical functions or association of a selector, because the case markers of the

Ws are all identical, W_1 (the leftmost W) is associated with the most prominent unidentified argument and W_n (the n-th W from the left) with the n-th most prominent unidentified argument.

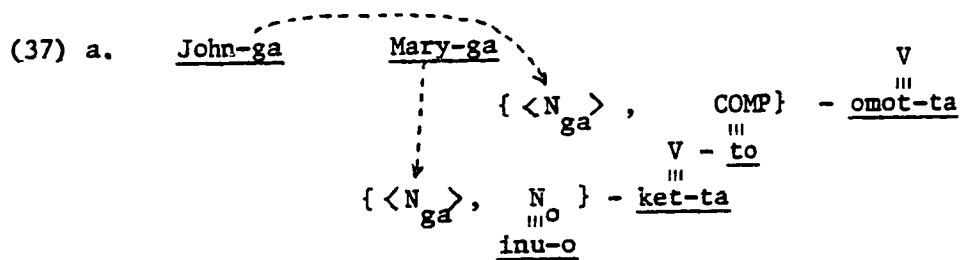
b. The Definition of 'Prominency'¹²

A is more prominent than B,

- i) if A or the selector of A directly or indirectly selects or specifies B or the selector of B, or
- ii) if A is higher than B with respect to the hierarchy of grammatical functions (13), when A and B are arguments of the same predicate.

In (35a) the leftmost N, John-ga, must be associated with the most prominent argument among unidentified arguments of suki-da 'like.' According to (36b-ii), it must be associated with the SUBJ argument of suki-da. The OBJ argument is now unambiguously associated with Mary. In (35b), the leftmost N, sushi-ga, cannot satisfy the semantic role of the subject of suki-da 'like.' Hence, it is ungrammatical.

In order to clarify the situation in (34a) and (34b), I present their C-Structure representations in (37).



obtaining necessary information from the lexicon and the C-Structure representation of a given string of words. This is a place where it is determined whether the string of words is well-formed.

The interpretation procedure in F-Structure is carried out by means of indexing. The interpretation is called complete and the string of words under consideration is well-formed, if all the argument positions of the PAS are fully indexed and all the indices of the words in the string appear in argument positions of the PAS. The F-Structure representation is basically the same as the collection of the lexical entries of the items in the string.

To illustrate how the F-Structure interpretation is done, let us consider the following English examples.

- (38) a. into the car
 b. John put a book into the car.
 c. *John put into the car.
 d. *John put Mary a book into the car.

The partial lexical representations of the relevant lexical items are provided in (39).

- (39) a. into: P_{dir}; $\frac{[\text{OBJ}]}{\text{Det}}$
 b. the: Det; [N]
 c. car: N; [--]
 d. John: Det; [--]
 e. a: Det; [N]
 f. book: N; [--]

g. put: V; [<Agent> Theme Dir.]
 SUBJ OBJ COMP
 | | |
 Det Det P
 dir

h. Mary: Det; [--]

From these lexical entries, composition rules (19) and (24) give rise to the following C-Structure representations for the strings of words in (38).

(40) a. (for (38a)) P
 |||
 into_m - Det
 |||
 the_n - N
 |||
 car_o

b. (for (38b)) Det - V ≡ S
 ||| ||| • P
 John_i put_j - Det - into_m - Det
 ||| ||| |||
 a_k the_n - N
 ||| |||
 book_i car_o

c. (for (38c)) Det - V ≡ S
 ||| ||| P
 John_i put_j - Det - into_m - Det
 ||| ||| |||
 the_n - N
 |||
 car_o

d. (for (38d)) Det - V ≡ S Det P
 ||| ||| ||| ||| ||| ||| ||| |||
 John_i put_j - Det - a_k - N into_m - Det
 ||| ||| ||| ||| |||
 Mary_p book_i the_n - N
 ||| |||
 car_o

Suppose all the lexical items that appear in a string of

words receive indices as in the above. These indices occupy argument positions of the lexical entry, which is copied in the F-Structure. As I have mentioned, the F-Structure of a certain string of words mainly consists of the lexical entries of the relevant words. Hence, (40a) for example, has the following F-Structure.

$$(41) \left[\begin{array}{l} P \equiv m \\ \frac{\text{into}_m}{\text{Det}} \frac{[\text{OBJ}]}{\text{Det}} \equiv [n] \\ \frac{\text{the}_n}{\text{car}_o} [N] \equiv [o] \\ \quad \quad \quad [--] \end{array} \right]$$

To indicate that (41) is a phrase (a PP in a traditional sense), I place the most prominent selector P on the top of the list. The interpretation is carried out by replacing argument positions with indices of the lexical items of the string. Since all the argument positions of the lexical items are filled with indices and all the indices in the string are represented in F-Structure, (40) is a well-formed F-Structure representation.

In the same way, (40b), (40c), and (40d) are represented in F-Structure. For expository purposes, I use grammatical functions to indicate argument positions, instead of copying an entire entry. Here, the order of listing lexical items does not matter to the interpretive procedure, as long as arguments are correctly identified for an appropriate selector. I choose an arbitrary order, though it essentially follows the prominency of selectors.

- (42) a. (for (40b))
- | | | |
|--------------------------|-------------------|-------------|
| <u>S</u> | ≡ Det - V | ≡ i - j |
| <u>John</u> _i | | [--] |
| <u>put</u> _j | [<SUBJ> OBJ COMP] | ≡ [<i> k m] |
| <u>a</u> _k | [N] | ≡ [1] |
| <u>book</u> _i | | [--] |
| <u>into</u> _m | [OBJ] | ≡ [n] |
| <u>the</u> _n | [N] | ≡ [o] |
| <u>car</u> _o | | [--] |
- b. (for (40c)) *
- | | | |
|--------------------------|-------------------|---------------|
| <u>S</u> | ≡ Det - V | ≡ i - j |
| <u>John</u> _i | | [--] |
| <u>put</u> _j | [<SUBJ> OBJ COMP] | ≡ [<i> OBJ m] |
| <u>into</u> _m | [OBJ] | ≡ [n] |
| <u>the</u> _n | [N] | ≡ [o] |
| <u>car</u> _o | | [--] |
- c. (for (40d)) *
- | | | |
|--------------------------|-------------------|----------------|
| <u>S</u> | ≡ Det - V | ≡ i - j |
| <u>John</u> _i | | [--] |
| <u>put</u> _j | [<SUBJ> OBJ COMP] | ≡ [<i> p COMP] |
| <u>Mary</u> _p | | [--] |
| <u>a</u> _k | [N] | ≡ [1] |
| <u>book</u> _i | | [--] |
| <u>into</u> _m | [OBJ] | ≡ [n] |
| <u>the</u> _n | [N] | ≡ [o] |
| <u>car</u> _o | | [--] |

Now we have to discuss how (42a) is characterized as well-formed, while (42b) and (42c) must be ruled out as ill-formed F-Structures. Note that in (42a), all the indices appear in argument positions of the relevant lexical items and all the argument positions are filled with indices. Contrary to (42a), the OBJ argument of put is left unindexed in (42b). In (42c) the COMP argument of put is not indexed and two indices, m (for into) and k (for a), do not

appear in argument positions of the relevant lexical items. By incorporating this difference between well-formed cases and ill-formed ones, I propose the following principle which correctly rules out (42b) and (42c).¹³

(43) The Principle of Functional Completeness (PFC)

In F-Structure, the interpretation of a string of words is complete and well-formed, if

- a. each of the argument positions of the PAS is indexed by one constant index and
- b. all the constant indices in the string appear in argument positions.

This principle is universal. Hence, Japanese must obey this condition. I will examine just one example to show this.

- (44) John-ga shako-ni kuruma-o ire-ta.
 subj garage-in car-obj put-past
 'John put a car into the garage.'

The partial lexical representation of ire 'put' is given in (45), to which case marking rules (CMR) apply.

- (45) ire : V_{stem} ; [<Agent> Theme Dir.]
 'put' [-stative] SUBJ OBJ COMP
 N N Pst_{ni}
 + + ← CMR
 N N
 ga o

The composition rule (29) gives rise to the following C-Structure.

(46)

$$\{ \langle \underset{\text{III}}{N}_{ga} \rangle, \quad \underset{\text{III}}{N}_o, \quad \text{Pst} \} - \underset{\text{III}}{V} \text{-ire-ta}_m$$

$$\underline{\text{John-ga}}_1 \quad \underline{\text{kuruma-o}}_j \quad \text{N - } \underset{\text{III}}{\underline{\text{ni}}}_1$$

$$\underline{\text{shako}}_k$$

The F-Structure interpretation is observed in (47).

(47)

$\underline{\text{ire-ta}}_m$	[<SUBJ> OBJ COMP] \equiv [<i> j l]
	$\underset{\text{III}}{N}_{ga} \quad \underset{\text{III}}{N}_o$
$\underline{\text{John}}_1$	[--]
$\underline{\text{kuruma}}_j$	[--]
$\underline{\text{ni}}_1$	[OBJ] \equiv [k]
$\underline{\text{shako}}_k$	[--]

Here, all the arguments are indexed and all the indices appear in argument positions in F-Structure. Hence, (47) is a well-formed structure and the string of words (44) is grammatical.¹⁴

In subsequent chapters, more complex examples will be discussed. The grammaticality of any string of words is always subject to the PFC (43).

FOOTNOTES TO CHAPTER 2

¹Although the basic function of PS rules that they generate structures can be substituted for by lexical information, thus eliminating the redundancy noted by Brame (1978b, fn. 17), there are certain functions which are independent from lexical specification. For example, Emonds (1972, 1976) convincingly argues that there should be only one S under VP. Similarly, there should not be more than two NPs under VP. Thus, according to Emonds (personal communication), the PS rules represent constraints on lexical specifications. At present, I do not know how such constraints are expressed without PS rules.

²This scale is a slightly modified version of what Bouchard (1979) proposes. He presents a framework where a context free PS rule, $E \rightarrow W^*$, is commonly possessed by all natural languages. what this rule does is to generate a mere string of words. Hence, I do not see the necessity of this rule. Although his framework and mine are different with respect to individual operations, basic ideas are nonetheless shared.

³A few rules have been proposed which delete objects of verbs. One of such rules is Something Deletion, which deletes the object something of certain verbs, such as eat; John ate something. → John ate. This can be lexically treated (cf. Bresnan (1978)). In Japanese, Howard and Niyekawa-Howard (1976) propose a rule called Embedded Object Deletion in order to derive two types of passives (direct and indirect) from the same kind of deep structure. The existence of this rule seems questionable and their analysis of passives has been criticized (cf. Kuno (1978), Yamazaki (1979), Kitagawa (1977)). Even if the rule Embedded Object Deletion is justified, what is important is the fact that such a rule is limited

to a certain construction type, while nonpresence of subject is widely observed in various construction types.

⁴Some idiomatic expressions in Japanese are given in the following.

(i)	aizuchi-o uts-u	'chime in'
	SO ni tate-o tsuk-u	'defy SO'
	ST-ni te- ire-ru	'improve ST'
	SO-ni gunbai-o age-ru	'decide SO to be better'
	SO-ni shirahanoya-o tate-ru	'choose SO among many'
	SO-ni saguri-o ire-ru	'sound out SO'

⁵In Emonds (1979), it is argued that VSO languages such as Breton have VSO as a surface order but their deep structure order is SVO, where V and O constitute a VP node. Note that a VP constituent cannot be motivated in VSO languages as easily or overtly as English or other SVO languages. It may be the case that the deep structure VP in his paper is another manifestation of the bond between a V and its complements.

⁶Function-Argument Biuniqueness given in the quote (10) is as follows (see fn. 13 below).

(46) Biuniqueness of Function-Argument Assignments

$\underline{G} = \underline{g}_1, \dots, \underline{g}_n$ is a possible grammatical function assignment to $\underline{P} (\underline{1}, \dots, \underline{m})$ if and only if the mapping from $\underline{1}, \dots, \underline{m}$ to \underline{G} defined by $\underline{i} \mapsto \underline{g}_i$ is injective (one-to-one and into).

(46) implies that the same grammatical function cannot be assigned to different predicate arguments and that different grammatical functions cannot be assigned to the same predicate argument. (46) does not rule out alternative grammatical function assignments to the same predicate argument structure (...), but it does exclude the assignments illustrated in (47).

- (47) a. $\begin{array}{c} \text{(SUBJ)} \\ \swarrow \searrow \\ * P (1, 2) \end{array}$ b. $\begin{array}{c} \text{(SUBJ)} \quad \text{(OBJ)} \\ \swarrow \searrow \\ * P (1) \end{array}$
 (Bresnan (1980a:112-113))

⁷Besides the semantic roles given in (12) (= (4) of Marantz

(1980a)), I assume Goal also has a privileged access to the logical subject or object status.

⁸I assume here that some sort of feature percolation mechanism is at work in universal grammar. A verb hit for example selects an object argument (which possesses a Theme role) and specifies a subject argument (an Agent role). Both arguments are represented by Det in the SF of the entry. Then Det's in turn select a noun. However, it does not mean that any noun can indirectly serve as a SUBJ or OBJ argument of hit. The subject must be [+animate] and the object must be [+concrete]. I assume that these features of nouns percolate up to their selector, Det, in the F-Structure, where a string of words is interpreted and the semantic coordination between an argument of a verb and a lexical item that occupies the argument position is checked.

⁹In (18), proper nouns such as Mary are assumed to be Det, since they are never preceded by a determiner. The Det category for proper nouns is different from the true Det in that the former does not select an N but the latter does. Brame's (1980 class lectures, 1981b) system is adopted here. There seem to be some problems in distinguishing Det and N. Countable nouns are always specified as N, when they are in singular. However, mass nouns and plural countable nouns can occur without Det. It may be the case that they are both Det and N in lexical representations. I leave this problem and others which may arise in the exact specification of NP structures to future research.

¹⁰It is by no means necessary to assume that the correspondence between grammatical functions and either certain configurations or case markers be one-to-one. In fact, there are cases where the same function is realized by different constituent structure (e.g. the sentential and nominal objects or subjects in English) or by

different case markers (e.g. subjects can be marked by ga or ni, objects can be marked by o or ga in Japanese). Conversely, there are cases where different functions are realized by the same constituent (e.g. the nominal object and nominal predicate in English) or by the same case marker (e.g. ga may mark both object and subject in Japanese). See Bresnan (1980b) for the clarification of this matter.

¹¹In the SF specification of the lexical representations in (32), I use N which fills SUBJ and OBJ argument positions. In English, where determiners are obligatory in many cases in order for a noun to occur, I use Det in such argument positions. The status of Det in Japanese is not clear and sono 'the, that,' ano 'that,' and kono 'this' in Japanese are more like demonstratives than determiners. The SF specification of arguments is subject to change depending on our understanding of the NP structure in general and in Japanese and English in particular. For the discussions on the NP structure in Japanese, see Kamic (1977), Hoji (1981).

¹²The definition of prominency (36b-i) will play an important role in subsequent chapters. Readers are invited to keep this definition in mind. In (36b-i), I make a distinction between 'select' and 'specify.' A selector selects Is but not an E. Recall that an E is not selected, because its presence is not guaranteed by the presence of its selector. The selector can 'specify' an E or an E can be associated with its selector. This distinction is important and crucial in describing the relative clause phenomenon in Japanese (cf. Chapter 6).

To clarify (36b-i), the following definition may be helpful, though it can be intuitively understood.

(i) A indirectly selects or specifies B, if A or the selector of A selects or specifies C and C or the selector of C selects B.

¹³Some of the similar principles introduced in the past are in the following.

(i) a. Brame's (1978b) Principle of Functional Deviance

Let ψ be a functional structure associated with a phrase marker \underline{P} and let \underline{T} be a term in ψ . If \underline{T} is not identified with some index \underline{a} , then \underline{T} is said to be uninterpreted and \underline{P} is declared functionally deviant. (p. 35)

b. Brame's (1979a) Incompleteness

A string $\underline{a}_1 \dots \underline{a}_n$ is incompletely interpreted with respect to an interpretation ψ provided there is a term \underline{T} in ψ corresponding to no index or provided there is no index in ψ corresponding to \underline{a}_i for some \underline{i} , where $1 \leq \underline{i} \leq \underline{n}$.
(p. 33)

(ii) Bresnan's Biuniqueness of Function-Argument Assignments.
See fn. 5.

(iii) Freidin's Functional Relatedness and Uniqueness

a. Functional Relatedness

In a sentence S_i , each lexical NP with nonnull semantic content must fill some argument position in the logical form of S_i .

b. Functional Uniqueness

In a sentence S_i , no lexical NP may fill more than one argument position for any given predicate in the logical form of S_i .
(Freidin (1978:537))

(iv) Chomsky's Well-Formedness Condition on LF and the Case Filter

- a. LF cannot contain 'free variables.' (Chomsky (1980a:6))
b. *N, where N has no Case. (Chomsky (1980a:25))

(v) Chomsky's θ -Criterion

(E)very θ -role determined ultimately by the lexical entries in the D-structure must be filled by some lexical expression, and ... each lexical expression must fill exactly one θ -role, where we take a "lexical expression" to be a major category (NP, S, etc.) that contains lexical elements and is not an "idiom chunk," ...
(Chomsky (1980b:16-17))

As for (ivb), it is not clear whether the Case Filter is considered to be a type of principle in question. However, to the extent that an N has to receive Case by being governed by [-N] or by a special

stipulation imposed on a verb (Inherent Case), it is a constraint that keeps Ns from occurring in nonargument positions. Note that [-N] is a class which normally selects arguments.

¹⁴Certain arguments such as locative, temporal, benefactive, instrumental, manner, purposive, etc. can occur without being selected by a verb. Though exactly where they occur has not been clear, their occurrences are sensitive to certain semantic features of verb classes such as [+stative], [+self-controllable], etc. Observe the following sentences.

- (i) a. John made the table with care.
 b. *John likes the table with care.
- (ii) a. John read it in the room.
 b. *John knows it in the room.
- (iii) a. John bought the book for Mary.
 b. *John lost the book for Mary.

Whatever the feature relevant to the occurrence of these 'associate' arguments (this term is borrowed from Bouchard (1979)) are, I assume these arguments are introduced by lexical redundancy rules, such as the following.

(iv) Associate Argument Assignment (AAA)

$$\begin{array}{ccc} V ; & [\langle \alpha \rangle \beta, \gamma, \dots] & \longrightarrow & V ; & [\langle \alpha \rangle \beta, \gamma, \dots, (\underline{A})] \\ [+F] & & & [+F] & \end{array}$$

where A is an associate argument.

I consider this rule is universal. Associate arguments are, once introduced, regarded as Is.

Chapter 3

THE SUBJECT INTERPRETATION RULE AND RELATED PHENOMENA

In the previous chapter, the basic mechanisms of the present framework have been introduced. The sentences examined there are rather simple and are accounted for in a straightforward manner with adequately specified lexical information. This chapter and subsequent chapters deal with more complex structures.

In the present chapter, I will examine the constructions which involve complements without overt lexical subjects. They include Equi/Raising constructions, the structure of the predication or predicate attribute in English. In Japanese, predicate raising (PR) structures will be discussed in addition to Equi/Raising constructions. These constructions are considered more or less the same to the extent that they must undergo the Subject Interpretation Rule (SIR), which interpretes a missing subject of the complement in the F-Structure. The SIR is considered to be a universal rule for these constructions, which can thus be said to capture similarities among languages.

This chapter is divided into four sections. In 3.1, I will motivate a predication argument (PRED) in the predicate argument structure (PAS), which is given to a subjectless complement of a verb. The PRED argument, since it is subjectless, must undergo the SIR, which will be formalized. In 3.1.2, the EST analysis of the 'subjectless' (or predication) construction will be reviewed. It

will be shown that the present analysis is superior to the EST analysis. In 3.2, Japanese examples will be discussed, which also undergo SIR. Predicate Raising (PR) structures are sub-cases of the PRED argument construction. But they are special in that they must undergo a word formation rule, which I call Compound Verb Formation. In 3.3 Japanese case marking rules, which have been given in 2.3.2, will be revised, so that they will incorporate the case arrays observed in the PR structure. In 3.4, the subject honorification phenomenon observed in the PR structure will be discussed and accounted for in the present framework.

3.1. The Subject Interpretation Rule

There is a set of sentences which involves subjectless complements. They are often called Equi/Raising constructions. Such sentences are observed both in English and in Japanese. Some examples are provided below.

- (1) a. John persuaded Mary to buy a car.
 b. John forced Mary to swim.
 c. John believed Mary to be stupid.
 d. John promised Mary to find a job.
- (2) a. John-ga Mary-ni kuruma-o kaw-u yooni susume-ta.
 subj dat car-obj buy-pres CMP advise-past
 'John advised Mary to buy a car.'
- b. John-ga Mary-o oyog-ase-ta.
 subj obj swim-cause-past
 'John forced Mary to swim.'

- c. John-ga Mary-o baka-da to omot-ta.
 subj obj stupid CMP think-past
 'John thought Mary to be stupid.'
- d. John-ga Mary-ni shigoto-o mitsuke-ru to yakusoku shi-ta.
 subj dat job-obj find-pres CMP promise-past
 'John promised Mary to find a job.'

In the traditional transformational framework, these infinitives are generated as Ss at deep structure, and contain subject NPs. The embedded Ss undergo Equi NP Deletion, which deletes the embedded subject under identity with the matrix subject or object, depending on a lexical peculiarity of a verb in question, or Raising-to-Object, which raises the subject of the embedded S, making it a constituent of the higher clause. Due to these operations we obtain the surface structure that does not contain a lexical subject of the embedded predicate. In the present framework, since there is no deep-surface distinction but only a C-Structure representation, the subjectless sentence or the embedded infinitive must be built up according to the lexical specification of the 'matrix' predicate. Let us first see how English sentences such as those in (1) are represented in C-Structure and interpreted in F-Structure. Then, in the next section, Japanese examples will be considered.

3.1.1. The Predication Argument

In Chapter 2, I have argued that the predicate argument structure (PAS) of the lexical item must be sensitive to the distinction between the predicate internal arguments (Is) and the predicate

external argument (E). The presence of the predicate implies the presence of Is, but not that of E. The difference between these two types of arguments is expressed not only in lexical representations but also in the composition rules in English. Is are elements mentioned in rule (19) of Chapter 2 and the E is identified by rule (24). These rules are reproduced as (3a) and (3b), respectively.

(3) a. $X \equiv Y - \underline{I} - \underline{I} - \underline{I} - \dots$

where X is the category of a lexical item \underline{L}_1 , Y is the phonological matrix of \underline{L}_1 and Is are the categories of predicate internal arguments of \underline{L}_1 .

Cond.: If there is more than one I, the order of Is must follow the Hierarchy of Grammatical Functions (13) of Chapter 2.

b. $\underline{E} - V \equiv S$
(Det)

Rule (3a) guarantees the presence of Is, wherever their selector is identified in a string. On the other hand, the presence of the E is not ensured by the occurrence of its selector. Rather, it is required only when a string of words is identified as a proposition (= a sentence).

What is characteristic to the Equi/Raising construction is that, as I mentioned, it involves a subjectless 'sentence' as a complement. In the present framework, such a subjectless 'sentence' cannot be considered a sentence. I call it a 'predicational phrase,' and it is introduced as a PRED(ication) argument in the lexicon.¹

The PRED argument is not confined to a syntactic category VP (in the

traditional sense) but it can also be represented by an NP, PP, or AP. But the PRED argument is never expressed by an S. This follows from what a predicational phrase is: it is subjectless. Along with examples in (1), there are various other phrasal types of predicational phrases, as in (4).

- (4) a. John made Mary a doctor. (NP)
 b. We elected John president. (NP)
 c. John painted the house red. (AP)
 d. John felt angry. (AP)
 e. I want my car in the garage. (PP)
 f. John considers Mary stupid. (AP)
 g. John regards Mary as beautiful (AP (or PP according to Emonds (1978)))

In what follows I will show that the analysis of the Equi/Raising construction automatically accounts for the construction in (4), by subsuming both types of constructions under the PRED construction.²

Now let us see how examples in (1) and (4) are treated in our framework. First, example (1a) is taken up as a representative of the PRED construction and later other examples will be discussed.

Partial lexical entries of persuade and relevant lexical items in (1a) are given below. For expository purposes, the semantic roles of the PAS are expressed by $\theta_1, \theta_2, \dots, \theta_n$ instead of actual semantic roles such as Agent, Theme, Source, etc.

- (5) a. John: Det; [--]
 b. Mary: Det; [--]

- (10) [a. $S \equiv \text{Det} - V \equiv i - j$
 b. John_i [---]
 c. made_j [<SUBJ> OBJ PRED] \equiv [<i> k 1]
 d. Mary_k [---]
 e. a₁ [N] \equiv [m]
 f. doctor_m [---]

The PRED construction of this type gives a well-formed or complete F-Structure representation; i.e. all the argument positions of the PAS are filled by constant indices and all the indices appear in the argument positions of the F-Structure. However, the interpretation has not been completed because it is not specified in (10) that the subject of a doctor is Mary. This case is similar to the case of (1a) to the extent that the subject of the PRED must be interpreted. The difference between these two cases is that the F-Structure of (1a) (= (7)) clearly shows this need, while that of (4a) (= (10)) does not overtly express that the subject is missing.

In order to generalize all the PRED constructions, I propose the following rule in F-Structure which gives a subject slot to a lexical item, if it occupies the PRED argument position.

- (11) The Subject Argument Assignment (SAA) --Obligatory

If the index of a lexical item L occupies a PRED argument position of some other lexical item in the F-Structure representation, the following rule applies to the F-Structure representation of L, which adds a SUBJ argument to the PAS of L in F-Structure.

\underline{L} [GF₁, GF₂, . . .] \rightarrow [<SUBJ> GF₁, GF₂, . . .]
 where GF is a certain grammatical function but not SUBJ.

This rule introduces the SUBJ argument to the PAS of a lexical item, if the item functions as a PRED argument. If the lexical item already possesses its SUBJ, this rule does not apply. Rule (11) generalizes to all the cases of the PRED construction and at the same time expresses the characteristic that the PRED argument must look for its subject in the interpretation procedure.³ Rule (11) alters (10e), producing (12a). Similarly (7e) undergoes (11), being converted to (12b). Rule (11) does not apply to buy_m (7f), because it already has the SUBJ argument.

- $$\begin{array}{l}
 \text{SAA (11)} \\
 (12) \text{ a. } \underline{a}_1 \quad [N] \xrightarrow{\downarrow} [\langle \text{SUBJ} \rangle N] \equiv [\langle \text{SUBJ} \rangle m] \\
 \text{b. } \underline{to}_1 \quad [\text{PRED}] \xrightarrow{\uparrow} [\langle \text{SUBJ} \rangle \text{PRED}] \equiv [\langle \text{SUBJ} \rangle m] \\
 \text{SAA (11)}
 \end{array}$$

Now we are in a position to interpret a missing SUBJ of the PRED construction. In both (1a) and (4a), the subject of the PRED argument is Mary, which is the OBJ of persuade and make, respectively, but not John, the SUBJ of these verbs. In the traditional transformational framework, where the Equi structure is considered to involve a sentential complement, Rosenbaum (1970) proposed the Minimal Distance Principle in order to determine the trigger of Equi NP Deletion. This principle predicts that the subject of the embedded S is deleted under identity with the object of the matrix verb if the latter is present; otherwise it is deleted under identity with the subject. The same principle is utilized in the present framework. The SUBJ of the PRED argument is the OBJ argument in the PAS, if the

latter is present. Otherwise, it is the SUBJ argument. Recall that the order of the arguments in the same PAS is determined by the Hierarchy of Grammatical Functions given in (13) in Chapter 2. The PRED argument is lower than the OBJ argument which is lower than the SUBJ argument in the hierarchy. By referring to the argument which is next higher to the PRED, it can be correctly identified which argument serves as the SUBJ of the PRED argument. In (7c) and (10c), two arguments, namely SUBJ and OBJ, are higher than the PRED argument and the one next higher to the PRED argument is the OBJ argument. Hence, in these cases, the OBJ argument of persuaded (7c) and that of made (10c) serve as the SUBJ of the PRED argument of persuaded and that of made, respectively. The following rule accounts for the interpretation of the subject of the PRED argument.

(13) The Subject Interpretation Rule (SIR) (a preliminary version)

The SUBJ argument is the next argument on the left to the PRED argument in the F-Structure representation.

This rule predicts that the SUBJ in (12a) and (12b) is Mary, since it occupies the OBJ of persuaded and made, respectively. Furthermore, rule (13) identifies the SUBJ of (12b), which is Mary, as the SUBJ of buy (7f). The two rules just introduced, (11) and (13), thus generalize all the PRED constructions and correctly identify their subjects.

There is an interesting consequence of adopting rule (13). As my framework now stands, the E or SUBJ argument is identified by

two different devices: one by the composition rule (3b) and the other by the SIR (13). The former is utilized when a sentence is involved and the latter is relevant for a PRED structure. But if a verb is considered to have an inherent PRED function, which is not an absurd assumption, the subject of a sentence is identified uniformly by (13). To make the point clearer, observe (7) and (10). The SUBJ of (7c) and (10c) is identified through (7a) and (10a), respectively, which are specific instances of (3b). Rule (3b) differs from (3a) in that the latter creates a constituent by combining a selector and its arguments, whereas the former identifies a constituent S by looking for two selectors, Det and V. Rule (3b) is somewhat strange because it involves two different representations, E and Det, and further it serves two functions; constituting an S and identifying the SUBJ of the V. If SUBJ interpretation is uniformly done by (13), (3b) does not have to serve two functions and its form is simplified as in (14).

(14) Det - V \equiv S

SIR must be revised and generalized in order to identify all the SUBJ arguments in English.

(15) The Subject Interpretation Rule (SIR) (a second version)

The SUBJ of a lexical item is interpreted by the index which is next on the left to the index of the lexical item in the F-Structure representation.

As a summary of the above discussion, let us examine examples (1b) and (4b). Partial representations of relevant lexical items are given in (16) and (17).

- (16) a. John: Det; [--]
 b. force: V; [$\langle \theta_1 \rangle$ θ_2 θ_3]
 SUBJ OBJ PRED
 | | |
 Det Det P
 to
- c. Mary: Det; [--]
 d. to: P_{pred}; [PRED]
 |
 V
- e. swim: V; [$\langle \theta_1 \rangle$]
 SUBJ
 |
 Det
- (17) a. John: Det; [--]
 b. feel: V; [$\langle \theta_1 \rangle$ θ_2]
 SUBJ PRED
 | |
 Det A
- c. angry: A; [$\langle \theta_1 \rangle$]
 SUBJ
 |
 Det

C-Structure representations are given by (3a) and (14). F-Structure representations are constituted from the lexical entries and the C-Structure representations. In F-Structure, rules (11) and (15) apply as shown in (19) and (20).

(18) a. (for (1b)) $\text{Det} - \text{V} \equiv \text{S}$
 John_i forced_j - $\text{Det} - \text{P}$
 Mary_k to_1 - V
 swim_m

b. (for (4b)) $\text{Det} - \text{V} \equiv \text{S}$
 John_i felt_j - A
 angry_k

(19) the F-Structure of (1b)

$$\left[\begin{array}{l} \text{S} \equiv \text{Det} - \text{V} \equiv i - j \\ \text{John}_i \quad [--] \quad \text{SIR} \\ \text{forced}_j \quad [\langle \text{SUBJ} \rangle \text{ OBJ PRED}] \equiv [\langle \text{SUBJ} \rangle k \ 1] \equiv [\langle i \rangle k \ 1] \\ \text{Mary}_k \quad [--] \text{SAA} \quad \text{SIR} \\ \text{to}_1 \quad [\text{PRED}] \Rightarrow [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle m] \equiv [\langle k \rangle m] \\ \text{swim}_m \quad [\langle \text{SUBJ} \rangle] \equiv [\langle k \rangle] \\ \quad \quad \quad \uparrow \\ \quad \quad \quad \text{SIR} \end{array} \right.$$

(20) the F-Structure of (4b)

$$\left[\begin{array}{l} \text{S} \equiv \text{Det} - \text{V} \equiv i - j \\ \text{John}_i \quad [--] \quad \text{SIR} \\ \text{felt}_j \quad [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle k] \equiv [\langle i \rangle k] \\ \text{angry}_k \quad [\langle \text{SUBJ} \rangle] \equiv [\langle i \rangle] \\ \quad \quad \quad \uparrow \\ \quad \quad \quad \text{SIR} \end{array} \right.$$

Neither (19) nor (20) violates PFC; hence, the string of words (1b) and (4b) are identified as well-formed sentences.

3.1.2. The Extended Standard Theory and the Predication Argument

In the EST, infinitives are analyzed as sentences. The Equi construction such as (1a) is considered to be a tenseless sentence whose subject is PRO, a lexical NP without phonetic matrix. The

control rule, which was given in fn. 15 of Chapter 1, specifies which NP in the higher clause is interpreted as the subject of the infinitive. Hence, (1a) is analyzed as (21) at S-Structure and only when PRO is coindexed with Mary is it considered to be grammatical.

(21) (= (1a)) John persuaded Mary_i [\bar{S} [\bar{S} PRO_i to buy a car.]]

In the EST framework, the predication structure such as (4) does not involve an embedded sentence, since there is no syntactic sentential source for the underlying phrases in (4). However, any grammar which is adequately descriptive must be able to interpret the subject of the predicational phrase in (4). In fact Chomsky (1980a) proposes an analysis where a structure-building rule applies in the mapping from the S-Structure of (22a) to its LF representation in (22b).

- (22) a. I regard them as similar to each other.
 b. I regard them as [\bar{S} PRO be similar to each other.]

A motivation of this structure-building analysis is obvious: the as phrase in (22a) behaves like an \bar{S} . Recall that in the EST framework, the Binding Theory (BT) requires an anaphor to be bound in its governing category (\bar{S} or NP) and a pronominal to be free in its governing category (see (28) of Chapter 1).

- (23) a. *They_i regard me as similar to each other_i.
 b. They_i regard me as similar to them_i
- (24) a. *They_i persuaded me [\bar{S} PRO to shave each other_i.]
 b. They_i persuaded me [\bar{S} PRO to shave them_i.]

If the as phrase is an AP (or a PP if Emonds' (1978) idea is adopted), (23a) must be grammatical because each other is bound by they in \bar{S} and (23b) must be ungrammatical because them is not free in \bar{S} . However, the situation is the opposite: (23a) is ungrammatical and (23b) is grammatical. The paradigm in (23) is strikingly similar to (24). Hence, to describe the phenomenon in (23) and (24) in a proper way, the as phrase must be considered as an \bar{S} in the EST.

However, Chomsky correctly assumes that the as phrase is not an \bar{S} , because "there seems to be no syntactic motivation for assigning anything beyond the obvious surface structure to such sentences (1980a:17)." To reconcile the dilemma that the as phrase is not an \bar{S} in the syntactic representation but it behaves like an \bar{S} with respect to BT, an ad hoc structure-building operation is called for. Stowell (1980) rightly criticizes this approach by saying that "structure-building rules are permitted to the mapping to LF, even to the point of introducing grammatical formatives such as the copula be. (p. 4)"⁴

Instead of building the PRO subject (and the copula be) in LF, Stowell proposes an analysis where the subject position is syntactically generated in all phrasal categories, S, NP, PP, AP (and possibly VP). Since he intends to preserve BT intact, the PRO

subject is necessary for as phrases in (22a) and (23). Hence, in his analysis, (22a) and (23) are represented as in (25) at S-Structure.

- (25) a. I_i regard $them_j$ as $[_{AP} PRO_j [\bar{A}$ similar to each other $_j$.]]
 b. * $They_i$ regard me_j as $[_{AP} PRO_j [\bar{A}$ similar to each other $_i$.]]
 c. $They_i$ regard me_j as $[_{AP} PRO_j [\bar{A}$ similar to them $_i$.]]

The PROs in (25) are controlled by the object (j). By stipulating that all the phrasal categories are governing categories, BT predicts the grammaticality shown in (25).

This analysis of as phrases are extended to the predicational phrases such as those in (4). Stowell presents the following examples among others.

- (26) a. I want $[_{PP}$ this man $[\bar{P}$ off my ship.]]
 b. I want $[_{AP}$ John $[\bar{A}$ happy.]]
 c. John made $[_{AP}$ Sally $[\bar{A}$ angry at him (*himself).]]

In (26), the PP and AP are analyzed as a phrase with a lexical subject. The subjects are governed by a verb and receive Objective Case. (Note that \bar{S} is an absolute barrier to government but an XP is not; thus, the subject of XP is governed by the verb, while the subject of \bar{S} is not.) Here, the NP which is sister to \bar{X} is the syntactically defined subject in Stowell's system. This analysis presumably accounts for the subject-predication relation observed in (4).

As the two analyses, mine and Stowell's, now stand, they seem to be on a par in terms of descriptive adequacy. However, there

are several serious problems with Stowell's system. First, as Stowell himself notes, it is not at all clear whether the subject and the following \bar{X} form a single constituent. A syntactic test, such as Cleft Formation, seems to indicate they are different constituents. Compare (27) with (28) and (29).

- (27) a. I want this man off my ship.
 b. It was this man that I want off my ship.
 c. *It was this man off my ship that I want.
- (28) a. I went to the store.
 b. It was to the store that I went.
- (29) a. I want the apple.
 b. It is the apple that I want.

As (28) and (29) show, PPs and NPs can normally be fronted (in a non-technical sense) in the Cleft construction. If this man off the ship is truly a single constituent, as Stowell claims, we may expect (27c) to be grammatical, though it is not. Moreover, fronting part of a PP, the man, results in a grammatical sentence (27b). If it is really part of a larger constituent, (27b) is expected to be ungrammatical. However, if the man and off my ship are analyzed as independent constituents, as it has been ordinarily assumed, the fact observed in (27) is a natural consequence. Thus, his analysis presented in (26) seems untenable.

The second problem with his analysis is relating to the distribution of PRO and a lexical subject in XPs. Since an XP is

not a barrier to government, the subject NP in an XP is always governed if a governor subcategorizes the XP and it receives Case if a governor is [-N]. Stowell assumes that the governor only governs subcategorized items but it does not govern nonsubcategorized items such as time, place, and manner adverbial PPs. Then, if an XP is subcategorized by a V or P, the subject of the XP must not be PRO but a lexical item, because the occurrence of PRO is restricted to ungoverned positions in the EST framework. Stowell argues that this is the case. Observe (30), which must be compared with (26) and (31).

- (30) a. *I want [_{PP} PRO [_P off my ship.]]
 b. *I want [_{AP} PRO [_A happy.]]
 c. *John made [_{AP} PRO [_A angry at him (himself).]]
- (31) a. *John slept [_{PP} Mary [_P in the room.]]
 b. John slept [_{PP} PRO [_P in the room.]]

In (30), PRO is impossible in the subject position of the PP and AP, because this position is governed by a verb. In contrast, the PP in (31) is not subcategorized; hence, only PRO is allowed in the subject of the PP. So far, his argument seems to go through. However, there are a number of cases where an XP cannot have a lexical subject though it is governed. Observe the following examples.

- (32) a. John went to school.
 b. John felt angry.
 c. John put a car in the garage.

Since any XP has a syntactic subject position, the above PP and AP must have a subject position. In Stowell's system, they may be represented as follows.⁵

- (33) a. John went [_{PP} PRO [_P to school.]]
 (cf. *John went [_{PP} Mary [_P to school.])
- b. John felt [_{AP} PRO [_A angry.]]
 (cf. *John felt [_{AP} Mary [_A angry.])
- c. John put a car [_{PP} PRO [_P in the garage.]]
 (cf. *John put a car [_{PP} Mary [_P in the garage.])

There is no doubt that the PP and AP in (33) are subcategorized by a verb and their subjects must be governed. Then, Stowell's system predicts the opposite grammaticality on these examples. PRO must not be allowed and a lexical NP must occupy the subject position of the PP or AP in (33). Hence, the distribution of PRO and a lexical NP in the subject position of an XP cannot be rightly ensured.

A third problem arises in conjunction with NPs. Stowell does not talk about the case of NPs so much as the case of APs and PPs, maybe because the subject position of an NP is widely accepted. However, if the analysis employed for APs and PPs is extended to the case of NPs, problems arise. One attractive feature of Stowell's system is that all the categories are generalized and the \bar{X} theory of PS rules is simplified. This is so, only if NPs behave like other phrasal categories. In his system, the subject of an XP can be governed by a governor that subcategorizes the XP. But the subject

of an NP must not be governed (except few cases), because the occurrence of the subject in the NP is irrelevant to whether it is governed by a V or P.

- (34) a. [_{NP} John's [_N parents]] put [_{NP} Bill's [_N books]] on
 [_{NP} Mary's [_N table.]]
- b. [_{NP} PRO [_N the parents]] put [_{NP} PRO [_N books]] on
 [_{NP} PRO [_N the table.]]

In the EST framework, the subject of the NP receives Genitive Case by a special rule stipulated in the Case Theory (cf. (24e) of Chapter 1)). Hence, it should not receive Objective Case from a V or P. However, there are cases where Objective Case must be assigned to the subject of the NP. Observe the examples in (35), which are briefly touched upon in Stowell (1980:fn. 13).

- (35) a. John made [_{NP} Bill [_N a doctor.]]
 b. *John made [_{NP} Bill's [_N a doctor.]]

In (35a), Bill must receive Objective Case because Genitive Case on Bill makes this sentence ungrammatical (35b). Compare (35) with (36), where Genitive Case must be assigned to Bill.

- (36) a. *John made [_{NP} Bill [_N desk.]]
 b. John made [_{NP} Bill's [_N desk.]]

Structurally (35) and (36) are the same in Stowell's system. What

makes them different is how Case is assigned; (35a) by a governing verb and (36b) by a special case marking rule. Then, his analysis must be equipped with an ad hoc stipulation concerning when an exceptional Case assignment by a verb is allowed and when the Genitive Case assignment is waived. Furthermore, it is a mystery why the NP in (35a) cannot be passivized but that in (36b) can, and why the subject NP of the NP in (35a) is passivized but not that in (36b).

- (37) a. * $[_{NP}$ Bill $[_{N}$ a doctor]] was made by John.
 b. $[_{NP}$ Bill's $[_{N}$ desk]] was made by John.

- (38) a. Bill was made $[_{N}$ a doctor] by John.
 b. *Bill was made $[_{N}$ a desk] by John.

All the problems noted above are intertwined with the assumption that a syntactic subject position is generated for all phrasal categories. They are (i) syntactic tests such as Cleft Formation and Passive cannot motivate a syntactic subject position in XP; (ii) once a subject position is generated by base rules, a grammar must be equipped with mechanisms that rule out undesirable lexical subjects and phonetically null subjects (PRO)—the distribution of PRO and lexical subjects does not follow from other mechanisms which are proposed in the EST; (iii) ad hoc stipulations such as exceptional case marking and exceptional nonapplication of Genitive Case marking must be posited.

I am not against postulating some sort of subject if it is necessary to interpret the subject of a predicational phrase.

But I am against postulating subjects in unnecessary positions. Stowell's analysis seems to create more problems than it solves. By freely generating a subject in any phrasal category regardless of the syntactic environment of the position where the phrasal category is generated, the distinction is blurred between where a subject argument is necessarily understood and where it is not. The underlined phrases in (4) clearly need a subject, because there must be agreement in semantic features between the predicational phrase and the phrase that is interpreted as its subject. However, other types of phrases do not need such agreement. This is exemplified in the following sentences.

- (39) a. John made Mary { a doctor. }
 { *doctors. }
 b. John made his sons { *a doctor. }
 { doctors. }
 c. I want { *the flower } in a bundle.
 { the flowers }
- (40) a. John went to { the store. }
 { the stores. }
 b. John put the books on { the desk. }
 { the desks. }

It is not at all clear in Stowell's system what the PRO subject means in nonpredicational phrases such as (41).

- (41) a. John slept [_{pp} PRO [_{p̄} for five hours.]]
 b. Mary made the table [_{pp} PRO [_{p̄} with care.]]
 c. John left [_{pp} PRO [_{p̄} at five o'clock.]]

These PPs do not need an understood subject and their function is

to modify a verbal phrase, supplying information about how, when, or where the action expressed by the verbal phrase takes place. Hence, the PRO in (41) cannot be indexed with any particular NP in a sentence nor can it have an arbitrary reference. This use of PRO must be different from the one in (25), which is subject to control rules. Stowell's system should possess a mechanism to differentiate two uses of PROs in the subject of XPs. This distinction would coincide with the difference between what I call PRED arguments and other types of arguments.

By now, it seems clear that the present analysis is superior to Stowell's analysis. The former supplies a subject argument where it is needed according to lexical specifications, whereas the latter supplies a syntactic subject in all phrasal categories, creating the problems I noted above. Furthermore, the latter must be equipped with a mechanism which distinguishes two types of subjects, one being really necessary for a correct interpretation of a sentence and the other unnecessary.

3.1.3. On the Argumentless Grammatical Function

In the above, the Equi construction, (1a) and (1b), is taken up as a representative of the PRED construction. In the same way, the Raising structure such as (1c) can be accounted for. However, the grammar must be able to express the difference between these two constructions. As far as C-Structure is concerned, the representation of the Equi structure and that of the Raising are the same. The difference between the two structures in question is simply the

following: an Equi verb such as persuade and force imposes semantic selections on its subject, whereas a Raising verb such as believe does not.⁶ In the proposed framework, believe, for example, is represented as in (42), which must be contrasted with persuade (5a) and force (16b).

(42) believe: V; $\left[\begin{array}{ccc} \langle \theta_1 \rangle & \theta_0 & \theta_2 \\ \text{SUBJ} & \text{OBJ} & \text{PRED} \\ \text{Det} & \text{Det} & \text{P} \\ & & \text{to} \end{array} \right]$ where θ_0 stands for a nonargument position.

In (42), the object argument is specified with no semantic selection. This means that anything can fill this position as long as it can function as the SUBJ of the following PRED argument. Note that according to SIR the SUBJ of the PRED must be the OBJ argument, if there is one. Given (42), the interpretation of (1c) is straightforward. To see how (1c) is identified as a well-formed sentence, the F-Structure representation of (1c) is given below.

(43) $\left[\begin{array}{l} \text{S} \equiv \text{Det} - \text{V} \equiv \text{i} - \text{j} \\ \text{John}_i \quad [--] \\ \text{believed}_j \quad [\langle \text{SUBJ} \rangle \text{OBJ} \text{PRED}] \equiv [\langle \text{SUBJ} \rangle \text{k} \text{l}] \equiv [\langle \text{i} \rangle \text{k} \text{l}] \\ \text{Mary}_k \quad [--] \text{SAA} \\ \text{to}_l \quad [\text{PRED}] \Rightarrow [\langle \text{SUBJ} \rangle \text{PRED}] \equiv [\langle \text{SUBJ} \rangle \text{m}] \equiv [\langle \text{k} \rangle \text{m}] \\ \text{be}_m \quad [\langle \text{SUBJ} \rangle \text{PRED}] \equiv [\langle \text{SUBJ} \rangle \text{n}] \equiv [\langle \text{k} \rangle \text{n}] \\ \text{stupid}_n \quad [\langle \text{SUBJ} \rangle] \equiv [\langle \text{k} \rangle] \end{array} \right]$

↑
SIR

The Raising-to-Subject structure such as (44) is analyzed in

a similar way to the Raising-to-Object case in the present framework. Raising-to Subject predicates such as seem and appear do not impose a semantic role on its subject.

- (44) a. John seems to like Mary.
 b. John appears crazy.

The lexical representation of seem, for example, is something like (45).

- (45) seem: V; $\left[\begin{array}{cc} \langle \theta_0 \rangle & \theta_1 \end{array} \right]$
 $\frac{\text{SUBJ} \quad \text{PRED}}{\text{Det} \quad \left\{ \begin{array}{c} \text{P} \\ \text{to} \\ \text{A} \end{array} \right\}}$

The subject argument is connected with no semantic role. This means that any Det category fills this position as long as it can serve as the SUBJ of the following PRED argument. Given (45), the interpretation of (44a) is straightforward, as shown below.

- (46) $\left[\begin{array}{l} \text{S} \equiv \text{Det} - \text{V} \equiv \text{i} - \text{j} \\ \text{John}_i \quad [--] \\ \text{seems}_j \quad \left[\begin{array}{l} \theta_0 \\ \langle \text{SUBJ} \rangle \text{ PRED} \end{array} \right] \quad \left[\begin{array}{l} \text{SIR} \\ \downarrow \\ \langle \text{SUBJ} \rangle \text{ k} \equiv \langle \text{i} \rangle \text{ k} \end{array} \right] \\ \text{to}_k \quad [\text{PRED}] \Rightarrow \langle \text{SUBJ} \rangle \text{ PRED} \equiv \langle \text{SUBJ} \rangle \text{ l} \equiv \langle \text{i} \rangle \text{ l} \\ \text{like}_l \quad \left[\begin{array}{l} \langle \text{SUBJ} \rangle \text{ OBJ} \equiv \langle \text{SUBJ} \rangle \text{ m} \equiv \langle \text{i} \rangle \text{ m} \\ \uparrow \\ \text{SIR} \end{array} \right] \\ \text{Mary}_m \quad [--] \quad \text{SIR} \end{array} \right]$

3.1.4. A Counterexample to the Subject Interpretation Rule

A problem for the SIR (15) arises in conjunction with the case of promise, where the closest argument to the PRED cannot be the subject of the PRED. Example (1d) is repeated as (47), whose F-Structure representation before the SIR (15) applies is given in (48).

(47) John promised Mary to find a job.

(48) $\left[\begin{array}{ll} S & \text{Det} - V \equiv i - j \\ \underline{\text{John}}_i & [--] \\ \underline{\text{promised}}_j & [\langle \text{SUBJ} \rangle \text{ OBJ PRED}] \equiv [\langle \text{SUBJ} \rangle k \ 1] \\ \underline{\text{Mary}}_k & [--] \\ \underline{\text{to}}_1 & [\text{PRED}] \Rightarrow [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle m] \\ \underline{\text{find}}_m & [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle \text{SUBJ} \rangle n] \\ \underline{\text{a}}_n & [N] \equiv [o] \\ \underline{\text{job}}_o & [--] \end{array} \right.$

According to the SIR (15), as it now stands, the subject of the PRED, to find a job, of promised is predicted to be Mary_k, which is incorrect. The problem of promise has long been recognized. Koster (1978), in defence of Rosenbaum's Minimal Distance Principle (and his own Locality Principle), argues that the case of promise is limited to very few verbs, so few that it is to be stipulated in the lexicon. In Hasegawa (1981a), I follow Koster's analysis and specify the object of promise to be [-controller] of the predicate. Such a stipulation can be easily incorporated into the lexical specification of promise in the present framework. Promise is entered

in the lexicon as in persuade (5a) but the OBJ argument is marked with [-subject]. By this stipulation, the index which occupies this position cannot appear in the subject argument position of any predicate. There are only few verbs whose OBJ argument is marked with [-subject]. Some examples are given below.

- (49) a. John impressed Mary as an experienced politician.
 b. John will make Mary a good husband.
 c. John served Mary as a cook.

In these examples the subject of the PRED (underlined phrase) must be interpreted as John, not Mary. The SIR (15) is now modified, incorporating the stipulation on the OBJ argument of these predicates.⁷

- (50) The Subject Interpretation Rule (SIR) (a final version)

The SUBJ of a lexical item is interpreted by the index (say x) which is next on the left to the index (y) of the lexical item in the F-Structure representation, provided that the argument position for x is not marked by [-subject].

According to (50), Mary in (47) and (49) cannot be interpreted as the subject of the following PRED argument, because the OBJ argument of the predicate in question is marked with the feature [-subject]. Thus, the argument with [-subject] is not counted in (50) and the next higher argument, which is a SUBJ argument, is now interpreted as the subject of the PRED argument in (47) and (49).

The feature [-subject] predicts the impossibility of

passivizing the object of the subject control verbs (cf. Bresnan (1978), Wasow (1977, 1980), Anderson (1977)). The passive counterparts of (47) and (49) are ungrammatical.

- (51) a. *Mary was promised to find a job.
 b. *Mary was impressed as an experienced politician.
 c. *Mary was made a good husband.
 d. *Mary was served as a cook.

As will be discussed in Chapter 5, the passive operation typically subjectivizes the object of the active predicate. If the passive operation applies to a [-subject] object, it becomes 'subject,' which is not allowed, as the feature [-subject] indicates. Hence, this feature captures the nonpassivizability of the object of the subject control predicate.

The SIR (50) predicts that there are no cases where ambiguity is observed in interpreting the subject of the PRED. Koster (1978) challenges this claim, considering ask to exhibit both subject and object control. The following are his examples.

- (52) a. John asked Bill to go.
 b. John asked Bill to be permitted to go.

In (52a), the subject of the PRED is Bill (a case of object control), whereas in (52b) the subject of the PRED is John (a case of subject control); hence, Koster's claim that ask can have both subject and

object control. However, if ask in (52a) is the same ask in (52b), it cannot be explained why (52a) and (52b) are NOT ambiguous. In (52a) John cannot be the subject of to go and in (52b) Bill cannot be the subject of to be permitted to go. I suspect that ask in (52a) is a different predicate from ask in (52b). Ask in (52a) takes only a nonstative VP-PRED and in contrast ask in (52b) takes a stative PRED. Subject control ask (52b), as being similar to promise and other subject control verbs, cannot be a passive predicate, while the object control ask (52a) can, as shown in (53).

- (53) a. Bill was asked to go.
 b. *Bill was asked to be permitted to go.

Hence, the passive phenomenon also supports a two verb analysis of ask in (52).

3.2. The Subject Interpretation Rule and Japanese

The analysis of Japanese Equi/Raising constructions is essentially the same as that of English. Examples (2a) and (2d) are typical Equi sentences, which are reproduced as (54a) and (54b), respectively.

- (54) a. John-ga Mary-ni kuruma-o kaw-u yooni susume-ta.
 subj dat car-obj but-pres CMP advise-past
 'John advised Mary to buy a car.'

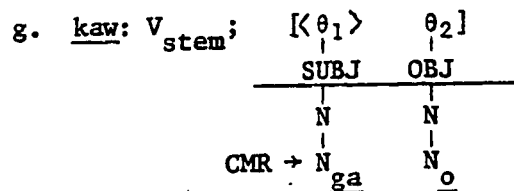
- b. John-ga Mary-ni shigoto-o mitsuke-ru to yakusoku shi-ta.
 subj dat job-obj find-pres CMP promise-past
 'John promised Mary to find a job.'

The order of constituents are free as long as the arguments precede the selector. Hence, the following sentences are all grammatical and roughly synonymous with (54a).⁸

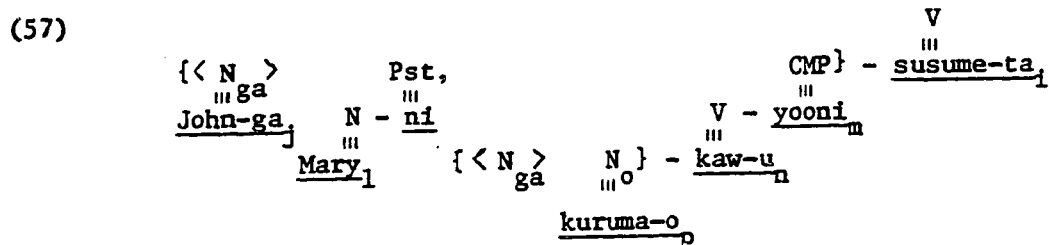
- (55) a. Mary-ni John-ga kuruma-o kaw-u yooni susume-ta.
 b. Mary-ni kuruma-o kaw-u yooni John-ga susume-ta.
 c. Kuruma-o kaw-u yooni Mary-ni John-ga susume-ta.
 etc.

Here, John-ga, Mary-ni, and (kuruma-o) kaw-u yooni are arguments of susume 'advise.' Hence, as long as they precede susume, any order is possible. I assume the following lexical entries for relevant lexical items.⁹ Case Marking Rules (CMR) assign ga to the N with the SUBJ function and o to the N with the OBJ function.

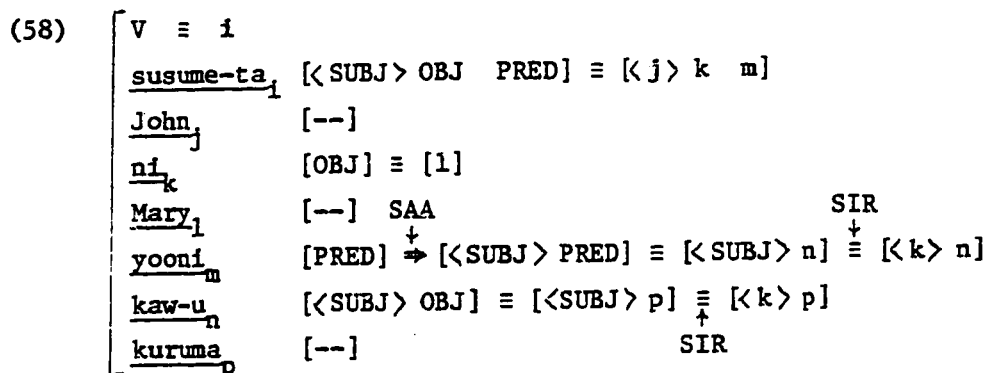
- (56) a. susume: V_{stem}; [θ_1 > θ_2 θ_3]
 SUBJ OBJ PRED
 N Pst ni CMP yooni
 CMR → N
ga
- b. John: N; [--]
 c. Mary: N; [--]
 d. kuruma: N; [--]
 e. ni: Pst_{dir}; [OBJ]
 N
 f. yooni: CMP_{pred}; [PRED]
 V



The Japanese composition rule requires arguments to precede their selector. The following structure (57) is the C-Structure representation of (54a) and (55).



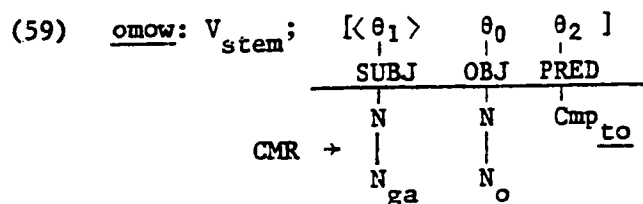
The F-Structure interpretation is carried out through the information in (56) and (57). As in the case of English, the PRED argument is subject to the SAA (11) and the SIR (50), both of which work in the F-Structure. The F-Structure representation of (57) is given in (58).



In (58), all the indices are represented in the F-Structure and all the argument positions are indexed. Hence, the interpretation is now completed.

The case of yakusoku su 'promise' (54b), where the SUBJ of the PRED argument is John not Mary, is handled in the same way as in English. Since the OBJ argument of this predicate is lexically marked with [-subject], it cannot be qualified to be the SUBJ of the following PRED argument.¹⁰

The Raising case, observed in (2c), is accounted for in a way similar to the Raising case of English. Raising predicates such as omow 'think,' shinji 'believe,' etc. possess a syntactic object on which no semantic selection or thematic role is imposed. Omow 'think,' for example, is entered in the lexicon in the following way.



3.2.1. The Compound Verb Formation

Japanese has a class of verbs which appear only in the context of other verbs. These verbs are often referred to as dependent verbs (DVs). Such verbs include causative (s)ase, indirect passive (r)are, polite causative moraw, potential ev(r)are, desiderative tai, and various aspectual verbs such as hajime 'begin,' tsuzuke 'continue,' oe 'finish,' etc. Examples with these verbs are provided

To derive a surface simplex structure from this complex structure, various transformations are involved. Case marking aside, the following three rules in that order are responsible for converting a complex structure into a simplex one: Equi NP Deletion under identity with the matrix object; Predicate Raising (PR), which attaches the embedded verb to the matrix verb; and S-Pruning.

What is peculiar to these predicates (DVs) is the operation of PR and S-Pruning. The Equi/Raising predicates discussed above also require the existence of other verbs (i.e. PRED arguments in the present framework). However, they are different from DVs in that the required verb is followed by a complementizer, and the sequence of the selected verb and complementizer forms a unit independently from the matrix verb. On the other hand, a DV must be directly preceded by a required 'embedded' verb and these two verbs form a unit, which acts like a single verb. The following examples illustrate the difference between ordinary Equi/Raising predicates and DVs.

- (62) a. Mary-o baka-da to John-ga omot-ta. (cf. (2c))
 subj stupid CMP subj think-past
 'John thought Mary to be stupid.'
- b. Mary-ni kuruma-o kaw-u yooni John-ga susume-ta. (cf. (2a))
 dat car-obj buy-pres CMP subj advise-past
 'John advised Mary to buy a car.'
- c. *Mary-o oyog John-ga (s)ase-ta. (cf. (60a))
 sbj swim subj cause-past
- d. *Piono-o hiki Mary-ga hajime-ta. (cf. (60c))
 piano-obj play subj begin-past
- e. *Mary-ni tegami-o kaite John-ga morat-ta. (cf. (60d))
 dat letter-obj write subj cause(polite)-past

In the case of ordinary Equi/Raising predicates, the effect of 'scrambling' can break up the two verbs; the subject of the Equi/Raising predicate can intervene between the main verb and the 'embedded' verb. On the other hand, the sequence of two verbs cannot be broken apart when DVs are involved. Hence, (62c), (62d), and (62e) are ungrammatical.

In the traditional transformational framework, the process of forming a single predicate from two different verbs is the main function of PR. In the present analysis, this has to be done in the lexicon by a lexical word formation rule. In Hasegawa (1980a), I argue that a number of problems arise if PR is considered to be a syntactic transformation. To begin with, this process is sensitive to lexical information. The following discussion reveals the lexical nature of this process.

In the traditional transformational framework, both Equi/Raising predicates and DVs start out with the same type of deep structure; namely they require an embedded sentence. The former requires a COMP and a finite form of the verb (which is [-tense]) in the embedded sentence, while the embedded sentence of the latter must not have either a COMP element or a finite verb, but simply a verb stem, a gerundive form of a verb or an infinitive verb form, the selection of which depends on the type of DVs. There are no non-ad hoc mechanisms that ensure this selection of verb forms but lexical specifications of each predicate: Equi/Raising predicates require PREDs whose SF is represented by a complementizer; (s)ase and (r)are

require PREDs which are verb stems; hajime 'begin,' tai 'want,' etc. must have PREDs which are infinitival verbs; and omow 'polite causative,' shimaw 'finish,' etc., must be preceded by the gerundive form of the verb. Moreover, there is no independently motivated mechanism that rules out either DV structures which fail to undergo PR or Equi/Raising predicates to which PR applies in the analysis where PR is proposed as a transformation.

The lexical nature of PR is clearly observed in connection with potential e_v(ra)re. These verbs, e and (ra)re, are in complementary distribution depending on the phonological form of the preceding (or embedded) verb. If the stem of the 'embedded' verb ends with a consonant, e is used. If it ends with a vowel, rare or re is required. Hence, we obtain yom-e 'read-can,' oyog-e 'swim-can,' etc. along with tabe-rare or tabe-re 'eat-can,' ki-rare or ki-re 'put on-can,' etc. In the analysis where a complex structure is proposed for e_v(ra)re, even lexical insertion has to be powerful enough to look into the phonological form of the embedded verb.¹²

To incorporate the lexical nature of PR, I propose the following word formation rule in the lexicon, which gives rise to compound predicates.¹³

(63) The Compound Verb Formation (CVF) --Obligatory

Given two verbs, L₁ and L₂, whose lexical representations are as in (a) and (b), L₁ and L₂ are combined, producing a compound verb whose lexical representation is (c).

- a. $\underline{L}_1 : V ; \begin{array}{c} [\theta_{\alpha} \dots \theta_x \dots] \\ \text{GF}_{\alpha} \dots \text{GF}_x \dots \\ \hline C_{\alpha} \dots V \begin{cases} \text{stem} \\ \text{inf.} \\ \text{ger.} \end{cases} \end{array}$
- b. $\underline{L}_2 : V \begin{cases} \text{stem} \\ \text{inf.} \\ \text{ger.} \end{cases} ; \begin{array}{c} [\theta_{\beta} \dots] \\ \text{GF}_{\beta} \dots \\ \hline C_{\beta} \dots \end{array}$
- c. $\underline{L}_2 + \underline{L}_1 : V ; \begin{array}{c} [\theta_{\alpha} \dots \underline{L}_2 \dots] \\ \text{GF}_{\alpha} \dots \text{GF}_{\beta} \dots \\ \hline C_{\alpha} \dots C_{\beta} \dots \end{array}$

where θ , GF, and C are a certain semantic role, a grammatical function, and a category, respectively, and F stands for a certain feature or a feature complex; e.g. [\pm stative], [\pm self-controllable], etc.

This rule applies to the predicates whose SF of the lexical entry selects V_{stem} , $V_{\text{inf.}}$, or $V_{\text{ger.}}$. To illustrate how (63) works, let us consider (60b), (60d) and (60e).¹⁴ Partial lexical representations of the relevant DVs are given in (64).

- (64) a. $\underline{\text{(r)are}} : V_{\text{stem}} ; \begin{array}{c} [\langle \theta_1 \rangle \quad \theta_0 \quad \theta_2] \\ \text{SUBJ} \quad \text{OBJ} \quad \text{PRED} \\ \hline N \quad N \quad V_{\text{stem}} \end{array}$
- b. $\underline{\text{tai}} : V_{\text{stem}} ; \begin{array}{c} [\langle \theta_1 \rangle \quad \theta_2] \\ \text{SUBJ} \quad \text{PRED} \\ \hline N \quad V_{\text{inf.}} \end{array}$
- c. $\underline{\text{moraw}} : V_{\text{stem}} ; \begin{array}{c} [\langle \theta_1 \rangle \quad \theta_0 \quad \theta_2] \\ \text{SUBJ} \quad \text{OBJ} \quad \text{PRED} \\ \hline N \quad N \quad V_{\text{ger.}} \end{array}$

The FF of these lexical entries are similar to that of ordinary Equi/Raising predicates (see (56a) and (59)). The difference between PR predicates and Equi/Raising predicates is expressed in the SF of the lexical entry. The former require certain verb forms, which are subject to the Compound Verb Formation (63), whereas the latter require complementizers.

Let me first illustrate how (60b) is interpreted. The relevant lexical entries are given in (65) in addition to (64a).

- (65) a. John: N; [--]
 b. sensei: N; [--]
 c. musuko: N; [--]
 d. shikar: V_{stem} ; [$\langle \theta_1 \rangle$ θ_2]
 [-stative] SUBJ OBJ
 N N

(64a) must undergo rule (63). By combining (64a) and (65d) we obtain the following compound verb.

- (66) shikar-are: V_{stem} ; [$\langle \theta_1 \rangle$ θ_0 shikar]
 [-stative] | | [$\langle \theta_1 \rangle$ θ_2]
 SUBJ OBJ SUBJ OBJ
 N N N N
 N N N N
 ga ni ga o
 CMR →

Entry (66) is a single lexical item with a complex FF. The PRED argument of (64a) is substituted for by the lexical item shikar 'scold.' For the time being, let us assume that the OBJ of rare, θ_0

causee is marked by ni, and the other for the O-Causative, where o marks the causee, both of which have exactly the same surface structure except case markers on the causee. The following example illustrates these two types of causatives.

- (69) John-ga Mary- $\left\{ \begin{array}{l} \text{ni} \\ \text{o} \end{array} \right\}$ Tokyo-e ik-ase-ta.
 'John $\left\{ \begin{array}{l} \text{let} \\ \text{made} \end{array} \right\}$ Mary go to Tokyo.'

The deep structure, in such a framework, is supposed to correspond to the semantic representation of a sentence. Thus, the meaning difference between the Ni-Causative and the O-Causative has been repeatedly discussed (cf. Kuroda (1965a), Kuno (1973), Harada (1973), Kitagawa (1974), Shibatani (1973a, 1973c, 1974, 1976a, 1978), Tonoike (1978), etc.). Although a complete agreement on this matter has never been attained, a general understanding is that in the O-Causative, the causer has a more or less direct control over the causee, while in the Ni-Causative the causer is merely responsible for what the causee does and she does not impose a direct force on the causee. Shibatani (1978) elaborates on this distinction more precisely.

He argues that 'causatives' universally express two types of causations: the causation where the causer induces a certain event or situation and the one where the causer allows a certain event or situation to occur, though she could have stopped it. I call the former 'real causation' and the latter 'permissive causation.' In both cases, the Ni- and O-Causatives are possible. Thus, according to

Shibatani's view, Japanese causatives are four dimensional: (i) the real causation with the Ni-Causative, in which the causer induces an event when the causee is willing to participate in it; (ii) the real causation with the O-Causative, where the causer induces the causee to take part in a certain event disregarding the causee's will; (iii) the permissive causation with the Ni-Causative, in which the causer positively lets an event happen; and (iv) the permissive causation with the O-Causative, where the causer (unwillingly) permits the causee to take part in an event. Although the distinctions among these different types of causations are not always clear-cut, it seems possible to interpret examples like (69) in four different ways.

What is important in characterizing causatives is as follows: In one type, the causer has some effect on the causee either by forcing (the real causation with the O-Causative) or by allowing or permitting (the permissive causation with the O-Causative). In the other type, such an effect is absent either because the causee is willing to initiate an event (the real causation with the Ni-Causative) or because an event has already been initiated (the permissive causation with the O- and Ni-Causation). Whether the causer gives such an effect on the causee has been considered to be a factor that distinguishes deep structures of the Ni- and O- Causatives. In most cases, the semantic dichotomy coincides with the syntactic dichotomy. Hence, Kuno (1973, 1978), Shibatani (1976a), and Harada (1973), for example, give the following deep structures for (69).

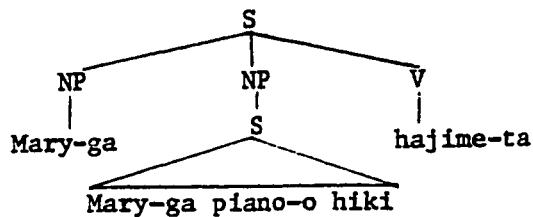
causee is not related to the verb (s)ase or the causer does not have any effect on the causee. Hence, any analysis which equates the semantic dichotomy to the syntactic dichotomy must fail to describe the sentences such as (71).

In the proposed framework, the semantic difference as to whether the causee is related to the verb (s)ase is incorporated in lexical representations of (s)ase and case markers are assigned independently from such semantic distinctions. For the (s)ase which imposes a thematic role on the object, I provide (72a) as its entry. On the other hand, the (s)ase which does not impose semantic selections on the object is represented in the lexicon as in (72b).

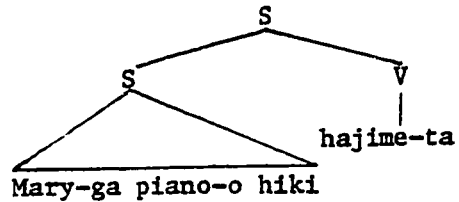
- (72) (s)ase: V_{stem} ; a. $[\langle \theta_1 \rangle \quad \theta_2 \quad \theta_3]$
 [-stative] SUBJ OBJ PRED
 | | |
 N N V_{stem}
- b. $[\langle \theta_1 \rangle \quad \theta_0 \quad \theta_2]$
 SUBJ OBJ PRED
 | | |
 N N V_{stem}

Since (s)ase requires V_{stem} as its PRED argument, these lexical entries are subject to the Compound Verb Formation (63), by which ik 'go', for example, is combined with (s)ase.

(75) a. Transitive



b. Intransitive



Several transformations have to apply to these structures to derive a surface simplex structure. Among others, PR and S-Pruning apply to (75b) and Equi NP Deletion, PR, and S-Pruning to (75a). The obvious reason for setting up the above two structures is that the intransitive hajime does not impose semantic selections on the subject, whereas the transitive hajime only takes animate nouns for its subject. Thus, if the subject is inanimate or an entity that cannot initiate the action, the sentence is not ambiguous but has only an intransitive reading.

(76) Ame-ga huri-hajime-ta.
rain-subj fall-begin-past

'The rain began to fall down.' 'It began to rain.'

In the present framework, where PR, S-Pruning, and Equi do not exist, this difference in the semantic selection on the subject is incorporated in lexical representations. I assume that hajime 'begin,' for example, is represented in the following way.

(82)). The intransitive reading of (74) needs some discussion. In (77a) and (78a), I did not supply the SF representation for the subject of hajime, to which no thematic role is assigned. Here, I assume that in Japanese or nonconfigurational languages, the SUBJ argument with no thematic role does not appear in syntactic representations or in the C-Structure in my framework. This is not an ad hoc or unmotivated stipulation but follows from general principles, some of which have been already discussed.

In Chapter 2, I have made distinctions between E and Is; the existence of a verb does not entail the existence of E, while Is are required whenever their selector is present. The fact that the subject normally appears in a sentence is explained by PFC, which ensures that all the argument positions be filled by indices (or lexical items). If the subject is a nonargument position ($=\theta_0$), as in (77a) and (78a), PFC predicts that no lexical item should occur there.

In the present framework, the difference between English and Japanese with respect to the syntactic realization of SUBJ of a nonargument position is expressed in a systematic way. Recall that English possesses a composition rule which forms an S constituent from Det and V (i.e. $\text{Det} - \text{V} \equiv \text{S}$). In Japanese, on the other hand, such constituency is not motivated on the syntactic level (or the C-Structure). Hence, there is no reason for Japanese to reserve a syntactic position for the SUBJ argument, as long as it is identified as SUBJ by case markers. However, in English, in order to identify

an S constituent and a SUBJ argument, a syntactic position for the subject is necessary. Thus, for the subject with nonargument, the expletive it is used in English, while no such syntactic expression is required in Japanese. This difference is observed in the following pairs.

- (79) a. Ame-da.
rain-copula
'(It) rains.'
- b. It rains.
- (80) a. John-ga Amerika-e it-ta rashi-i.
subj to go-past seem-pres
'(It) seems that John went to the U.S.A.'
- b. It seems that John went to the U.S.A.

Predicates such as rain and seem do not impose semantic selections or thematic roles on their subjects. Hence, sentences with such predicates do not have subjects in Japanese, whereas they must have a syntactic subject in English in order to identify the sentence status of a string of words. In the proposed analysis, this difference between English and Japanese (or between configurational and nonconfigurational languages) thus falls out naturally from the basic assumption; that is, English utilizes structures to identify grammatical functions, while Japanese uses case markers to do so. The 'dummy' subject (it) is required in English in order to compose a well-formed structure from which grammatical functions are determined. On the other hand, in Japanese such a stipulation is not necessary.

Returning to example (74), the interpretation is done in the following way. The C-Structure and F-Structure are given for both intransitive and transitive readings.

(81) Intransitive reading of (74)

- a.
- $$\{ \langle \emptyset \rangle \quad \langle N \rangle \quad N_o \} - \overset{V}{\text{hiki-hajime-ta}}_i$$
- $$\text{Mary-ga}_j \quad \text{piano-o}_k$$
- b.
- | | | |
|------------------------------------|-----------------------|-----------------------|
| <u>hiki-hajime-ta</u> _i | [<SUBJ> <u>hiki</u>] | [<SUBJ> <u>hiki</u>] |
| <u>Mary</u> _j | [--] | [<j> k] |
| <u>piano</u> _k | [--] | |

(82) Transitive reading of (74)

- a.
- $$\{ \langle N \rangle \quad \langle N \rangle \quad N_o \} - \overset{V}{\text{hiki-hajime-ta}}_i$$
- $$\text{Mary-ga}_j \quad \text{piano-o}_k$$
- b.
- | | | |
|---------------------------|-----------------------|--------------------|
| <u>hiki-hajime-ta</u> | [<SUBJ> <u>hiki</u>] | [<j> <u>hiki</u>] |
| | [<SUBJ> OBJ] | [<SUBJ> k] |
| SIR | [<j> <u>hiki</u>] | [<j> k] |
| <u>Mary</u> _j | [--] | |
| <u>piano</u> _k | [--] | |

In (81), the SUBJ of hiki-hajime-ta is not indexed. But this is allowed because no lexical item (=index) should appear in this position, as \emptyset indicates. In contrast, the SUBJ of the transitive hajime (82) is an argument position and it must be indexed. Thus, the interpretation of (74) is now completed.

3.3. Case Marking Rules and the Thematic Role Percolation

In 3.2.2, I gave the following Case Marking Rules (CMR) as a preliminary version.

(83) Case Marking Rules in Japanese (= (30) of Chapter 2)

- a. SUBJ receives ga
 - b. OBJ receives ga, if a verb is stative, otherwise o
- They apply to the SF of SUBJ and OBJ arguments of a verb.

These rules account for simplex sentences; however, if complex predicates are involved as in causatives, indirect passives, etc., they are not sufficient.

So far, I have considered only ga and o to be case markers; all others postpositions. In most of the past analyses, ni has been treated as a case marker together with o and ga. In such analyses, ni in (84a), which marks an indirect object, as well as ni in (84b), which marks the causee of the causative construction with (s)ase, are both case markers.

- (84) a. John-ga Mary- $\left\{ \begin{array}{l} e \\ \underline{ni} \end{array} \right\}$ hon-o age-ta.
 subj $\left\{ \begin{array}{l} to \\ \underline{dat} \end{array} \right\}$ book-obj give-past
 'John gave a book to Mary.'
- b. John-ga Mary- $\left\{ \begin{array}{l} *e \\ \underline{ni} \end{array} \right\}$ hon-o yom-ase-ta.
 subj book-obj read-cause-past
 'John caused Mary to read a book.'

- (86) a. Suunin-no shoonen-ga hon-o yonde-i-ru.
 several boys-subj book-obj read-prog-pres
 'Several boys are reading books.'
- b. Shoonen-ga suunin hon-o yonde-i-ru.
- (87) a. John-ga suunin-no shoonen-o nagut-ta.
 subj several boys-obj hit-past
 'John hit several boys.'
- b. John-ga shoonen-o suunin nagut-ta.

As Shibatani predicts, the numeral or quantifier in the indirect object NP, which is marked by ni, cannot be moved out from the NP. This is shown in (88).

- (88) a. John-ga suunin-no shoonen-ni hon-o age-ta.
 subj several boys-dat book-obj give-past
 'John gave a book to several boys.'
- b. *John-ga shoonen-ni suunin hon-o age-ta.

Thus far, Shibatani's claim is correct; however, the quantifier or numeral associated with the NP-ni of the type (84b) must be allowed to 'move out' from the NP as shown in the following examples.¹⁷

- (89) a. John-ga suunin-no shoonen-ni hon-o yom-ase-ta.
 subj several boys-dat book-obj read-cause-past
 'John caused several boys to read a book.'
- b. John-ga shoonen-ni suunin hon-o yom-ase-ta.

- (90) a. John-ga sannin-no kodomo-ni shin-are-ta.
 subj three child-dat die-passive-past
 '(Lit.) John was died by three of his children.'
 'John was affected by the death of his three children.'
- b. John-ga kodomo-ni sannin shin-are-ta.

These examples are counter to Shibatani's claim that QF applies only to the NPs with ga or o.

Due to these differences between two types of ni's, I consider the one in (84a), the indirect object or Goal marker, to be a postposition and the one in (84b) a case marker.¹⁸ I will now consider sentence types such as Raising (91a), causative (91b) and (91c), polite causative (91d), indirect passive (91e), and aspectual predicates (91f). These examples have appeared in previous sections ((91a)=(2c), (91b & c)=(69), (91d)=(60e), (91e)=(60b), (91f)=(60c)).

- (91) a. John-ga Mary-o baka-da to omot-ta.
 subj obj stupid CMP think-past
 'John thought Mary to be stupid.'
- b. John-ga Mary-o Tokyo-e ik-ase-ta.
 subj obj to go-cause-past
 'John made Mary go to Tokyo.'
- c. John-ga Mary-ni Tokyo-e ik-ase-ta.
 subj dat to go-cause-past
 'John let Mary go to Tokyo.'
- d. John-ga Mary-ni tegami-o kaite-morat-ta.
 subj dat letter-obj write-cause(polite)-past
 'John benefited from Mary's writing a letter.'
- e. John-ga sensei-ni musuko-o shikar-are-ta.
 subj teacher-dat son-obj scold-passive-past

'(lit.) John was scolded his son by the teacher.'
 'John was affected by the teacher's scolding of his son.'

- f. Mary-ga piano-o hiki-hajime-ta.
 subj piano-obj play-begin-past
 'Mary began to play the piano.'

Some of the above examples are straightforwardly accounted for by the proposed case marking rules in (83). For example, in (91b) and (91f), only ga and o are involved and no modification of the rules in (83) is necessary to account for these examples. However, (83) cannot handle such examples with the ni case marker as (91c), (91d), and (91e), because no rule introduces ni as a case marker in (83).

Before introducing a rule of the ni case marker assignment, I would like to propose the following convention.

- (92) Case markers are not given to the nonargument subjects.

In discussing the structure of aspectual verbs, I have argued that if no thematic role is given to the SUBJ position of the lexical entry or F-Structure representation, SUBJ is not realized in the C-Structure in Japanese. Convention (92) is in accord with this non-realizability of the SUBJ with no thematic role. A case marker should not be realized when the entity of the grammatical function (SUBJ) is not realized.

However, if the nonthematic argument is an I, a case marker must be given to it. By definition, an I must be present, if its selector is present. If an I is syntactically represented by an N,

it must be case-marked, unless there is some other means which identifies its grammatical function. A problem here is how such nonthematic arguments are realized with respect to case markers. Here, I would like to put forth another claim: case markers are sensitive not only to grammatical functions but also to types of thematic roles. This is not an extraordinary claim and it has been claimed by Inoue (1976a) and Shibatani (1978), for example. Notice that the nouns marked by ni in (91) are not thematically related to the main predicates, (s)ase in (91c), moraw in (91d), and (r)are in (91e). As discussed in the previous sections, these predicates are represented in the lexicon as follows.

- (93) a. (s)ase: V_{stem} ; [$\langle \theta_1 \rangle$ θ_0 θ_2]
 [-stative] SUBJ OBJ PRED
 | | |
 N N V_{stem}
- b. moraw: V_{stem} ; [$\langle \theta_1 \rangle$ θ_0 θ_2]
 [-stative] SUBJ OBJ PRED
 | | |
 N N $V_{\text{ger.}}$
- c. (r)are: V_{stem} ; [$\langle \theta_1 \rangle$ θ_0 θ_2]
 [-stative] SUBJ OBJ PRED
 | | |
 N N V_{stem}

In Japanese, the case marker ni appears only when the item selected by a predicate is not thematically related to the predicate.¹⁹ One way to incorporate this generalization into the ni placement rule is to employ a rule like (94).

(94) Place ni to the N of OBJ with no thematic role.

However, this approach encounters a problem, if we consider the Raising examples. As discussed in 3.2, Raising predicates such as omow 'think,' shinji 'believe' do not assign a thematic role to their object. The lexical entry of omow is repeated here.

(95) (cf. (59)) omow: V_{stem} ; $[\langle \theta_1 \rangle \quad \theta_0 \quad \theta_2]$
 $\begin{array}{ccc} \text{SUBJ} & \text{OBJ} & \text{PRED} \\ \hline \text{N} & \text{N} & \text{Comp } \underline{o} \end{array}$

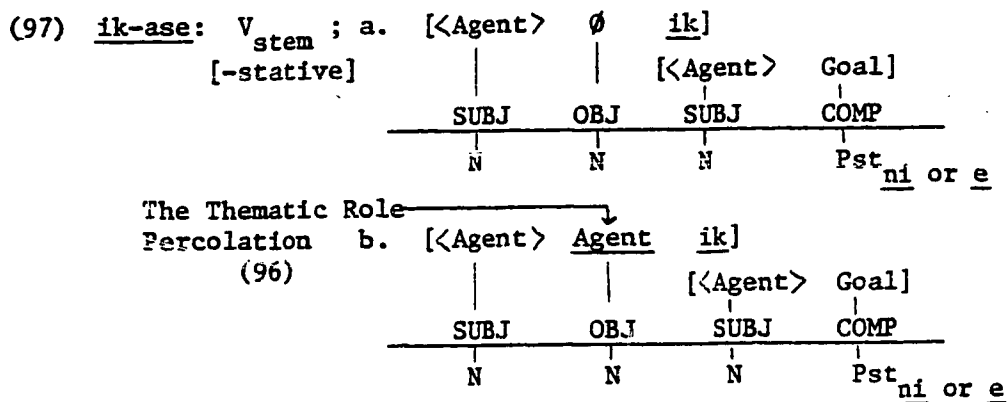
Thus, (94) predicts that the OBJ with no thematic role would receive ni. This prediction is wrong. As seen in (91a), the OBJ of omow must be marked by o. Hence, (94) cannot explain why the nonargument OBJ in (93) is marked by ni and that in (95) by o.

The difference between the ni case-marked nonthematic argument (the case of the predicates in (93)) and the o case-marked nonthematic argument (the case of omow (95)) is that the predicate of the former typically undergoes CVF (63) whereas the predicate of the latter does not. I assume that the following convention applies to the compound verbs.

(96) The Thematic Role Percolation

An internal argument (I) with no thematic role receives a thematic role from the SUBJ argument of the predicate which occupies the argument position sister to the I.

To illustrate how convention (96) works, let us consider example (91c). Two verbs, ik 'go' and (s)ase 'cause,' form a single predicate, whose lexical entry is given in (97). Here, the OBJ of ik-ase does not have a thematic role. The convention (96) now applies to (97a), introducing an Agent role to the nonthematic object.



To give ni to the Agent OBJ, I revise CMR (83) and propose (98).

(98) Case Marking Rules in Japanese (CMR)

- a. SUBJ receives ga
- b. OBJ receives ga, if a verb is stative, ni if it has the Agent role; otherwise o

They apply to the SF of SUBJ and OBJ arguments of a verb.

Now, we can account for the case arrays observed in (91). The Raising example (91a) does not pose a problem in the analysis with (98). The Raising predicate omow 'think' does not undergo CVF; hence, the convention (96) does not apply to its lexical entry.

This means that the OBJ of omow does not have a thematic role and CMR (98) correctly assigns o to the OBJ. The OBJ of the polite causative moraw is always marked by ni, because it takes a verb with [+self-controllable] as its PRED function. CVF combines moraw and its PRED verb, forming a single predicate. Now the thematic role of the SUBJ of the PRED verb percolates up to the OBJ of moraw. Since the SUBJ of the [+self-controllable] verb always receives the Agent role, the OBJ of moraw receives the Agent role, which must be marked by ni according to (98).

An advantage of my analysis can be observed with respect to the causative construction. In the traditional transformational framework, it has been claimed that the Ni-Causative must have a [+self-controllable] predicate in the embedded sentence. This has been a condition on the Ni-Causative (see Harada (1973), Kuno (1978), Tonoike (1978)). In the present framework, this fact easily follows from the above CMR (98). Ni is given to the OBJ with an Agent role, which is copied from the SUBJ of the predicate combined by CVF (63). In order for the OBJ to receive an Agent role, the PRED predicate must be [+self-controllable].

There are further interesting consequences in my analysis. In 3.2.1, I have reviewed the past transformational analysis of the causative structure. It has often been pointed out that in the O-Causative, the causee receives some force from the causer and in the Ni-Causative, the causer lets the causee to initiate the action described by the embedded predicate. To express this difference, two distinct

deep structures have been proposed (cf. (70)). The deep structure of the O-Causative has a matrix object to which some force may be given by the causer and that of the Ni-Causative does not have a matrix object; hence, no force is given to the causee. However, there are cases where the semantic dichotomy does not correspond to the syntactic difference between the O- and Ni-Causatives. As shown in (71), which is repeated as (99) for convenience, the O-Causative is observed in a situation where the causer does not give an effect on the causee but simply lets an event happen.

- (99) a. Mary-ga yasai- $\left\{ \begin{array}{l} *ni \\ o \end{array} \right\}$ kusar-ase-ta.
 subj veg. perish-cause-past
 'Mary let vegetables perish.'
- b. Mary-ga shinnaa- $\left\{ \begin{array}{l} *ni \\ o \end{array} \right\}$ joohatsu s-asete-shimat-ta.
 subj thinner gasify-cause-perf-past
 'Mary has let the paint thinner gasify.'

In these examples, the causer Mary does not force the causee, yasai 'vegetables' in (99a) and shinnaa 'thinner' in (99b), to initiate the event. Rather, she simply does not prevent the natural consequence from taking place. This is semantically similar to the Ni-Causative. Hence, these examples cannot be explained in past analyses. In the present framework, in contrast, the lexical representation of (s)ase in (99) is the same as (93a), where the OBJ of (s)ase does not receive a thematic role. By convention (96), the OBJ receives a thematic role from the SUBJ of kusar 'perish' in (99a) and that of joohatsu su 'gasify' in (99b). Whatever the thematic role might be,

it cannot be an Agent role. Thus, CMR correctly assigns o to these OBJs.

Convention (96) is further motivated in relation to an example such as (100).

- (100) John-ga haha- $\left\{ \begin{array}{l} \text{ni} \\ \text{kara} \end{array} \right\}$ tagami-o dashite-morat-ta.
 subj mother- $\left\{ \begin{array}{l} \text{dat} \\ \text{from} \end{array} \right\}$ letter-obj send-cause(polite)-past
 '(Lit.) John caused from mother to sent a letter.'
 'John benefited from mother's sending a letter.'

The causee of the polite causative moraw can be marked by kara 'from' in (100), which designates Source in general. The Source role on the causee haha 'mother' is not imposed by moraw but by das 'send.' Unless the attached verb requires a Source role on its SUBJ, kara is never used to mark the OBJ of moraw, as seen in (101).

- (101) John-ga Mary- $\left\{ \begin{array}{l} *kara \\ \text{ni} \end{array} \right\}$ Tokyo-e itte-morat-ta.
 subj $\left\{ \begin{array}{l} \text{from} \\ \text{dat} \end{array} \right\}$ to go-cause(polite)-past
 'John benefited from Mary's going to Tokyo.'

In (101), the SUBJ of ik 'go' does not have a Source role but an Agent role. This explains why (101) with kara is ungrammatical. By contrast, the SUBJ of das 'send' in (100) possesses a Source role as well as an Agent role, which are carried over to the OBJ of moraw. Hence, they can be marked either by ni (Agent) or kara (Source). Examples such as (100) show that the Thematic Role Percolation (96)

or some version of it is operative in Japanese.²⁰

3.4. The Honorific Interpretation Rule

Japanese is a language which possesses a grammatical system of honorifics. Depending on the sociological level of speech, who one is speaking to, what social status the speaker and hearer have, etc., forms of words may be altered. What is interesting in the honorific speech is that the occurrence of certain honorific forms is conditioned by grammatical factors. In this section, I would like to discuss one of the honorific processes which is popularly called 'Subject Honorification' (SH).

It was Harada (1976) who first attempted to describe the SH phenomenon within the generative framework. According to his discussion, if a subject refers to a person who is 'socially superior to the speaker' (SSS), then the predicate is optionally realized in a honorific form. Observe the following examples.

- (102) a. Sensei-ga sono hon-o yon-da.
 teacher-subj the book-obj read-past
 'The teacher read the book.'
- b. Sensei-ga sono hon-o o-yomi-ni nat-ta.
 'the same as (102a) but respect is paid to the subject.'
- (103) a. Sensei-ga sushi-o tabe-ta.
 teacher-subj obj eat-past
 'The teacher ate sushi.'
- b. Sensei-ga o-sushi-o o-meshiagari-ni nat-ta.
 'the same as (103a) but respect is paid to the subject.'

Given the subject sensei 'teacher,' which may be qualified as SSS, the verb may be realized in an honorific form as in (102b) and (103b). An honorific form of a verb is typically realized as follows: honorific prefix (o or go) + infinitive form of the verb + ni nar. There are, however, verbs whose honorific forms do not follow this regular form. Tabu 'eat,' for example, has its special honorific form o-meshiagari-ni nar as in (103b).²¹

Within the traditional transformational framework, the SH phenomenon is described by a set of transformations. However, there are a number of problems with transformational approaches to this phenomenon. In 3.4.1, I will review three representative analyses of this phenomenon; namely Harada (1976), Akmajian and Kitagawa (1976-77), and Kuno (1980), showing their inadequacies. I will then show in 3.4.2 that the framework advanced so far can adequately describe the phenomenon in question by means of morphological and interpretive rules.

3.4.1. A Review of Transformational Analyses of Subject Honorification

Harada's (1976) analysis of the SH phenomenon has been most influential and it has been widely accepted (cf. Akmajian and Kitagawa (1976-77), Shibatani (1977, 1978), Perlmutter (1979), Kuno (1980), etc.). Two other analyses, Akmajian and Kitagawa (1976-77) and Kuno (1980), which I will review in this section, basically follow Harada's proposal.

In order to describe the phenomenon observed in (102) and (103), Harada proposes the following set of rules, which is claimed

to apply in the following order in a cyclic fashion.

- (104) a. Subject honorific marking (optional)
 Mark the predicate as [Subject Honorific] if its subject is an SSS.
- b. Honorific suppletion (governed)
 If the predicate marked as [Subject Honorific] belongs to the class of 'suppletive verbs', substitute an appropriate suppletive form (mentioned in the lexicon) for it.
- c. Honorific prefixation (obligatory)
 Adjoin the honorific prefix to the predicate marked as [Subject Honorific].
- d. Honorific infinitivization (obligatory)
 Infinitivize a verb if it has an honorific prefix adjoined to it.
- e. Honorific auxiliary attachment (obligatory)
 Adjoin the honorific auxiliary nar- to the right of the honorific infinitive marked as [Subject Honorific].
- f. Ni insertion (obligatory)
 Adjoin the particle ni to the right of the honorific infinitive immediately preceding nar-.
- g. Honorific prefix spelling (obligatory)
 Spell out the honorific prefix as o- or go-, the choice depending on the etymological class of the immediately following lexical item.

(Harada (1976:517))

Although Harada's proposal has been widely accepted among Japanese linguists, there are a number of reasons for rejecting the transformational approach to the SH phenomenon. First of all, this set of rules is heavily conditioned by lexical information. For example (104b) and (104g); suppletive forms must be given in the

lexicon and whether an honorific prefix is realized as o or go is dependent on an individual item. Typically, o is given to a verb native to Japanese and go to a verb that originated in Chinese, though there are a number of exceptions. Prefixing o or go is not special to the SH process, but it is common to the morphological process of the polite word formation. Since the polite form of a word (N, V, or A) is undoubtedly made by a morphological rule, as in go-hon 'book (polite),' o-tegami 'letter (polite),' o-waka-i 'young (polite),' and go-rippa-da 'fine (polite),' for example, it is redundant to propose the same rule in different components. Similarly an infinitive form is introduced by (104d), while it must be independently introduced in the lexicon by a morphological rule. (See Hasegawa (1979a) for some discussion on the morphological nature of the SH process.) Furthermore, (104e) and (104f), which introduce grammatical formatives ni and nar, do not follow a general constraint on transformations.

Thus, the rules in (104) are peculiar as transformations. Besides this, there are empirical inadequacies in Harada's proposal. He claims that the SH rules (104) operate cyclically and they apply after Predicate Raising (PR). The following data are supposed to motivate his claim.

- (105) a. Sensei-ga hon-o o-yomi-ni nari-hajime-ta.
 teacher-subj book-obj read (hon.)-begin-past
 'The teacher began to read the book.'
- b. Sensei-ga hon-o o-yomi-hajime-ni nat-ta.
- c. *Sensei-ga hon-o o-yomi-ni nari-o-hajime-ni nat-ta.

- d. *Sensei-ga hon-o yomi-o-hajime-ni nat-ta.
 e. *Sensei-ga hon-o o-o-yomi-ni nari-hajime-ni nat-ta.

The examples in (105) involve an aspectual verb hajime 'begin.'
 Harada assumes a complex deep structure for (105).

(106) [_{S₂} Sensei [_{S₁} sensei hon yom] hajime-ta.]

The following operations derive (105a) and (105b) from (106), according to Harada. If the SH rules (104) apply on the S₁ cycle, yom becomes o-yomi-ni nar. Then, Equi NP Deletion, PR, and S-Pruning on the S₂ cycle convert (106) into a simplex structure. This results in (105a) with case marking operations. In the derivation of (105b), the SH rules do not apply on the S₁ cycle. After Equi, PR, and S-Pruning, the SH rules apply on the S₂ cycle. By this time, two verbs yom 'read' and hajime 'begin' are dominated by a single V node because of the operation of PR. Thus, the SH rules produce o-yomi-hajime-ni nat-ta as in (105b). Examples (105c) and (105d) would never be derived in his analysis, because hajime is always considered to be part of a larger predicate yomi-hajime due to PR by the time the SH rules apply on the S₂ cycle.

However, his analysis cannot rule out (105e), since the SH rules may apply twice, once on the S₁ cycle, producing o-yomi-ni nar and the second time on the S₂ cycle, converting o-yomi-ni nari-hajime into o- o-yomi-ni nari-hajime -ni-nar. To prevent this undesirable consequence, he proposes a global condition (107) on the applica-

tion of the SH rules.

- (107) Subject honorification does not reapply to an item that contains an item that has already undergone subject honorification. (Harada (1976:551))

This condition prohibits the reapplication of the SH operation on the same string of words. Since cyclic rules are characterized by the possible reapplication of the same rule on different cycles, (107) seem to show, contrary to Harada's claim, that the SH rules are not cyclic.

A more serious problem with Harada's analysis is observed in causative and indirect passive constructions such as (108).

- (108) a. John-ga sensei-ni tegami-o yom-ase-ta.
 subj teacher-dat letter-obj read-cause-past
 'John caused the teacher to read the letter.'
- b. John-ga sensei-ni tegami-o yom-are-ta.
 subj teacher-dat letter-obj read-passive-past
 '(Lit.) John was read the letter by the teacher.'
 'John was affected by the teacher's reading of the letter.'

In Harada's framework, these sentences are derived from complex structures such as (109).

- (109) a. [_{S₂} John [_{S₁} sensei hon yom] sase-ta.]
 b. [_{S₂} John [_{S₁} sensei hon yom] rare-ta.]

Since the SH operation is supposed to apply cyclically, it can apply on the S_1 cycle of the above strings. Then, PR and S-Pruning (and case marking rules) apply on the S_2 cycle. The result is, however, ungrammatical.

- (110) a. *John-ga sensei-ni hon-o o-yomi-ni nar-ase-ta.
 b. *John-ga sensei-ni hon-o o-yomi-ni nar-are-ta.

Notice that (110) are derived in the same way as (105a). Hence, there is nothing in his system, which prevents his SH rules from applying on the S_1 cycle of (109), while allowing them to apply on the S_1 cycle of (106).

Akmajian and Kitagawa (A & K) (1976-77) attempt to modify Harada's proposal in a way that the SH rules can rule out (110) while allowing (105a) and (105b). They argue that the SH rules are sensitive to the feature [\pm Aux] and [\pm V]. According to them, all ordinary verbs are [+V, -Aux], PR verbs such as hajime 'begin,' (s)ase 'cause,' (r)are 'indirect passive' are [+V, +Aux], and tense markers are [-V, +Aux]. Their SH operation is as follows, which apply cyclically after PR and S-Pruning.

(111) Subject Honorific Marking (Optional)

Mark the predicate as [Subject Honorific], if (i) the predicate in question is [+V], (ii) it is flanked on its immediate right by [+Aux] constituent which is also immediately dominated by the same cyclic node as the predicate, and (iii) its subject is [SSS].

(Akmajian and Kitagawa (1976-77:7))

Their underlying structures for (105) and (110) are the same as Harada's (namely (106) and (109), respectively) except that they contain [$\pm V$, $\pm Aux$] features.

(112) a. Deep structure for (105)

$$[S_2 \text{ sensei } [S_1 \text{ sensei hon yom }] \text{ hajime - ta. }]$$

[SSS] [SSS] [+V, -Aux][+V, +Aux][-V, +Aux]

b. Deep structure for (110a)

$$[S_2 \text{ John } [S_1 \text{ sensei hon yom }] \text{ sase - ta. }]$$

[SSS] [SSS] [+V, -Aux][+V, +Aux][-V, +Aux]

c. Deep structure for (110b)

$$[S_2 \text{ John } [S_1 \text{ sensei hon yom }] \text{ rare - ta. }]$$

[SSS] [SSS] [+V, -Aux][+V, +Aux][-V, +Aux]

According to (111), the SH operation does not take place on the S_1 cycle in any of the examples in (112), since the [+V] verb yom is not flanked by [+Aux] on its immediate right in S_1 : condition (ii) in (111) is not satisfied. On the S_2 cycle, the SH operation does not apply in the case of (112b) and (112c), because the subject of S_2 John is not [SSS]: condition (iii) in (111) is not satisfied. In the case of (112a), however, the operation takes place in two different places after PR and S-Pruning: (a) yom may be marked by [Subject Honorific] because it is flanked by a [+Aux] verb hajime; or (b) yomi-hajime as a unit may be marked by [Subject Honorific] because it is flanked by a tense marker, which is [+Aux]. In the case of (a), (105a) is obtained, whereas in the case of (b), (105b) is obtained. Ungrammatical examples in (110) will not be generated

because the SH operation (111) never applies to (112b) or (112c).

By making the SH operation sensitive to the features [\pm AUX, \pm V], A & K appear to succeed in defending a cyclic transformational approach to the SH phenomenon. However, their analysis also encounters a serious problem, which is observed in sentences like (113).

- (113) a. Sensei-ga John-ni tegami-o yom-ase-ta.
 teacher-subj dat letter-obj read-cause-past
 'The teacher caused John to read the book.'
- b. Sensei-ga John-ni tegami-o yom-are-ta.
 teacher-subj dat letter-obj read-passive-past
 '(Lit.) The teacher was read the letter by John.'
 'The teacher was affected by John's reading the letter.'

According to their analysis, examples (113) are represented as in (114) in deep structure.

- (114) a. [_{S₂} Sensei [_{S₁} John tegami yom] sase - ta.]
 [SSS] [+V, -Aux][+V, +Aux][-V, +Aux]
- b. [_{S₂} Sensei [_{S₁} John tegami yom] rare - ta.]
 [SSS] [+V, -Aux][+V, +Aux][-V, +Aux]

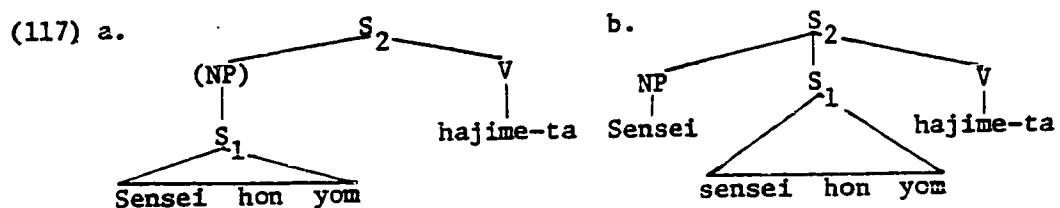
On the S₁ cycle, the SH operation (111) does not apply, because the subject is not [SSS] and because yom is not flanked by [+Aux] on its immediate right in S₁. On the S₂ cycle, where the subject is sensei [SSS], (111) yields two different honorific forms as in the case of (112a): (a) yom can be marked as [Subject Honorific], since it is

flanked by sase in (114a) or rare in (114b), both of which are [+Aux]; or (b) yom-ase (114a) or yom-are (114b), as a unit, can be marked as [Subject Honorific], because the past tense marker ta follows it. Thus, A & K would predict that (111) would yield (115) as well as (116).

- (115) a. *Sensei-ga John-ni tegami-o o-yomi-ni nar-ase-ta.
 b. *Sensei-ga John-ni tegami-o o-yomi-ni nar-are-ta.
- (116) a. Sensei-ga John-ni tegami-o o-yom-ase-ni nat-ta.
 b. Sensei-ga John-ni tegami-o o-yom-ase-ni nat-ta.

The problem here is that the examples in (115) are ungrammatical. There is no way in A & K's system to block (115) while allowing (105a). Thus, the transformational analysis proposed by A & K fails to describe the SH phenomenon satisfactorily.

An interesting observation is made by Kuno (1980).²² He argues that (105a) and (105b) have different deep structures; (105a) involves the intransitive hajime 'begin' and (105b) the transitive hajime. Recall the discussion in 3.2.1, where the difference between the intransitive and transitive hajime is considered. Kuno claims that (105a) is derived from (117a) and (105b) from (117b).



In (117a), hajime is intransitive, whose subject is not sensei 'teacher' to whom respect is to be paid; hence, Kuno claims hajime in (117a) does not receive the honorific marking, $\left\{ \begin{smallmatrix} o \\ go \end{smallmatrix} \right\} -X\text{-ni nar}$. Instead, only yom 'read,' whose subject is sensei, receives such a marking. In (117b), on the other hand, which contains transitive hajime, sensei initiates the action of begin. Hence, the honorific marking involves hajime.

Kuno's claim that the difference between the intransitive and transitive hajime corresponds to the difference in the honorific marking observed in (105a) and (105b) seems to be motivated by the following examples, which are due to Kuno.

- (118) a. Sensei-ga roshiago-ga wakari-hajime-ta.
 teacher-subj Russian-obj understand-begin-past
 'The teacher began to understand Russian.'
- b. *Sensei-ga roshiago-ga o-wakari-hajime-ni nat-ta.
 c. Sensei-ga roshiago-ga o-wakari-ni nari-hajime-ta.
- (119) a. Okyakusantachi-ga ryokan-ni tsuki-hajime-ta.
 guest (pl.)-subj inn-at arrive-begin-past
 b. *Okyakusantachi-ga ryokan-ni o-tsuki-hajime-ni nat-ta.
 c. Okyakusantachi-ga ryokan-ni o-tsuki-ni nari-hajime-ta.

In these examples, hajime is not ambiguous between intransitive and transitive readings, but it only has an intransitive reading. One cannot initiate the state indicated by wakar 'understand'; (118a) only means something like 'the teacher's understanding Russian began.' Similarly, (119a) describes a situation in which the guests started

coming to the inn. The guests do not initiate this situation. Thus, the subject of hajime is not sensei 'teacher' in (118a) or okyakusan-tachi 'guests' in (119a), to whom respect is paid. This explains why (118b) and (119b) are ungrammatical, where the honorific marking involves hajime.

Suppose that Kuno's observation above is correct. (I do share the same judgment on the grammaticality of the above examples.) Then, how can this phenomenon be described in a transformational analysis? Kuno also assumes that the SH operation such as Harada's (104) applies cyclically. To (117a), the SH operation applies on the S_1 cycle, which gives rise to o-yomi-ni nar. If the rules do not apply on the S_2 cycle after PR, the grammatical (105a) is derived. However, if they apply again on the S_2 cycle, the result is the ungrammatical (105e). Note that the deep structure information that sensei is not the subject of hajime cannot be preserved in the S_2 cycle due to the operation of PR. By the time the SH operation applies on the S_2 cycle, (117a) is converted into either (120a) or (120b). The application of the SH operation on the S_1 cycle yields (120a) whereas the nonapplication of it yields (120b).

- (120) a. I_{S_2} Sensei-ga hon-o [o-yomi-ni nari-hajime_v] - ta.]
 b. I_{S_2} Sensei-ga hon-o [yomi-hajime_v] - ta.]

If the SH operation applies to (120a), it produces o-o-yomi-ni nari-hajime-ni nat-ta, which is ungrammatical (cf. (105e)). If it

applies to (120b), the verb becomes o-yomi-hajime-ni nat-ta, which is the same as (105b). Then, Kuno's claim that (105b) is derived from the 'transitive' hajime cannot be maintained. This means that there is nothing which rules out (118b) and (119b). Furthermore, the ungrammatical (105e) cannot be ruled out unless Harada's global condition (107) is adopted.

The same problem arises in relation to the transitive hajime. In (117b), if the SH operation applies only on the S_1 cycle, but not on the S_2 cycle, (105a) is derived, which Kuno claims corresponds to the 'intransitive' hajime. If the SH operation applies only on the S_2 cycle, the grammatical (105b) is obtained. And if it applies on both the S_1 and S_2 cycles, the ungrammatical (105e) is derived. Kuno (1980) suggests that the honorific string in (105e), *o-o-yomi-ni nari-hajime-ni nat-ta, is changed into o-yomi-hajime-ni nat-ta by a honorific marking flattening rule. This ad hoc rule, however, does not save his system in any productive way. Although this flattening rule can get rid of an ungrammatical string, his system as a whole is no better than Harada's or A & K's. His interesting proposal that (105a) is derived from (117a) and (105b) from (117b) cannot be maintained, because both (105a) and (105b) are derivable from either (117a) or (117b).

The failure of the transformational approaches, Harada's, A & K's, and Kuno's, stems from their basic assumption that the SH operation applies cyclically and it is crucially ordered with respect to PR. A careful observation of the sentences discussed above and

their deep/surface structures reveals that a deep structure subject does not serve as a trigger for the SH operation. The subject that is relevant to the SH operation is a surface subject (the subject which is marked by the subject case marker ga on the surface). Observe (121) and (122), which contain most of the examples we have examined so far.

- (121) a. (=105a) Sensei-ga hon-o o-yomi-ni nari-hajime-ta.
'The teacher began to read a book--(intr. hajime)'
- b. (=105b) Sensei-ga hon-o o-yomi-hajime-ni nat-ta.
'The teacher began to read a book--(tr. hajime)'
- c. (=116a) Sensei-ga John-ni tagami-o o-yom-ase-ni nat-ta.
'The teacher caused John to read the letter.'
- d. (=116b) Sensei-ga John-ni tegami-o o-yom-are-ni nat-ta.
'The teacher is affected by John's reading the letter.'
- (122) a. (=105c)
*Sensei-ga hon-o o-yomi-ni nari-o-hajime-ni nat-ta.
- b. (=110a)
*John-ga sensei-ni tegami-o o-yomi-ni nar-ase-ta.
- c. (=110b)
*John-ga sensei-ni tegami-o o-yomi-ni nar-are-ta.

Suppose that Kuno is right in claiming that (121a) has an intransitive reading on hajime and (121b) a transitive reading. Sensei in (121a) is a deep subject as well as a surface subject. Thus, (121a) is compatible with my claim that only the surface subject is relevant to the SH marked verb. In (121b), the deep subject is deleted by Equi. Hence, sensei in (121b) is the surface subject which agrees

with the SH marked verb. In (121c) and (121d), the same thing holds: sensei is a surface subject. If a deep subject which does not appear as a surface subject triggers the SH operation as in (122b) and (122c), ungrammatical examples are generated. Similarly, (122a) is ungrammatical since it contains the SH marked verb o-yomi-ni-nari which must have been triggered by a deep subject, which does not show up on the surface.²³

If the surface subject is the trigger for the SH operation or, to put it differently, if the SH marked verb refers to the surface subject, the framework that has been advanced so far can easily incorporate the above SH phenomenon, because it does not possess the 'deep vs. surface' distinction but it deals only with the surface string. Now, let us discuss how the above phenomenon is described in the present framework.

3.4.2. The Honorific Interpretation Rule

In the framework advanced so far, no transformational rules are assumed. The effect of PR, i.e. combining two verbs, is done by CVF (63). The SH operation is not described by transformations, either, in the present framework. As I have argued in the previous section, the introduction of an honorific form of a verb is most naturally done in the lexicon. In Hasegawa (1979a), I argue for this assumption based on the general characteristics of the processes whose application is conditioned by sociological notions such as 'polite,' 'impolite,' 'casual,' etc. I propose the following rules for deriving a SH marked verb in the lexicon.²⁴

(123) a. Polite Prefix Attachment

$$X \rightarrow \left\{ \begin{array}{c} \underline{go} \\ \underline{o} \end{array} \right\} + X \quad \text{where } X = A, N, \text{ or } V_{inf}.$$

b. Subject Honorific Formation

$$\left\{ \begin{array}{c} \underline{go} \\ \underline{o} \end{array} \right\} + V_{inf.} \rightarrow \left\{ \begin{array}{c} \underline{go} \\ \underline{o} \end{array} \right\} + V_{inf.} + \underline{ni} + \underline{nar}$$

Rule (123a) is not only for a verb but for nouns and adjectives as in hon → go+hon 'book,' yasashi-i → o+yasashi-i 'kind,' etc. An infinitive verb with a polite prefix undergoes (123b), which produces a SH form of a verb. The application of the above rules (123a and b) are suppressed if a verb has its own suppletive SH form. These rules give rise to the SH independently from what kind of subject the sentence has. As Harada's rules (104) indicate, the occurrence of the SH form is closely related to the nature of the subject. In the present framework, an interpretive rule in the F-Structure determines whether a sentence with the SH marked verb is grammatical. This rule must be able to rule out (124a) while allowing (124b), for examples.

- (124) a. *Aitsu-ga hon-o o-yomi-ni nat-ta.
 s/he-subj book-obj read(hon.) past
 'S/he (vulgar) read (hon.) the book.'
- b. Ano kata-ga hon-o o-yomi-ni nat-ta.
 that person-subj
 'S/he (polite) read (hon.) the book.'

The presence of aitsu, a vulgar form of s/he, in (124a) shows that

the speaker does not show any respect to the subject. Hence, it cannot co-occur with the SH marked predicate. On the other hand, ano kata, a polite form of s/he, in (124b) can reflect the speaker's psychological respect to the person who she is referring to as ano kata. Ano kata can thus co-occur with the SH form of the verb.

The factor which determines the grammaticality of the sentence with the SH marked verb is whether the speaker pays respect to the subject, who could incidentally be socially inferior to the speaker. The use of an honorific form is also related to the conversational rule of a prescriptive grammar that the speaker 'is supposed to' use the SH marked verb in a formal situation, if the subject is socially superior to the speaker (SSS), even if the speaker despises the subject. Since it is normally the case that the speaker does not respect non-human subjects and that non-human subjects cannot be socially superior to the speaker, the subject of the SH marked verb must be human.

I propose the following rule which determines whether the use of the SH form is appropriate.

(125) The Honorific Interpretation Rule (HI) —Obligatory

If the predicate is of the SH form, mark its subject index with SH. Then, the referent of the index marked with SH must be either the person socially superior to the speaker or the one respected by the speaker.

As I have argued in the above, the subject in (125) must be

These SH forms are possible words in Japanese and they may appear in strings of words such as (126) and (127). However, among these forms, only those in (129) result in grammatical strings. In fact, this follows from HI (125). The F-Structures of (126a) and (127a) are given below. Here, I take only the case that involves (s)ase, though the case involving (r)are is analyzed in the same way.

(131) a. (for (126a))

<u>o-yomi-ni nar-ase-ta</u> ₁	[<SUBJ> OBJ <u>o-yomi-ni nar</u>] [<SUBJ> OBJ]
HI cannot apply	≡ [<j> k <u>o-yomi-ni nar</u>] [<SUBJ> 1]
	≡ [<j> k <u>o-yomi-ni nar</u>] [<k> 1]
<u>John</u> _j	SIR [--]
<u>sensei</u> _k	[--]
<u>tegami</u> ₁	[--]

b. (for (127a))

<u>o-yom-ase-ni-nat-ta</u> ₁	[<SUBJ> OBJ <u>yom</u>] [<SUBJ> OBJ]
HI	≡ [<j> k <u>yom</u>] [<SUBJ> 1]
SIR	≡ [<j> k <u>yom</u>] SH [<SUBJ> 1]
	≡ [<j> k <u>yom</u>] SH [<k> 1]
<u>sensei</u> _j	[--]
<u>John</u> _k	[--]
<u>tegami</u> ₁	[--]

In (131), case markers identify the ga marked nouns, John in (126a) and sensei in (127a), to be the subject of the complex verbs, o-yomi-ni nar-ase-ta and o-yom-ase-ni nat-ta, respectively. HI (125) is ordered before SIR.²⁶ Therefore, HI cannot apply to (131a), because the subject of o-yomi-ni nar has not been indexed. Unidentified subjects cannot be SSS; nor can they be respected by the speaker. The failure of the application of an obligatory rule results in ungrammaticality. By contrast, HI (125) can apply in (131b), marking the subject (i) with SH. Sensei_i can be qualified to be SSS or the person respected by the speaker. Hence, HI (125) is completed. Then, SIR applies, correctly identifying the subject of yom.²⁷ Thus, the present analysis correctly rules out (126), while it allows (127). This is what the transformational analyses discussed in 3.4.1 can not do.

A superiority of my analysis is further demonstrated in relation to examples with hajime. As discussed above, Kuno argues that (121a) involves intransitive hajime and (121b) transitive hajime. None of the transformational analyses could express this observation. In the present analysis, however, this will be explained in a natural way.

Hajime is a verb which must undergo CVF. If it is combined with a nonhonorific form yom and if rules (123) apply to the newly formed complex verb, the following lexical entries are obtained; (132a) involves intransitive hajime and (132b) involves transitive hajime.

- (132) a. o-yomi-hajime-ni nari: V_{stem}; [$\langle\theta_0\rangle$ yomi]
 | [θ_1 θ_2]
 SUBJ SUBJ OBJ
 —————
 \emptyset N N
- b. [$\langle\theta_1\rangle$ yomi]
 | [$\langle\theta_2\rangle$ θ_3]
 SUBJ SUBJ OBJ
 —————
 N N N

If hajime is combined with a verb which has undergone rules (123), we obtain entries in (133).

- (133) a. o-yomi-ni nari-hajime: V_{stem}; [$\langle\theta_0\rangle$ o-yomi-ni nari]
 | [$\langle\theta_1\rangle$ θ_2]
 SUBJ SUBJ OBJ
 —————
 \emptyset N N
- b. [$\langle\theta_1\rangle$ o-yomi-ni nari]
 | [$\langle\theta_2\rangle$ θ_3]
 SUBJ SUBJ OBJ
 —————
 N N N

Given these lexical entries, examples (121a) and (121b) are represented in F-Structure in the following way. Two F-Structures are assigned to each example. (Refer to (134) and (135) in the following page.) Recall that the intransitive hajime has a subject with no thematic role, which cannot be realized in the C-Structure representation. Hence, in (134a) and (135a), sensei₁ is not identified as the subject of the entire predicate but as that of o-yomi-ni nari in (134a) and yomi in (135a). In (134a), HI assigns SH to i, whose referent is

(134) (for (121a))

a. Intransitive hajime (133a)

$V \equiv i$ <u>o-yomi-ni nari-hajime-ta</u> _i	[<SUBJ> <u>o-yomi-ni nari</u>] \emptyset [<SUBJ> OBJ]
	\equiv [<SUBJ> <u>o-yomi-ni nari</u>] \emptyset [<j> k]
	\equiv [<SUBJ> <u>o-yomi-ni nari</u>] \uparrow [<j> k] HI SH
<u>sensei</u> _j [--] <u>hon</u> _k [--]	

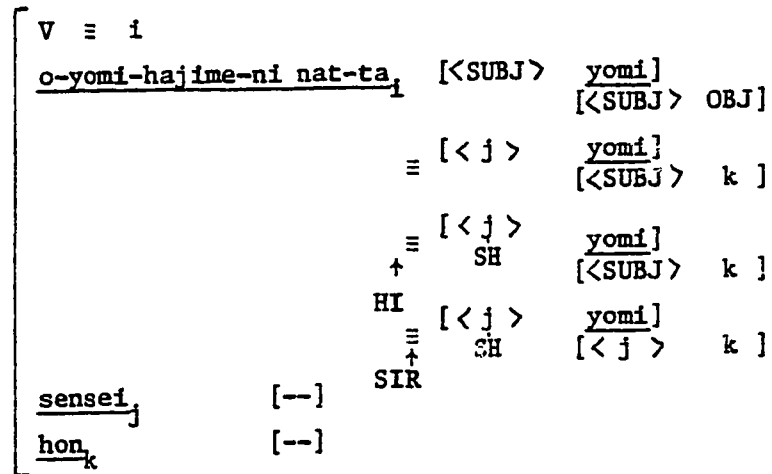
b. Transitive hajime (133b)

$V \equiv i$ <u>o-yomi-ni nari-hajime-ta</u> _i	[<SUBJ> <u>o-yomi-ni nari</u>] [<SUBJ> OBJ]
	\equiv [<j> <u>o-yomi-ni nari</u>] [<SUBJ> k]
	\equiv [<j> <u>o-yomi-ni nari</u>] \uparrow [<j> k] SIR
<u>sensei</u> _j [--] <u>hon</u> _k [--]	HI cannot apply \rightarrow

(135) (for (121b))

a. Intransitive hajime (132a)

$V \equiv i$ <u>o-yomi-hajime-ni nat-ta</u> _i	[<SUBJ> <u>yomi</u>] \emptyset [<SUBJ> OBJ]
	\equiv [<SUBJ> <u>yomi</u>] \emptyset [<j> k]
<u>sensei</u> _j [--] <u>hon</u> _k [--]	HI cannot apply \rightarrow

b. Transitive hajime (132b)

qualified to be SSS or to be the one who is respected by the speaker. This is the reading of (121a), as Kuno argues. HI (125) does not apply to (135a), because the SUBJ of the SH marked verb, o-yomi-hajime-ni nat-ta does not have an index. Hence, (135a) is ruled out. Thus, my analysis correctly assigns the intransitive reading to (121a) but not to (121b).

The transitive hajime has a subject argument and sensei_i is identified as the subject of the entire predicate in both (134b) and (135b). To (134b), HI cannot apply because the subject of o-yomi-ni nar has not received an index. Hence, (134b) is not a well-formed F-Structure. In (135), on the other hand, HI assigns SH to the subject of the entire predicate, j, which is qualified to be SSS or a person respected by the speaker. Later SIR identifies j to be the subject of yomi 'read.' Hence, (135b) is a well-formed F-Structure.

The above discussion thus shows that the present analysis

accounts for the data observed by Kuno. Example (121a) is grammatical only when hajime is interpreted as intransitive (the reading attained by (134a)) and it does not have a transitive reading, because (134b) is not a well-formed F-Structure representation. Example (131b) cannot be interpreted as having the intransitive hajime, because (135a) is not allowed. It is a grammatical sentence only when the transitive hajime is used as shown in (135b).²⁸

FOOTNOTES TO CHAPTER 3

¹Here, I adopt Brame's (1980b) idea that an infinitival complement is a predicational phrase.

²Stowell (1980), attempting to generalize the Equi construction and the predication construction such as (4) within the EST framework, proposes an analysis where not only NP and S but also other phrasal categories (AP and PP (and possibly VP)) possess a syntactic subject. His analysis runs into several problems, which will be discussed in 3.1.2.

³If an item does not occupy a PRED argument position, it does not look for its subject. SAA (11) implies this. I assume that if a verb occurs in non-PRED position (e.g. SUBJ), it does not look for a subject but its subject is interpreted as 'arbitrary.'

⁴I will return to Chomsky's structure-building analysis of the as phrase in Chapter 4, where anaphoric processes will be treated.

⁵The object of put in (32c) must be represented as [_{NP} a [_N car]] or [_{NP} PRO [_N a car]] in Stowell's system. I will return to the case of NPs shortly below.

Stowell analyzes the case of put in an odd way. He provides the following example (his (47a)).

(i) *The boys_i put [_{PP} the books [_P beside each other_i.]]

According to him, put subcategorizes a PP but not a sequence of NP and PP, which is a standard analysis of put. If his analysis in (i) is right, the NP object of put is considered to be the subject of \bar{P} , beside each other_i, and its obligatory presence is predicted by Case Theory; put governs the subject of \bar{P} , so PRO is impossible in

this position. Furthermore, his analysis indicates that each other_i cannot be bound by the boys_i because the BT predicts that it must be bound in the minimal governing category PP. However, this is not correct. As (ii) shows, each other can refer to the subject of put but not to the blame. In fact, many (if not all) native speakers accept (i) as a grammatical sentence.

(ii) The boys_i put [pp the blame [_P on each other_i.]]

Hence, the books and beside each other must be analyzed as two independent constituents, NP and PP, as in (33c).

Example (33b) is different from the sentences in (iii).

(iii) a. John seems happy.
b. Mary appears upset.

Stowell derives these examples from (iv) by Move α (Raising-to-Subject). The S-Structures of (iii) are given in (v).

(iv) a. [_{NP} e] seems [_{AP} John [_A happy.]]
b. [_{NP} e] appears [_{AP} Mary [_A upset.]]
(v) a. John_i seems [_{AP} t_i [_A happy.]]
b. Mary_i appears [_{AP} t_i [_A upset.]]

In his system, raising verbs such as seem and appear do not impose a θ -role on the subject and they do not assign Case to the subject of AP (and S in an ordinary case of raising); hence, the subject must be empty at D-Structure in order to meet the θ -Criterion ((23) of Chapter 1) and the subject of AP (and S) must move up to the subject position of the sentence in order to receive Case. The verb feel in (34b) is different from these raising verbs in that it does impose a θ -role on the subject argument.

⁶This characterization of the difference between the Equi construction and the Raising construction is advanced in Koster (1978) in the EST framework and in Bresnan (1980b) in her lexical grammar. In the present framework (as well as Koster's version of the EST and

Bresnan's lexical grammar), the syntactic representation (or C-Structure representation) of the Equi construction and that of Raising construction are identical. The difference is purely lexical.

⁷ Instead of imposing a feature [-subject] on the object argument of the subject control verb, one may explore an analysis which incorporates the following generalization.

- (i) If a verb is subject control, the presence of the object is typically optional.

In fact, the deletion of the object in (47), (49b) and (49c) results in grammatical sentences, which is contrasted with object control cases.

- (ii) a. John promised to find a job.
 b. John will make a good husband.
 c. John served as a cook.
- (iii) a. *John persuaded to buy a car.
 b. *John forced to swim.

Though (i) generally holds, there are a few exceptions to (i). For example, the object of impress in (50a) is obligatory.

- (iv) *John impressed as an experienced politician.

I do not know how valid (i) is. If (i) is a significant generalization, the present analysis must be altered to incorporate it in some way.

Jackendoff (1972) argues that the controller for an infinitival complement is determined by using thematic relations: an NP with a Theme role (object control) or that with a Source role (subject control). Jackendoff's approach is criticized by Hust and Brame (1976). Although I agree that there are some semantic or thematic differences between the argument structures of the object control verbs and those of the subject control verbs, I do not know whether Jackendoff's approach is correct. I would like to leave the question open how the following facts are to be captured in a grammar.

- (v) a. The sentence with a subject control verb is not normally passivizable, whereas that with an object control verb is.
- b. The object of the subject control verb is often optional, whereas that of the object control verb is obligatory.
- c. A Theme role is not imposed on the object of the subject control verb, whereas it is imposed on the object of the object control verb.

Hust and Brame (1976) give example (vi), where promise is passivized and the controller of the infinitive is the passive subject. I know of no analyses which can accept (vi), while rejecting (vii).

(vi) Harry was promised by Bill to be allowed to leave.

(vii) *Harry was promised by Bill to leave.

⁸Though (54a) and the examples in (55) are synonymous, there are subtle differences among these sentences. Their use depends on various discourse conditions which may be relevant to the notion such as 'focus,' 'presupposition,' 'old-new information,' etc.

⁹Japanese verbal morphology or its conjugation system is fairly complex. In this thesis, I assume that various forms of verbs such as those in (ii) are derived from morphological rules or lexical redundancy rules, which operate in the lexicon, combining verb stems and various suffixes. When the stem and the suffix are combined, phonological operations apply. See McCawley (1968), Hasegawa (1977), and Yoshida (1981) for accounts of various phonological forms of Japanese verb inflections. I assume that the suffixes are entered in the lexicon in the following way.

- (i) a. ru: [V_{stem} + ___]_V_[finite; ±tense] [+tense] = present
- b. ta: [V_{stem} + ___]_V_[finite; ±tense] [+tense] = past
- c. i/∅: [V_{stem} + ___]_V_[infinitive]
- d. te: [V_{stem} + ___]_V_[gerundive]
- e. yoo: [V_{stem} + ___]_V_[volitional; ±tense] [+tense] = non-past

Depending on whether the verb stem ends with a consonant or vowel, different phonological forms of verbs are obtained. The following provides some examples.

(ii)	consonant final	vowel final	
a.	yom- 'read'	tabe- 'eat'	V _{stem}
b.	yom-u	tabe-ru	V [finite; ±tense]
c.	yon-da	tabe-ta	V [finite; +tense]
d.	yom-i	tabe-∅	V [infinitive]
e.	yon-de	tabe-te	V [gerundive]
f.	yom-oo	tabe-yoo	V [vol.; ±tense]

Matrix verbs and/or complementizers select certain verb forms, as will be seen in the following discussion.

¹⁰A possible problem with the proposed analysis may arise in conjunction with the following ungrammatical sentence.

- (i) *John-ga Mary-ni Bill-ga kuruma-o kaw-u yooni susume-ta.
'John advised Mary for Bill to buy a car.'

Example (i) possesses an extra subject Bill-ga, which does not appear in (54b), which is grammatical. If Bill serves as a subject of kaw-u 'buy,' the F-Structure is still satisfactory, because it would not violate the PFC. Here, I assume that the application of SIR is obligatory for the PRED argument. If it fails to apply, as in (i), the sentence must be ruled ungrammatical.

¹¹Without any specific reasons, I take up the analysis of the Q-Causative given in Kuno (1973), to illustrate the status of complex deep structures for these verbs.

Japanese causative structures, (s)ase causatives, have been repeatedly discussed in past literature (Kuroda (1965a), Nakau (1973), Harada (1973), Kuno (1973, 1978), Kitagawa (1974), Shibatani (1973a, 1973c, 1974, 1976a, 1976b, 1978), Inoue (1976a), Tonoike (1978), etc.). The focus of the past discussions is centered around how two types

of causatives, the O-Causative and the Ni-Causative, are syntactically derived with correct case markings. In most of the past analyses, two different deep structures are proposed; one for the O-Causative, where the causee is marked by o, and the other for the Ni-Causative, where the causee is marked by ni. Kuno (1973, 1978) and Shibatani (1976a, 1978), for example, assume the underlying structure such as (61), where a matrix object is generated, for the O-Causative and the one without a matrix object for the Ni-Causative (the O-Extra NP Analysis). Tonoike (1978), on the other hand, proposes the Ni-Extra NP Analysis, where a matrix object is posited for the Ni-Causative and no matrix object appears for the deep structure for the O-Causative. The debate over the causative structures has never settled and there is no convincing evidence for choosing one analysis over the other. Kuno (1978) rightly predicts:

(W)e do not have convincing evidence to choose between the O-Extra NP Analysis and the Ni-Extra NP Analysis. I am afraid that this problem, ..., will remain unresolved for many years to come, and we will see many papers published which attempt to present new and convincing evidence for one analysis or another, with hidden drawbacks of their own.

(Kuno (1978:231))

This suggests that such an unsolvable problem might be inherent to the framework itself, where sentences are derived from deep structures and case markers are assigned cyclically by transformations. The analysis I propose in this thesis goes beyond this controversy, to the extent that such a problem does not even arise. For a criticism of the past analyses of causatives and other similar constructions, see Hasegawa (1980a).

¹²There are exceptions to this correlation between the phonological form of the verb stem and the choice between e and (ra)re. Mi 'see', for example, which ends with a vowel, does not take (ra)re but e as in mi-e 'see-can.'

¹³Features on verbs, which are indicated by [+F] in (63), are

relevant to case assignment, as will be seen in 3.3.

¹⁴Examples (60a) and (60c), which involve 'causative' and 'aspectual' verbs, respectively, need further comments. They will be discussed later in this section.

¹⁵Case marking operations will be further considered in 3.3.

¹⁶To be more precise, SIR (50), which is reproduced as (i) below, does not account for the interpretation of the SUBJ argument in (68).

- (i) The SUBJ of a lexical item is interpreted by the index (say x) which is next on the left to the index (say y) of the lexical item in the F-Structure representation, provided that the argument position for x is not marked by [-subject].

In the F-Structure representation of shikar-are in (68), there is no index which works as y in (i), since a lexical item but not its index directly occupies an argument position. SIR (50) must be slightly modified so as to correctly interpret the SUBJ of the compound verb. I assume that the index (say y) of in (i) (and (50)) is parenthesized. With this change, SIR now accounts for both English and Japanese examples.

¹⁷This observation is originally made by Harada (1976) "Quantifier Float as a relational rule" in Metropolitan Linguistics, which is unavailable to me. Shibatani (1977:fn. 14) cites Harada's examples. For the discussion on QF in Japanese, see Okutsu (1974), Kuno (1978), Shibatani (1977, 1978), Poser (1981), and Hasegawa (in press).

¹⁸The phenomenon of QF can be explained by referring to the difference between case markers and postpositions. Ga, o, and ni in (64) and (65) are case markers. The ni in (59a) is a postposition. Quantifiers and numerals are associated with nouns with case markers

but not with nouns with postpositions.

¹⁹It has been well-known among Japanese linguists that ni appears in a number of different places with various functions. An indirect object marker (84a) and a direction marker (85a) are just two instances of such functions. Beside the use of ni observed with (s)ase, moraw, (r)are and the two functions I just mentioned, it has been claimed that ni is a subject marker, if the predicate is stative and expresses a notion such as 'possession,' 'need,' or 'ability' (Shibatani (1978)), though it is not completely clear exactly when a ni subject is allowed. In the proposed framework, ni as a subject marker is considered to be a postposition, which designates some abstract location of 'possession,' 'need,' and 'ability.' Note that QF does not apply to the subject NP with ni. As will be seen later in this section, this is a major characteristic in distinguishing case markers from postpositions in the present framework. In other words, if the phenomenon of QF is adequately captured without resorting to the difference between case markers and postpositions, this distinction may not be necessary.

²⁰The discussion on CMR is more or less the same as Shibatani's (1978). Although our frameworks are different, the generalization observed in case marking operations is captured in both analyses. Shibatani assigns case markers by transformations. To the extent that case marking rules must be sensitive to lexical information such as Agent, Source, Theme, Goal, etc., I take a position that case markers are assigned in the lexicon rather than by transformations.

It is not the case that my analysis of Japanese case arrays does not have problems. A most serious problem is observed in the indirect passive construction. In the analysis I have given, the OBJ of (r)are 'indirect passive' can be marked either by ni (if an Agent role is transferred from the SUBJ of the PRED argument) or by o (if some other role is transferred). However, for a reason that

I cannot explain, the OBJ of (r)are must always be marked by ni.

Another problem is how to prevent CMR from giving two o's in the causative structure. Sentences such as (ia) are ungrammatical, while (ib) and (ic) are allowed.

- (i) a. *John-ga Mary-o hon-o yom-ase-ta.
 subj obj book-obj read-cause-past
 'John made Mary read a book.'
- b. John-ga Mary-ni hon-o yom-ase-ta.
 'John {let } Mary read a book.'
 {made }
- c. John-ga Mary-^{ni} hashir-ase-ta.
 {o }
 'John {let } Mary run.'
 {made }

The verbs involved here, namely yom 'read' and hashir 'run', impose an Agent role on the SUBJ, which may be transferred to the OBJ of (s)ase. Hence, ni marks the causee in (ib) and (ic). If (s)ase imposes a Theme role on its OBJ, the OBJ is marked by o by CMR (73d). We obtain (ia) and (ic). The problem here is how to block the ungrammatical example (ia). I do not have an explanatory solution to this problem at the present time. It must be treated in a general way, since there are a number of other languages which do not allow two objects to be marked accusative. Some other languages impose restrictions on the number of dative objects in a sentence (cf. Comrie (1976)). The deviance of (ia) must be explained in a way that similar phenomena of other languages are incorporated. I leave this problem to future research. For some discussion on the double o constraint in Japanese, see Harada (1973), Shibatani (1978), Kuroda (1978), Poser (1981).

²¹I list a few examples which have their own suppletive honorific forms.

- | | | | | | |
|--------|-------------|--------|-----|------------------|-----------------|
| (i) a. | <u>iw</u> | 'say' | --- | osshar | ?o-ii-ni nar |
| b. | <u>mi</u> | 'look' | --- | goranninar | *o-mi-ni nar |
| c. | <u>ik</u> | 'go' | --- | oideninar | ?o-iki-ni nar |
| d. | <u>tabe</u> | 'eat' | --- | omeshiagarininar | ?o-tabe-ni nar |
| e. | <u>shin</u> | 'die' | --- | onakumarininar | *o-shini-ni nar |

If it triggers the SH operation, producing o-yomi-ni nat-te, the sentence becomes ungrammatical. In (ib) kak 'write' has a deep subject which is deleted by Equi under identity with the matrix subject. If this deep subject triggers the SH operation, the sentence is not well-formed. Similarly, the deep structure of (ic) has a deep subject sensei, which is deleted by Equi under identity with the matrix object. If this deep subject triggers the SH operation, the sentence is ungrammatical. However, there are some grammatical cases where a SH marked verb agrees with a deep subject. Observe the following sentences.

- (ii) a. Sensei-ni o-kaeri-ni nat-te itadaita hoo-ga ii.
'It's better, if (we) have the teacher go back.'
- b. Sensei-ni kusuri-o o-nomi-ni nar-u yooni o-susume-shi-yoo.
'Let (us) advise the teacher to take the medicine.'

The deep structure of (iia) is more or less the same as that of (ia), although the former is acceptable and the latter is not. In both sentences sensei is the deep subject and triggers the SH operation. The situation in (iib) is similar to (ic) in that the deep subject is deleted by Equi under identity with the matrix object sensei. The reason why examples (i) are ungrammatical and (ii) are allowed seems to be related to the fact that in (i) the speaker and the surface subject are identical (namely the first person). If the speaker wants to express that sensei, which is not the surface subject, is socially superior to her, she tends to overuse honorific forms of verbs whose logical subjects are SSS. This speculation is in accordance with a general conversational principle in Japanese: the speaker should be modest in expressing herself or matters closely relating to her. One way to be modest or humble in a situation like (ii) is to overtly express respect to the object sensei. By using an honorific form of a verb whose 'logical' subject is sensei, the speaker intends to express respect to sensei and emphasize that she is socially inferior to sensei. In (i), however, the speaker is different from the surface subject of these sentences. Hence, the

speaker does not have to be as modest or humble as in the situation where the speaker and the subject are identical. I think (ii) are derivatively generated, because of a socially imposed conversational condition. Typically, polite forms and honorific forms of words tend to be overused when the speaker is over-conscious about being modest and polite. I assume that the essential operation of the SH is relating to the surface subject (the subject with the ga case marked in a string of words). See fn. 26 for a tentative account of (ii) in the present framework.

²⁴For expository purposes, I employ rule (123b), rather than introducing ni and nar separately. However, I believe that an honorific form, say o-yomi-ni nar 'read(hon.)', must be analyzed as three independent parts, o-yomi, ni, and nar. In such analysis ni and nar must be introduced separately in the lexicon. Ni is some kind of postposition which chooses an infinitive form of a verb with a polite prefix (o or go) and nar is a verb or auxiliary which chooses the ni postposition. Hence, nar chooses ni and ni chooses $\left\{ \begin{smallmatrix} o \\ go \end{smallmatrix} \right\} + V_{inf.}$, which eventually results in a string $\left\{ \begin{smallmatrix} o \\ go \end{smallmatrix} \right\} - V_{inf.} - \underline{ni-nar}$. The same result as what rule (123b) produces is thus obtained. If this approach is taken, the F-Structure representation must be altered accordingly. The F-Structure representation for an honorific sentence (i) would be (ii), if an honorific form is analyzed to be three independent parts, and (ii), if it is analyzed as a single verb. Since the final interpretation is the same, I use a simpler analysis (an analysis with (123b) and the F-Structure representation such as (ii)) in the body of this thesis for simplicity.

(i) Sensei-ga hon-o o-yomi-ni nat-ta.
'The teacher read the book.'

(ii)
$$\left[\begin{array}{l} V \equiv i \\ \underline{o-yomi-ni\ nat-ta}_i \\ \underline{sensei}_j \\ \underline{hon}_k \end{array} \right] \quad \begin{array}{l} [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle j \rangle \ k] \\ [--] \\ [--] \end{array}$$

(iii)	{	<p>V \equiv i</p> <p><u>nat-ta</u>_i [P_{ni}] \equiv [j]</p> <p><u>ni</u>_j [{ $\frac{o}{go}$ } -v_{inf.}] \equiv [k]</p> <p><u>o-yomi</u>_k [<SUBJ> OBJ] \equiv [<1> m]</p> <p><u>sensei</u>_l [--]</p> <p><u>hon</u>_m [--]</p>
-------	---	--

²⁵(S)ase 'cause' has two lexical entries, as I have discussed in 3.2.1 (see (72) and (73)). For simplicity, however, I use only one entry in the following discussion, since the content of the discussion would not be affected.

²⁶In fn. 23, I have mentioned that the SH marked verb may refer to a 'logical' subject (even though it is not a surface subject) if the speaker and the surface subject are identical. This is a special case of the SH. The SH phenomenon observed in (ii) of fn. 23 can be accounted for by applying HI (125) after SIR, when the surface subject is the first person.

²⁷A sentence such as (i) is ungrammatical, where only (s)ase undergoes rules (123).

- (i) *Sensei-ga John-ni tegami-o yom-o-sase-ni nat-ta.
'The teacher caused John to read the letter.'

(S)ase, since it chooses V_{stem}, must undergo CVF (63). Due to this, sase is never realized as an independent verb. Thus, it is impossible to identify the subject of (s)ase. Sensei-ga in (i) is not the subject of (s)ase but is the subject of a compound verb. Hence, HI cannot apply, which is responsible for the ungrammaticality of (i).

²⁸In this section, I did not deal with verbs which take 'gerundive forms' as their COMP or PRED arguments. Such verbs are moraw 'polite causative,' shimaw 'perfect aspect,' etc. In 3.2.1,

I include these verbs in compound verbs which are formed by CVF. However, the SH forms of these verbs are different from other compound verbs such as (s)ase, hajime, etc. Rules (123) apply to the entire compound verb of the latter class as in yom-ase → o-yom-ase-ni nar; yomi-hajime → o-yomi-hajime-ni nar, for example. If rules (123) apply to the former class, the output is ungrammatical.

- (i) a. yonde-shimaw → *o-yonde-shimai-ni nar
 but yonde-o-shimai-ni nar
 b. yonde-moraw → *o-yonde-morai-ni nar
 but yonde-o-morai-ni nar

In order to incorporate the difference between these two classes, I must modify CFV: $V_{\begin{smallmatrix} \text{stem} \\ \text{inf.} \end{smallmatrix}}$ and V form a single verb but $V_{\text{ger.}}$ and V do not. Phonological facts concerning tone patterns on predicates also show that the former is like a single verb and the latter is a combination of two verbs. See McCawley (1968), Haraguchi (1977), Hasegawa (1979b).

Chapter 4

THE INTERPRETATION OF BOUND ANAPHORA

In this chapter, I will discuss anaphoric processes which involve bound anaphora (reflexives and reciprocals) and disjoint reference of two NPs.¹ In Chapter 1, I have introduced the EST account of such anaphoric processes. As a criticism, I have shown that the EST cannot describe the behavior of Japanese reflexive jibun. Linguists such as Chomsky (1980a) and Oshima (1979), who advocate the EST, end up claiming that an adequate account of jibun is outside sentence grammar. In other words, they accept that the EST cannot deal with it. I believe phenomena relating to jibun must be accounted for in sentence grammar in any serious syntactic theory. In what follows, I will first consider bound anaphora in English. Afterwards, bound anaphora in Japanese will be accounted for. Finally, anaphoric processes in general will be discussed, with an eye toward establishing linguistic universals of the phenomena in question.

4.1. Bound Anaphora in English

Let us first start out with reflexives, whose behavior is almost identical to that of reciprocals. The phenomena that have to be accounted for in relation to bound anaphora include the following sentences.

- (1) a. John_i shaved $\left\{ \begin{array}{l} \text{himself}_i \\ *herself_i \end{array} \right\}$
 b. John_i thought that Mary_j shaved $\left\{ \begin{array}{l} *himself_i \\ herself_j \end{array} \right\}$
 c. John_i persuaded Mary_j to shave $\left\{ \begin{array}{l} herself_j \\ *himself_i \end{array} \right\}$
 d. John_i promised Mary_j to shave $\left\{ \begin{array}{l} *herself_j \\ himself_i \end{array} \right\}$

In the traditional transformational framework, reflexives are derived from full lexical NPs under identity with a preceding NP in the same minimal sentence (cf. Akmajian and Heny (1975), Baker (1978)).

Though reflexives today are no longer generated by a transformation but introduced in the base in the EST, this clause-bound condition is reflected in the Binding Theory (BT): an anaphor is bound in its governing category (either NP or S) ((28a) of Chapter 1). Under the assumption that an infinitive is an S, the reason why himself is out in (1b) is the same as in (1c). In the present framework, where infinitives (1c) and (1d) are analyzed as PRED phrases, we cannot resort to the clause-bound condition to account for these examples. However, the spirit of this condition can be reflected in this framework. Let us see how (1b) and (1c) are represented in the F-Structure, given the following partial lexical entries of the relevant lexical items.

- (2) a. shave: V; $\left[\begin{array}{cc} \langle \theta_1 \rangle & \theta_2 \\ \text{SUBJ} & \text{OBJ} \\ \hline \text{Det} & \text{Det} \end{array} \right]$

in (3b). The index that stands for Mary_j occupies the subject position of these predicates. This means that an anaphor must refer to the subject of the same predicate. As a preliminary statement, I give the following rule for interpreting bound anaphora.

(4) The Bound Anaphora Interpretation Rule (BAI)

A bound anaphor must refer to the SUBJ of the same predicate.

According to this rule, the subject of shaved_n in (3a) or shave_m in (3b) which is Mary_j is the antecedent of herself_o and himself_p. Since himself_p does not match Mary_j in gender, it must be excluded. Anaphorically related NPs must agree in number, gender, and person.

Example (1d) can be accounted for in the same way. Recall that the object of promise cannot be interpreted as the subject of the PRED, to shave $\left\{ \begin{array}{l} \text{himself} \\ \text{herself} \end{array} \right\}$, because it is marked [-subject] by a lexical stipulation as discussed in 3.1.4. The subject of the PRED is John_i, which is identified as the antecedent of a reflexive by (4). Hence, due to the mismatch in gender, herself should be excluded.

This analysis of anaphora can easily deal with problematic cases in the EST. Chomsky (1980a) acknowledges that the following examples, attributed to Bresnan and Duncan, run counter to the analysis of the EST. (These examples were once touched upon in 3.1.2.)

(5) a. *They regard me as very much like each other.

cf. I regard them as very much like each other.

- b. *I impress them as very much like each other,
 cf. They impress me as very much like each other.

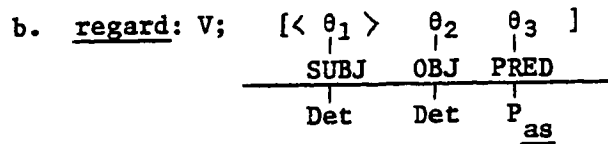
As Chomsky admits, there seems to be no sentential source for the phrase starting with as. However, the reciprocal, each other, cannot be connected with they in (5a) and them in (5b). The BT in Chomsky (1979a, 1979b) or the Opacity Condition in Chomsky (1980a) cannot explain why this is the case: each other is bound in S, if its antecedent is they or them. Chomsky (1980a), in an attempt to explain this fact, resorts to a new mechanism, the structure-building in LF representation. He states:

Since the properties of (38a,b) [given as (5a,b) here] are so similar to those that fall under the syntactic notion of opacity, it seems natural to extend the Opacity Condition directly to them. This is straightforward, if we assume that at the level of LF these sentences are represented as in (39) [given as (6) below]. [emphasis is supplied—NH]
 (Chomsky (1980a:17))

- (6) a. They regard me as [\bar{S} PRO be very much like each other.]
 b. I impress them as [\bar{S} PRO be very much like each other.]

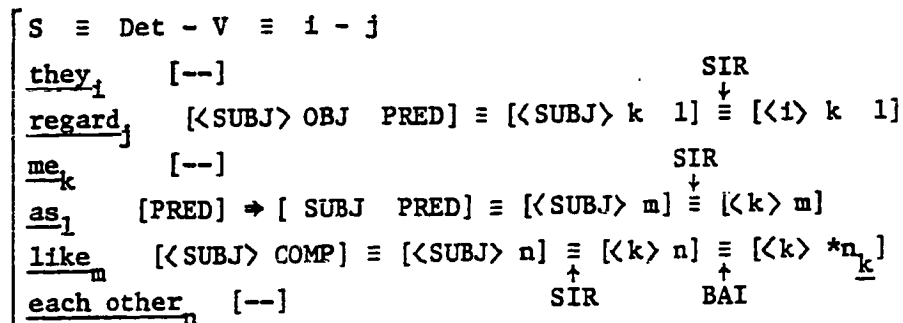
Given (6) and the assumption that regard is object control and impress is subject control, each other is free in \bar{S} . Hence, the Opacity Condition or the BT is now violated. The examples in (5) are thus ruled out in Chomsky's analysis.

What this structure-building analysis shows is a need of some 'subject' for the as phrase in (5). I am not against postulating some sort of 'subject' in this type of construction. In fact, in my

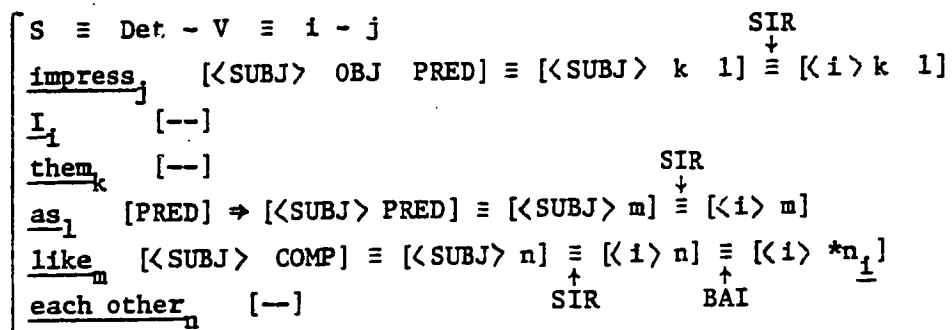


The F-Structure representations of (5) would be something like (8).

(8) a. (for (5a))



b. (for (5b))



In (8a), SIR assigns the index of me_k to the subject of like_m. Hence, BAI must connect me_k with each other_n. However, they do not match in number. Therefore, it is ungrammatical. In (8b), since the object of impress_j, which is them_k, is lexically marked [-subject], SIR assigns the index of I_i to the subject of like_m. Naturally BAI connects I_i with each other_n, which violates the number agreement

(that can also be under a PF), the NP would receive the feature [+ antecedent]. This rule, however, cannot cover all the cases of two possible antecedents, due to the existence of the following examples.

- (11) a. John_i gave Bill_j a book about himself_{i,j}.
 b. John_i put Bill_j into a play about himself_{i,j}.
 c. John_i promised Bill_j a book about himself_{i,j}.

In (11) the NP after the verb, namely Bill, is not optional but obligatory, and the subject, as well as this NP, can be the antecedent of himself. The generalization that can be extracted from (9) and (11) is that, regardless of the optionality of the NP immediately following the verb, the NP can be an antecedent of an NP or PP that follows it. This generalization must be expressed in a grammar. At the same time, the case of two possible antecedents must be distinguished from the case of nonambiguity in the selection of an antecedent such as (5). Hence, (10) is inadequate in two ways: (i) it cannot explain a case such as (11); and (ii) it cannot distinguish (9) from (5).

The difference between these cases lies in the different grammatical functions served by the NP, AP, or PP where an anaphor occurs. In the nonambiguous case, as the existence of the PRED argument explicitly specifies in (7), the object NP (antecedent) and the phrase with an anaphor are in subject-predicate relation. On the other hand, in the case of two antecedents, such a relation

interpreted by the same mechanism, that they should be treated in slightly different ways: both reflexives and reciprocals are subject to BAI (4), but the English reflexive interpretation is also sensitive to the lexical redundancy rule (12), which must be rewritten as (14).⁵

$$(14) \quad +V; [\text{-- OBJ } \left\{ \begin{array}{l} \text{COMP} \\ \text{OBJ-2} \end{array} \right\}] \Rightarrow [\text{-- OBJ } \left\{ \begin{array}{l} \text{COMP} \\ \text{OBJ-2} \end{array} \right\}]$$

$\begin{array}{l} | \\ [+ \text{ antecedent}] \\ \text{For reflexives} \end{array}$

4.2. Bound Anaphora in Japanese

Japanese does not have reciprocal pronouns.⁶ Hence, bound anaphora here is strictly confined to reflexives. The behavior of Japanese reflexive jibun was introduced briefly in Chapter 1. In the traditional transformational framework, rule RFLX ((4) in Chapter 1) applies cyclically, deriving jibun from a full NP under identity with the subject NP. What is peculiar to Japanese is that RFLX is not clause-bound. Due to this property, the EST cannot deal with it by the BT or similar mechanisms.

Since jibun must refer back to the subject, the reflexive interpretation of Japanese is similar to BAI (4), which is presented for English, as a first approximation in (15).⁷

(15) The Jibun Interpretation Rule

Japanese reflexive jibun must refer to one of the subjects which are more 'prominent' than the argument position which jibun occupies.

Rule (15) can now account for the following examples directly, which are problematic to the EST (cf. 1.3.).

- (16) a. John_i-ga inu_j-ni jibun_{i,j}-no te-o name-sase-ta.
 subj dog-dat self 's hand-obj lick-cause-past
 'John_i made the dog_j lick self_{i,j}-s hand.'
- b. John_i-ga jibun_i-ga Mary-ni at-ta koto-o mitome-ta.
 subj self-subj dat meet-past Nom.-obj admit-past
 'John_i admitted that self_i met Mary.'
- c. John_i-ga jibun_i-ga tsukut-ta yoohuku-o kite-i-ru.
 subj self-subj make-past clothes-obj wear-prog-pres.
 'John_i wears the clothes that self_i made.'

Without referring to F-Structure, it is obvious that (15) assigns correct interpretations to these examples. In (16a), sase 'cause' takes a PRED argument, whose subject is identified as inu 'dog' by the SIR. Hence, jibun in the PRED must refer either to John, the subject of sase, or to inu, the subject of name 'lick.' Example (16b) is straightforward. Jibun, which is the subject of aw 'meet,' must refer to the higher subject, John. The same holds in (16c).

Another difference between English and Japanese reflexives has been touched upon in relation to examples (9) and (11). In English, the object can be qualified as an antecedent due to rule (14). However, in Japanese the object never serves as an antecedent of jibun, as can be observed below.

- (17) a. John_i-ga Bill_j-ni jibun_{i,*j}-ni tsuite hanashi-ta.
 subj dat self about talk-past
 'John_i talked to Bill_j about self_{i,*j}.'
- b. John_i-ga Bill_j-ni jibun_{i,*j} (no koto)-ni tsuite kai-ta.
 subj dat self 's matter about write-past
 'John_i wrote to Bill_j about (the matter of) self_{i,*j}.'
- c. John_i-ga Bill_j-ni jibun_{i,*j}-no shashin-o mise-ta.
 subj dat self 's picture-obj show-past
 'John_i showed Bill_j a picture of self_{i,*j}.'

Hence, it is not necessary to postulate a rule such as (14) for Japanese.

4.3. Obligatory vs. Optional Anaphora

Based on the differences and similarities between an English anaphoric process and that of Japanese discussed in the above, I would like to explore the 'universal' and 'language-particular' nature of this process.⁸ In the EST, where the question concerning anaphoric processes is whether an anaphor is bound or free in a governing category, the question as to whether the presence of an anaphor is obligatory or optional is never seriously raised. In fact, the BT claims that an anaphor and a pronominal are in complementary distribution as long as they refer to the same NP. As will be seen shortly, because of this characterization of the anaphoric process, the EST faces some serious difficulties. Contrary to what the BT predicts, there are cases where an anaphor can be replaced

with an ordinary pronoun and those in which it cannot. I define the terms 'an obligatory anaphor' and 'an optional anaphor' in the following way.

- (18) a. An anaphor is an obligatory anaphor, if it cannot be replaced with other pronoun or noun without changing its referent.
- b. An anaphor is an optional anaphor, if it can be replaced with other pronoun or noun without changing its referent.

Let us consider the distribution of these two types of anaphors in both English and Japanese. In Japanese, as RELX ((4) of Chapter 1) specifies, when an antecedent and a reflexive are clause-mates, rule RFLX must apply (i.e. the presence of the reflexive is obligatory). Thus, jibun in (19a) and (19c) is an obligatory reflexive, but the one in (19b) is an optional reflexive.

- (19) a. John_i-ga $\left\{ \begin{array}{l} \text{jibun}_i \\ *kare_i \end{array} \right\}$ -o ket-ta.
 subj $\left\{ \begin{array}{l} \text{self}_i \\ \text{he} \end{array} \right\}$ -obj kick-past
 'John_i kicked $\left\{ \begin{array}{l} \text{self}_i \\ *him_i \end{array} \right\}$.'
- b. John_i-ga $\left\{ \begin{array}{l} \text{jibun}_i \\ kare_i \end{array} \right\}$ -ga tensai-da to shinjite-i-ru.
 subj $\left\{ \begin{array}{l} \text{self}_i \\ \text{he} \end{array} \right\}$ -subj genius CMP believe-prog-pres
 'John_i believes $\left\{ \begin{array}{l} \text{self}_i \\ \text{he}_i \end{array} \right\}$ is a genius.'
- c. John_i-ga $\left\{ \begin{array}{l} \text{jibun}_i \\ *kare_i \end{array} \right\}$ -o tensai-da to shinjite-i-ru.
 obj
 'John_i believes $\left\{ \begin{array}{l} \text{self}_i \\ *him_i \end{array} \right\}$ to be a genius.'

Let us see how (19b) and (19c), for example, are represented in F-Structure, in order to investigate characteristics of 'obligatory' and 'optional' reflexives.

(20) a. (for (19b))

<u>shinjite-i-ru</u> _i	[<SUBJ> COMP] ≡ [⟨j> m]
<u>John</u> _j	[--]
<u>jibun</u> _k	[--]
<u>kare</u> _l	[--]
<u>to</u> _m	[V] ≡ [n]
<u>tensai-da</u> _n	[<SUBJ>] ≡ [⟨ $\begin{Bmatrix} k \\ 1 \end{Bmatrix}$ ⟩] $\stackrel{\text{BAI}}{\downarrow}$ ≡ [⟨ $\begin{Bmatrix} k \\ 1 \end{Bmatrix}$ ⟩]

b. (for (19c))

<u>shinjite-i-ru</u> _i	[<SUBJ> COMP] ≡ [⟨j> $\begin{Bmatrix} k \\ *1 \end{Bmatrix}$ m] $\stackrel{\text{BAI}}{\downarrow}$ ≡ [⟨j> $\begin{Bmatrix} k \\ *1 \end{Bmatrix}$ m]
<u>John</u> _i	[--]
<u>jibun</u> _k	[--]
<u>kare</u> _l	[--]
<u>to</u> _m	[PRED] ⇒ [<SUBJ> PRED] ≡ [<SUBJ> n] $\stackrel{\text{SIR}}{\downarrow}$ ≡ [⟨ $\begin{Bmatrix} k \\ 1 \end{Bmatrix}$ ⟩ n]
<u>tensai-da</u> _n	[SUBJ] $\stackrel{\text{SIR}}{\downarrow}$ ≡ [⟨ $\begin{Bmatrix} k \\ 1 \end{Bmatrix}$ ⟩]

Indices k (for jibun) and l (for kare 'he') both refer to i (for John). In (20a), which is the F-Structure of (19b), both a reflexive (k) and a pronoun (l) are possible; hence, this is the case of an optional anaphor. On the other hand, in (20b), only jibun_k is allowed—the case of an obligatory anaphor. The difference between (20a) and (20b) is rather obvious. In (20a) an antecedent and an anaphor are not in the same argument structure of the predicate, while

in (20b), they are co-arguments (i.e. selected by the same predicate); one being the predicate external argument and the other being an internal argument. The generalization here is this:

- (21) a. An anaphor is obligatory, when its antecedent and the anaphor are co-arguments.
 b. Otherwise, an anaphor is optional.

The generalization (21a) is the same as BAI (4) as to content. In fact, all the anaphors accounted for by BAI (4) are the case of obligatory anaphora in English. An exceptional case for (4), namely the object antecedent specified by rule (14), exhibits an optional reflexive.

- (22) a. John_i told Mary_j about $\left\{ \begin{array}{l} \text{herself}_j \\ ?\text{her}_j \end{array} \right\}$ on the phone.
 b. John_i told Mary_j about $\left\{ \begin{array}{l} \text{himself}_i \\ * \text{him}_i \end{array} \right\}$ on the phone.
 c. John_i gave Mary_j a book about $\left\{ \begin{array}{l} \text{herself}_j \\ ?\text{her}_j \end{array} \right\}$ as her birthday present.
 d. John_i gave Mary_j a book about $\left\{ \begin{array}{l} \text{himself}_i \\ * \text{him}_i \end{array} \right\}$ as her birthday present.

In (22a) and (22c), to replace herself with her seems permissible; however, to replace himself with him is totally unacceptable as shown in (22b) and (22d). The generalization (21a) holds for the relationship between an anaphor and its antecedent in (22b) and (22d), and (21b) covers the case of (22a) and (22c). Thus, the discrepancy in

grammatical judgments observed in (22) can be nicely explained by the difference between the obligatory anaphor and the optional anaphor.

Examples (22) present a difficulty to the BT of the EST. In (22a) and (22c), both a pronoun and a reflexive are allowed to refer to the object (Mary_j). To the extent that a reflexive herself_j is possible in (22), it must be bound in the minimal governing category S. Then, the BT predicts that a pronominal with the same index (her_j) should not occur in this position, because a pronominal must be free in the S, according to the BT. However, this contradicts the grammaticality in these examples. Hence, the EST cannot explain the data in (22). The failure of the EST is due to the fact that it does not distinguish an obligatory anaphor from an optional anaphor. But in fact, this distinction is important in establishing 'universal' and 'language-particular' characteristics of the anaphoric process.

From the above discussion, I would like to claim that languages differ with respect to optional anaphors; obligatory anaphors are universally accounted for by a rule something like BAI (4). In Japanese any subject can be an antecedent, though only one subject is the antecedent of an obligatory anaphor and all the other subjects are antecedents of optional anaphors. In English the subject is the antecedent of an obligatory anaphor and the object functioning in rule (14) is the antecedent of an optional anaphor.

Now, we are in the position to incorporate the above discussion in the framework. I claim that obligatory anaphora is the

'unmarked' case of the anaphoric process. An obligatory anaphor must refer to 'subject' of the same argument structure. Instead of BAI (4), I propose a universal rule (23).

(23) The Bound Anaphora Interpretation Rule (BAI)

A bound anaphor must refer to the index of the SUBJ of the same predicate.

The obligatory anaphor, by definition, specifies the context of disjoint reference of two NPs. If an anaphor cannot be replaced with an ordinary pronoun or noun without changing reference, a pronoun or noun occurring in such a position must have a different reference. Hence, the other side of BAI (23) is the context of disjoint reference.

(24) Disjoint Reference

A pronoun or noun must not refer to the index of the SUBJ of the same predicate.

The phenomenon of optional anaphora, which is subject to language-particular stipulations, is accounted for by the following auxiliary rules. These rules supplement the universal BAI (23). In English the object specified by (14) can be an antecedent of a reflexive and in Japanese all the 'more prominent' subjects can be qualified as antecedents of jibun.

- (25) (23) plus
- a. In English: unless it refers to an argument with [+ antecedent] of the same predicate (in the case of reflexive).
 - b. In Japanese: unless it refers to a more prominent subject.

This BAI can account for the phenomenon which is pointed out by Chomsky (1965).

Notice, incidentally, that the reflexivization rule does not always apply (though pronominalization does) even when the two Nouns are strictly identical and hence coreferential. Thus we have "I kept it near me" alongside of "I aimed it at myself," and so on. The difference is that in the first, but not the second, the repeated Noun is in a Sentence-Complement to the Verb.

(Chomsky (1965:146))

To further exemplify the point, observe the following sentences.⁹

- (26) a. John_i found oil near $\left\{ \begin{array}{l} \text{him}_i \\ * \text{himself}_i \end{array} \right\}$
- b. John_i poured oil onto $\left\{ \begin{array}{l} * \text{him}_i \\ \text{himself}_i \end{array} \right\}$

With verbs such as keep and find, a reflexive in a PP cannot refer to the subject. On the other hand, a reflexive in a PP must refer to the subject with verbs such as pour and aim. Crucial differences between these two verbs are their PAS. The former optionally takes a PRED argument, while the latter selects a directional complement. To make a point clearer, I will give the F-Structure representations.

(27) a. (for (26a))

<u>John</u> _i	[--]		
<u>found</u> _j	[<SUBJ> OBJ (PRED)]	≡ [<SUBJ> k (1)]	≡ [<i> k (1)]
<u>oil</u> _k	[--]		
<u>near</u> _i	[PRED] ⇒ [<SUBJ> PRED]	≡ [<SUBJ> { ^m _n }]	≡ [<k> { ^m _{*n_k} }]
<u>him</u> _m	[--]		
<u>himself</u> _n	[--]		

SIR
↓
SIR
↓

BAI: n = k
D-R: m ≠ k

b. (for (26b))

<u>John</u> _i	[--]		
<u>poured</u> _j	[<SUBJ> OBJ COMP]	≡ [<SUBJ> k 1]	≡ [<i> k 1]
<u>oil</u> _k	[--]		
<u>onto</u> _i	[OBJ] ≡ [{ ^{*m} _{n_i} }]		
<u>him</u> _m	[--]		
<u>himself</u> _n	[--]		

SIR
↓

BAI: n = i
D-R: m ≠ i

In (27a), the PRED argument, near { him / himself }, constitutes a separate predicate from the matrix predicate, keep or find. Hence, a reflexive himself must refer to the subject of the PRED, which is oil_k.

However, due to a difference in gender, himself must be excluded in (26a).¹⁰ The existence of the pronoun him is compatible with (24), which prohibits him from being connected with oil_k. On the other hand, in (27b) a reflexive inside a COMP must refer to the subject John_i (or oil_k, if rule (14) applies). This is satisfied. However, him_m in such a position and the subject must be disjoint in reference. Hence, an asterisk is given to him_m.

The anaphoric process of both English and Japanese is nicely

accounted for within the proposed framework. By differentiating two types of anaphora, universal and language-particular nature of this process is revealed.¹¹

FOOTNOTES TO CHAPTER 4

¹In this chapter, I am not concerned with 'backward pronominalization' and 'backward reflexivization.' See Ross (1967), Langacker (1969), Jackendoff (1972), Oyakawa (1973, 1974), N. McCwaley (1976), Reinhart (1976), etc. for discussions on this topic.

²Stowell (1980) attempts to generalize infinitival complements and predication structures such as (5) by postulating a 'syntactic subject' for all phrasal categories and Ss. His analysis can escape the above criticisms; however, it runs into other problems, which have been discussed in 3.1.2.

³Following Emonds (1978), I regard the as phrase as a PP rather than an AP.

⁴To make the point clear that the antecedent of a reciprocal is the subject argument (which follows from rule (4)), but not the one given in (12), observe the following sentences.

- (i) a. *Mary_i talked to them_j about each other_{i,j}.
- b. They_i talked to Mary_j about each other_{i,*j}.
- c. *Mary_i showed them_j pictures of each other_{i,j}.
- d. They_i showed Mary_j pictures of each other_{i,*j}.

The examples (ia) and (ic) are ungrammatical, while (ib) and (id) are grammatical. In other words, them in (ia) and (ic) does not seem to be the antecedent of each other but Mary is. However, due to the difference in number, Mary cannot be coreferential to each other—hence, the ungrammaticality of (ia) and (ic). In (ib) and (id), on the other hand, the subject NP they is qualified as the antecedent of each other. Hence, rule (4) is solely responsible for accounting for the data in (i).

⁵Akmajian (personal communication) drew my attention to sentences such as (i)

- (i) a. John took Mary by the hand,
 b. John patted Mary on the shoulder.

In these examples, the possessor of the body part (the hand in (ia) and the shoulder in (ib)) is interpreted as Mary but not John. A rule similar to (14) may account for the possessor interpretation observed in (i). Since the possessor of the body part in (i) is not ambiguous between the subject and the object, the rule must specify the object as the only possessor. One may argue that Mary is the only possessor because there are no other possible interpretations. However, the following sentence seems to argue against such an inference.

- (ii) *I hit Mary with the hand.
 Cf. I hit Mary with my hand.

The ungrammaticality of (ii) seems to show that the subject (I) can not be the possessor of the hand, though semantically this reading is possible. (ii) is bad because the possessor of the hand must be Mary; however, such a reading is anomalous in the real world. At present, I do not know whether the phenomenon in (i) and (ii) and that in (9) and (10) can be generalized and captured by a single mechanism and whether such a direction is correct.

⁶A possible candidate for a reciprocal in Japanese is tagai, which may appear in the following sentences.

- (i) a. ?Karera-ga tagai-o ket-ta.
 they-subj_i each other-obj_i kick-past
 'They kicked each other.'
 b. ?Karera-ga tagai-o tasuke-ta.
 i i help-past
 'They helped each other.'

These examples, however, do not sound like natural Japanese expressions. Natural Japanese counterparts to (ii) are given in (iii),

where tagai optionally appears in an adverbial phrase, modifying a verb. Notice that in (iii) the reciprocity is expressed by aw that attaches to a verb. Aw requires a plural subject (as in (iii)) or a comitative phrase (as in (iv)).

- (ii) a. They helped each other.
 b. They kicked each other.
 c. John forced them to help each other.
- (iii) a. Karera-ga (tagai-ni) tasuke-at-ta.
 cf. *John-ga (tagai-ni) tasuke-at-ta.
 b. Karera-ga (tagai-ni) keru-at-ta.
 cf. *John-ga (tagai-ni) keru-at-ta.
 c. John-ga karera-ni (tagai-ni) tasuke-aw-ase-ta.
 cf. *Karera-ga John-ni (tagai-ni) tasuke-aw-ase-ta.
- (iv) a. John-ga Mary-to (tagai-ni) tasuke-at-ta.
 with
 'John helped with Mary (each other).'
- b. John-ga Mary-to (tagai-ni) keru-at-ta.
 'John kicked with Mary (each other).'
- c. John-ga Mary-ni Sue-to (tagai-ni) tasuke-aw-ase-ta.
 'John let Mary help with Sue (each other).'

As the examples in (iii) show, the subject argument of the predicate to which aw attaches must be plural, unless there is a comitative phrase. The reciprocity expressed by aw imposes this condition on the subject or the argument of the predicate to which aw attaches.

⁷The notion 'prominency' is defined in Chapter 2, which is repeated here (cf. (36b) of Chapter 2)

The Definition of 'Prominency'

A is more prominent than B,

- i) if A or the selector of A directly or indirectly selects or specifies B or the selector of B, or
- ii) if A is higher than B with respect to the hierarchy of grammatical functions ((13) of Chapter 2), when A and B are arguments of the same predicate.

By referring to the notion 'prominency,' possible antecedents of jibum are restricted to the subjects whose predicates directly or

indirectly choose the argument position which jibun occupies, excluding other subjects (i.e. the subjects which are directly or indirectly chosen by the predicate of jibun).

⁸There are differences among anaphoric pronouns (each other, X-self, jibun) with respect to the lexical features. In English, the following sentences are ungrammatical.

- (i) a. *They_i believe that each other_i would win.
 b. *John_i believes that himself_i will win.
 c. *Himself_i would win.

In the EST framework, these examples are ruled out by the BT, NIC, or the tensed S condition. Whatever the condition utilized in ruling out these examples is, I believe such a condition is irrelevant to the explanation for the data such as (i). Following Brame (1977), I assume that the ungrammaticality of the above examples is due to the lexical specification of reflexives and reciprocals. In English, anaphoric pronouns cannot occur in the subject (or nominative) position, just as certain pronouns, such as his, him, her, etc., do not normally occur in the subject (or nominative) position. As Brame (1977) argues, if they are specified as [-nominative], examples (i) can be easily accounted for. One may argue that [-nominative] follows from Case Theory of the EST, since an anaphor must be governed in S. This is true, if Case Theory is really needed after all (,which I do not believe, as I have argued in Chapter 1). However, such feature specifications are anyway necessary in a grammar. Observe (ii).

- (ii) a. *John hates himself's friend.
 b. They hate each other's friends.

Given the assumption that all anaphors are treated in the same way, if (iib) is allowed, (iia) must be allowed. To differentiate these two, the EST may have to employ feature specifications on these lexical items; X-self is [-nominative, -genitive] and each other is [-nominative]. These features along with features of gender, number,

and person play an important role in determining whether the assigned antecedent is an appropriate one. I assume that in the lexicon X-self is specified with respect to gender, number, and person as well as case features, and a reciprocal each other (and one another) is [+plural] and [-nominative].

As for Japanese jibun, what must be lexically specified is [+higher animate]. Plurality does not have to be specified, although jibun can be pluralized (jibun-tachi, jibun-ra, etc. 'selves'). Only when a plural form of jibun appears, the antecedent must be plural. The following example is ungrammatical because this condition is violated.

- (iii) *John_i-ga jibuntachi_i-o ket-ta.
 i_{subj} selves i_{obj} kick-past
 'John_i kicked selves_i.'

When an antecedent is plural, whether a reflexive is in a singular form or a plural form seems to affect meanings. First consider (iv).

- (iv) a. Gakuseitachi_i-ga jibun_i-no koto-ni muchuu-da.
 students-subj self_i 's matter-obj be absorbed-pres.
 'The students_i are absorbed in self_i's matter.'
 b. Gakuseitachi_i-ga jibuntachi_i-no koto-ni muchuu-da.
 selves
 'The students_i are absorbed in the matter of selves_i.'

Example (iva) is most naturally interpreted as follows: 'each of the students is absorbed in his matter.' In contrast, (ivb) is translated as 'the students as a group are absorbed in their matter.' This difference in 'individual' and 'group' readings must be specified in the lexical entries of jibun and its plural form. Jibun is [+plural]; however, if it is [-plural], it must be [+individual]. Hence, jibun cannot be modified by a quantifier or a numeral. This is seen in (v).

- (v) a. John to Mary_i-ga jibuntachi_i hutari-ga tokubetsu-da to
 and i_{subj} selves i two subj special CMP
 shinjite-i-ru.
 believe-prog-pres
 'John and Mary_i believe that selves_i two are special.'

- b. They_i believe that $\left\{ \begin{array}{l} \text{each other}_i \text{'s pictures} \\ \text{their}_i \text{ pictures} \\ \text{pictures of each other}_i \end{array} \right\}$ will be on sale.
- (iii) John_i-ga $\left\{ \begin{array}{l} \text{jibun}_i \\ \text{kare}_i \end{array} \right\}$ -ga Tokyo-e it-ta koto-o kakushite-i-ru.
 subj $\left\{ \begin{array}{l} \text{self} \\ \text{he} \end{array} \right\}$ -subj to go-past Nom-obj hide-prog-pres
 'John_i covers up the fact that $\left\{ \begin{array}{l} \text{self}_i \\ \text{he}_i \end{array} \right\}$ went to Tokyo.'

I believe that optional anaphora is in principle subject to language-particular stipulations. Though this case is observed in both English and Japanese, I imagine there may be languages that do not allow anaphors to occur in the external argument due to BAI (23). Examples (i) and (iii) can be accounted for by rule (25b). As for English examples, we need to add (iv) to (25a).

- (iv) If an anaphor is (in) the predicate external argument, it refers to an argument qualified as an antecedent, which is more prominent than the argument where the anaphor occurs.

The fact that a pronoun and an anaphor are interchangeable in the above sentences presents a problem for the EST. The BT predicts that an anaphor and a pronominal are in complementary distribution. Thus, if their_i is allowed in (iib), it must be free in its minimal governing category. Then, the anaphor each other_i should not be allowed in the same position referring to the same NP. This is the same situation as in (22a) and (22c).

Chapter 5

A LEXICAL OPERATION: PASSIVES

The passive construction has always played a central role in generative grammar. In this chapter, I will first review some of the major past analyses of passives, pointing out certain inadequacies. The analyses reviewed include Chomsky's movement analysis within the EST introduced in Chapter 1 and Bresnan's (1980b) lexical theory, both of which concern English. As for Japanese passives, a traditional transformational analysis will be reviewed, which is represented by Kuno (1973, 1978), Harada (1973), and Shibatani (1978), among others. I will then propose a lexical analysis of passives within the present framework.

5.1. Passives and the Extended Standard Theory

As briefly discussed in 1.2, the most important (and in fact the most attractive) claim made by the EST is that major syntactic operations, the passive being one of them, are controlled by three principles, namely the θ -Criterion, Case Theory, and Binding Theory. However, I will show that this claim cannot be maintained, at least, as far as the passive is concerned. The relevant principles are reproduced here for ease of reference.

- (1) The θ -Criterion (cf. (23) of Chapter 1)
- a. Every θ -role must be filled by some lexical expression and
 - b. Each lexical expression must fill exactly one θ -role.
- (2) Case Theory (cf. (24) and (26) of Chapter 1)
- a. NP \rightarrow Nominative if governed by Tense.
 - b. NP \rightarrow Objective if governed by [-N] (V or P).
 - c. NP \rightarrow inherently case marked as determined by idiosyncratic properties of [-N].
 - d. Special rules like of-insertion in English.
 - e. exception: Participles, that is [+V] (and [-N]?), do not assign Case.
 - f. Case Filter: *_[NP phonetic matrix]
-Case
- (3) Binding Theory (cf. (28) of Chapter 1)
- a. An anaphor is bound in its governing category, where an anaphor is a lexically specified anaphor (a reflexive and a reciprocal) and noncase-marked traces (traces of NPs).
 - b. A pronominal is free in its governing category.
 - c. An R-expression is free.

Passive operations involve Move α , which is brought into play due to the stipulation imposed on 'participles.' According to (2e), participles cannot assign Case to an NP that they govern. The assumption here is that the same θ -roles are assigned to both participles and ordinary (active) predicates. Hence, the verb kick and the participle kicked, for example, assign Agent to the subject and Theme to the object, but the object NP (Theme-role) does not receive (Objective) Case from kicked but only from kick. Then a lexical item representing 'Theme' must move to a case-marked position;

otherwise it is subject to Case Filter (2f). Since a noncase-marked trace is an anaphor, it must be bound in S. In order for it to be bound in its governing category, the only position where it is allowed to occur is the subject position. This is how the EST describes the passive operation. This procedure is summarized in (4).

(4) a.	(Active)	<u>John</u> kicked <u>the ball</u> .	
	θ-role	Agent	Theme
	Case	Nom.	Obj.
b.	(Passive)	[<u>e</u>] was <u>kicked</u> the ball. (participle)	
	θ-role	(Agent)	Theme
	Case	Nom.	∅
		↑——— Move α ———↓	
		<u>The ball</u> _i was kicked <u>t</u> _i	
		Theme	(<u>t</u> _i is bound by
		Nom.	<u>the ball</u> _i .)

However, there are several points that can be criticized. First, the assumption that a participle and its active counterpart assign the same θ-roles to their arguments cannot be true. Notice that Theme as well as Agent must be present in θ-role positions of an active verb kick as in (4a). On the other hand, Agent must be eliminated from the argument structure of a participle kicked. Unless it is eliminated, the θ-Criterion (1a) is not satisfied. This means that the passive operation depends on two crucial stipulations about participles: (i) a participle does not assign Case to its object and (ii) a participle does not select the predicate external θ-role (the θ-role that is assigned to the subject of the active predicate).

Hence, the passive operation does not simply follow from the basic principles of the EST, but it follows from these two assumptions, which have to be stipulated in the lexical representations of a participle. In fact, these two stipulations characterize what the passive operation is as will be seen in 5.4.¹

Second, the claim that Move α must be invoked due to (2e) and (2f) cannot be true. The EST employs Of-Insertion (2d), when a governor does not give Case to its arguments, though it governs them. Hence, nouns and adjectives employ Of-Insertion to give Case to their objects as in I am fond of John and the destruction of the city. Then, the noncase-marked object of a participle does not have to move to the subject position, if it can receive Case from of which is introduced by Of-Insertion. However, such a sentence (It was kicked of the ball.) is ungrammatical. Then, in order to rule this out, the EST must employ an ad hoc condition which prevents Of-Insertion from applying to participles. This simply means the passive operation (Move α) does not follow from the Case Theory; rather the characteristic of the participle is responsible for it.²

Third, the above operation does not explain the case of passives with a sentential subject.

- (5) a. [That John had kicked the ball] was believed (by his friend).
 b. [That the earth is round] is not known ($\left\{ \begin{smallmatrix} \text{to} \\ \text{by} \end{smallmatrix} \right\}$ everyone).

D-Structure representations of these sentences are supposed to be those in (6).

- (6) a. [_{NP} e] was believed [_S that John had kicked the ball.]
 b. [_{NP} e] is not known [_S that the earth is round.]

Unless these embedded Ss are assumed to be dominated by an NP, there is no reason for them to move up to the subject position: Case is irrelevant to \bar{S} . In fact, these Ss should not be analyzed as NPs, since the following sentences show that the embedded S does not have to move.

- (7) a. It was believed that John had kicked the ball.
 b. It is not known that the earth is round.

There seems to be no way to describe the above phenomenon in a systematic way.³

5.2. Bresnan's Lexical Theory

The passive operation of Bresnan's (1980b) Lexical Theory directly incorporates Perlmutter and Postal's (1977) claim that the passivization has the following two universal properties: (i) the subject of the active appears as oblique in the corresponding passive; (ii) the object of the active appears as the subject of the corresponding passive. In Lexical Theory, the passive operation alters lexically encoded grammatical relations of the PAS of lexical items. Her universal rule of Passive is (8).

(8) Passive in UG

(SUBJ) \mapsto \emptyset / (OBL)(OBJ) \mapsto (SUBJ)

(Bresnan (1980b:8))

Besides this universal characteristic of the passive, language-particular operations have to be stated, which specify how the oblique function is expressed and how the passive morphology is assigned. In English, the oblique function is typically expressed by (BY OBJ) and the passive predicate is of the form of participle. Her English passive rule is (9).

(9) The Passive in English

Functional Change: (SUBJ) + \emptyset / (BY OBJ)

(OBJ) + (SUBJ)

Morphological Change: V + V_[part]

(Bresnan (1980b:9))

Rule (8) or (9) applies only to the predicate that has an object. Hence, if a sentential complement is considered to be (OBJ), sentences such as (5) can be easily accounted for. However, this analysis cannot explain the existence of sentences such as (7), where (OBJ), a sentential complement, is not realized as (SUBJ). Examples (7) can be derived from (5) by way of It-Extraposition, though within Bresnan's Lexical Theory I believe the phenomenon of It-Extraposition must be lexically accounted for (cf. Safir (1979)). A more problematic case is given in (10) and (11), where it is shown that only 'extraposed' passives are allowed (cf. Baker and Brame

(1972), Emonds (1976)).

- (10) a. John felt that it would rain.
 b. *That it would rain was felt (by John).
 c. It was felt (by John) that it would rain.
- (11) a. John reasoned that Mary has gone to Europe.
 b. *That Mary has gone to Europe was reasoned (by John).
 c. It was reasoned (by John) that Mary has gone to Europe.

Nonextraposed sentences (10b) and (11b) are ungrammatical. Hence, it is unlikely that a sentential complement of these verbs once becomes (SUBJ), and then it is extraposed to the end of the sentence. In the above examples, the passive seems to have applied without changing grammatical relations. Such cases cannot be described in Bresnan's Lexical Theory, because her passive rule must necessarily change grammatical relations.

Another problem with (9) is that the oblique function is not always expressed by (BY OBJ). It seems to be the case that a preposition denoting the 'oblique function' varies depending on the semantic roles of the original subject.

- (12) a. This fact is known to everyone. (Goal)
 b. The street is covered with snow. (Instrumental)
 c. The cat was chased by the dog. (Agent)

5.3. The Passive in Japanese⁴

In the traditional transformational framework, passives are derived from their active counterparts by Direct Passive Formation. This rule permutes the order of the subject NP and the object NP, and attaches a passive morpheme (r)are to the stem of the verb (i.e. inserts (r)are between the verb stem and a tense element), and an agentive marker ni(yotte) to the original subject (cf. 1.1.1). There are problems in this analysis.

First, Passive seems to apply to verbs which select sentential complements. Examples follow.

- (13) a. Minna-ga John-ga Tokyo-e it-ta to shinjite-i-ru.
 everyone-subj subj to go-past CMP believe-prog-pres.
 'Everyone believes that John went to Tokyo.'
- b. John-ga To'kyo-e it-ta to (minna-ni) shinji-rarete-i-ru.
 subj to go-past CMP everyone-by believe-pass-prog-
 'It is believed (by everyone) that John went to Tokyo.' pres.
- (14) a. Mokegekisha-ga John-ga Mary-o koroshi-ta to
 eyewitness-subj subj obj kill-past CMP
 shoogen shi-ta.
 testify-past
 'The eyewitness testified that John killed Mary.'
- b. John-ga Mary-o koroshi-ta to (mokegekisha-ni(yotte))
 subj obj kill-past CMP eyewitness-by
 shoogen s-are-ta.
 testify-passive-past
 'It is testified (by the eyewitness) that John killed Mary.'

Passive examples (13b) and (14b) are supposed to be derived from

their active counterparts, (13a) and (14a). Kuno (1976a) comments on these passives as follows.

Examples [such as (13b) and (14b)—NH] ... are pure passive sentences. I do not understand what status the to clauses have in these sentences because to clauses in general cannot be in the subject position.

(Kuno (1976a:46))

These examples are the same as their active counterparts, except that the passives do not have matrix 'subjects' and the actives lack the passive morpheme (r)are. There is no evidence that the sentential complement is an object in the active sentence and that it becomes a subject in the passive sentence, because it lacks case markers. These passives appear to be subjectless.⁵ Hence, the traditional Passive cannot explain them in a systematic way.

Second, there are cases where Passive cannot apply. Not all the NP objects can be the subject of a passive predicate. In past transformational analyses of passives in Japanese, the following global condition has been proposed, to prevent Passive from applying to a derived object which is syntactically nondistinguishable from nonderived objects.

- (15) Harada (1973) and Kuno's (1978) Global Condition on Passive
 Passive cannot subjectivize an NP that used to be a constituent of a sentence embedded in the sentence to which the rule applies.

Presumably there are three cases where (15) operates: (i) the object

which was raised by Subject-to-Object Raising; (ii) the derived object of the Ni-Causative structure; and (iii) the object of the embedded sentence in the causative structure. I will examine these cases in turn.

Case 1. Kuno (1976a) argues that a certain class of verbs (thinking and feeling verbs) exhibits raising if the embedded predicate is an adjective or a nominal adjective (a 'nominal + copula' predicate). Thus, in his analysis (16b) is derived from (16a) by Raising.

- (16) a. John-ga [_S Mary-ga baka-da to] omot-ta.
 subj subj stupid CMP think-past
 'John thought that Mary is stupid.'
- b. John-ga Mary-o baka-da to omot-ta.
 subj obj stupid CMP think-past
 'John thought Mary to be stupid.'

The raised object Mary-o in (16b) cannot be the subject of the passive structure as indicated in (17).⁶

- (17) *Mary-ga John-ni(yotte) baka-da to omow-are-ta.
 subj by stupid CMP think-passive-past
 'Mary was thought by John to be stupid.'

Since the transformational operation of Passive simply subjectivizes a syntactic object, (17) cannot be prevented, unless a condition such as (15) is postulated. In such an analysis, no explanation is provided for why the raised object does not act like an ordinary

object.

Case 2. A similar phenomenon is observed with respect to the object of the Ni-Casuative. In Japanese, as has been discussed in 3.2.1, it has been argued that the causative constructions are divided in two types; the O-Causative and Ni-Causative. Kuno (1973, 1978), Harada (1973), and Shibatani (1976), for example, propose two different deep structures for these two types of causatives. For the O-Causative, a matrix object is postulated, while the Ni-Causative does not have one.

(18) a. A deep structure of the O-Causative

John-ga Mary-o [Mary-ga Tokyo-e ik] (s)ase-ta.
 subj obj subj to go cause-past

b. A deep structure of the Ni-Causative

John-ga [Mary-ga Tokyo-e ik] (s)ase-ta.
 subj subj to go cause-past

c. A surface structure of the O- and Ni-Causatives

John-ga Mary- $\left\{ \begin{array}{l} \text{o} \\ \text{ni} \end{array} \right\}$ Tokyo-e ik-ase-ta.

'John $\left\{ \begin{array}{l} \text{made} \\ \text{let} \end{array} \right\}$ Mary go to Tokyo.'

Surface structures of both types of causatives are identical except that the object (the causee) is marked by o in the O-Causative and by ni in the Ni-Causative as shown in (18c). Due to the operation of Predicate Raising (PR) and S-Pruning, the derived surface structure (18c) is considered simplex. At this stage, Passive is applicable, which derives (19).

- (19) Mary-ga John-ni(yotte) Tokyo-e ik-ase-rare-ta.
 subj by to go-cause-passive-past
 'Mary was forced to go to Tokyo by John.'

What is interesting here is that (19) is not ambiguous between the Ni- and O-Causatives. It is only considered to be the passive of the O-Causative. In other words, the object of the Ni-Causative, Mary-ni, the former subject of the embedded clause, cannot be the subject of the passive. In order to describe this fact, (15) is employed in transformational analyses.

Case 3. The last case where (15) is utilized is also relevant to the causative structure. As discussed directly above and in the section 3.2.1, the derivation of causatives involves PR and S-Pruning. Hence, at the time Passive applies to the causative predicate (s)ase, the structure is considered simplex. This means that if the embedded sentence contains an object, the derived structure cannot syntactically distinguish two objects, one being a matrix object (in the case of the O-Causative) or a raised object through S-Pruning (in the case of the Ni-Causative) and the other being an object of the embedded sentence.

- (20) a. John-ga Mary- $\left\{ \begin{smallmatrix} O \\ ni \end{smallmatrix} \right\}$ hon-o yom-ase-ta.
 subj book-obj read-cause-past
 'John $\left\{ \begin{smallmatrix} made \\ let \end{smallmatrix} \right\}$ Mary read the book.'
- b. *Hon-ga John-ni(yotte) Mary- $\left\{ \begin{smallmatrix} O \\ ni \end{smallmatrix} \right\}$ yom-ase-rare-ta.
 subj by read-cause-passive-past

If the passive applies to (20a), making the object of the embedded verb, hon-o 'book-obj', the subject of the passive, an ungrammatical sentence (20b) results. To prevent this undesirable consequence, (15) is assumed to be operative here. Hon-o, which used to be the constituent of the embedded sentence, cannot be the subject of the passive.

In the above, it is clear that the global condition (15) is employed for the sole purpose of describing the phenomena, without explaining why the derived object cannot be the subject of the passive. The generalization underlying Harada and Kuno's global condition (15) appears to be this:

As the assumed deep structures imply, the derived objects in question, the raised object, the object of the Ni-Causative, and the object of the lower clause, are not semantically or thematically related to the verb to which the passive morpheme (r)are attaches and such objects cannot be the subject of the passive.

In the traditional transformational framework, this lexical difference between two types of objects, one semantically related to the verb (s)ase and the other not, cannot be incorporated into a syntactic passive operation, since transformations apply blindly to structures. This difference can be incorporated in deep structure representations; however, the problem is that there is no means to preserve this lexical or deep structural information until Passive applies, except by postulating a global condition such as (15).

5.4. An Alternative Analysis

In the above discussion, we have observed that neither the EST nor Bresnan's Lexical Theory can account for all the passive phenomena of English. The discussion on Japanese reveals that the passive in Japanese is sensitive to lexical information. The following is a summary of the above discussion.

(21) a. The Extended Standard Theory

Passive operation: Move α with the following stipulations.

- (i) a passive predicate is a participle.
- (ii) a participle does not assign Case to its object.
- (iii) a participle does not select the predicate external argument.

Problem: no explanation for the fact that a sentential complement can be moved to the subject position (cf. (5)).

b. Bresnan's Lexical Theory

Passive operation:

- (i) the passive predicate is a participle.
- (ii) the active object becomes a passive subject.
- (iii) the active subject becomes null or oblique.

Problem: no explanation for the fact that the passive operation does not always invoke (ii) (cf. (10) and (11).)

c. The Passive in Japanese

Passive operation:

- (i) the passive attaches (r)are to the active predicate.
- (ii) the active object becomes a passive subject.
- (iii) the active subject becomes null or oblique (ni(yotte)).

Problems: (i) no explanation for the passive on a verb with a sentential complement.
 (ii) no explanation for why the derived object cannot become the subject of the passive.

Although the frameworks differ, (21) can be summarized in the following way.

(22) The Passive Operation

- a. It involves participles in English and (r)are attachment in Japanese.
- b. It eliminates the object function of the active predicate.
- c. It eliminates the predicate external argument (the subject argument) of the active predicate.

Notice that in (22), whether the object becomes the subject of the passive is not specified. In fact, as discussed in previous sections, there are cases where the passive operation applies without making a sentential object (or complement) a subject of the passive. I assume that this change in grammatical function follows from (22b) and (22c). Based on (22), I propose a universal rule which operates in the lexicon as one of the lexical redundancy rules.

(23) Passive in UG

- | | |
|--|---------------------------------------|
| a. OBJ $\rightarrow \emptyset$ | where θ_1 is the predicate |
| b. $\theta_1 \rightarrow \emptyset / \theta_n$ | external argument and θ_n is a |
| | predicate internal argument. |

Rule (23) is accompanied with morphological stipulations, which vary from language to language: in English, a participle is used, while in Japanese (r)are attaches to the original predicate. The following rules are proposed for English and Japanese.

Due to (26), the object of the active predicate becomes the subject of the passive predicate. Thus, Parlmutter and Postal's generalization follows from (24) and (26). At the same time, the relation expressed by Move α can be captured without employing syntactic movement.⁷ It is clear that the proposed passive rule and Convention (26) can describe the passive operation that involves an object. Now, let us see how this analysis accounts for sentential objects or complements, which are problematic to both the EST and Bresnan's Lexical Theory.

If sentential complements of the verb such as believe and think are considered to be objects, it is clear that they would be realized as subjects in passives. The lexical entry of believe, for example, undergoes a similar change as (25). A more problematic case is feel and reason, where a sentential complement (or object) cannot be the subject of the passive, as shown in (10) and (11). What seems to be going on here is that the passive rule (24a) applies to the FF of feel or reason, but Convention (26) is not triggered. As a result, a participle is used, no thematic role is assigned to the subject, which is realized as it, and the complement remains a complement. I assume that the sentential complement of the verb of this class has dual grammatical function, OBJ-COMP, and that the passive rule (24a) erases OBJ and the external argument, but the COMP function still attaches to the argument. Thus, Convention (26) cannot be triggered. The difference between believe and feel is observed below.

in 3.2.1 with respect to the intransitive reading of aspectual verbs such as hajime 'begin.' Hence, this analysis is not only compatible with but also predicts the fact that the passive with a sentential complement, (13b) and (14b), does not have a subject.

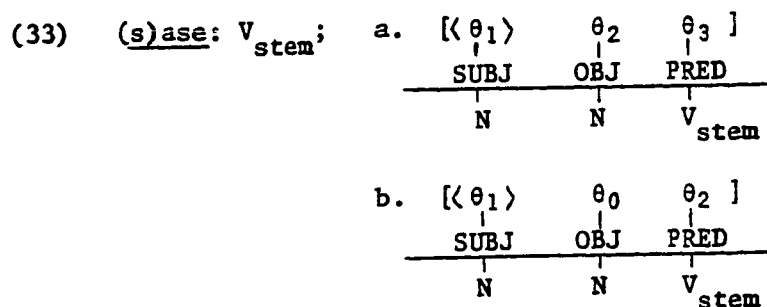
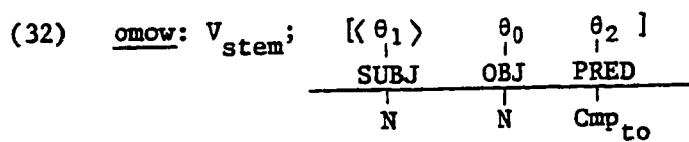
In the present framework, there are two ways to express the descriptive generalization that a derived object or the object that is not thematically related to the passive verb cannot be the subject of the passive in Japanese. One obvious way is to incorporate this generalization into a lexical passive rule (24b). The object must be semantically or thematically related to the predicate. This is an approach pursued in Hasegawa (1980b). If this approach is taken, rule (24b) must be replaced by (31).⁸

(31) The Passive in Japanese

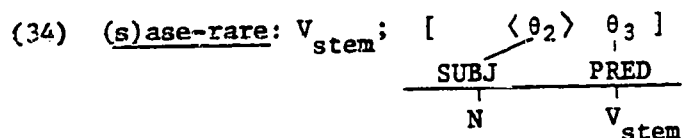
Change in FF:	OBJ	→	∅
	θ_1	→	\emptyset / θ_n
Morphological Change:	V_{stem}	→	$[V_{stem} + (\tau)are]_{V_{stem}}$
Condition:	OBJ must be thematically related to the V_{stem} .		

As has been discussed in 5.3, the existence of the global condition (15) is a direct consequence of treating a lexical process as a syntactic one. In the proposed analysis, the passive, being considered as a lexical process, can straightforwardly incorporate this information. The fact that thematic information is necessary to derive the phenomenon clearly indicates that the passive in Japanese is lexical.

Given (31) and partial lexical entries of omow 'think' and (s)ase 'cause' as in (32) and (33), respectively, the phenomenon that the raised object of omow or (s)ase cannot be the subject of the passive is easily explained.



Lexical representations (32) and (33b) have objects which are not thematically related to the predicate. Hence, they are not subject to rule (31). However, (33a) can undergo (31), producing a passive predicate (34).



The passive causative (19) is given by this entry (34).

Rule (31) explains the third case that is subject to (15); the object of the lower clause cannot be the subject of the passive.

Since rule (31) applies to (s)ase, the relevant object is the object of (s)ase but not the object of V_{stem} which is part of the PRED argument. Examples such as (20b) would never be generated in the proposed analysis. Thus, the problems with past analyses of Japanese passives are all eliminated in the present analysis.⁹

There is another way to explain the fact that a raised object or an object that is not thematically related to the predicate cannot undergo Passive. In the above, I have argued that in Japanese SUBJ with no thematic role is not realized in F-Structure and C-Structure representations. By imposing this principle on the passivized raising predicate, omow-are 'think-passive,' for example, and (s)ase-rare 'cause-passive' with SUBJ which is θ_0 , the same result as the condition in (31) is obtained. Assume that the passive in Japanese is (24b) without the condition in (31). This rule applies to (32) and (33b), producing the following passive predicates.

- (35) a. omow-are: V_{stem} ; [$\langle \theta_0 \rangle$ θ_2 (θ_1)]
 SUBJ PRED OBL
 \emptyset Cmp_{to} Pst_{ni(yotte)}
- b. (s)ase-rare: V_{stem} ; [$\langle \theta_0 \rangle$ θ_2 (θ_1)]
 SUBJ PRED OBL
 \emptyset Cmp_{to} Pst_{ni(yotte)}

The convention (92) in Chapter 3 stipulates the following: nonargument subjects do not receive case markers. Hence, the SUBJ with θ_0 in (35) are caseless and these nonargument subjects are not realized in

the C-Structure and F-Structure representations. Then, what these lexical representations produce is something like (36).

- (36) a. *Baka-da to omow-are-ta.
 stupid CMP think-passive-past
 '---- was thought to be stupid.'
- b. *Hon-o yom-ase-rare-ta.
 book-obj read-cause-passive-past
 '---- was forced to read a book.'

In these examples the subject of baka-da 'be stupid' and yom 'read' would never be interpreted. Hence, they violate the Principle of Functional Completeness (PFC) ((43) of Chapter 2). To illustrate the point further, I give the following F-Structure representations.

- (37) the F-Structure of (36a)

$$\left[\begin{array}{l} V \equiv i \\ \underline{\text{omow-are-ta}}_1 \quad [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle \text{ j}] \\ \quad \quad \quad \emptyset \quad \quad \quad \emptyset \\ \underline{\text{to}}_j \quad [\text{PRED}] \Rightarrow [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle \text{ k}] \\ \underline{\text{baka-da}}_k \quad [\langle \text{SUBJ} \rangle] \quad \quad \quad \text{SIR cannot apply} \end{array} \right.$$

- (38) the F-Structure of (36b)

$$\left[\begin{array}{l} V \equiv i \\ \underline{\text{yom-ase-rare-ta}}_1 \quad [\langle \text{SUBJ} \rangle \underline{\text{yom}}] \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle \text{SUBJ} \rangle \underline{\text{yom}}] \\ \quad \quad \quad \emptyset \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \quad \quad \quad \emptyset \quad [\langle \text{SUBJ} \rangle \text{ j}] \\ \underline{\text{hon}}_j \quad [-] \quad \quad \quad \text{SIR cannot apply} \end{array} \right.$$

In these representations, the Subject Interpretation Rule (SIR) ((50) of Chapter 3) cannot apply because there are no indices which can be copied onto the SUBJ argument of the predicate. Hence, PFC marks

(37) and (38) ungrammatical.

The difference between English and Japanese follows from the principle that English needs a syntactic or 'formal' subject even if no thematic role is imposed on the SUBJ function, while in Japanese SUBJ is not syntactically realized if it does not have a thematic role. This difference is expressed in the composition rules of English and Japanese. In English, an S constituent is a 'syntactic' category which is made up of Det and V ($S \equiv \text{Det} - V$). In contrast, Japanese does not have an S constituent (cf. 2.3.2). Hence, in English the raising predicate believe, for example, produces a grammatical passive sentence such as (39a). The F-Structure representation of (39a) is given as (39b).¹⁰

(39) a. John was believed to be stupid.

b.
$$\left[\begin{array}{l} S \equiv \text{Det} - V \equiv i - j \\ \text{John}_i \quad [---] \\ \text{believed}_j \quad [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle k] \equiv [\langle i \rangle k] \\ \text{to}_k \quad [\text{PRED}] \Rightarrow [\langle \text{SUBJ} \rangle \text{ PRED}] \equiv [\langle \text{SUBJ} \rangle 1] \equiv [\langle i \rangle 1] \\ \text{stupid}_1 \quad [\langle \text{SUBJ} \rangle] \equiv [\langle i \rangle] \quad \begin{array}{c} \uparrow \\ \text{SIR} \end{array} \end{array} \right.$$

Thus, the interpretation is complete. The SUBJ with θ_0 is occupied by John_i, which is interpreted as the SUBJ of stupid₁. Any lexical item may fill the SUBJ with θ_0 , as long as the interpretation is correctly made. With a PRED argument as in believe, since the SIR must apply whenever PRED is involved, the SUBJ must meet the semantic selection of the predicate with a PRED function. If the SIR does

not apply, the SUBJ position must be filled with a null semantic item such as it.

The above two approaches can both explain the passive phenomena of Japanese. Descriptively, they are equivalent. However, I prefer the latter analysis, because it does not resort to any extra stipulation. The condition imposed on the Japanese passive (31) is superfluous, because it follows from the motivated principle that a SUBJ with θ_0 is not syntactically realized in Japanese.

From the above discussion, it can be concluded that the analysis proposed for the passive can account for a wider range of the data than previous analyses. It also accommodates universal characteristics of the passive. Moreover, language differences are expressed in a minimal way.

FOOTNOTES TO CHAPTER 5

¹In Chomsky (1980b), it is claimed that passives are characterized by these two stipulations.

What is usually called "passive" seems to have two crucial properties:

- (42) (I) [NP,S] does not receive a θ -role
(II) [NP,VP] does not receive Case within VP, for some choice of NP in VP

(Chomsky (1980b:36))

²Marantz (1980b) independently reaches the same argument as the one presented in this paragraph.

³One may assume that Move α optionally moves \bar{S} into the subject (or into COMP). Under this assumption, it is possible to obtain (5) and (7) from (6). However, this cannot explain the data in (10) and (11), where the movement of \bar{S} is not allowed. This means that the passive involving a sentential complement (or object) is not controlled by any subtheories in the EST but it is relevant to the lexical characteristics of the verbs in question. The data in (5), (7), (10), and (11) can be possibly accounted for in the EST framework, if it is assumed that verbs such as believe and know have two lexical entries; one with an NP object which exclusively dominates \bar{S} and the other with an \bar{S} complement, and that verbs such as feel and reason have only one type of lexical entry (with an \bar{S} complement). If Move α does not move \bar{S} but NP, (5) is produced by believe₁ and know₁ (with an NP object) and (7) is obtained from believe₂ and know₂ (with an \bar{S} complement). This analysis can account for the relevant data; however, the existence of the PS rule, $NP \rightarrow \bar{S}$, must be independently motivated.

⁴Japanese has two types of passives; pure or direct passives and adversity or indirect passives. The latter have been discussed

in 3.2. This section deals with pure or direct passives.

⁵I consider the embedded sentence in (13b) and (14b) to be a complement rather than a subject for the following reason. In Japanese, ordinary sentential subjects take a nominal element (koto or no) which is followed by the subject marker ga as in (i).

- (i) [Chikyuu-ga marui (to yuu)] koto-ga akiraka-da.
 the earth-subj round CMP Nom-subj obvious
 'That the earth is round is obvious.'

There are no sentential subjects which are not marked by ga. If the embedded sentence is considered to be a subject in (13b) and (14b), we cannot explain why the sentential subject of the passive is exceptional to this generalization. To is exclusively used as a marker for a sentential complement. Of course, one can posit a rule of ga deletion, which deletes ga after to, as suggested by Kuroda (personal communication). However, such a rule seems to be a restatement of the problem. If we take the position that case-marked languages utilize case markers to identify grammatical functions, rather than syntactic structures, the identification procedure is much simpler if to is used for a marker for a sentential complement, along with ga for subjects and o for objects. If to can also be a subject marker, the identification procedure becomes complicated; to marks sentential complements when a verb is active and if the verb is passive to is a subject marker.

⁶Here, I follow Kuno's (1976a) observation that (17) is ungrammatical as a pure or direct passive sentence, though it is grammatical as an indirect passive. See Kuno (1976a) for the supportive arguments for this observation. Although Yamazaki (1979) challenges this claim, I do not find her arguments convincing.

⁷This is what Marantz (1980b) argues. The effect of Move α is obtained by 'intransitivization' (erasure of the Objective Case) and

'de- θ -ization' (erasure of the θ -role of the subject). Rule (24) and Convention (26) are essentially the same as what Marantz proposes.

⁸The condition in (31) may have to be more restricted, since there are some argument types which are thematically related to the predicate but which cannot appear as the subject of the passive. Such predicates include kat 'win,' aw 'meet,' etc. Objects of these predicates do not serve as Theme or Goal, which normally occur as the subject of the passive. Hence, as an alternative to the condition of (31), (i) may be proposed.

(i) Condition: OBJ = Theme or Goal of the V stem.

⁹With respect to idiomatic expressions in Japanese, the prediction made by (31) seems to be maintained. To my knowledge, there are no cases in Japanese where an idiomatic object and an object of an entire idiomatic phrase can both be passivized. Depending on an idiom, either an idiomatic object or an object of the entire idiom (or neither object) but not both can be the subject of the passive, as shown below. The idioms that act like (i) include SO-ni ai-o uchiake 'propose,' SO-ni nen-o os 'make sure of,' etc. The ones that act like (ii) are SO (or ST)-ni gunbai-o age 'decide which is superior,' ST-ni keru-o tsuke 'settle, solve,' etc.

(i) a. Musuko-ga chichioya-ni tate-o tsui-ta.
son-subj father-dat defy-past

'The son defied the father.'

b. Chichioya-ga musuko-ni(yotte) tate-o tsuk-are-ta.
by defy-passive-past

'The father was defied by the son.'

c. *Tate-ga musuko-ni(yotte) chichioya-ni tsuk-are-ta.

(ii) a. Iinkai-ga John-ni shirahanoya-o tate-ta.
committee-subj dat choose among many-past

'The committee chose John among many candidates.'

b.??John-ga iinkai-ni(yotte) shirahanoya-o tate-rare-ta.

c. Shirahanoya-ga iinkai-ni(yotte) John-ni tate-rare-ta.

The above fact is compatible with the condition on the passive in Japanese, if we assume that the idiom whose idiomatic object cannot be passivized as in (i) is lexically or morphologically restructured as a single verb, while the one where only the idiomatic object is passivized retains its original syntactic form. Hence, in (i), chichioya 'father' is considered to be the object of the entire phrase tate-o tsuk 'defy' and the idiomatic object tate-o does not bear a thematic relation to the predicate. Thus, only the former can be the subject of the passive. As for (ii), both John-ni (as a locative postpositional phrase) and shirahanoya-o (as a direct object) retain thematic roles with the verb tate 'stand.' Therefore, only the latter can be passivized. Consequently the prediction made by the condition in (31) is not violated.

¹⁰In (39b), I have omitted the representation of the verb be for expository purposes.

Chapter 6

THE BINDING RULE

In this chapter, the structure which involves an unbounded binding will be considered. It involves so-called WH-constructions in English and relative clauses and topic sentences in Japanese. The main concern of this chapter is to characterize differences and similarities between English and Japanese and to adequately describe the phenomenon in question in both languages.

Various structures may be subsumed under the unbounded construction. In the EST framework, the structures that induce WH-movement are typical members of this construction, which include wh-questions, relatives, topic structures, clefts, and 'tough' movement structures. (cf. Chomsky (1977b)) In Brame's (1978b, 1979a) Realistic Grammar framework, the structures which observe the 'accessible scope' property are included in this construction; wh-questions, relatives, topic sentences, cleft (or focus) constructions, 'tough' (or scopal predicate) structures, and comparative constructions. In Japanese, topic constructions and relatives, since they exhibit similar properties to English wh-phenomenon, must be included in the unbounded construction. Hoji (1980a) includes cleft and focus constructions in this class along with topic and relative constructions. It is not clear whether 'tough' sentences in Japanese are to be accounted for in the same way as relative and topic constructions. (See Inoue (1976a, 1978a, 1978b) and Saito (1980) for analyses of

Japanese 'tough' sentences.) Japanese comparative clauses seem to share the same properties as topic and relative constructions; however, the facts have not been quite clear (cf. K. Harada (1974), Haig (1976)). It is not a purpose of this chapter (hence, of this thesis) to decide which constructions are to be analyzed under the unbounded construction. But rather, I would like to show how an unbounded phenomenon is described in the present framework by analyzing clear-cut cases of this construction, namely wh-questions, relatives, and topic constructions in English and relatives and topic constructions in Japanese. Since it has long been noticed that Japanese unbounded constructions are different from those of English with respect to whether they observe Ross' (1967) Complex NP Constraint (CNPC) or Chomsky's (1973) Subjacency, I would like to consider how such a difference is characterized in the framework advanced in the previous chapters. (Cf. Ross (1967), Kuno (1973), Inoue (1976a)) If some other constructions can be subsumed under the unbounded construction, the analysis which will be presented in this chapter will be easily extended to them.

In what follows, I will first characterize the unbounded construction with a special emphasis on the difference between English and Japanese. In Japanese, unlike in English, there are cases in which topicalizing or relativizing an element inside a relative clause is allowed. That is, Japanese relative and topic structures do not observe CNPC or Subjacency. However, not all of such cases result in grammatical sentences. In fact, a majority of such examples are ungrammatical. In the past, no attempt has been made, except Inoue (1976a) and Hoji (1980a), obtaining a formal generalization that

distinguishes grammatical examples from ungrammatical ones when a topic phrase or a head of a relative refers to a gap deeply inside a relative clause. In the immediately following section I will specify exactly under what condition topicalization or relativization out of a relative clause is possible in Japanese.

6.1. Characteristics of Unbounded Constructions

The unbounded construction possesses its typical characteristics, which are well-known. It has a 'gap' in the place where an argument normally occurs in the bounded construction. Examples follow.

- (1) a. What did Mary put ___ in the box?
 b. The coin Mary put ___ in the box.
 c. The coin which Mary had put ___ in the box disappeared.

Without a 'gap', the unbounded construction is ungrammatical. Thus, we obtain the examples in (2), which are ungrammatical counterparts of (1).

- (2) a. *What did Mary put the card in the box?
 b. *The coin Mary put the card in the box.
 c. *The coin which Mary put the card in the box disappeared.

The position of the 'gap' is not sentence-bound but can be inside a deeply embedded sentence. Examples (3) exhibit this property.

- (3) a. What do you think Mary put ___ in the box?
 b. The coin I believe John thinks Mary put ___ in the box.
 c. The coin which Bill claimed Mary had put ___ in the box disappeared.

Though a 'gap' can be in an infinitely lower clause, if the clause, where the 'gap' is, possesses another 'gap', the sentence is ungrammatical. In other words, if two instances of the unbounded construction interact in a crucial way, a sentence is deviant. Observe the following examples.¹

- (4) a. *What do you wonder where Mary put ___ ___? (Q-Q)
 b. *In the box the coin which Mary put ___ ___ disappeared. (Top.-Rel.)
 c. *The coin I wonder where Mary put ___ ___. (Top.-Q)
 d. *I liked the coin which the box in which Mary put ___ ___ was broken. (Rel.-Rel.)
 e. *I like the coin which I wonder where Mary put ___ ___. (Rel.-Rel.)

The properties of the unbounded construction just discussed are observed in topic and relative structures in Japanese.² First of all, these structures have a 'gap' and without a 'gap' a sentence is ungrammatical.³

- (5) a. Koin-wa Mary-ga hako-ni ___ ire-ta.
 coin-top subj box-in put-past
 'The coin Mary put in the box.'
 b. Mary-ga hako-ni ___ ire-ta koin-ga nakunat-ta,
 subj box-in put-past coin-subj get lost-past
 'The coin which Mary put into the box got lost.'

- (6) a. *Koin-wa Mary-ga hako-ni kaado-o ire-ta.
 coin-top subj box-in card-obj put-past
 'The coin Mary put the card into the box.'
- b. *Mary-ga hako-ni kaado-o ire-ta koin-ga nakunat-ta.
 subj box-in card-obj put-past coin-subj get lost-past
 'The coin which Mary put the card into the box got lost.'

Second, the 'gap' can be inside a deeply embedded sentence.

- (7) a. Koin-wa Mary-ga hako-ni ire-ta to John-ga it-ta.
 coin-top subj box-in put-past CMP subj say-past
 'The coin John said that Mary put into the box.'
- b. Mary-ga hako-ni ire-ta to Bill-ga omotte-i-ru to
 subj box-in put-past CMP subj think-prog.-pres. CMP
 John-ga it-ta koin-ga nakunat-ta.
 subj say-past coin-subj get lost-past
 'The coin which John said Bill thinks Mary put into the box.'

Lastly, the interaction of these unbounded constructions often results in ungrammatical sentences.

- (8) a. *Koin-wa Mary-ga ire-ta hako-ga kowarete-i-ru.
 coin-top subj Loc OBJ put-past box-subj broken-pres.
 'The coin the box into which Mary put is broken.' (Top.-Rel.)
- b. *Mary-ga ire-ta koin-ga nakunat-ta hako-ga
 subj Loc OBJ put-past coin-subj get lost-past box-subj
 kowarete-i-ru. (Rel.-Rel.)
 be-broken-prog.-pres.
 'The box into which the coin which Mary put got lost is broken.'

6.1.1. The Violation of the Complex NP Constraint in Japanese

As far as the data presented so far are concerned, the unbounded construction in English and that in Japanese share the same properties and it seems to be the case that if the English phenomenon is properly analyzed, the Japanese case will also be accounted for. However, along with ungrammatical examples such as (8), there are a set of grammatical examples in which the interaction of the unbounded constructions is observed. Such examples are provided in (9). The existence of sentences such as (9) has long been recognized. They are the examples that show that the violation of CNPC or Subjacency does not result in ungrammatical sentences in Japanese.

- (9) a. $\overbrace{\text{Mary-wa}}^{\text{top}} \text{SUBJ} \text{ hako-ni} \text{ box-in} \text{ } \overbrace{\text{ire-ta koin-ga}}^{\text{OBJ}} \text{ put-past coin-subj} \text{ nakunat-ta.}$
 get lost-past
 (Top. - Rel.)
 'Mary the coin which (she) put in the box got lost.'
- b. $\overbrace{\text{Shinshi-wa}}^{\text{gentleman}} \text{SUBJ} \text{ } \overbrace{\text{kite-i-ru yoohuku-ga}}^{\text{OBJ}} \text{ wear-prog-pres suit-subj} \text{ yogorete-i-ru.}$
 dirty-prog-pres
 -top (Top. - Rel.)
 'The gentleman the suit which (he) is wearing is dirty.'
- c. $\overbrace{\text{katte-i-ta inu-ga}}^{\text{SUBJ}} \text{ keep-prog-past dog-subj} \text{ } \overbrace{\text{shinde-shimat-ta kodomo-ga}}^{\text{OBJ}} \text{ die-perf-past child-subj}$
 naite-i-ru. (Rel.- Rel.)
 cry-prog-pres.
 'The child who the dog which (he) kept has died is crying.'

Seemingly, the sentences in (8) and those in (9) are of the same kind. There are two gaps in a single clause. It has been a mystery why examples in (9) are grammatical and those in (8) are not.


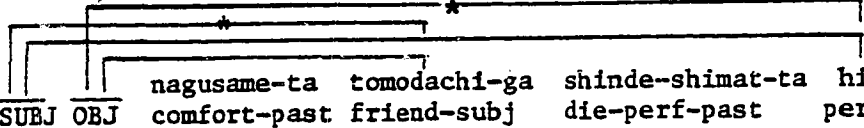
If a theory allows relativization or topicalization of a phrase in a relative clause, examples in (9) can be described. However, it cannot rule out examples in (8). On the other hand, if a theory disallows relativization or topicalization of a phrase in a relative clause, (8) is correctly ruled ungrammatical but (9) is incorrectly ruled out as well. Hence, these examples have presented considerable difficulties for past analyses. Kuno (1973), in an attempt to distinguish these two cases, attributes the difference in grammaticality to semantics by saying that "(i)t seems that ... [sentences such as (8a)—NH] are unacceptable because what follows the theme [my topic—NH] is not a statement about the theme (p. 250)." (See also Kuno (1976b)) However, it is not at all clear whether Kuno can distinguish (8a) and (9a), for example. How do we know the clause following koin-wa 'coin-top.' in (8a) is not about the 'coin' and the clause following Mary-wa in (9a) is about Mary? A close examination of the construction in question reveals syntactic differences between these ungrammatical and grammatical sentences.

Before characterizing such differences, I will introduce several terms. I will use head to refer to the noun which is modified by a relative clause. Topic refers to the wa-marked phrase whose semantic function is not contrastive, which normally occurs at the beginning of a sentence. Gap is used to refer to the position in the relative clause or topic sentence which the head or topic is interpreted as filling in that clause or sentence. Thus, in the dog which I like the gap for the head is the object of the relative clause.

As I mentioned, both (8) and (9) violate CNPC or Subjacency, because the topic or head is related to a gap inside a relative clause. Only some cases of the CNPC violation result in grammatical sentences. A majority of the CNPC violations are ungrammatical. Let me call grammatical sentences which do not observe CNPC type A sentences and ungrammatical ones type B sentences.⁴ There are rather strict conditions in order for a sentence to qualify as type A. Such conditions are relevant to the grammatical relation which the gap holds in a relative clause and to the grammatical relation which the head of the relative clause with two gaps holds in the higher clause. (As will be shown shortly, this is not quite correct yet.) The minimal pair (8a) and (9a) makes the first point clearer. In (8a) the topic refers to the object of the relative clause, while in (9a) the topic refers to the subject of the relative clause. Similarly in other grammatical (type A) sentences, (9b) and (9c), the topic or the head of the higher relative refers to the subject of the (lower) relative clause and in an ungrammatical (type B) example, (8b), the head of the higher relative refers to the locative complement of the lower relative clause. Hence, one of the conditions for a sentence to be type A may be stated as in (10).

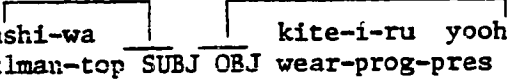
- (10) Relativizing or topicalizing a phrase in a relative clause is allowed, if the phrase is the subject of the relative clause.

This condition excludes the following examples, which should be compared with (9b) and (9c).

- (12) a.  John-wa aishite-i-ta hito-ga shinde-shimat-ta.
subj SUBJ OBJ love-prog-past person-subj die-perf-past
'John_i the person who (he_i) loved had died.'
'*John_i the person who loved (him_i) had died.'
- b.  nagusame-ta tomodachi-ga shinde-shimat-ta hito
SUBJ OBJ comfort-past friend-subj die-perf-past person
'the person_i who the friend who (he_i) comforted has died'
'*the person_i who the friend who comforted (him_i) has died'

Solely observing the phenomenon in (11) and (12), one may propose, instead of (10), a condition which prohibits the association lines between the heads and gaps or the head and topic and gaps from crossing each other. (Cf. Bordelois (1974), Back (1977), Fodor's (1978) Nested Dependency Constraint, Hendrick's (1979) Association Principles) However, such a proposal cannot rule out (8b), where association lines do not intersect. This example, however, can be ruled out by (10).

As far as the examples I have so far presented are concerned, condition (10) is sufficient. However, there are a number of type B sentences which (10) does not suffice to exclude. Some of these examples are given in (13). Note that these examples also cannot be ruled out by prohibiting association lines from intersecting each other.

- (13) a.  *Sinshi-wa kite-i-ru yoohuku-o Mary-ga tsukut-ta.
gentleman-top SUBJ OBJ wear-prog-pres suit-obj subj make-past
'The gentleman Mary made the suit which (he) wears.'

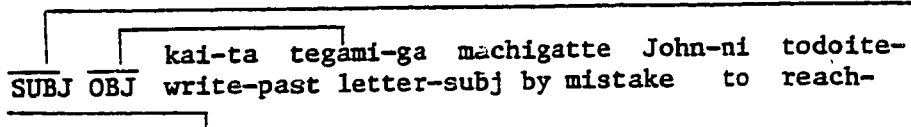
- b. * SUBJ OBJ katte-i-ru inu-o John-ga ket-ta shoonen-ga
 okot-ta.
 angry-past
 'The boy_i who John kicked the dog which (he_i) keeps got mad.'
- c. * SUBJ OBJ kai-ta tegami-o John-ga yon-da hito-ga
 hazukashi-gat-ta.
 get embarrassed-past
 'The person_i who John read the letter which (he_i) wrote got embarrassed.'

The difference between these ungrammatical (type B) sentences (13) and grammatical (type A) sentences (9) is that in the former the head of the (lower) relative clause serves as the object of the higher clause, whereas in the latter the head of the (lower) relative clause serves as the subject of the higher clause. Thus, in (13a) yoochuku 'suit' is the object of tsukut-ta 'made' but in (9a) yoochuku is the subject of yogorete-i-ru 'is dirty.' Similarly in (13b) inu 'dog', the head of the lower relative clause, serves as the object of ket-ta 'kicked', while in (9c) it serves as the subject of shinde-shimat-ta 'has died.' Thus, we must add another condition to (10).⁵

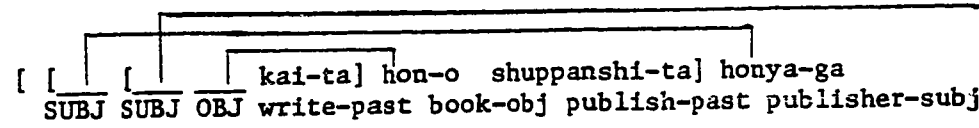
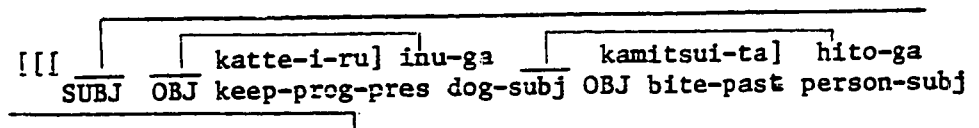
- (14) Relativizing or topicalizing a phrase in a relative clause is allowed if the phrase is the subject of the relative clause and the head of that relative clause serves as the subject of the higher clause.

This condition predicts that an example like (13c) is grammatical, if

tegami 'letter' is the subject of the higher clause. In fact, this prediction is correct, as shown in (15).

- (15) 
- shimat-ta hito-ga sore-o torimodoshi-ta.
 perf-past person-subj it-obj get back-past
- 'The person who the letter which (he) wrote reached John by mistake got it back.'

Condition (14) seems so far to be sufficient to characterize type A examples. However, it does not specify how deeply a relative clause can be embedded. In fact, in Japanese the topic or the highest head can refer to the gap in a relative clause which itself is in another relative clause. Observe the following examples.⁶

- (16)a. 
- hasan shi-ta] gakusha-o John-ga shitte-i-ru.
 go broke-past scholar-obj subj know-prog-pres.
- 'John knows the scholar₁ [who the publisher [which published the book [which (he₁) wrote]] went broke.]
- b. 
- shinde-shimat-ta] kodomo-ga komatte-i-ru.
 die-perf-past child-subj troubled-prog-pres
- 'The child₁ [who the person [who the dog [which (he₁) keeps] bit] died] is in trouble.'

Examples of this type are fairly complex and it may be rare to hear or produce them. However, to my ear they are perfectly well-formed. Now, let us consider how condition (14) predicts the grammaticality of these examples. There is at least one problem with (14) as it now stands: condition (14) allows (16b) but rules out (16a). Notice that (14) imposes conditions on the head of the relative clause, one of whose gaps refers to the higher head or the topic: the head of the relative clause serves as the subject of the higher clause. In (16b) the head of the lowest relative clause, inu 'dog', is the subject of the next higher relative clause. Thus, this is allowed by (14). However, in (16a), which is also grammatical, the head of the lowest relative hon 'book' is the object of the next higher relative clause. Thus, (16a) should be ungrammatical according to (14). In connection with this problem, observe the following ungrammatical sentences.

- (17) a. *[[[[[[]]]]]]
 SUBJ SUBJ OBJ write-past book-obj publish-past publisher-obj
 Bill-ga nottot-ta] gakusha-o John-ga shitte-i-ru.
 subj usurp-past scholar-obj subj know-prog-pres.
 'John knows the scholar_i [who Bill usurped the publisher
 [which published the book [which (he_i) wrote.]]]'
- b. *[[[[[[]]]]]]
 SUBJ OBJ keep-prog-pres dog-subj OBJ bite-past person-obj
 John-ga tasuke-ta] kodomo-ga hotto shi-ta.
 subj rescue-past child-subj get relieved-past
 'The child_i [who John rescued the man [who the dog [which
 (he_i) keeps] bit] got relieved.'

A close comparison of these examples and (16) reveals what is wrong in (14). In both (16) and (17) the head of the lowest relative serves as the same grammatical relation in the next higher relative. Thus, (14) predicts the same grammaticality for both (16) and (17). That is, (16a) and (17a) should be ungrammatical and (16b) and (17b) grammatical. However, this is wrong. The grammatical relation of the gap which is filled by the topic or the highest head or the grammatical relation of the head of the lowest relative is not relevant for distinguishing the grammatical (16) from the ungrammatical (17). The examples in (17) differ from those in (16) in the grammatical relation of the head of the second highest relative. In (16a) honya 'publisher' serves as the subject, while it is the object in (17a). Similarly, the head of the second highest relative, hito 'person', is the subject of the topmost relative in (16b) but it is the object in (17b). Thus, what must be the subject is not the head of the relative from which a phrase is relativized or topicalized but the head of the relative which is immediately embedded in the clause to which the highest head or topic attaches. In earlier examples, (9), (12), and (15), the head of the lowest relative and the head of the relative, which is immediately embedded in the clause to which the highest head or the topic attaches, are the same. The examination of complex examples such as (16) and (17) reveals that the latter is a crucial head in order to characterize type A examples.

Incorporating the above discussion, I give (18) as a descriptive condition or generalization regarding the association of the head or the topic to the gap inside the relative clause. This

such as CNPC is not operative in Japanese, this should be allowed. In (19) the head of the lowest relative, inu 'dog', refers to the object of katte-i-ta 'kept'. This is a case of an ordinary relativization. The head of the second higher relative, hito 'person', refers back to the subject of the lowest relative. This is the same case as (9c), for example. The highest head, kodomo 'child', refers to the object gap in the second highest relative, which violates CNPC but this must be allowed if CNPC is irrelevant to Japanese. Condition (18) allows the first two associations; however, it does not allow connecting kodomo with the object gap. Hence, (19) can be correctly ruled out. In fact, it predicts that the only possible way to associate gaps and heads is the one given in (16b).

Hence, (18) seems to be descriptively adequate. However, it does not explain why Japanese allows violations of conditions such as CNPC, which English obeys, and why 'subject' plays such a crucial role when CNPC is violated. I would like to consider (18) as a descriptive generalization which holds for the unbounded construction in Japanese. In the next section, I will review the past analyses of the unbounded construction, showing that they cannot incorporate the generalization (18) in a principled way. In 6.3, the analysis of the unbounded construction in the framework proposed in this thesis will be presented. It will be revealed that the generalization (18) directly follows from the basic assumptions which have been motivated already in the present framework.

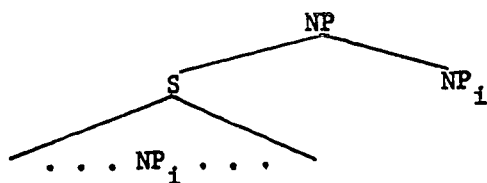
6.2. Past Analyses of the Unbounded Construction

The relative clause construction, one of the unbounded constructions, has been a central topic for the generative study of English. Any analysis of this construction must at least incorporate the characteristics discussed in the above section; namely (i) a gap is related to the wh-phrase or the head or the topic; (ii) a gap must be present; (iii) a gap can be in an infinitely lower clause, except that other unbounded constructions are involved between the gap and the wh-phrase or the topic; (iv) a gap cannot appear in another unbounded construction.

In English, (i) and (ii) follow from the stipulation that a wh-phrase is generated in the position where an ordinary phrase normally occurs and it moves to the COMP position. (iii) can be ensured, if a wh-phrase moves successively from COMP to COMP. By postulating a condition such as CNPC or Subjacency, the movement is restricted, so that (iv) follows from it.

In Japanese, the situation is slightly different. Without an overt wh-phrase there is no evidence that a gap is created by a movement rule. In fact, the relative and topic constructions in Japanese have been considered to be produced by a deletion rule (cf. 1.1.3). Shibatani (1978), for example, gives the following deep structure for a relative clause construction.

(20)



Under identity with the head NP_i , the NP_i in the embedded clause is deleted. This gives rise to a gap. By allowing this deletion rule to apply to an NP in an infinitely lower clause, (iii) in the above can be captured. As discussed in 6.1.1, CNPC cannot be motivated in Japanese. Instead of CNPC, condition (18) may be imposed on the relative clause formation, though none of the previous analyses have ever attained the generalization expressed in (18).

The problem with this type of analysis is that it cannot explain why English but not Japanese obeys CNPC. One possible way to explain this difference is to assume that CNPC is relevant to movement rules but not to deletion rules. Though it has not been said so clearly, this difference in types of rules seems to have been considered responsible for the difference between English and Japanese (cf. Ross (1967), Kuno (1973), Inoue (1976a)). Another problem in the above approach is that there is no way to explain why the grammatical relation of the gap and/or the head is so crucial in determining the grammaticality of the examples that violate the condition such as CNPC. One can vaguely say that the relativizability of the subject is greater than that of other grammatical relations (cf. Keenan and Comrie's (1977) Accessibility Hierarchy of NPs for the relative clause formation). Thus, the subject of the relative clause is easier to be relativized. This may give a partial account of (18i); however,

(18ii) is still left unexplained. Furthermore, the frameworks of the past analyses cannot incorporate grammatical relations in a natural way. Hence, the form of the condition (18) appears to be odd.

In the rest of this section, I will go over the EST account of the unbounded construction, showing that the EST cannot explain the phenomena discussed in 6.1.1. In other words, the EST account is no better than the traditional transformational account just described, as far as the phenomenon in question is concerned.

6.2.1. The Extended Standard Theory and the Unbounded Construction

I have introduced the basic mechanisms of the EST in 1.2.1. The unbounded construction including relative clauses, topic sentences, and wh-questions involves Move WH (α). Due to the θ -Criterion, which must be met at deep structure, empty nodes are not allowed at deep structure in argument positions. Hence, a gap must be created by Move α . Where α moves to is subject to various conditions, among which the following are crucial.

- (21) a. the principle of Subjacency
 b. Binding Theory: an R-expression is free (= (28c) of Chapter 1)

The Binding Theory (BT) (21b) ensures that the moved category α must be outside the S where α starts out. The principle of Subjacency (21a) disallows α from being moved into unboundedly higher clauses and allows it only into the next higher COMP position. Once α moves to COMP, it can go up to the next higher COMP. But if there is more

than one \bar{S} or NP boundary, the movement of α is not allowed. Hence, the characteristics discussed above are all made to follow from these stipulations. Observe the following.

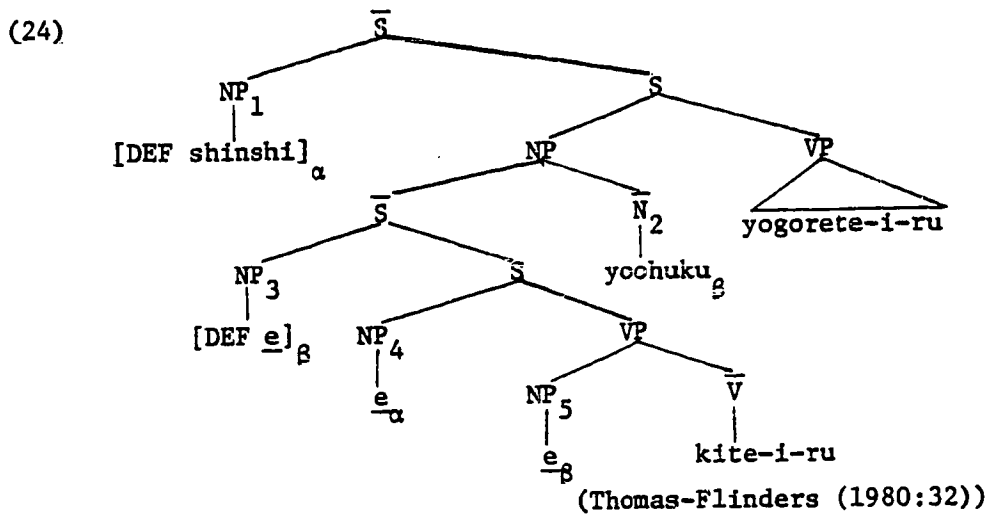
- (22) a. $[\bar{S} \text{ What } [S \text{ did Mary put } t \text{ into the box?}]]$
- b. $[\bar{S} \text{ What } [S \text{ did you think } [\bar{S} t [S \text{ John believes } [\bar{S} t [S \text{ Mary put } t \text{ in the box?}]]]]]]]$
- c. $*[\bar{S} \text{ What } [S \text{ did you wonder } [\bar{S} \text{ where } [S \text{ Mary put } t \text{ } t?]]]]]$
 violation of Subjacency

Within the EST framework, Thomas-Flinders (1980) attempts to describe the phenomena of Japanese unbounded constructions. Since this is the only study, to my knowledge, in which an attempt is made to express a formal distinction between unbounded constructions in English and those in Japanese in a relatively restricted framework, I will go over her analysis in some detail. The primary purpose of her thesis is to describe sentences such as (9), whose variants are given below.

- (23) a. Shinshi-wa [[] kite-i-ru] yochuku-ga yogorete-i-ru.]
 gntlman-top SUBJ OBJ wear-prog-pres suit-subj dirty-prog-
 'The gentleman the suit which (he) is wearing is dirty.'^{pres}
- b. [[] kite-i-ru] yochuku-ga yogorete-i-ru] shinshi
 SUBJ OBJ wear-prog-pres suit-subj dirty-prog-pres gntlman
 'the gentleman who the suit which (he) is wearing is dirty'

In her analysis, the logical form of (23a), for example, is represented

as in (24). (I assume that her structure in logical form is the same as a syntactic structure (S-Structure) with indices which are given by free indexing rules.)



Here she employs several assumptions. First, following Kuno (1973), whose analysis of Japanese relatives is presented in 1.1.3, she assumes that Japanese relative clauses possess a topic position under \bar{S} as a sister to an S. In (24) NP_1 and NP_3 are topic positions. These topic positions are base-generated with a definite operator (DEF). This correctly expresses the fact that the topicalized phrase (a phrase with noncontrastive wa) must be definite. The second assumption is that the association of the head and a gap and/or the topic and a gap is performed by rules of predication, which interpret a relative clause as an open sentence which is 'about' the head and a topic sentence as 'about' the topic. In order to express that the topic sentence and relative clause exhibit the same characteristics,

such as those discussed in 6.1.1, the rule of predication for relatives in Japanese is stipulated to coindex the head and the topic in the relative clause, rather than directly connecting the head and a gap. Thus, the relative clause always involves the topic, with which the head is coindexed. Hence, this explains that when a relative is possible, the topic sentence must be grammatical as well. The gap in the S must be connected with the topic in order to meet Chomsky's Empty Category Principle (ECP), which is reproduced below as (25).

(25) The Empty Category Principle (ECP) (Cf. (29) of Chapter 1)

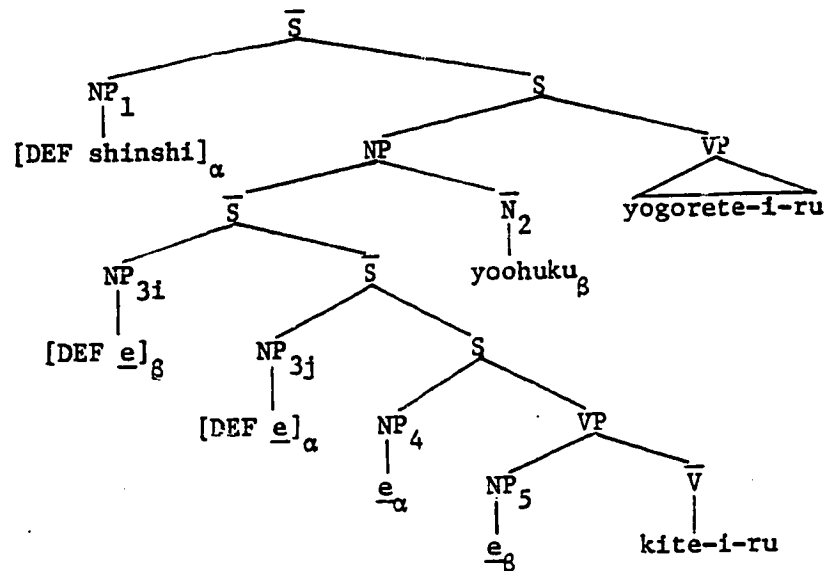
An empty category [e] must be 'properly governed', where α properly governs β iff α governs β and

- a) $\alpha = [\pm N, \pm V]$ or
- b) α is coindexed with β .

The ECP requires an empty category, NP_4 and NP_5 in (24), to be either governed by a lexical category (P, V, A, or N) or coindexed with an element which governs it. NP_5 in (24) is governed by V; this satisfies (25a). The object is always governed by a verb in English and also in Japanese in her framework, because she assumes that a VP category exists in Japanese, which is not an uncontroversial assumption, as has been discussed in Chapter 2. NP_4 , as it now stands, is not properly governed, because it is neither governed by a lexical category nor coindexed with NP_3 . Her fourth assumption comes into play here: there is more than one topic position in Japanese. I myself do not agree with this move. Along with Kuno (1973), I believe

that if there is more than one wa phrase, only the first wa phrase is a topic and other wa phrases are interpreted as contrastive (non-topic).⁸ With the assumption that there is more than one topic position in an S, the logical form of (23a) now looks like (26).

(26)



Now NP₄ is coindexed with NP_{3j}, which satisfies the ECP (25b). The fifth assumption Thomas-Flinders employs is that the topic interpretation in Japanese proceeds from topic to topic, just like Chomsky's wh-interpretation in English, which proceeds from COMP to COMP.

This is the basic account Thomas-Flinders proposes for Japanese relatives and topic sentences. In her analysis, the structure (26) is base-generated (except for indices, which are given in LF) and it is well-formed, since the index arrays do not violate the ECP or the Binding Theory.⁹ In English, coindexing NP_{3j} and NP₁ is not allowed because it must be done by Move α, which must obey Subjacency.

In Japanese, on the other hand, coindexing NP_{3j} and NP_1 is permitted because it is done in LF. This difference in types of rules is supposed to be responsible for the difference between English and Japanese. And Thomas-Flinders aims to explain why Japanese but not English allows a head or topic to refer to a gap inside a relative clause.

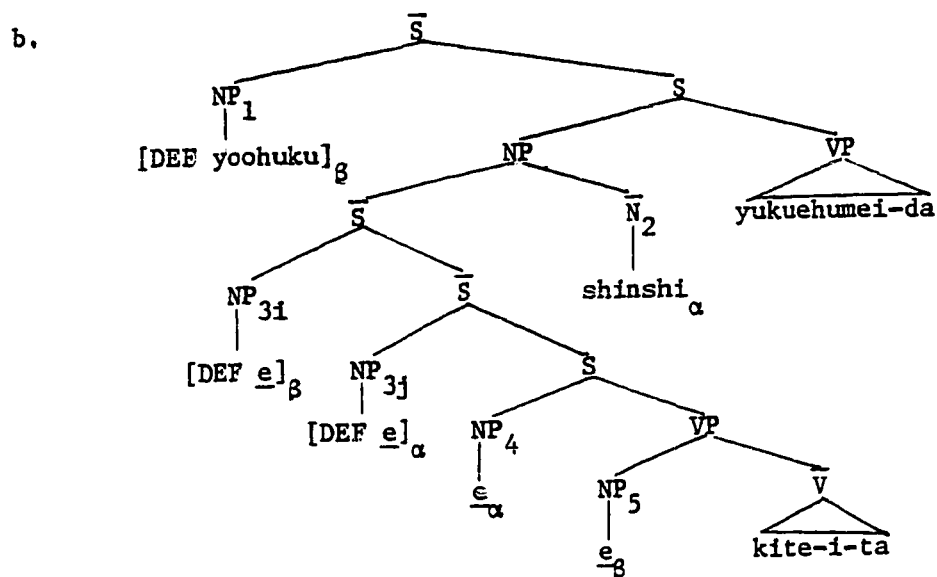
Despite her ambitious attempt and ingenious command of the theory, she fails to describe the basic facts of Japanese unbounded constructions. What she shows is simply that the nonobservance of Subjacency in Japanese can be incorporated in the EST framework. Thus, her theory freely allows the head or topic to refer to any gap in a relative clause, irrespective of the grammatical relation that the gap serves. In other words, her theory predicts that all the ungrammatical (type B) examples discussed in 6.1.1 are grammatical when in fact they are not. For example, (11a), which is almost identical to (23a), is ungrammatical but it is predicted as grammatical in Thomas-Flinders' framework. Example (11a) would be represented as (27b) in her logical form. Compare (27b) with (26).

(27) a. (= (11a))

*Yoohuku-wa	[[kite-i-ta]	shinshi-ga
suit-top		SUBJ	OBJ	wear-prog-past	gentleman-subj

yukuehumei-da.
missing-pres.

'The suit the gentleman who wore (it) is missing.'



In (27), the R-expressions NP_4 and NP_5 are free in S, which satisfies the BT (21b). NP_5 is governed by a V, kite-i-ta 'wore', and NP_4 is coindexed with NP_{3i} , which satisfies the ECP. NP_{3i} and NP_1 can be coindexed by a free coindexing rule in LF. NP_{3j} and \bar{N}_2 are coindexed by a rule of predication, just like NP_{3i} and \bar{N}_2 are coindexed in (26).¹⁰ Hence, if (26) is a well-formed structure, which Thomas-Flinders claims it to be, then (27) should be allowed.¹¹ Hence, in her framework, it is impossible to differentiate grammatical examples such as (23) from ungrammatical ones such as (11). She cannot explain why the topic or head can refer only to the subject of the deeply embedded relative clause. In addition to several assumptions she employs, some of which are not well-motivated, she needs to adopt special conditions such as (18), without any explanation for why they are necessary in Japanese. Her analysis, therefore, does not fare better than a traditional transformational approach (cf. Kuno's

(1973)), to the extent that they both must adopt (18) to meet descriptive adequacy.

We return to the original problems: if a grammar does not allow the head or topic to refer to a gap inside a relative clause, just like in English, it cannot explain the Japanese data. Conversely, if a grammar allows Japanese to violate CNPC or Subjacency, it predicts that all the cases of the violation of such conditions must be grammatical, which is not correct. There has not yet been a grammar or theory which can incorporate the generalization (18) in a principled way. In the next section, I will show that (18) naturally follows from the basic assumptions in the present framework: that is (i) the presence of the verb does not entail the presence of the subject; (ii) Japanese does not possess a configurationally defined subject position.

6.3. An Interpretive Account of the Unbounded Construction

In this section, I will introduce an analysis of the unbounded construction in the present framework. First, I will consider some English examples, the analysis of which will be sufficient to account for Japanese examples as well.

6.3.1. The Unbounded Construction In English

The basic mechanisms of the present framework have been introduced in the former chapters. The following rules were given in Chapter 2 and 3.

(28) a. $X \equiv Y - \underline{I} - \underline{I} - \underline{I} - \dots$

where X is the category of a lexical item \underline{L}_i , Y is the phonological matrix of \underline{L}_i , and \underline{I} s are the categories of predicate internal arguments of \underline{L}_i .

Cond.: If there is more than one \underline{I} , the order of \underline{I} s must follow the hierarchy of grammatical relations ((13) of Chapter 2).

b. Det - V \equiv S

These composition rules give rise to the constituents which correspond to S, NP, VP, PP, and AP in traditional terms. In addition to (28), I would like to give (29) as one of English composition rules, which identifies an \bar{S} constituent.

(29) a. $\left\{ \left[\begin{array}{c} \{ P \\ \{ \text{Det} \} \\ +wh \end{array} \right] \right\} \equiv \bar{S}$
 b. $\left\{ \left[\begin{array}{c} \{ P^* \\ \{ \text{Det}^* \} \end{array} \right] - S \right\} \equiv \bar{S}$

Some explanations must be required to motivate these rules. A constituent \bar{S} is identified, either if a P or Det is found which possesses a feature [+wh] (how this feature is given to P will be discussed shortly), or if a P or Det, without [+wh] feature, is followed by an S. Thus, (29a) would be used to identify examples such as (30) as \bar{S} s and (29b) to identify examples in (31).

(30) a. What did John buy?

b. With whom did you go?

- c. John wonders who Mary went out with.
- (31) a. The boy I met in the store.
b. Into the box Mary put the coin.

The asterisk * in (29b) represents a function which binds an argument in the F-Structure representation.¹² How binding takes place will be discussed in great detail below. The P or Det that precedes an S constituent automatically receives the binding function and lexically specified wh-items also receive the same function by redundancy rules in the lexicon.

Returning to (29a), I assume that there is some sort of feature percolation mechanism in universal grammar. The feature complex of the selector is enriched by receiving features from its Is.¹³ In the present framework, syntactic or C-Structure representations of an argument (derived from the Syntactic Frame (S^v) of the lexical entry) are identified by its selector. Unless the selector receives information from its Is, it cannot be determined whether a sentence is semantically well-formed. To make the point clear, observe the following two examples.

- (32) a. The boy kicked the desk.
b. #The desk kicked the boy.

Their F-Structure representations are given below.

- (33) a. $\left[\begin{array}{l} S \equiv \text{Det} - V \equiv i - k \\ \underline{\text{the}}_i \quad [N] \equiv [j] \\ \underline{\text{boy}}_j \quad [--] \\ \underline{\text{kicked}}_k \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle i \rangle 1] \\ \underline{\text{the}}_1 \quad [N] \equiv [m] \\ \underline{\text{desk}}_m \quad [--] \end{array} \right.$
- b. # $\left[\begin{array}{l} S \equiv \text{Det} - V \equiv i - k \\ \underline{\text{the}}_i \quad [N] \equiv [j] \\ \underline{\text{desk}}_j \quad [--] \\ \underline{\text{kicked}}_k \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle i \rangle 1] \\ \underline{\text{the}}_1 \quad [N] \equiv [m] \\ \underline{\text{boy}}_m \quad [--] \end{array} \right.$

Note that the SUBJ and OBJ arguments of kicked are identified by the indices of Det's. Hence, (33a) and (33b) are identical, as far as indexing procedures are concerned. In order to rule out (33b), I assume that Det the receives features such as animacy, gender, number, etc. from the following noun (cf. Selkirk (1977)). Thus, the_i in (33a) is [+animate] but the₁ in (33b) is [-animate], which distinguishes the grammaticality of (32a) and (32b).

I propose now that a similar procedure of the feature percolation takes place between P and its I, which is Det, with respect to the wh-feature. If Det is [+wh], P is also marked [+wh]. Hence, with in (30b) is marked as [+wh] when a composition rule (28a) connects with and whom, which makes it possible to identify (30b) as an \bar{S} constituent. Note that this procedure of the feature percolation is not special to the present framework. But it must be assumed in other frameworks. For example, in the EST, a lexical item

- (36) a. (for (30a))
- | | | | | | |
|-----------------------------|----------|---|--------------|----------------------------------|--|
| \bar{S} | \equiv | $\left[\begin{array}{l} \text{Det} \\ +wh \end{array} \right]$ | \equiv | i^* | |
| $\underline{\text{what}}_1$ | $*$ | $[S]$ | \equiv | $[x]$ | |
| S_x | \equiv | $\text{Det} - V$ | \equiv | $j - k$ | |
| $\underline{\text{John}}_j$ | | $[--]$ | | | |
| $\underline{\text{buy}}_k$ | | $[\langle \text{SUBJ} \rangle \text{OBJ}]$ | \equiv | $[\langle j \rangle \text{OBJ}]$ | |
| | | | SIR | Det | |
- A dashed arrow points from i^* to the Det under $[\langle j \rangle \text{OBJ}]$.
-
- b. (for (31b))
- | | | | | | |
|-----------------------------|----------|---|----------|-------------------------------------|--|
| \bar{S} | \equiv | $P^* - S$ | \equiv | $i^* - x$ | |
| $\underline{\text{in}}_1$ | | $[\text{OBJ}]$ | \equiv | $[j]$ | |
| $\underline{\text{the}}_j$ | | $[N]$ | \equiv | $[k]$ | |
| $\underline{\text{box}}_k$ | | $[--]$ | | | |
| S_x | \equiv | $\text{Det} - V$ | \equiv | $l - m$ | |
| $\underline{\text{Mary}}_l$ | | $[--]$ | | | |
| $\underline{\text{put}}_m$ | | $[\langle \text{SUBJ} \rangle \text{OBJ COMP}]$ | \equiv | $[\langle l \rangle_n \text{COMP}]$ | |
| $\underline{\text{the}}_n$ | | $[N]$ | \equiv | $[o]$ | |
| $\underline{\text{coin}}_o$ | | $[--]$ | | | |
- A dashed arrow points from i^* to the COMP in $[\langle l \rangle_n \text{COMP}]$. Above COMP is SIR with a downward arrow pointing to COMP .

These F-Structure representations, as they are, are ill-formed, because OBJ in (36a) and COMP (locative or directional P) in (36b) are not indexed. In these structures, there are items with the binding function, which is represented by *. What needs to be done is obviously to connect the item with * and an unidentified argument in a way shown by dotted lines in (36). The following rule does this job.¹⁴

(37) The Binding Rule (BR)

An index with * must bind an unidentified argument in its domain, if the category of the index and that of the argument are identical.

Here, the domain of a category is defined in the following way.

(38) The Definition of 'Domain'

Any category C_i is in the domain of a category C_j , if C_i is directly or indirectly chosen by C_j , or a category that selects C_j indirectly selects C_i .

Now, let us see how (37) and (38) ensure the binding we want. In (36a), the lexical item $\underline{\text{what}}_i^*$ selects S_x which selects a V, $\underline{\text{buy}}_k$, which in turn chooses Det (OBJ).¹⁵ This means that the OBJ is in the domain of \underline{i}^* . $\underline{\text{What}}_i^*$ and Det (OBJ) are the same category. Thus, (37) correctly binds the unidentified object of $\underline{\text{buy}}_k$. In (36b), \underline{i}^* does not directly or indirectly select P (COMP) of $\underline{\text{put}}_m$; however, \bar{S} which selects \underline{i}^* indirectly selects the P (COMP). Thus, it is in the domain of \underline{i}^* and it must be bound by \underline{i}^* according to (37). Since BR is obligatory, if it fails to apply, a sentence is declared to be ill-formed. This explains the ungrammaticality of (39).

- (39) a. *What did John buy a book?
 b. *In the box Mary put the coin in the can.

This obligatory application of BR ensures the existence of a gap in the unbounded construction.

Let us consider slightly more complex examples such as (40).

- (40) a. The book that Bill thinks Mary read disappeared.
 b. The boy Mary tried to persuade to swim.

Example (40a) involves a relative clause, which I assume to be chosen by the determiner the in the book. The F-Structure representations of the examples in (40) are given in (41).

- (41) a.
- | | | | | | |
|---------------------------------|---------------|---------|-----------|-------|--|
| S | ≡ | Det - V | ≡ | i - p | |
| <u>the</u> _i | [N that] | ≡ | [j | k*] | |
| <u>book</u> _j | [--] | | | | |
| <u>that</u> _k * | [S] | ≡ | [x] | | |
| S _x | ≡ | Det - V | ≡ | l - m | |
| <u>Bill</u> _l | [--] | | | | |
| <u>thinks</u> _m | [<SUBJ> COMP] | ≡ | [<1> y] | | |
| S _y | ≡ | Det - V | ≡ | n - o | |
| <u>Mary</u> _n | [--] | | | | |
| <u>read</u> _o | [<SUBJ> OBJ] | ≡ | [<n> OBJ] | ≡ | [<n> k] |
| | | | | | ↓
SIR
↓
SIR
↓
SIR
↓
SIR
↓
SIR
↓
SIR
↓
SIR |
| <u>disappeared</u> _p | [<SUBJ>] | ≡ | [<i>] | | |
- b.
- | | | | | | |
|------------------------------|-------------------|----------|---------------|--------|------------|
| \bar{S} | ≡ | Det* - S | ≡ | i* - x | |
| <u>the</u> _i | [N] | ≡ | [j] | | |
| <u>boy</u> _j | [--] | | | | |
| S _x | ≡ | Det - V | ≡ | k - l | |
| <u>Mary</u> _k | [--] | | | | |
| <u>tried</u> _l | [<SUBJ> PRED] | ≡ | [<k> m] | | |
| <u>to</u> _m | [PRED] | ⇒ | [<SUBJ> PRED] | ≡ | [<k> n] |
| <u>persuade</u> _n | [<SUBJ> OBJ PRED] | ≡ | [<k> OBJ o] | ≡ | [<k> i o] |
| <u>to</u> _o | [PRED] | ⇒ | [<SUBJ> PRED] | ≡ | [<SUBJ> p] |
| <u>swim</u> _p | [<SUBJ>] | ≡ | [<i>] | | |

The operation of BR in (41a) is rather straightforward. The OBJ of read_o is indirectly selected by that_k*. Hence, regardless of a number of sentences between an item with * and an unidentified

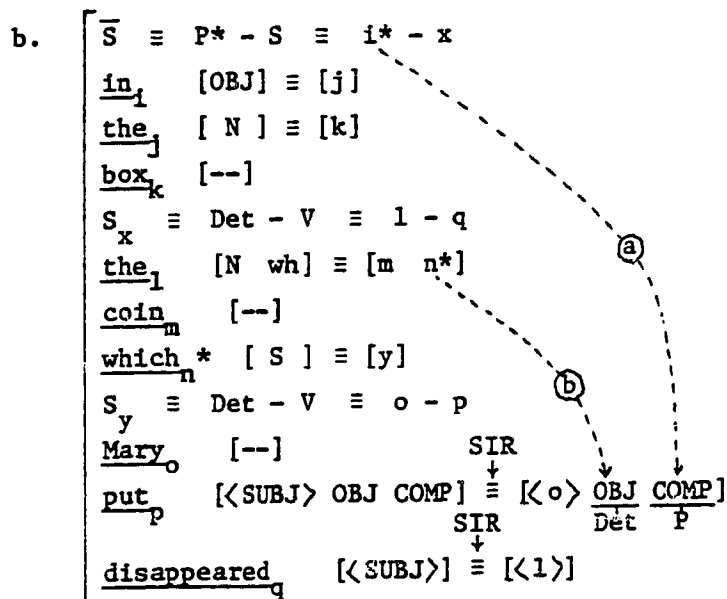
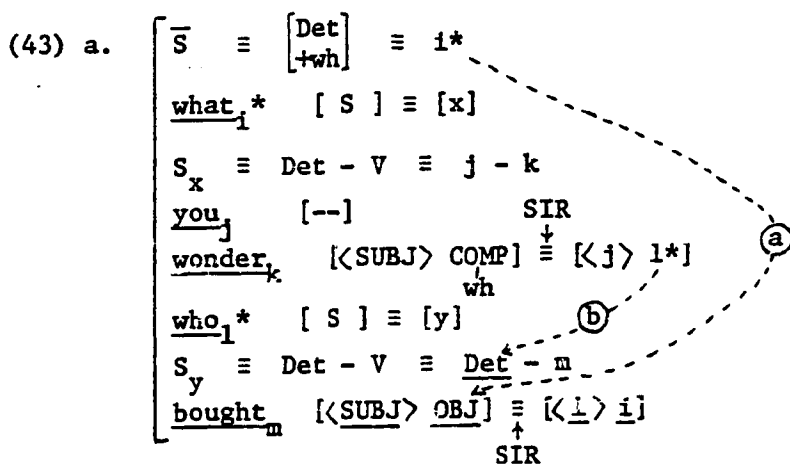
argument, BR can connect these two. Structure (41b) is more complicated. Before BR applies, there is more than one argument which is not identified. But notice only one of them is in the domain of i^* ; namely the OBJ of persuade_n. Recall that in the present framework, the subject argument is not selected by a verb but it is interpreted by the Subject Interpretation Rule (SIR) ((50) of Chapter 3). Crucially, in my framework, the SUBJ argument can never be bound by BR, though the Det which constitutes an S may be bound by BR. Hence, the SUBJ of the lexical item that serves as a PRED function is not in the domain of i^* . This means that the only argument which is unidentified and which is in the domain of i^* is the OBJ of persuade_n in (41b). It is impossible to connect i^* with the SUBJ of swim_p for the same reason. Once the OBJ of persuade_n is connected with i, SIR interpretes the SUBJ of swim_p as i in a familiar way. It should be kept in mind that there is a discrepancy between E (the SUBJ argument) and Is with respect to the domain of an item with *. If a verb is in the domain of *, its Is are necessarily in the domain of *. However, even if a verb is in the domain of *, its E would never be in the domain of *, because E is never be chosen by any selector. The discrepancy between E and Is play a crucial role in describing the Japanese examples which diverge from English, which will be discussed in 6.3.2.

Now, we must consider how the present analysis deals with the examples that observe CNPC or Subjacency. We need to constrain the operation of BR, so that it will not connect an item with * and an argument inside another unbounded construction. The relevant

examples are given below.

- (42) a. *What do you wonder who bought?
 b. *Into the box the coin which Mary put disappeared.

Their F-Structure representations are provided in (43).



As BR now stands, it is able to connect items with * and unidentified

arguments in the way indicated by dotted lines, (a) and (b). However, such connections must be prevented; otherwise the Principle of Functional Completeness (PFC) ((43) of Chapter 2) determines (43) to be well-formed. There are two ways to meet this end; namely blocking (a) or (b). The following conditions must be imposed on the application of BR.

(44) Conditions on BR¹⁶

Between two binding functions, α^* and β^* , where α^* is more prominent than β^* .

a. To block (a)

α^* cannot bind an argument in the domain of β^* .

b. To block (b)

The binding function of β^* is lost (= β^* cannot bind an argument), if β^* is in the path of α^* .

I define 'the path of α^* ,' which is crucial to (44b), in the following way.¹⁷

(45) The path of α^* is part of the domain of α^* which ranges from α^* to an argument it binds.

Condition (44a) prohibits \underline{i}^* in (43) from binding an argument in the domain of another item with *. Thus, \underline{i}^* cannot bind the OBJ of bought_m in (43a) and the COMP of put_p in (43b). Nor can it bind Det of S_y or the OBJ of put_p. According to (44b), the binding function of \underline{i}^* in (43a) and that of \underline{n}^* in (43b) are lost, because they are in the path of \underline{i}^* . The path of \underline{i}^* ranges through all the arguments in

(43), except for SUBJ's. Either one of the conditions in (44) is enough to rule out ungrammatical examples such as (42). However, I do not choose one over the other and I would like to keep both of them as conditions on BR. In English the functions of these conditions are identical and there are no cases where only one of them is applicable. However, in Japanese, as will be seen shortly, the examples that one condition rules out may not be ruled ungrammatical by the other. In fact both conditions are necessary in Japanese. Hence, I consider both of them to be operative in English and Japanese. Only Japanese crucially utilizes both.

6.3.2. The Unbounded Construction in Japanese

Let us start out this section by reviewing Japanese composition rules. In Chapter 2, I gave (46), which is the only composition rule in Japanese,

$$(46) \quad X \equiv \{ \underline{A} \dots \underline{A} \} - Y$$

where X is the category of a lexical item \underline{L}_1 , Y is the phonological matrix of \underline{L}_1 , and \underline{A} s are categories of arguments of \underline{L}_1 .

In Chapter 2, I also argued that Japanese does not possess an S constituent, which serves as an argument of a lexical item. Although Japanese does not possess an S constituent, I assume it has an \bar{S} , which is used only when a topic phrase is involved. Japanese optionally takes one (and only one) topic phrase, which normally occurs sentence-initially. The topic phrase is marked by wa. I propose

the following composition rule along with (46).¹⁸

$$(47) \quad \left\{ \begin{array}{l} \text{Pst*} \\ \text{N*} \end{array} \right\} \text{-wa} - \underset{[+\text{tns}]}{\text{V}} \equiv \bar{\text{S}}$$

Just as in English, the topic phrase has a binding function, which is expressed by * in (47). Given (47) and the interpretive mechanisms that have been discussed, the following topic sentences are easily accounted for.

- (48) a. Hon-wa Mary-ga yon-da.
 book-top subj read-past
 'The book Mary read.'
- b. Hon-wa Mary-ga yon-da to John-ga omot-ta.
 book-top subj read-past CMP subj think-past
 'The book John thought Mary read.'
- c. Mary-wa Tokyo-e it-ta.
 top to go-past
 'Mary went to Tokyo.' 'As for Mary, she went to Tokyo.'

The F-Structure representations of the above examples are given below.

$$(49) \text{ a. (for (48a))} \left[\begin{array}{l} \bar{\text{S}} \equiv \text{N*}-\text{wa} - \text{V} \equiv \text{i*} - \text{j} \\ \underline{\text{hon}}_i \quad [---] \\ \underline{\text{yon-da}}_j \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle \text{k} \rangle \text{ OBJ}] \\ \underline{\text{Mary}}_k \quad [---] \end{array} \right]$$

↘

- b. (for (48b))
- | | |
|---|--|
| $\bar{S} \equiv N^* - wa - V \equiv i^* - j$ | |
| <u>hon</u> _i [--] | |
| <u>omot-ta</u> _j [$\langle \text{SUBJ} \rangle \text{COMP} \equiv \langle k \rangle 1$] | |
| <u>John</u> _k [--] | |
| <u>to</u> _l [V] $\equiv [m]$ | |
| <u>yon-da</u> _m [$\langle \text{SUBJ} \rangle \text{OBJ} \equiv \langle n \rangle \text{OBJ}$] | |
| <u>Mary</u> _n [--] | |
- c. (for (48c))
- | | |
|--|--|
| $\bar{S} \equiv N^* - wa - V \equiv i^* - j$ | |
| <u>Mary</u> _i [--] | |
| <u>it-ta</u> _j [$\langle \text{SUBJ} \rangle \text{COMP} \equiv \langle \text{SUBJ} \rangle k$] | |
| <u>e</u> _k [OBJ] $\equiv [1]$ | |
| <u>Tokyo</u> _l [--] | |

In (49a) and (49b), BR (37) applies to i^* , binding an unidentified argument, the OBJ of yon-da 'read-past.' Structure (49c) is a problem for BR (37). As I mentioned earlier, the existence of the SUBJ argument is not guaranteed by the existence of its predicate. Thus, it is not in the domain of i^* in (49c). Therefore, i^* cannot bind the SUBJ argument of it-ta_j 'go-past.' In order to allow an item with * to bind a SUBJ argument I alter BR in the following way.¹⁹

(50) The Binding Rule (BR)

An index with * must bind an unidentified argument which is in its domain or which is an argument that is associated with a selector that is in the domain of the index with *, if the category of the index and that of the argument are identical.

This rule replaces (37). To allow BR to bind a subject argument does

- (53) a.
$$\left[\begin{array}{l} V \equiv i \\ \underline{\text{yon-da}}_1 \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle j \rangle k^*] \\ \underline{\text{Mary}}_j \quad [-] \\ \underline{\text{hon}}_k^* \quad [V] \equiv [1] \\ \underline{\text{kat-ta}}_1 \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle m \rangle \underline{\text{OBJ}}] \\ \underline{\text{John}}_m \quad [-] \end{array} \right.$$
- b.
$$\left[\begin{array}{l} V \equiv i \\ \underline{\text{shitte-i-ru}}_1 \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle j \rangle k^*] \\ \underline{\text{Mary}}_j \quad [-] \\ \underline{\text{hito}}_k^* \quad [V] \equiv [1] \\ \underline{\text{kat-ta}}_1 \quad [\langle \text{SUBJ} \rangle \text{ OBJ}] \equiv [\langle \underline{\text{SUBJ}} \rangle m] \\ \underline{\text{hon}}_m \quad [-] \end{array} \right.$$

In (53), hon_k 'book' and hito_k 'person' serve as heads of relative clauses. They possess the binding function, by which an unidentified argument, the OBJ of kat-ta₁ 'buy-past' in (53a) and the SUBJ of kat-ta₁ in (53b), is bound to k^{*}. Hence, the interpretation is completed.

Now let us consider more complex examples. First I would like to examine grammatical examples such as (9), which are reproduced as (54).

- (54) a.
$$\begin{array}{ccccccc} \text{Mary-wa} & & \text{hako-ni} & & \text{ire-ta} & \text{koin-ga} & \text{nakunat-ta.} \\ \text{top} & \text{SUBJ} & \text{box-in} & \text{OBJ} & \text{put-past} & \text{coin-subj} & \text{get lost-past} \end{array}$$

 'Mary the coin which (she) put into the box got lost.'
- b.
$$\begin{array}{ccccccc} \text{Shinshi-wa} & & \text{kite-i-ru} & \text{yochuku-ga} & \text{yogorete-i-ru.} \\ \text{gentlman-top} & \text{SUBJ} & \text{OBJ} & \text{wear-prog-pres} & \text{suit-subj} & \text{dirty-prog-} & \text{pres.} \end{array}$$

 'The gentleman the suit which (he) is wearing is dirty.'

- c. $\overbrace{\text{katte-i-ta inu-ga shinde-shimat-ta kodomo-ga}}^{\text{SUBJ OBJ keep-prog-past dog-subj die-perf-past child-subj}}$
 naite-i-ru.
 cry-prog-pres.
 'The child who the dog which (he) kept has died is crying.'

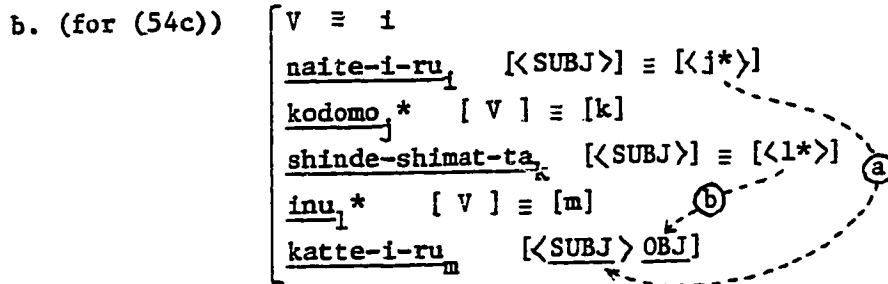
Recall that in order for the sentence that violates CNPC to be grammatical, it must observe the condition (18), which is repeated as (55).

- (55) In the structure $[_{R_{i+1}} \dots [_{R_i} \dots [_{R_1} \dots G \dots] H_1 \dots] H_i \dots] H_{i+1}$
 or
 $T_{i+1} [_{S_{i+1}} \dots [_{R_i} \dots [_{R_1} \dots G \dots] H_1 \dots] H_i \dots]$

The head (H_{i+1}) or the topic (T_{i+1}) can refer to a gap (G), if
 (i) G is the subject of the relative R_1 and
 (ii) the head (H_i) of the relative (R_i) which is immediately embedded in the relative clause (R_{i+1}) or the topic sentence (S_{i+1}) serves as the subject of R_{i+1} or S_{i+1} , respectively.

Now let us consider how sentences in (54) are represented in the F-Structure. Let me take (54b) and (54c) as examples.²¹

- (56) a. (for (54b)) $\left[\begin{array}{l} \bar{S} \equiv N^* \text{-wa} - V \equiv i^* - j \\ \text{shinshi}_1 \quad [-] \\ \text{yogorete-i-ru}_j \quad [\langle \text{SUBJ} \rangle] \equiv [\langle k^* \rangle] \quad \textcircled{a} \\ \text{yoohuku}_k^* \quad [V] \equiv [1] \quad \textcircled{b} \\ \text{kite-i-ru}_1 \quad [\langle \text{SUBJ} \rangle \text{OBJ}] \end{array} \right.$



Since, BR now allows us to connect an item with * and a SUBJ argument, i* in (56a) and j* in (56b) can bind the subject of kite-i-ru₁ 'be wearing' and katte-i-ta_m 'was keeping', respectively. Now we must examine whether the binding in (56) is allowed with respect to the conditions on BR (44). There are two ways to rule out the ungrammatical examples in (43) in English; one is blocking (a) in (43), which prevents α^* to bind an argument in the domain of β^* , the other is blocking (b) in (43), by which the binding function of α^* is lost, if it is in the domain of β^* .

In (56) the binding specified as (a) is allowed because the SUBJ of kite-i-ru₁ or katte-i-ru_m is NOT in the domain of k* in (54a) or l* in (54b). Recall that the SUBJ, since it is not chosen by any lexical item or composition rules in Japanese, never falls in the domain of *. Thus, condition (44a) does not block (a). Similarly, the binding function of k* in (56a) and l* in (56b) is not lost because they are in the SUBJ position, which escapes from the path of the higher binding function, i* in (56a) and j* in (56b), respectively.

This is an interesting result. The same conditions block

English examples but allow Japanese examples of a similar type. The difference between English and Japanese with respect to the applicability of the conditions in (44) follows from the fundamental difference between these two languages; namely, English requires a syntactic or configurational subject position but Japanese does not. The SUBJ argument itself never falls in the domain of a certain lexical item in both languages. In Chapter 2, I have argued that the SUBJ argument and other argument types are different in that the presence of SUBJ does not follow from the presence of its predicate, but that of other argument types does. Hence, the SUBJ does not have to appear in the C-Structure, as long as a well-formed F-Structure is obtained. But the difference between English and Japanese comes into play in identifying an S. In English, Det is required along with a tensed V in order to identify a certain string of words as an S and an S constituent is chosen as an argument of a relative pronoun or certain verbs. Hence, once a relative pronoun or a topic is present, the Det of an S is also required, which is necessarily interpreted as the SUBJ of the relative or topic sentence by SIR. Thus, the SUBJ indirectly falls in the domain of the relative pronoun or the topic, because the Det of the selected S is in the domain of the relative pronoun or the topic. On the other hand, Japanese never crucially utilizes an S constituent. An S can never be chosen as an argument. Furthermore, Japanese never requires a formal or configurational subject in the C-Structure. The subject is identifiable without utilizing configurations but by case markers. Hence, the SUBJ argument is always outside the domain of any *. This difference

between English and Japanese explains why Japanese violates CNPC or Subjacency and English obeys it. The simple but fundamental difference between English and Japanese, that is, English requires a formal or configurational subject but Japanese does not, predicts the difference in the unbounded construction of these two languages. This sort of explanation could not be provided in any of the past and currently available theories. It seems to show that the line of research I have undertaken is correct.

What is more interesting is that the present theory can rule out all the ungrammatical examples discussed in 6.1.1 without any theoretical elaboration. Now let us consider ungrammatical examples such as those in (11) and (13), which are reproduced as (57) and (58), respectively.

(57) a. *Yochuku-wa kite-i-ta shinshi-ga yukuehumei-da.
 suit-top SUBJ OBJ wear-prog-past gntlman-subj missing
 'The suit the gentleman who wore (it) is missing.'

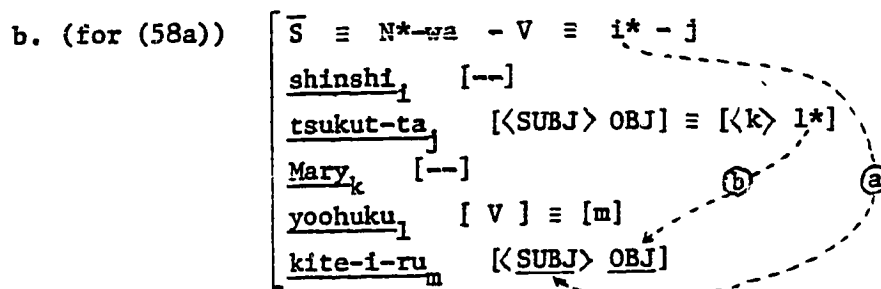
b. * katte-i-ta kodomo-ga shinde-shimat-ta inu-ga
 SUBJ OBJ keep-prog-past child-subj die-perf-past dog-subj
 kanashi-soo-da.
 sad-loud-pres.
 'The dog which the boy who kept (it) had died looks sad.'

(58) a. *Shinshi-wa kite-i-ru yoohuku-o Mary-ga
 gntlman-top SUBJ OBJ wear-prog-pres suit-obj subj
 tsukut-ta
 make-past
 'The gentleman Mary made the suit which (he) wears.'

- b. * $\overline{\text{SUBJ}} \text{ } \overline{\text{OBJ}}$ katte-i-ru inu-o John-ga ket-ta shoonen-ga
 keep-prog-pres dog-obj subj kick-past boy-subj
 okot-ta.
 get angry-past
 'The boy_i who John kicked the dog which (he_i) keeps got mad.'
- c. * $\overline{\text{SUBJ}} \text{ } \overline{\text{OBJ}}$ kai-ta tegami-o John-ga yon-da hito-ga
 write-past letter-obj subj read-past person-subj
 hazukashi-gat-ta.
 get embarrassed-past
 'The person_i who John read the letter which (he_i) wrote
 got embarrassed.'

Examples (57) violate the descriptive condition (55i), namely the gap in the relative which is referred to by the topic or the highest head is not in the subject position. Examples (58) do not follow (55ii); the head of the lower relative does not serve as the subject of the higher clause. I take (57a) and (58a) as examples, whose F-Structure representations are given in (59). Compare those with (56a).

- (59) a. (for (57a))
- | | | |
|--------------------------------------|---------------------------|---------------------|
| $\overline{S} \equiv N^* \text{-wa}$ | $-V \equiv i^* \text{-j}$ | |
| <u>yoohuku_i</u> | [--] | |
| <u>yokuehumei-da_j</u> | [<SUBJ>] | \equiv [<k*>] (a) |
| <u>hito_k*</u> | [V] | \equiv [1] (b) |
| <u>kite-i-ru_i</u> | [<SUBJ>] | <u>OBJ</u> |



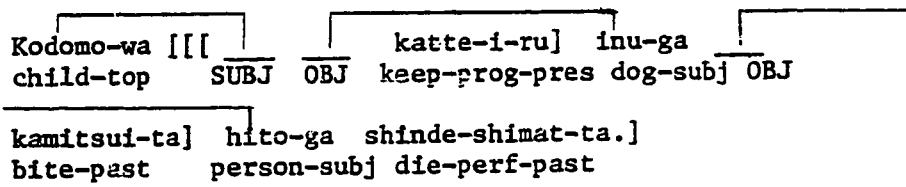
The F-Structure of (57b) is similar to (59a) and those of (58b) and (58c) to (59b) with respect to the manner of binding. The reader is invited to check these examples.

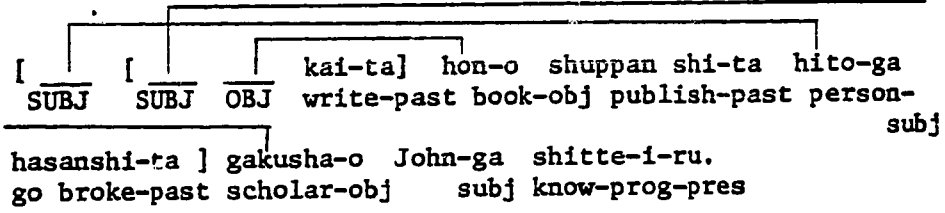
Now, let us see whether the conditions on BR (44) allow these F-Structures. In (59a) i^* binds the OBJ of kite-i-ru₁ 'be wearing', which is in the domain of k^* . Hence, (44a) does not allow the binding line (a). (44b) is irrelevant to (59a), because k^* , which is in the SUBJ position, is not in the path of i^* . Hence, due to (44a), (59a) should not be allowed. On the other hand, (44b) but not (44a) is relevant to (59b). Notice that i^* can bind the SUBJ of kite-i-ru_m, because the SUBJ argument is not in the domain of i^* . Hence, (44a) cannot block (a) in (59b). However, if (a) is allowed, the binding function of i^* must be lost, because it is in the path of i^* . Thus, (59b) must also be ruled out. In discussing (44), I have mentioned that (44a) and (44b) make the same predictions in English. In Japanese, however, the structure that can be ruled out by (44a) may not be ruled out by (44b) and vice versa. I assume that both conditions of (44) must be imposed on BR.

The above discussion clearly shows that the descriptive conditions (55), which cannot be incorporated in a principled way in

other theories, directly follow from the basic assumptions of the present framework. Hence, I consider the present analysis to be on the right track and to be superior to other theories.

Now, I would like to consider more complex examples such as (16), variants of which are given below.

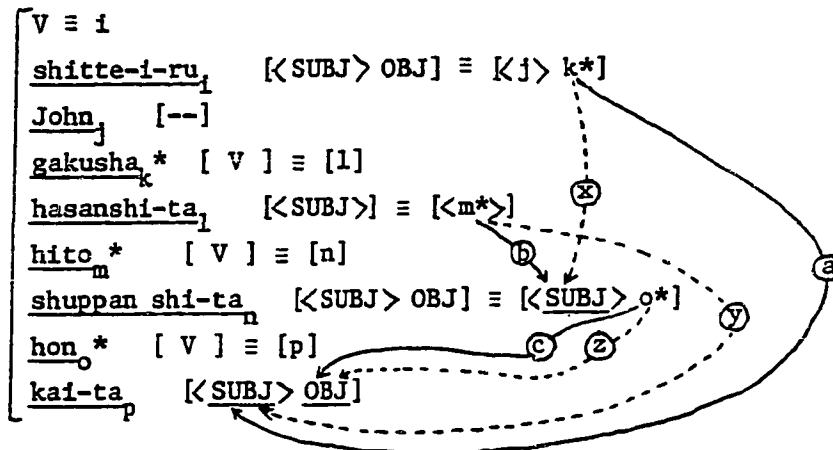
- (60) a. 

 child-top SUBJ OBJ keep-prog-pres dog-subj OBJ
 kamitsui-ta] hito-ga shinde-shimat-ta.]
 bite-past person-subj die-perf-past
 'The child₁ the man [who the dog [which (he₁) keeps] bit] died.'
- b. 

 SUBJ SUBJ OBJ write-past book-obj publish-past person-subj
 hasanshi-ta] gakusha-o John-ga shitte-i-ru.
 go broke-past scholar-obj subj know-prog-pres
 'John knows the scholar₁ [who the man published the book [which (he₁) wrote] went broke.]'

These are grammatical sentences. With three gaps, as I discussed, there are other ways to connect gaps with heads or with heads and a topic. For example, the following way to connect them is semantically possible, though the readings indicated by these association lines are impossible. Compare (61a) with (60a) and (61b) with (60a).

b. (for (60b) and (61t))



Let us consider (62a) first. Line (a) is allowed because it binds the SUBJ argument, which is not in the domain of k^* nor m^* . Either (b) or (c) does not violate (44a): as for (b), the OBJ of kamitsui-ta₁ 'bite-past' is not in the domain of m^* ; as for (c), the OBJ of katte-i-ru_n 'be keeping' is in the domain of k^* , but m^* is less prominent than k^* , which is allowed by (44a). Lines (b) and (c) also observe (44b). Both k^* and m^* are in the subject position; hence, they are not in the path of i^* . Thus, (a), (b), and (c) correctly produce a grammatical reading (60a). On the other hand, the way of binding specified by dotted lines is not allowed. Lines (y) and (z) do not violate either condition of (44). However, (x) violates (44a); i^* cannot bind the OBJ of kamitsui-ta₁, because it is in the domain of k^* . Hence, the reading of (61a) would never be produced in the present framework.

Structure (62b) requires some discussion. The lines (a) and (b) are allowed by (44); however, the line (c) (which is the same as

②) is in the path of \underline{k}^* . Thus, the binding function of \underline{o}^* must be lost according to (42b). Notice that \underline{o}^* is not in the path of \underline{m}^* , which is placed in the middle of two binding functions, \underline{k}^* and \underline{o}^* . In order to allow ③ without affecting the content of (44), I would like to consider the two binding functions, α^* and β^* , in (44) to be adjacent (in a nontechnical sense). The relationship between α^* and β^* in (44) must be local, which means that there is no item with a binding function (*) intervening between α^* and β^* . The locality between α^* and β^* is defined in the following way.

(63) In F-Structure, the relationship between α^* and β^* is local, where α^* is more prominent than β^* , if there is no γ^* which is less prominent than α^* and more prominent than β^* .

This locality must be imposed on (44). The conditions on BR are now restated as in (64). This slight modification does not affect the binding procedures of earlier examples, where two functions in question are always locally identified.

(64) Conditions on BR

Between two locally specified binding functions, α^* and β^* , where α^* is more prominent than β^* .

- a.) α^* cannot bind an argument in the domain of β^* , or
- b.) the binding function of β^* is lost (= β^* cannot bind an argument), if β^* is in the path of α^* .

Given (64), ③ is allowed in (62b). The relevant binding function

to \underline{o}^* is \underline{m}^* but not \underline{k}^* . Hence, even if \underline{o}^* is in the path of \underline{k}^* , the binding function of \underline{o}^* is not affected. Now let us turn to the ungrammatical reading (61b). Lines (x) and (y) are allowed by (64), because both \underline{k}^* and \underline{m}^* bind subject arguments and the binding function of \underline{m}^* , which is in the subject position, is not lost. The problem is (z). Now, \underline{o}^* is in the path of \underline{m}^* . Hence, the function of \underline{o}^* must be lost and the OBJ of kai-ta_p cannot be identified. Thus, an ungrammatical reading (61b) should not be allowed. Hence, the present theory correctly describes the complex sentences given in (60) and (61).

The above discussion covers all the cases discussed in 6.1.1. The descriptive generalization (55), which is relevant only to Japanese unbounded construction, at the first glance, appears to be an odd condition. And in fact the past analyses cannot explain why (55) is observed in Japanese. Nor can they incorporate (55) in a natural way. Condition (55) is odd, because the grammar of the past analyses does not distinguish two types of arguments, E and Is, and/or because a notion of an S or an S boundary plays an important role in describing unbounded phenomena in the grammar. However, (55) is not odd, if a grammar is structured in a totally different way. In the framework proposed in this thesis, (55) is not necessary as a condition but what (55) specifies follows from the basic difference between Japanese and English; the SUBJ is not configurationally required in Japanese. This is not stipulated in an ad hoc way but rather it is independently motivated to describe the structures with

no subject arguments, such as aspectual constructions and passives
with sentential complements in Japanese.

FOOTNOTES TO CHAPTER 6

¹Brame (1980a) contains various examples with this kind of deviance.

²Unlike English, questions in Japanese do not involve 'gaps.' Hence, they do not exhibit the phenomenon in (4).

³There is a class of topic sentences in Japanese which do not involve a 'gap.' Examples are provided in (i).

- (i) a. Jisho-wa Webster-ga ii.
dictionary-top subj good
'As for dictionaries, Webster is the best.'
- b. Saakasu-wa piero-ga omoshiroi.
circus-top clown-subj funny
'As for the circus, the clown is the funniest.'

In these examples, the clause without a topic is an independent sentence and it expresses something about the topic. The relationship between the topic in (i) and the following sentence is not syntactically predictable but it seems to be subject to some knowledge about the pragmatic world. For example, (ia) is acceptable only when it is understood that Webster is a publisher famous for dictionaries. In English, the topic construction of this type is syntactically distinguishable from the topic sentence such as (1b) and (3b); the former being so-called 'as for topic' and the latter 'topic' sentences. In Japanese, however, the same wa phrase is used for both types of topic constructions. Thus, (6a) could be acceptable as an 'as for' sentence, if there is an established understanding that the card and coin are closely connected and that if the coin is talked about, the card is necessarily referred to. For the discussion on the relationship between the 'as for' topic and the following sentence, see Akmajian and Kitagawa (1976). In this

thesis, I am concerned only with the 'preposed topic' construction, although it must be granted that it is sometimes difficult to distinguish the two types.

⁴Here, I am concerned only with the cases where the gap is inside a relative clause. Ross' (1967) definition of complex NPs includes relative clauses and appositive clauses such as the fact that the typewriter got broken. Appositive clauses are not taken into consideration in the following discussion. Along with Brame (personal communication), I believe that the case where a gap is in an appositive clause and that with a gap in a relative clause must be separated. One piece of evidence that supports my (and Brame's) claim is that in Japanese an appositive clause is not subject to the condition (18) (neither (10) nor (14)), which distinguishes type A from type B sentences. In other words, the position of the gap does not affect the grammaticality of a sentence in the case of the appositive clause that violates CNPC, whereas it is a crucial factor in determining the grammaticality of the CNPC violation case of the relative clause.

⁵The generalization expressed in (14) was obtained through discussions with Hajime Hoji. Inoue (1976a, Ch. 3) also argues that a condition similar to (14) operates in Japanese. Hoji (1980a) provides a list of sentences where CNPC is violated, which shows that, unless (14) is satisfied, topicalization or relativization of a phrase in a relative clause produces ungrammatical sentences. The generalization (14) will be altered, when we consider more complex examples.

⁶Example (16a) is from Inoue (1976b).

⁷The following sentence is a possible counterexample to the descriptive generalization (18). This example is due to Kuroda (personal communication).

- (i) [[[[[] kite-i-ru] hito-ga utsukushiku-mie-ru] huku
 SUBJ OBJ wear-prog-pres person-subj beautiful-look-pres
 clothes
 'the clothes [which the person [who wears (them)] looks beautiful]'

In (i), huku 'clothes' is the head of the topmost relative, which refers to the object gap in the lower relative. Hence, (18i) is not satisfied. Yet (i) is grammatical. However, I do not consider (i) to be a real counterexample to (18) for the following reasons.

(A): (i) is grammatical only when mie-ru 'look-pres' is present in the higher relative. Without it, the sentence is ungrammatical, as shown in (ii).

- (ii) *[[[[[] kite-i-ru] hito-ga utsukushi-i] huku
 SUBJ OBJ wear-prog-pres person-subj beautiful-pres clothes
 'the clothes [which the person [who wears (them)] is beautiful]'

I suspect that the existence of mie-ru semantically forces the relative clause to be about the head. This may be responsible for making (i) acceptable, though it does not follow (18). Kuno's (1976b) thematic constraint may be relevant to distinguishing (i) from (ii) and other ungrammatical sentences, though I do not know how (iii) can be formalized.

(iii) The Thematic Constraint on Relative Clauses

A relative clause must be a statement about its head noun.
 (Kuno (1976b:420))

(B): There is a syntactic difference between (i) and the examples discussed so far. The type of example discussed in the body of this chapter can be paraphrased into a string which does not violate CNPC. Thus, (iva), for example, means basically the same thing as (ivb).

- (iv) a. II [[[[] kite-i-ru] yohuku-ga yogorete-i-ru] hito
 SUBJ OBJ wear-prog-pres clothes dirty-prog-pres person
 'the person who the clothes which (he) wears are dirty'
- b. I [I [[] yogorete-i-ru] yohuku-o kite-i-ru] hito
 SUBJ SUBJ dirty-prog-pres clothes-obj wear-prog-pres person
 'the person who wears the clothes which are dirty'

On the other hand, if (i) is changed into a string which obeys CNPC in the same ways as (iva) is changed into (ivb), the basic meaning of (i) is no longer preserved. This difference between (i) and (iva) is pointed out to me by Kuroda. Compare (i) with (v).

- (v) [I utsukushiku-mie-ru] hito-ga kite-i-ru] huku
 SUBJ beautiful-look-pres person-subj OBJ wear-prog-pres
 clothes
 'the clothes which the person who looks beautiful wears'

In (i) it is implied that the person looks beautiful because she wears the clothes. In (v), however, the person looks beautiful irrespective of what she wears. At this moment, I do not know how (i) is to be analyzed. In the body of this chapter, I am concerned only with examples such as (iva) which can be paraphrased into sentences that do not violate CNPC without changing their original meanings.

⁸To be more precise, it does not matter in Thomas-Flinder's framework whether only the first wa phrase is interpreted as 'topic'. What is crucial to her analysis is whether all the wa phrases, either topic or contrastive, are interpreted as 'definite.' However, contrastive wa phrases do not have to be definite; hence they cannot be DEF operators. In (i), hon and nooto are both indefinite.

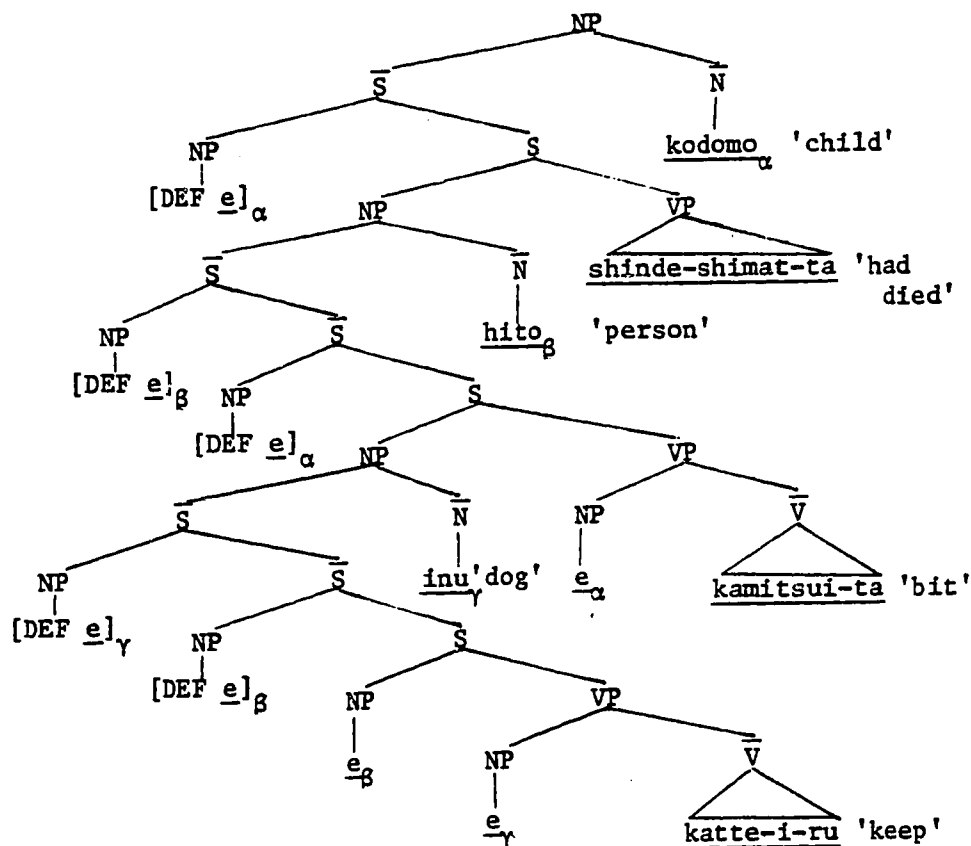
- (i) John-wa hon-wa kat-ta ga nooto-wa kaw-anakat-ta.
 top book-cont buy-past but notebook-cont buy-not-past
 'Speaking of John, he bought a book but not a notebook.'

⁹If (26) is base-generated (without indices), as Thomas-Flinders claims, it violates the θ -Criterion, which prohibits empty nodes from being generated in argument positions. Obviously, she does not assume that the θ -Criterion is imposed on D-Structure representations, because NP₄ and NP₅ must be empty at D-Structure in order for (26) to be generated. I do not investigate the consequences of the assumption in the EST framework. It seems to me possible to impose the θ -Criterion in LF.

¹⁰Thomas-Flinders argues that the indices of the topics NP_{3i} and NP_{3j} can be interchangeable. Thus, NP_{3i} can be indexed with α and NP_{3j} with β . But this means that there is no way to distinguish (26) and (27).

¹¹To further show an inadequacy of her analysis, I would like to examine (19). The same string of words is grammatical if association lines are drawn in a way given in (16b). However, the lines given in (19) produce an impossible reading. Sentences such as (11a) (= (27)) may be interpreted if forced, though it is definitely far worse than (23) and I consider (11a) ungrammatical. On the other hand, the reading given in (19) is completely out. According to Thomas-Flinders's analysis, the logical form of (19) is something like (i).

(i)



This is a well-formed structure just like (26) and (27). There is no explanation in her framework for why (i) is not allowed in Japanese.

Another problem with her analysis is shared with Kuno's (1973). In both analyses, a relative clause is assumed to involve a topic phrase, which is coindexed with the head of the relative in Thomas-Flinders' analysis and which is deleted under identity with the head of the relative in Kuno's. Such analyses can explain the relationship between the relative and the topic sentences. However, there are cases where relatives are possible but topic sentences are not allowed. Such examples are given in (ii).

- (ii) a. *Dareka-(ni)-wa John-ga at-ta.
 someone-dat-top subj meet-past
 '*As for someone, John met.'
- b. John-ga at-ta dareka . . .
 'someone John met . . .'

What (ii) shows is that a topic cannot be indefinite, which motivates Thomas-Flinders' DEF operator in the topic position, but a head of the relative can be indefinite. (This observation is made by Akmajian and Kitagawa (1976).) Then, in order to generate (iia), Thomas-Flinders must assume an ungrammatical (iia) to be embedded in (iib), as far as indexing procedures are concerned. She needs some mechanism to rule out (iia) but allow (iib) which contains an ungrammatical (iia). I do not know how she could do this.

¹²The function represented by * is basically the same as the function of the operator in Brame (1978b).

¹³As defined in Chapter 2, a 'selector' is a category which selects predicate internal arguments (Is). Note that a 'selector' selects Is but does not select the predicate external argument (E). The E is merely specified by the selector.

¹⁴The Binding Rule (37) is essentially the same as Brame's

(1978b) Operator Binding.

(i) Operator Binding

Let $F(\underline{a})$ be an operator with index \underline{a} and let $(. . . \underline{T} . . .)$ be its scope, where \underline{T} is a term in the accessible scope of $F(\underline{a})$ and of the same type as that indexed by \underline{a} . Then identify \underline{T} with \underline{a} and index \underline{F} .

(Brame (1978b:94))

The asterisk * in (37) corresponds to \underline{F} in (i) and the domain of (37) is essentially the same as the scope of \underline{F} in (i).

¹⁵To be more precise, an S is not a selector, because it does not select \underline{Is} . However, I assume that an S selects a V and Det due to the equation (28a); $\text{Det} - V \equiv S$.

¹⁶The definition of 'prominence' is given in (36) of Chapter 2, which is repeated here.

(i) The Definition of 'Prominency'

A is more prominent than B,

- i) if A or the selector of A directly or indirectly selects or specifies B or the selector of B, or
- ii) if A is higher than B with respect to the Hierarchy of Grammatical Functions ((13) of Chapter 2), when A and B are arguments of the same predicate.

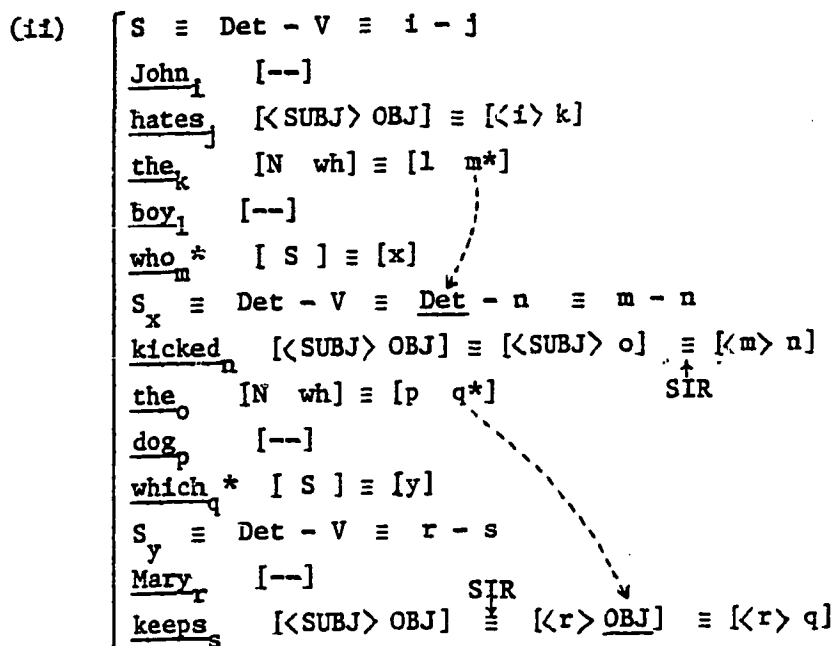
Condition (44a) rules out the cases which fall under the cases of Brame's (1978b) Accessible Scope violation. His Operator Binding (cf. fn 14) cannot bind an argument which is inside the scope of another operator.

¹⁷The difference between the path and the domain is crucially exemplified in the following example.

(i) John hates the boy who kicked the dog which Mary keeps.

The F-Structure representation of (i) is provided in (ii) in the next page. In (ii) \underline{q}^* and the OBJ of keeps_s (which is the argument \underline{q}^* binds) are both in the domain of \underline{m}^* , because who_m* indirectly chooses them. However, neither \underline{q}^* nor the OBJ of keeps_s is in the

path of \underline{m}^* , because \underline{m}^* binds Det of S_x . All the categories which are in the domain of \underline{kicked}_n are in the domain of \underline{m}^* but outside the path of \underline{m}^* . Hence, the binding function of \underline{q}^* is not lost and it correctly binds the OBJ of \underline{keeps}_s .



¹⁸ My use of \bar{S} has nothing to do with the bar notation of the X-bar theory of phrase structure rules (cf. Jackendoff (1977)). The equation in (47) simply means that a single constituent, which I call \bar{S} , is formed when a wa phrase and a tensed V is found in a string. I have argued in Chapter 2 that Japanese does not possess an S constituent. It does not mean that Japanese cannot identify a 'proposition.' A 'proposition' is identified by rule (40), when X is a tensed V and all the arguments associated with it are correctly identified and indexed in F-Structure.

¹⁹ In Japanese, the category of the item with * and that of the bound argument do not have to match under certain circumstances. The postposition of the topic phrase is often omitted and the head of the relative does not possess a postposition which is associated with the gap. Observe (i).

- (i) a. Sono onna-(to)-wa John-ga kekkon shi-ta.
 the woman-to-top subj marry-past
 '(lit) (To) the woman, John married.'
- b. [John-ga kekkon shi-ta] onna
 'the woman who John married'
- (ii) a. Mary-*(to)-wa John-ga benkyoo shi-ta.
 with-top subj study-past
 '*(With) Mary John studied.'
- b. *[John-ga benkyoo shi-ta] onna
 '*the woman who John studied'

In (i) the deletion of the comitative particle to does not result in an ungrammatical sentence. In fact the head noun, onna 'woman', in (ia) fills the gap in the relative clause, which is a postpositional phrase. Here, we observe a categorial mismatch between the item (onna = NP) which binds an argument and the gap (X-to = PstP). It is not the case that any comitative phrase is topicalized or relativized without to. As shown in (ii), a nonsubcategorized comitative phrase cannot normally be topicalized without a postposition nor can it be relativized. Relativizability of the postpositional phrase or deletability of the postposition in the topic is subject to some nonambiguity conditions, whose formalization has not been achieved. To pursue this problem is beyond the scope of this thesis, however. (Cf. Kuno (1973, Ch. 5), Akatsuka (1979))

²⁰Although I have argued that BR cannot bind the SUBJ argument when discussing the English example (39b), whose F-Structure is (41b), the revised BR, which can now bind the SUBJ argument, does not give an undesirable consequence to (41b). In (41b), if BR binds the SUBJ of swim_p, instead of the OBJ of persuade_n, then it results in the violation of the PFC; the OBJ of persuade_n does not receive an index. It also makes it impossible for the SIR to apply to to_o and swim_p. Recall that the application of the SIR is obligatory for PRED arguments (cf. fn. 10 of Chapter 3). Hence, it does not matter whether BR can bind a SUBJ argument. What must be noted here is that

SUBJ arguments are not in the domain of any lexical item or an index associated with it.

²¹The F-Structures in (56) are actually more complex, if complex verbs, such as yogorete-i-ru 'dirty-prog-pres.' kite-i-ru 'wear-prog-pres', naite-i-ru 'cry-prog-pres,' shinde-shimat-ta 'die-perf-past' are represented in detail. For example, shinde-shimat-ta is a complex verb, whose lexical entry or F-Structure representation is a combination of two specifications, one for shin 'die' and the other for shimaw 'finish.' which is a verb with no θ -role for the SUBJ argument.

- (i) a. shimaw: V_{stem} ; $\begin{array}{c} [\langle \theta_0 \rangle \quad \theta_1] \\ \text{SUBJ} \quad \text{COMP} \\ \hline \emptyset \quad \text{V ger.} \end{array}$
- b. shin: V_{stem} ; $\begin{array}{c} [\langle \theta_1 \rangle] \\ \text{SUBJ} \\ \hline \text{N} \end{array}$

The Compound Verb Formation ((63) of Chapter 3) produces (ii) from the above two entries.

- (ii) shinde-shimaw: V_{stem} ; $\begin{array}{c} [\langle \theta_0 \rangle \quad \text{shin}] \\ | \quad [\langle \theta_1 \rangle] \\ \text{SUBJ} \quad \text{SUBJ} \\ \hline \emptyset \quad \text{N} \end{array}$

Since the SUBJ with no θ -role is not syntactically present in Japanese, (ii) is the same as (iii), which is used for (56c).

- (iii) shinde-shimaw: V_{stem} ; $\begin{array}{c} [\langle \theta_1 \rangle] \\ \text{SUBJ} \\ \hline \text{N} \end{array}$

The same holds for other compound verbs which involve the verb i 'progressive aspect.' For expository purposes, I use simplified forms of the lexical entry in the following discussion, since whether a full representation or a simplified representation is used does not affect the main point of this discussion.

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Nobuko Hasegawa was born on May 8, 1950 in Urawa, Saitama Prefecture, Japan, to Masao and Tsuruko Hasegawa. She graduated from Urawa Dai-ichi Girl's High School in 1969. She attended Tokyo Woman's Cristian University, Junior College Division from 1969 to 1971, majoring in English. She then transferred to Waseda University, from which she received a BA in English and American Literature in 1973. For the next two years she worked for a news agency. In the fall of 1975, she began graduate work in Teaching English as a Second Language (TESL) at Northern Arizona University. In December 1976 she received an MA in TESL. In the winter of 1977, she entered the Department of Linguistics, the University of Washington, Seattle, Washington. While studying linguistics, she worked as a teaching assistant in the Department of Linguistics from 1977 to 1981. In the academic year of 1978-1979, she was also a research helper for the research grant on "Casual Speech Rules and the Interaction between Syntax and Phonology" (Professor Ellen Kaisse, principal investigator). Her dissertation research was supported in part by a Lockwood Foundation Fellowship. She completed the requirements for the Ph.D. degree in Linguistics in May 1981. In the fall of 1981, she will become a post-doctoral scholar for one year at the School of Social Sciences of the University of California, Irvine. Her publications follow:

- (1979) "Evidence against the Use of Word Boundaries in Tonological Rules: an Autosegmental Approach to the Fast Speech of the Tokyo Dialect of Japanese," Proceedings of the Fifth Annual Meeting of the Berkeley Linguistics Society.
- (1979) "Casual Speech vs. Fast Speech," Papers from the Fifteenth Regional Meeting of the Chicago Linguistics Society.
- (1980) "The VP Constituent in Japanese," Linguistic Analysis 6, 2: 115-130.
- (1981) "The VP Complement and 'Control' Phenomena: Beyond Trace Theory," Linguistic Analysis 7, 1: 85-120.
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"Three Reasons for Not Deriving Japanese Reflexives from Full NP's," Papers in Japanese Linguistics 7.
- (to appear)
"On the Passive as a Lexical Process," Proceedings of the Eleventh Annual Meeting of the North East Linguistic Society.
- (to appear)
"Lexicalist Grammar and Japanese Passives," Proceedings of the Formal Grammar Sessions of the Arizona Conference on Japanese Linguistics. University of Arizona.