ON JAPANESE COORDINATE STRUCTURES:
AN INVESTIGATION OF STRUCTURAL DIFFERENCES
BETWEEN THE -TE FORM AND THE -I FORM

A Thesis

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CHAPTER I
INTRODUCTION

1.1. Japanese Coordinate Structures

There are a number of ways to conjoin two or more sentences, clauses, and phrases in Japanese. Most of them utilize a conjunctive morpheme as a connector, which indicate some logical relationship between the conjuncts. The others affect the verb morphology, such as the gerundive (-te) form and the infinitival (-i) form of verbs. According to Martin (1975:817), common conjunctions are categorized as shown below:

(1) a. coordinative (and also)

Taroo-ga utatte odotta.
-NOM sing dance-past

'Taroo sang and danced.'

b. sequential (and then/now)

Taroo-ga okite terebi-o mita.
-NOM wake-up T.V.-ACC watch-past

'Taroo woke up and watched T.V.'

c. consequential (and so)

Taroo-ga siturensite kami-o kitta.
-NOM be-disappointed-in-love hair-ACC cut-past

'Taroo was disappointed in love and cut his hair.'
In this thesis, I will take up the -te form and the -i form of verbs with the primary concern being their structural representation. As listed below, the -te form and the -i form of verbs can be classified into nine categories on the
the basis of meaning (Martin 1975:394-401, 479-491):

(2) a. temporal sequence ‘and then’
   b. consequence ‘and so’
   c. manner of appearance ‘-ing, -like’
   d. contrast ‘and, but’
   e. concession ‘and yet’
   f. condition ‘-ing = if/when’
   g. instrument ‘by -ing’
   h. witness or exemplification ‘and in proof thereof’
   i. simple conjoining ‘and’

For instance, the following sentences, (3) and (4), represent (2a) and (2i), respectively:

(3) John-ga tosyokan-e itte/iki hon-o karita.
   -NOM library-to go book-ACC borrow-past
   ‘John went to the library and borrowed a book.’

(4) John-ga utatte/utai odotta.
   -NOM sing dance-past
   ‘John sang and danced.’

Unlike coordination in English (as shown in the English equivalent above), the left conjunct depends on the tense of the right conjunct in Japanese. The -te form and the -i form appear to share a number of semantic, syntactic, and functional characteristics. In fact, Sugimoto (1982)
concludes that the -te form and the -i form are stylistic variants that are interchangeable for the most part and that the -i form is more common in literary and written styles, while the -te form is used primarily in the colloquial language. There are, however, cases in which the -te form and the -i form are not interchangeable. Consider the following example:

(5) John-ga akanboo-o utatte/*utai nekasita.
   -NOM baby-ACC sing make-sleep
   ‘John put the baby to sleep by singing.’

In (5), the first verb utatte of the -te form expresses how John put the baby to sleep. The first verb of the -te form is used in order to add information about the means by which the action represented by the second verb, just like an adverb that means ‘by doing something.’ This is the so-called adverbial function of the -te form. Also, observe another example that is taken from Kuno (1973:195):

(6) John-wa yoku asobi/*asonde yoku bekyoosuru.
   -TOP well play well study
   ‘John plays a lot and studies a lot.’

In (6), the use of the -te form instead of the -i form exhibits ungrammaticality.2 As shown above, the -te form and the -i form are not always interchangeable. Therefore, I will investigate what causes these functional differences between the two forms in this thesis.
Throughout the thesis, I will focus on clausal/phrasal/verbal coordination accompanied by the -te form and the -i form of verbs, and examine the structural differences between sentences of the two forms. The rest of this chapter is devoted to an introduction of the theoretical framework that is employed in this thesis and the theoretical assumptions crucial to the arguments. Also, a brief introduction to typological characteristics of Japanese is provided in the last section of this chapter. Chapter II presents brief reviews of previous literatures including Ross (1965) and Williams (1985) that are the basis for our hypotheses. The main argument of this thesis is developed in Chapter III. Finally, Chapter IV provides concluding remarks about the study contained in this thesis.

1.2. Theoretical Framework

There are various ways to study a language, depending on which properties of a language are focused on. One can study the abstract sound system, called phonology; the system of meanings, called semantics; the rules of word formation, called morphology; or the rules of sentence formation, called syntax. What I focus on in this thesis are syntactic properties of languages, particularly English and Japanese.

There are several theoretical frameworks available in the current study of syntax. In order to analyze Japanese coordination, I adopt the revised version of transformational generative grammar that is known as the GB (Government-binding) theory (e.g., Chomsky 1981). As the basic framework, I assume the following model of four distinct levels of representations.
The four levels of representations shown above are related by the single operational rule, Move-alpha, which allows anything to move anywhere. For instance, a passive sentence (8a) is derived from the D-structure representation (8b) by moving the object to the subject position.

(8) a. John was hit by Mary.
   b. \([IP \text{ past be hit+EN John by Mary}]\)
   c. \([IP \text{ John, be + past hit+EN t, by Mary}]\)

S-structure representation (8c) is fed into the PF component. The result is (8a). Further, consider the following sentence and its relevant representations:

(9) Who saw what?

(10) a. D-structure
    \([CP \{\text{COMP + WH}\} [IP \text{ who saw what}]]\)

b. S-structure
    \([CP \text{ who, [COMP + WH][IP t, saw what,]}]\)
Sentence (9) has its D-structure representation shown in (10a). At S-structure, *who* is in CP, because English requires WH-movement (syntactic WH-movement). This S-structure representation is fed into both PF and LF as in (7). (10b) is phonologically realized as in (9). (10c) is the LF representation of the S-structure representation (10b). Here, *what* moves to CP because it is an operator. Operators are in A'-position (non-argument) such as CP. Therefore, it moves to CP (LF WH-movement). These representations are constrained by the Projection Principle, which informally states that theta-marking properties of each lexical item must be represented categorically at each of these levels (Chomsky 1981). For instance, the two-place-predicate verb such as *hit* can assign two theta roles, AGENT and THEME. AGENT is assigned to the subject and THEME is assigned to the object in active sentences. In passives, however, AGENT theta role is passed onto the argument of *by*, i.e., *Mary* in (8a). The object *John*, on the other hand, receives the THEME theta role from the verb *hit*. Therefore, when it is moved to the subject position, it leaves a trace at the object position as in (8c), satisfying the Projection Principle. Similarly, WH-movement involves traces as in (10).

Further, these levels are constrained by the following subsystems listed in (11) (Chomsky 1981, 1982):

(11)  

a. X'-theory  
b. θ-theory
I will not provide discussions of these subtheories here. A detailed discussion of the theories above is provided in the introductory chapter of Goodall (1987:2-6). However, I will provide an explanation of the aspects of the theory which are relevant to the investigation at appropriate places in this thesis.

1.3. Typological Characteristics of Japanese

In this section, I briefly introduce typological characteristics that are observed in Japanese.

1.3.1. SOV Language

The basic word order of transitive sentences is SOV (Subject-Object-Verb) in Japanese (Kuno 1973:3-4). Even though there is a strict constraint that verbs must appear in the sentence-final position, Japanese is known for its relatively free word order that appears to be due to the existence of overt Case-markers assigned to NP's as the following examples show (Kuno 1973):

(12) a. Taroo-ga Hanako-ni hon-o yatta.
   -NOM   -DAT book-ACC give-past
   ‘Taroo gave Hanako a book.’
b. Taroo-ga hon-o Hanako-ni yatta.
c. Hanako-ni Taroo-ga hon-o yatta.
d. Hon-o Taroo-ga Hanako-ni yatta.
e. Hon-o Hanako-ni Taroo-ga yatta.
f. Hanako-ni hon-o Taroo-ga yatta.

(12a) represents the basic word order. The other examples (12b-f) are all considered grammatical, frequently appearing in colloqual conversations.

1.3.2. Head-final Language

Another characteristic of Japanese is that it has postpositions instead of prepositions as in English. English is a head-initial language since a verb that is the head of VP, and a preposition that is the head of PP, precedes its object that is its complement. On the other hand, Japanese takes the reverse, that is, the complement is followed by the head. This characteristic can be easily observed in the following examples:


a'.

```
NP       VP
|      |
John    a book
```


-NOM book-ACC read-past

'John read a book.'
The verb *read* in the English sentence (13a) precedes the object *a book* while in the Japanese sentence (13b) the object *hon 'book'* precedes the verb *yom 'read'.* The head precedes its complements in English while the head follows its complements in Japanese. Likewise, the preposition *to* in (14a and a')
precedes its object in the PP, while the postposition e in (14 b and b') follows the NP mise in the PP.

1.3.3. Left-branching Language

Related to the characteristics presented in the last section, since genitives, adjectives, and relative clauses precede the head noun, Japanese can be characterized as a left-branching language, whereas English is considered right-branching (Kuno 1973:6-10). This feature is illustrated in the simplified tree diagrams below:

(15) a. John-ga kaita tegami-o yonda
    -NOM write-past letter-ACC read-past
    sensei-no musuko
    teacher-GEN son

    'the son of the teacher who read the letter that John wrote'
b.

NP
  | PP
  | NP
  | P
  | musuko

CP NP no
  | OP_i
  | C'' sensei_i

IP C
  | NP
  | VP [Rel]_i
  | ti

NP V
  | yonda

CP NP
  | OP_j C' tegami_j-o

IP C
  | John ga t_j kaita [Rel]_j
As shown in the trees above, branching is leftward in Japanese, whereas it is rightward in English. This is because of the fact that Japanese is a head-final language while English is a head-initial language.
Notes of Chapter I

1In this thesis, I will adopt the following abbreviations in the gloss, NOM:
Nom: Nominative Case Marker; TOP: Topic Marker; ACC: Accusative Case Marker;
DAT: Dative Case Marker; COMP: Complementizer; COP: Copula; Q:
Interrogative Morpheme.

2According to Kuno, this sentence with the -te form is “ungrammatical”,
but I feel that it is only “awkward” instead of “ungrammatical.”
CHAPTER II
ACROSS THE BOARD RULE APPLICATION

2.1. Introduction
This chapter provides a review of the previous analyses on coordinate structures involving transformations, such as deletions and movements, and the types of constraints imposed on those transformational operations responsible for coordinate structures. In Section 2, I will examine Williams' (1978) principle of the Across the Board (ATB), recalling Ross's (1967) first presentation of the ATB. I will then reinterpret the ATB in the current GB theory. In Section 3, I will reconsider the coordinate structure with the ATB rule as a restriction of certain transformations in Japanese, and look to see whether the ATB rule holds validity in the same way as in the case of English.1

2.2. Across the Board (ATB) Applications
2.2.1. Ross (1967)
In his dissertation (1967), Ross formulates the Coordinate Structure Constraint (CSC). The definition is the following:

(1) Coordinate Structure Constraint
    In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.
Consider the following sentences:

(2)  
- a. Henry plays the piano and sings songs.
- b. *The piano which Henry plays and sings songs is downstairs.
- c. *I hear the songs which Henry plays the piano and sings.

The sentences in (2) can be interpreted as follows:

(3)  
- a. Henry \([v_P[v_P\text{plays a piano}] \text{ and } v_P\text{sings songs}]]\).
- b. *The piano \([c_P\text{which}_i [i_P\text{Henry } [v_P[v_P\text{plays } t_i ] \text{ and } v_P\text{sings songs}]]]]\)
  is downstairs.
- c. *I hear the songs \([\text{which}_i [\text{Henry } [\text{plays the piano} \text{ and } [\text{sings } t_i ]]]]\).

In the representations (3b) and (3c), \textit{which} is extracted from the first conjunct in (3b) and from the second conjunct in (3c). Since it moves from only one conjunct, the sentences (3b) and (3c) violate the constraint (1). Therefore, the ungrammaticality of (2b) and (2c) are accounted for by (1).

Let us consider the Japanese counterparts:

(4)  
- a. Henry-ga piano-o hiki uta-o utau.\(^2\)
  -NOM piano-ACC play song-ACC sing
  'Henry plays the piano and sings songs.'
- b. *Henry-ga hiki uta-o utau piano-ga sita-ni
  -NOM play song-ACC sing piano-ga downstairs-at
  aru
  be
"The piano which Henry plays and sings songs is downstairs."

c.??Henry-ga piano-o hiki utau uta-ga kikoetekuru.³
-NOM piano-ACC play sing song-NOM hear-coming

'I hear the songs which Henry plays the piano and sings.'

The same phenomenon is observed in the Japanese examples in (4). (4b), in which piano is extracted from the first conjunct, and (4c), in which uta is extracted from the second conjunct, are both ungrammatical. So far, (1) seems not to have any problems. However, examine the following (Ross 1967: 168-69):

(5) a. I went to the store and bought some whisky.
       b. Here is the whisky I went to the store and bought.

In (5b), the CSC in (1) is violated since whisky is extracted from the coordinate structure. Ross provides the reason why (5b) is acceptable even though it violates (1). According to him, (5b) is semantically synonymous with the following sentence which contains a purpose clause.

(6) I went to the store to buy some whisky.

Ross does not provide the reason why this kind of purposive coordinate sentences are exceptions to the CSC. However, a similar phenomenon can be observed in Japanese. Consider the Japanese sentences below:
(7)  a. Watasi-ga mise-e itte, uisukii-o katta.
     I-NOM store-to go whisky-ACC buy-past
     'I went to the store and bought some whisky.'

     b. Koko-ni watasi-ga mise-e itte katta uisukii-ga.
     here-in I-NOM store-to go buy-past whisky-NOM
     aru
     be
     'Here is the whisky I went to the store and bought.'

As shown in (7b), the relativization from one conjunct seems possible both in Japanese and in English when the second conjunct where the extraction occurs can be interpreted as the purpose of the first conjunct. Sentences such as (5b) and (7b) are considered as exceptions to the CSC.

As an extreme violation of the CSC, Ross proposes a rule of the Conjunction Reduction "which Chomsky-adjoins to the right or left of coordinate node a copy of some constituent which occurs in all conjuncts, on a right or left branch, respectively, and then deletes the original nodes," and also notes that "Conjunction Reduction must work 'across the board' - - the element adjoined to the coordinate node must occur in each conjunct."

Observe the following (Ross 1967:176-77):

(8) Tom picked, I washed, and Suzie will prepare, these grapes.

Since the identical object *these grapes* is extracted from all the conjuncts, the sentence is totally grammatical in (8). Ross also points out that the Relative Clause Formation must apply with the ATB as we saw in (2) and (4). To allow
sentences such as (8) to be grammatical, an emendation of (1) is needed.
According to Goodall (1987), the condition that needs to be added to (1) is (9):

(9) unless the same element is moved out of all the conjuncts

This should allow (8). Therefore, the entire condition is as follows:

(10) In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct, unless the same element is moved out of all the conjuncts.

By adding this condition, we don not have to rule out sentences such as (8) in which an identical NP, these grapes, is extracted from its coordinate structure. However, note that (5b) and (7b) are still exempt from (10).

2.2.2. Williams (1978)

2.2.2.1. Definitions of the Across the Board

On the basis of Ross's work, Williams (1978) provides a formal definition of the ATB with concepts of "well-formed labeled bracketing" and "factor."

(11) Well-formed labeled bracketing

\[
\begin{align*}
\text{The structure} \\
[ X_1 \ldots C_1 ] \\
\vdots \\
[ X_n \ldots C_n ] \text{ and } C
\end{align*}
\]

is a well-formed labeled bracketing if \(X, \ldots, X_n\) are. (C's stand for clauses.)
(12) Factor
If one conjunct is split by a factor line, all must be split, and further, that if the conjuncts are split, then the left conjunct brackets must all belong to the same factor.\footnote{5}

$X$ stands for materials not affected by transformation; $\alpha$ stands for materials affected by transformation. According to (11) and (12), (13) and (14) are both well-formed formats:

(13) $\begin{cases} 
[X & \alpha] \\
[X & \alpha]
\end{cases}$ and $\begin{cases} 
[X & \alpha] \\
[X & \alpha]
\end{cases}$

(14) $\begin{cases} 
[\alpha & X] \\
[\alpha & X]
\end{cases}$ and $\begin{cases} 
[\alpha & X] \\
[\alpha & X]
\end{cases}$

Moreover, Williams names "simultaneous" to a factor which contains a part of each conjunct and "simple" to factors which does not contain a part of conjunct or which contains all conjuncts or a whole coordinate structure in itself.

It should be added to Williams' definitions that materials of conjuncts which are moved or deleted in the transformational process must be contained in the same factor by themselves as we see $\alpha$'s in (13) and (14).\footnote{6}

Williams also presents extensions of two restrictions of coordinate structures as given in (15) and (16).

(15) Recoverbility of Deletions (ROD)
If $T$ is a term moved or deleted by transformation, and $T$ consists of simultaneous factors $F_1 \ldots F_n$, then it must be the case that $F = \ldots = F_n$. (If a set of simultaneous factors is deleted, they must be identical.)
(16) 'Is a'
If F is a factor consisting of simultaneous factors F₁...Fn, then F 'is a' X; if F' is a' X and ..., Fn 'is a' X.

(15) and (16) must be always satisfied. If the coordinate structure consists of only conjuncts affected by transformation, the whole coordinate structure can be moved by satisfying (16) as we see in the following example:

(17) a. COMP you saw [what]NP
    and
    [who]NP NP

b. COMP you saw

    [what and who]

c. I want to know what and who you saw.

2.2.2.2. Conjunction Reduction (CR)

Conjunction Reduction and Comparative Deletion must apply to the entire sentence in the ATB format. In the application of CR, materials which are deleted must be identical and not be composed of distinct simultaneous factors (ROD). In order to corroborate this assumption, let us consider the following coordinate simultaneous factors:

(18) a. John [gave the book to Mary]VP
    and
    [gave the record to Sue]VP VP
b. John \[
\left[ \text{gave the book to Mary} \right]_{VP} \quad \text{and} \quad \left[ \emptyset \text{ the record to Sue} \right]_{VP}
\]
c. John gave the book to Mary and the record to Sue.

(18a) is the D-structure with the ATB format before the CR occurs. In (18b), the verb in the second conjunct appears to be deleted by the CR, but observe the following tree representation:

(19) a. 
\[ IP(=S) \]
\[ \text{NP} \]
\[ \text{I} \]
\[ \text{John} \]
\[ \text{I} \]
\[ \text{VP} \]
\[ \text{and} \]
\[ \text{VP} \]
\[ \text{VP} \]
\[ \text{PP} \]
\[ \text{VP} \]
\[ \text{VP} \]
\[ \text{PP} \]
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obeying the ATB. Therefore, the raised verb in the INFL (TENSE) position c-commands its traces in both conjuncts in (19b).8

Next, consider the following:

(20) a. [John | gave the book | to Sue] and [Mary | gave the book | to Mike]

b. [John | gave the book | to Sue] and [Mary | | to Mike]

c. John gave the book to Sue, and Mary to Mike.

In (20b), the verb and the direct object in the second conjunct are deleted. This phenomena is the so-called Gapping.9

Further, consider the following examples:


b. John [reads books | |] and [writes letters | in Japanese]


In (21b), PP in the first conjunct is deleted and then raised as we see in the following tree:10
In (22), the PP is adjoined to VP so that it can bind its traces. Therefore the representation obeys the ATB.

I will now examine the Comparative Deletion in the ATB format. First of all, let's take a look at the following derivations (Williams 1978: 38-9):

(23)  
(a) John has more cows than \([\text{Bill has }\text{QP dogs}]\)  
or  
\([\text{Pete has }\text{QP horses}]\)

(b) John has more cows than Bill has dogs or Pete has horses.

(24)  
(a) John has more cows than \([\text{Bill has }\text{NP}]\)  
or  
\([\text{Pete wants to have }\text{NP}]\)

(b) John has more cows than Bill has or Pete wants to have.

(25)  
(a) John has more cows than \([\text{Bill has QP dogs}]\)  
or  
\([\text{Pete wants to have }\text{NP}]\)

(b) *John has more cows than Bill has dogs or Pete wants to have.
As shown above, (23) and (24) are well-formed since QP’s are lacked in both conjuncts in (23), and NP’s are missing in both conjuncts in (24), while (25) is ill-formed since the missing material differs between the first conjunct and in the second conjunct; QP in the first conjunct and NP in the second conjunct. The grammaticality depends on the ROD and the ‘is a’ condition which blocks the Comparative Deletion in the ill-formed format.

In sum, the Conjunction Reduction (CR) and the Comparative Deletion must apply to structures in the ATB format.

2.2.2.3. Indirect Questions and Relative Clauses

In this section, we will see how effective the ATB format is on the process of WH-movement as an instance of Move-alpha. First, consider the sentences below:

(26) a. COMP [John kicked | who] and [Mike hit | who]
    b. COMP [John kicked | t ] and [Mike hit | t ]
    c. I know who John kicked and Mike hit.

(27) a. COMP [who kicked | John] and [who hit | Mike]
b. COMP \[
\begin{array}{c}
[ t \text{ kicked John}] \\
\mid \\
\text{and} \\
[ t \text{ hit Mike}] \\
\end{array}
\]

who

c. I know who kicked John and hit Mike.

Application of WH-movement will place a single copy of WH-phrase at the COMP position and will delete identical WH-phrases from the factor. In (26) and (27), all left conjunct brackets belong to the same factor and all conjuncts are split, as explained in (12). Thus, the definition of the ATB format is satisfied in (26) and (27).

Now, let us see how the ATB rule excludes ill-formed sentences. Consider the following format:

\[(28)^* \quad \begin{array}{c}
[ X \mid \alpha ] \\
\mid \\
\text{and} \\
[ \alpha \mid X]
\end{array}\]

The format (28) is not allowed by (12) since both left conjunct brackets do not belong to the same factor. Observe (29) which is in the same format as in (28):

\[(29) \quad \begin{array}{c}
a. \text{COMP} \quad \begin{array}{c}
[ I \text{ hit } \text{ who}] \\
\mid \\
\text{and} \\
[ \text{who } \text{ cried}]
\end{array}
\end{array}\]

b. \text{*COMP} \quad \begin{array}{c}
[ I \text{ hit } t ] \\
\mid \\
\text{and} \\
[ t \text{ cried}]
\end{array}
c. *You know the man who I hit and cried.

Sentence (29c) is ungrammatical on the account of the ill-formed ATB format. Thus, I altered (29a) so that it satisfies (12).

(30) a. COMP 
[ [I hit | who] ]
[ [They thought | [who | cried]] ]
and
b. COMP
[ [I hit | t ] ]
[ [They thought | [ t | cried]] ]

Since the format of (30a) follows (12), the sentence which resulted from it is grammatical.¹²

Further, consider the following:

(31) a. COMP you saw her 
[ [when] ]
[ and ]
[ [where] ]

b. COMP 
[ [when and where] ]

[Ø]

c. Let me know when and where you saw her.

In this case, the whole coordinate structure has been moved to the COMP
position. Therefore, it is not the case that each conjunct is moved and deleted.

If this is correct, the sentence (31c) does not involve the "Across the Board."

What about the following example?

(32) a. COMP you [\[saw \| who\] and [\[ate \| what\]]

b. COMP you [\[saw \| t \] and [\[who and what\] [\[ate \| t \]]

c.*Let me know who and what you saw and ate.

The reason why (32c) is ungrammatical even though (32a) satisfies (11) is that morphologically non-identical materials are not allowed to move out from the coordinate structure unless the whole coordinate structure is extracted.

As we have seen in this section, in applying a transformation such as WH-movement, restrictions such as the ATB rule, ROD, and 'is a' have to apply appropriately and simultaneously in order to construct a well-formed coordinate structure.

2.2.3. ATB in the Framework of GB Theory

In this section, I will consider the question of which level of the representation the ATB rule should apply to by reconsidering sentences such as the following:
The following tree diagrams represent the D-structure and the S-structure of (33):

(33) a. COMP

\[
\begin{array}{c}
\text{[John made } \text{what]} \\
\text{and} \\
\text{[Mike bought what]}
\end{array}
\]

b. COMP

\[
\begin{array}{c}
\text{[John made } \text{t]} \\
\text{and} \\
\text{what} \\
\text{[Mike bought } \text{t]}
\end{array}
\]

c. I don't know what John made and Mike bought.

The ATB factorization must apply when the materials are affected by
Move-alpha (in this case, WH-movement). That is, it applies to the structure at the same time when the transformation takes place and that the ATB application and transformational derivations occur simultaneously on the process from the D-structure to the S-structure. As in (34b), the WH-phrase at the COMP position c-commands its traces, satisfying (35):\(^{15}\)

\[(35) \text{ Traces must be bound.} \]
\[X \text{ binds } Y \text{ if } X \text{ and } Y \text{ are coindexed and } X \text{ c-commands } Y.\]

(34) satisfies the ATB and (35). Hence, it is well-formed.

According to Goodall (1987), those traces as in (35) are R-expressions, and so they must obey Principle C of binding theory (Goodall 1987: 69):

\[(36) \text{ An R-expression must be } A' \text{-free in the domain of the operator that } A' \text{-binds it.}\]

(Chomsky 1982)

Let us examine whether this hypothesis holds. Consider the sentences we examined in the previous sections:

(37)a.\((=26)\)

\[
S' \quad \text{COMP} \quad S \quad \text{S} \\
\text{who} \quad S \quad \text{and} \quad S \\
NP \quad VP \quad NP \quad VP \\
\text{John} \quad V \quad \text{NP} \quad \text{Mike} \quad V \quad \text{NP} \\
\text{kicked} \quad t \quad \text{hit} \quad t
\]
According to (36), the traces may not be bound by anything in an
A(rgument)-position which is in the domain of the WH-phrase operator.
In (37a) and (37b), the traces are not bound by anything but who in the
domain of who, so the representations obey Principle C. In (37c), the trace
which is in the subject position in the second conjunct m-commands another trace which is in the object position in the first conjunct since the maximal projection of the former, S, dominates the latter. In (37d), neither trace m-commands the other, since neither maximal projection of the traces, VP and S, dominates the other trace.

As we saw in (37), Goodall's Principle C of binding theory (36) is accounted for by grammaticality of these sentences.

2.3. ATB Rule Application to Japanese Coordinate Structures

In this section, I will see how the ATB rule works out in Japanese as a restriction of certain transformations, such as the Conjunct Reduction, the Relative Clause Formation, and WH-movement.

2.3. 1. Conjunction Reduction

First, observe the following:17

(38) a. John-ga [Mary-ni hon-o | yatta] AND
     [Sue-ni record-o | yatta]

b. John-ga [Mary-ni hon-o | \[null\]] AND
   [Sue-ni record-o | yatta]

c. John-ga Mary-ni hon-o Sue-ni record-o yatta.
   -NOM -DAT book-ACC -DAT -ACC gave

'John gave a book to Mary and a record to Sue.'
In (38b), the verb in the second conjunct remains while the verb in the second conjunct is deleted in the English example (18b). Observe the following tree:

(39) a. 

```
S
|   NP
|   John-ga
|   VP
|   VP
|   AND
|   VP
|   V
|   T
|   NP
|   V'
|   NP
|   V'
|   yar
ta
|   Mary-ni N V
|   Sue-ni NP V
|   hon-o t
|   rekoodo-o t
```

b. 

```
S
|   NP
|   John-ga
|   VP
|   VP
|   AND
|   VP
|   T
|   NP
|   V'
|   NP
|   V'
|   ta
|   Mary-ni N V
|   Sue-ni NP V
|   hon-o t
|   rekoodo-o
|   yar
```

Kuno (1978) explicitly points out that sentences like (38c) must be instances of Right Node Raising as shown in (39a), in which the verb yar is raised from both conjuncts to the INFL position, not “backward gapping” as shown in (39b), in which the verb in the first conjunct is empty. Under the assumption that empty categories are governed, yar must be raised so that it can bind both traces. In backward gapping, the empty category cannot be governed. It is worth remarking that a similar phenomenon occurs in the case of (18). Consider (40):
(40) a. [John-ga Sue-ni | hon-o | yatta]  AND  
    [Mary-ga Mike-ni | hon-o | yatta] 

b. [John-ga Sue-ni | θ | θ]  AND  
    [Mary-ga Mike-ni | hon-o | yatta] 

c. John-ga Sue-ni  Mary-ga Mike-ni  hon-o  yatta.  
   -NOM  -DAT  -NOM  -DAT  book-ACC  gave  
   ‘John gave a book to Sue, and Mary to Mike.’

(40) is also a Japanese equivalent of (20). Unlike (20b), the verb and the direct object of the first conjunct seem to be deleted in (40b). In this case, however, Right Node Raising can be involved in the way that hon o yatta constructs one constituent and raised. This suggests V' movement (the intermediate level moves).

Now, consider the following case in which the identical object in the second clause is deleted:

(41) a. [John-ga keeki-o tukutta]  AND  
    [Mary-ga keeki-o tabeta] 

b. [John-ga keeki-o tukutta]  AND  
    [Mary-ga θ | tabeta]
c. John-ga keeki-o tukuri, Mary-ga tabeta.

-NOM cake-ACC make -NOM ate

'John made and Mary ate the cake.'

In the sentence (41c), it seems to me that the sentence needs sore-o ('it'-ACC) before tabeta. Observe the following structural representation:

(42)

As we can see, since the direct object NP's of tukur and tabe are sandwiched by non-identical subjects and verbs, it is not possible for keeki-o to be raised without scrambling. Therefore, the only way of constructing the sentence (41c) is deleting keeki-o in the second sentence. The reason why the sentence (41c) sounds awkward is that keeki-o is deleted only in the second clause. This kind of operation violates the ATB. Accordingly, after the operation of scrambling, the sentence seems to be better.

(43) a. Keeki-o John-ga tukuri, Mary-ga tabeta.

cake-ACC -NOM make -NOM eat-past

'The cake, John made and Mary ate.'
The grammaticality of (43a) is accounted for by the fact that keeki-o is scrambled out from both conjuncts as shown in (43b).

Next, consider the Comparative Deletion in Japanese. Observe the following sentences which are equivalent to (23), (24), and (25): 19

(44) a. John-wa  
   [([Bill-ga QP inu-o motteiru] yori) 
   OR 
   ([Pete-ga QP uma-o motteiru] yori) 
   ookuno usi-o motteiru
   QP]

b. John-wa Bill-ga inu-o motteiru yori matawa
   -TOP -NOM dog-ACC have than or
   Pete-ga uma-o motteiru yori ookuno usi-o
   -NOM horse-ACC have than many cow-ACC motteiru.
   have
   ‘John has more cows than Bill has dogs or Pete has horses.’
(45) a. John-wa \[
\begin{array}{|c|c|}
\text{Bill-ga} & \text{NP} \\
\hline
\text{motteiru} & \text{yori} \\
\end{array}
\]
OR
\[
\begin{array}{|c|c|}
\text{Pete-ga} & \text{NP} \\
\hline
\text{motitagatteiru} & \text{yori} \\
\end{array}
\]
ookuno usi-o motteiru.

b. John-wa Bill-ga motteiru yori matawa Pete-ga
\text{motitagatteiru} yori ookuno usi-o motteiru.

want-to-have than many cow-ACC have

'John has more cows than Bill has or Pete wants to have.'

(46) a. John-wa \[
\begin{array}{|c|c|}
\text{Bill-ga} & \text{QP inu-o} \\
\hline
\text{motteiru} & \text{yori} \\
\end{array}
\]
OR
\[
\begin{array}{|c|c|}
\text{Pete-ga} & \text{NP} \\
\hline
\text{motitagatteiru} & \text{yori} \\
\end{array}
\]
ookuno usi-o motteiru.

b.*John-wa Bill-ga inu-o motteiru yori matawa
\text{motitagatteiru} yori ookuno usi-o
want-to-have than many cow-ACC have

have

*‘John has more cows than Bill has dogs or Pete wants to have.’

(44b) and (45b) are well-formed since the QP’s are missing in both conjuncts in (44a) and the NP’s are missing in both conjuncts in (45a), while (46b) is ruled out in that QP is lacked in the first conjunct and NP is missing in the
second conjunct. So far, the ATB application can be extended to Japanese coordinate structures.

2.3.2. Indirect Questions and Relative Clauses

As we saw above, the ATB format appears to be valid in Japanese as well. However, if Case conflict occurs in the factor, even though the terms themselves are morphologically identical, a movement operation such as scrambling cannot take place. Examine the following:

(47) a. COMP 

\[
\begin{array}{c|c}
\text{[John-ga | Bill-o | ketta]} \\
\text{[Mike-ga | Bill-o | nagutta]}
\end{array}
\]

\text{AND}

b. COMP 

\[
\begin{array}{c|c}
\text{[John-ga | t | ketta]} \\
\text{[Mike-ga | t | nagutta]}
\end{array}
\]

\text{AND}

\text{Bill-o}

\[
\begin{array}{c|c}
\text{[Mike-ga | t | nagutta]}
\end{array}
\]

c. Bill-o John-ga keri, Mike-ga nagutta ka siranai.

\text{who-ACC -NOM kick -NOM hit Q not-know}

'I don't know if John kicked and Mike hit Bill.'

(48) a. COMP 

\[
\begin{array}{c|c}
\text{[Bill-ga | John-o | ketta]} \\
\text{[Bill-ga | Mike-o | nagutta]}
\end{array}
\]

\text{AND}

b. COMP 

\[
\begin{array}{c|c}
\text{[t | John-o | ketta]} \\
\text{[t | Mike-o | nagutta]}
\end{array}
\]

\text{AND}

\text{Bill-ga}

\[
\begin{array}{c|c}
\text{[t | Mike-o | nagutta]}
\end{array}
\]

c. Bill-ga John-o keri, Mike-o nagutta ka

\text{-NOM -ACC kick -ACC hit Q}
siranai.
not-know
'I don't know if Bill kicked John and hit Mike.'

(49) a. COMP [watasi-ga | Bill-o | nagutta] AND [Bill-ga | naita]
b. COMP [watasi-ga | t | nagutta] AND [Bill-ga | nagutta]
   Bill-ga/o [t | naita]
c.* Haha-wa Bill-ga/o watasi-ga naguri, naita ka
   mother-TOP -NOM/ACC I-NOM hit cried Q
   sitteiru.
   knowing
   *'My mother knows Bill I hit and cried.'

c. *Haha-wa Bill-ga/o watasi-ga naguri,
   mother-TOP -NOM/ACC I-NOM hit
   minna-ga naita to omotteiru ka sitteiru.
   everyone-NOM cried COP thinking Q know
   'My mother knows Bill I hit and everyone thought cried.'
As for (47), (48), and (49), the ATB format exhibits its validity as seen in English. The sentence in (50) is ungrammatical due to Case conflict. The sentence becomes ungrammatical because the nominative Case-marker \textit{ga} and the accusative Case-marker \textit{o} cause the morphological conflict. However, if the coordinate structure is a relative clause modifying an NP, identical materials can be extracted and deleted even though they are not assigned the same Case. This suggests that the conflict is not at the abstract level of Case, but in morphology. Accordingly, the coordinate structure in (50) turns out to be acceptable in a relative clause such as the following:

(51) \textit{Watasi-ga naguri, minna-ga naita to omotta}
\begin{itemize}
  \item \textit{I-NOM hit everyone-NOM cried COM think-past}
  \item \textit{otoko ga/o/ni}
  \item \textit{man NOM/ACC/DAT}
\end{itemize}
\begin{itemize}
  \item ‘The man who I hit and everyone thought cried’
\end{itemize}

In (51), \textit{otoko} was interpreted as the object that takes \textit{o} as its Case marker in the first conjunct and the subject that takes \textit{ga} as its Case marker in the second conjunct. However, \textit{otoko} is the head of the relative clause, and what is moved is an empty relative clause operator. Thus, there is no Case conflict involved.

Furthermore, consider the following:

(52) a. \begin{itemize}
  \item \textit{[Otoko-ga John-o nagutta] AND NP}
  \item \textit{[Mike-ga otoko-o ketta]}
\end{itemize}
b. ??John-o naguri, Mike-ga ketta otoko
-ACC hit -NOM kick-past man

"The man who hit John and Mike kicked."

In the case of (52), it is not absolutely ill-formed. I would not say that this sentence is grammatical, but some native speakers accept the sentence. The reason why this sentence is not as bad as the English equivalent is that Japanese counterpart (52b) may involve Topicalization in relative clauses (Kuno 1973:238-240). Observe (53):

(53) a. \[
\begin{array}{c}
\text{[Otoko-wa] } \\
\text{John-o nagutta]}
\end{array}
\] AND
\[
\begin{array}{c}
\text{[Otoko-wa] } \\
\text{Bill-ga ketta]}
\end{array}
\]

b. \[
\begin{array}{c}
\text{[t ] } \\
\text{John-o nagutta] }
\end{array}
\] NP
AND
\[
\begin{array}{c}
\text{[t ] } \\
\text{Bill-ga ketta] }
\end{array}
\]

In this process between the D-structure and the S-structure, Topicalization takes place before relativization occurs. (53a) has topicalized *otoko* in both conjuncts. Although *otoko* in the first conjunct is the subject and *otoko* in the second conjunct is the object, when they are topicalized, they both have the topic marker *wa*. After *otoko* is topicalized, it is deleted, having the same index with the head noun by Relativization. Under this assumption, the ATB principle is strongly supported.
2.4. Summary

As we have seen in this chapter, the ATB rule application must apply as a restriction on transformations, such as the CR, the Relative Clause Formation, and WH-movement. The ATB format is also valid for Japanese coordination in spite of problems such as Case conflict. There appear to be exceptions which the ATB format cannot account for as we saw in the last argument on Topicalization. However, in those cases, another instance of transformation applies before the format is set. As the overall result of this investigation, it can be concluded that the ATB format is necessary for transformation to work out appropriately.

In the next chapter, I will investigate structural differences between the -te form and the -i form of verbs in coordinate structures by assuming the ATB as the constraint on movements in coordinate structures.
Before proceeding to the main syntactic argument, I quote the fundamental pragmatic/semantic condition on coordination. Observe the following examples:

(i) Taroo-ga nagutte, Hanako-ga nagusameta otoko
    -NOM hit -NOM console man
    'a man who Taroo hit and Hanako consoled'

(ii) Taroo-ga Hanako-ni, Ziroo-ga Yosiko-ni hana-o
    -NOM -DAT -NOM -DAT flower-ACC
    yatta.
    gave
    'Taroo gave a flower to Hanako, and Ziroo to Yosiko.'

According Soga (1966):

We consider that when a speaker has to use conjunction he may have some notion of incompleteness at the end of S1, and S2 will be necessary for the purpose of supplying the meaning to S1. Thus, S2 may be used to express the idea of Consequence, Exemplification, Elaboration, Cause, Adversative, Selection, or Concatenation. We consider that S1's 'call' must be met by S2's 'response,' so to speak.

I will develop the following argument under this pragmatic/semantical condition.

In Japanese, there are a number of ways of conjoining more than two sentences, clauses, phrases, or words. Some are accompanied by conjunctive
words or morphemes, and others affect the verb morphology. Referring to the latter, to simplify the argument, I will employ -i form, the so-called "infinitive," in this paper.

3In the case of (4c), the reason why it doesn't sound as awkward as (4b) is that our interpretation may be as in the following:

(i) Henry\textsubscript{j}-ga piano-o hiki, [CP[IP proj \{VP ti utau\}]uta\textsubscript{i}-ga kikoeru.

(i) consists of two independent clauses, and the relative clause consists of only one VP that includes the trace of uta-ga. Therefore, the ATB is not violated in this interpretation.

4In a coordinate structure containing two verbs, V\textsubscript{1} and V\textsubscript{2}, if V\textsubscript{1} is a voluntary action, such as iku, -te form (e.g. itte) implies the stronger connotation that V\textsubscript{2} is a purpose of V\textsubscript{1} than -i form does.

5Williams (1978) gives the following definition for "factor":

(i) If F is a factor and C a coordinate structure containing conjuncts C\textsubscript{1} ... C\textsubscript{n}, then for F to be well-formed factor the following must hold: if for any i, [ci F and ]ci\textsubscript{EF}, then for all i, it must be the case that [ci F and ]ci\textsubscript{EF}.

6Therefore, the ATB must apply at the same time when the transformation takes place. I will explain it later.

7Williams (1978: 40-1) provides the following structure for this sentence:

(i) a. \[
\begin{array}{l}
\text{[John gave the book to Mary]}
\end{array}
\]
\[
\begin{array}{l}
\text{and}
\end{array}
\]
\[
\begin{array}{l}
\text{[John gave the record to Sue]}
\end{array}
\]
b. \[
\begin{array}{c}
[\text{John gave the book to Mary}] \\
[\text{and}] \\
[\Theta \quad \Theta \quad \text{the record to Sue}] 
\end{array}
\]

8I adopt the following definition of “c-command”:

(1) X c-commands Y if neither X nor Y dominates the other and the first 
branching node dominating X dominates Y. 

(Reinhart 1976)

9For further argument on Gapping, see Goodall (1985:77-92).

10Unless necessary, I will not indicate INFL in trees from this point.

11The structure of indirect questions and relative clauses are in the similar 
fashion here. Therefore, I will not treat them distinctively in this thesis.

12Even though Williams (1978) does not explicitly mention it, 'the left 
conjunct brackets' in (12) do not include those of embedded sentences.

13I refer primarily to Goodall's GB theory (1987).

14Ross (1967: 196) also states that the ATB rule “must operate in all 
conjuncts simultaneously.” In (34b), WH-movement must occur to both 
what's simultaneously. Otherwise, the following incorrect output structure 
results:

(i) 

$$
\begin{array}{c}
S'
\\
\text{who} \\
S'
\\
\text{who} \\
S
\end{array}
$$
15I still adopt Reinhart’s definition of c-command (1976).

16I will not examine further about this subject. For further argument, see Saito (1987).

17As I mentioned before, Japanese coordination involves morphological change of verbs. To simplify the representations, I just indicate AND at the same position as and in preceding English examples.

18The investigation into the RNR will not be held here. For further argument, see Saito (1987: 312-28).

19In Japanese, yori must be in both conjuncts, whereas than does not have to occur twice in English as shown in (23) and (24).

20What I mean by the term “Case conflict” is actually “Case-marker conflict,” that is a conflict of morphological representation, such as ga, o, and ni. For example:

(i)(= 30) You know the man, who I hit t; and they thought t; cried.

This sentence is grammatical since it does not violate the ATB as we observed in (30). Referring to English, as long as it respects the ATB, it turns out be well-formed even though the case of the moved constituent is accusative in the first conjunct and nominative in the second conjunct since who can appear as an alternative of whom. However, in the case of Japanese, even though the sentence respects the ATB, the Case marker conflict does not allow the sentence to be well-formed, as shown below:
Sentence (ii) is the Japanese equivalent of (i) and respects the ATB. The reason why the sentence is ill-formed is not the matter of the ATB but phonological or morphological conflict of Case markers.

21Since this transformation does not necessarily occur to every speaker, the judgement differs. In other words, if the native speaker processes this sentence through Topicalization, he/she considers this sentence well-formed. In my judgement, sentences like (53) are not grammatical but acceptable in the informal speech.
3. 1. Introduction

In Japanese, there are a number of ways of conjoining more than two clauses and phrases. There are basically two types: one instance is that clauses or phrases are accompanied by distinctive conjunctive word morphemes; the other involves the verbal inflectional morphology. Of the two types, I will deal with the -te form of verbs, or the gerundive form, and the -i form of verbs, or the infinitival form, which are both used to conjoin more than two units. Henceforth, I adopt the terms "-te form" and "-i form."

In the preceding research, the -te form and the -i form of Japanese verbs have been treated as stylistic variants of coordination which are constructed in the same structure. For instance, Sugimoto (1982) states that "as for the difference between -te conjunction and -i conjunction since they often go together syntactically and they present no apparent semantic difference, it seems best to regard these as stylistic variants." However, Miyagawa (1983) points out some distinctive characteristics between the -te form and the -i form of verbs, contrasting them with respect to Case drop, deletion of NP complements, and scrambling.1 In this chapter, I will examine which of the two has the correct view on the -te form and the -i form. I will conclude that the two forms have the different structures. Therefore, they behave differently in various syntactic constructions.
I will argue that the -te form, which has been treated as an instance of coordination, is not actually coordination in terms of the structure, because the structure of the sentence with the -te form does not simply consist of the juxtaposition of the conjuncts in a flat structure. In other words, it does not posit characteristics of coordinate structures. In the following sections, I will summarize the previous arguments, and then, I will present evidence supporting my hypothesis.
3. 2. Previous Studies

In this section, the previous studies on the differences between the \(-te\) form and the \(-i\) form are summarized.

3. 2. 1. Semantic Classification

The \(-i\) form is often used as an equivalent of the \(-te\) form within the coordinate structures. Let us consider the following:\(^2\)

(3) Sequential '... and then'
   a. Taroo-ga okite kao-o aratta.
      -NOM wake-up face-ACC wash-past
      'Taroo woke up and washed his face.'
   b. Taroo-ga oki kao-o aratta.
      -NOM wake-up face-ACC wash-past
      'Taroo woke up and washed his face.'

(4) Consequential '... and so'
   a. Taroo-ga itazura-o site okorareta.
      -NOM mischief-ACC do be-scolled-past
      'Taroo did mischief and was scolled.'
   b. Taroo-ga itazura-o si okorareta.
      -NOM mischief-ACC do be-scolled-past
      'Taroo did mischief and was scolled.'

(5) Coordinative '... and also'
   a. Taroo-ga utatte odotta.
      -NOM sing dance-past
      'Taroo sang and danced.'
b. Taroo-ga utai odotta.

-NOM sing dance-past

'Taroo sang and danced.'

Although each of the three types of semantic classification above includes both the -te form sentence and the -i form sentence, it has been argued that these two types of sentences are not always interchangeable. This section is devoted to reexamining the previous studies on the differences between the -te form and the -i form. To begin with, let us consider Kuno (1973).

3.2.2. Kuno (1973) and Others

In regard to differences between the -te conjunction and the -i conjunction, Kuno (1973:195-199) notes two differences. According to his study, the -te conjunction has the connotation of "V and then" or "having V-ed," which is lacking in the -i conjunction. For instance, he provides the following examples (1973:195):

(6) John-wa uwagi-o nuide hangaa-ni kaketa.

-TOP jacket-ACC take-off hanger-on hang-past

'John took off his jacket and put it on a hanger.'

(7) John-wa uwagi-o nugi hangaa-ni kaketa.

-TOP jacket-ACC take-off hanger-on hang-past

'John took off his jacket and put it on a hanger.'

Kuno claims that the connotation of "V and then" or "having V-ed" is lacking in the -i form in (7). Kuno accounts for this phenomenon by
proposing that “-te of the gerundive form originates from the perfect tense auxiliary tari of classical Japanese, from which the perfect tense suffix -ta of the present-day Japanese is also derived.” For that reason, the -te form, but not the -i form, holds the connotation of “V and then” or “having V-ed.”

According to Kuno (1973), two simultaneous actions or states cannot be represented by the -te form V1 -te V2 pattern. Consider the following examples taken from Kuno (1973):

    -TOP well play well study
    ‘John plays a lot and studys a lot.’

   b. *John-wa yoku asonde yoku benkyoosuru.
      -TOP well play well study
      ‘John plays a lot and studys a lot.’

According to Kuno, since yoku asobu and yoku benkyoosuru are simultaneous actions, only (8a), in which the verb is in the -i form, is well-formed. However, this is not always true.

(9) Taroo-ga utatte odotta.
    -NOM sing dance-past
    ‘Taroo sang and danced.’

(10) Taroo-ga suwatte hon-o yonda.
     -NOM sit book-ACC read-past
     ‘While sitting, Taroo read the book.’
     ‘Taroo sat down and read the book.’
The sentences in (9) and (10) do not have the connotation of “sang and then,” “sat and then,” “having sang,” or “having sat,” but rather the two actions in each sentence occur simultaneously in the normal interpretation. Hence, Kuno’s generalization does not hold.

Kuno also proposes another difference in the -te form sentences, namely the two actions involved must be either both “self-controllable” or both “non-self-controllable.” Therefore, the following sentences are all ungrammatical, according to Kuno.3

(11) *John-wa me-o samasite, kao-o aratta.
-TOP eye-ACC open face ACC wash-past
‘John woke up and washed his face.’

(12) *John-wa hikoozyoo-ni tuite, ie-ni denwa sita.
-TOP airport-DAT arrive home-DAT phone do-past
‘John arrived at the airport and called home.’

(13) *John-wa Mary-ni guuzen de-atte, sono hanasi-o sita.
-TOP -DAT accidentally meat that story-ACC do-past
‘John met Mary accidentally and talked about the story.’

In (11), (12), and (13), one of the two actions is self-controllable, and the other action is non-self-controllable. However, I find Sentences (14) and (15) well-formed even though they violate Kuno’s constraint.
In (14), the first action that is denoted by the first verb is self-controllable, while the second action that is denoted by the second verb is not self-controllable. In (15), the first action is self-controllable, while the second action is not self-controllable.

Kuno also claims differences between the -te conjunction and the -i conjunction by referring to the following sentences:


'The former contains the connotation of the completion of the act described by the first verb, while the latter does not. However, this proposal does not seem to be always correct. Consider the following examples:'
-NOM chair-on sit book-ACC read-past

'Having sat down the chair, he read a book.'

'John read a book, sitting on the chair.'

As shown above, Sentence (17), in which the -te form is used, can be interpreted 'sequential' or 'coordinative'. Therefore, it is not always true for the -te form to have the connotation of the completion of the act. Soga and Matsumoto (1982:139) claim that when two sentences are joined by the -te form, the first sentence is often felt to be the cause of the second sentence. This may be the reason why the -te form appears to hold the connotation of the completion of the act. However, the connotation of the completion of the act is not limited to the -te form. In the cases in which the first verb is a voluntary action, such as iku, suwaru, and kaeru, the sentence has a strong connotation that the second verb is a purpose of the first verb no matter which form is used, and usually those sentences have the connotation of the completion of the act described by the first verb.

On the other hand, Sugimoto (1982) considers the -te form and the -i form as stylistic variants. I quote the following from Sugimoto (1982) here:

As for the difference between -te conjunction and -i conjunction, since they often go together syntactically and they present no apparent semantic difference, it seems best to regard these as stylistic variants: -te conjunction represents informal style, and -i conjunction represents formal (writing) style.

As Sugimoto concludes, this vague distinction between the -te form and the -i form may be caused by the dominant use of the -te form in spoken
Japanese. This phenomenon attributes to the difficulty of distinction between the two. However, there are apparent differences in their structures, which cause semantic differences. I will discuss the structure of the -te form and the -i form in the following sections.

3.3. Structures of the -Te Form and the -I Form

I will first provide three pieces of evidence that supports the existence of functional differences between the -te form and the -i form. The first is that in a compound verb that represents two simultaneous actions, the two verbs are always connected by the -i form.

\[(18) \quad \text{Compound verbs} \]

- tabearuku ('eat and walk') \quad *tabetearuku
- kaiasaru ('buy and search') \quad *katteasaru
- tobihaneru ('jump and leap') \quad *tondehaneru
- kamikiru ('bite and cut') \quad *kandekiru
- sasidasu ('offer and put out') \quad *sasitedasu
- kagimawaru ('sniff and go round') \quad *kaidemawaru
- siniwakareru ('die and separate') \quad *sindewakareru

The common characteristic among these compound verbs is that the first verb refers to the action which is a means or a description of the action referred to by the second verb.

The second evidence comes from examples in Kuno (1973:195-199):

\[(19) \quad \text{a. John-wa yoku asobi yoku benkyoosuru.} \]

- TOP well play well study
‘John plays a lot and studys a lot.’

b. *John-wa yoku asonde yoku benkyoosuru.
   -TOP well play well study
   ‘John plays a lot and studys a lot.’

According to Kuno, the -te form is not acceptable in this particular sentence pattern while the -i form is totally acceptable.

The third evidence is the so-called “adverbial function” that is observed only in the -te form. Suzuki (1972:329-347) introduces this adverbial usage as a unique function of the -te form. Observe the following:

(20) John-ga tobiagatte yorokonda.
     -NOM jump please-past
     ‘John jumped for joy.’

(21) John-ga Mary-ni hizamazuite ayamatta.
     -NOM -DAT kneeling apologize-past
     ‘John apologized to Mary by kneeling down.’

In the sentences (20) and (21), V1 -te V2 is not a simple juxtaposition of two sequential or simultaneous actions, but V1 of the left conjunct represents an aspect of V2 of the right conjunct, e.g. concrete manifestations, countenances, looks, conditions, and means. In other words, -te conjunction can be used as an adverbial phrase which modifies the second action denoted by V2.

Compare the following with (21):
Sentence (22) is ill-formed because the -i form does not possess the adverbial function and the object NP of V2, Mary, is not allowed to be to the left of the verb hizamazuki, while Sentence (21) is well-formed because hizamazuite functions as an adverbial.

The three pieces of evidence we saw suggest that the two forms of verbs do not behave the same. I will suggest that these differences arise from structural differences between the two forms. I will return to these three problems later.

Before I present the analysis, I would like to present my hypothesis with concrete examples. Consider the following examples:

(23) a. Taroo-ga utatte odotta.
    -NOM sing dance-past
    ‘Taroo sang and danced.’

b. Taroo-ga utai odotta.
    -NOM sing dance-past
    ‘Taroo sang and danced.’

The tree diagrams of the sentences (23a) and (23b) are represented as (24a) and (24b), respectively:
The three pieces of evidence I have presented above support the existence of the structural differences, as shown in (24). Referring to the first example of the compound verbs, the reason why there are no such compound verbs that consist of the -te form is that the morpheme -te occurs in INFL at the syntactic level, whereas -i is a part of the stem of the verb instead of an independent morpheme. Since at the level of word formation in lexicon, presumably, there are no functional categories such as INFL, -te cannot appear in that level. Hence, only the -i form occurs at the lexical level.5

The second example of yoku V yoku V in (19) is actually not evidence for a difference between the two forms. Since yoku asobi yoku benkyoosuru is used as an idiomatic set phrase, yoku asonde yoku benyoosuru seems to sound relatively awkward. Accordingly, phrases that are less idiomatic such
as yoku tabete yoku neru can be considered as good as the -i form counterpart.

The last example, which is the adverbial function of the -te form, involves the ATB. This phenomenon called the adverbial function is simply suggesting the subordinate nature of the first conjunct which does not include Mary. In (21) and (22), Mary is scrambled out from the second conjunct. The grammaticality depends on the structure of the sentence, that is, whether the operation violates the ATB. In other words, as we saw in the previous chapter, the operation is blocked by the ATB in the structure of the -i form if the extraction is from only one conjunct because the structure is flat. On the other hand, the -te form, in which the first conjunct is embedded in the matrix clause, is not coordination in terms of a flat structure. Therefore, extraction from one conjunct is possible in the -te form conjunction.

In the following sections, I will present evidence for our hypothesis that the sentence with the -te form has a different structure from the sentences with the -i form.

3.3.1. Scrambling

In this section, I will examine coordinate sentences in which scrambling takes place. Observe the sentences below:

   -NOM wake-up face-ACC wash-past
   'Taroo woke up and washed his face.'

b. Tarooi-ga kaoj-o [[proi okite] tj aratta].
   -NOM face-ACC wake-up wash-past
c. Kao-o Tarooj-ga [[pro okite] t\textsubscript{i} aratta].

face-ACC -NOM wake-up wash-past

The sentences above are examples in which the object in the second conjunct is scrambled out. (25a), (25b), and (25c) are all well-formed. In (25b) and (25c), the object kao-o is scrambled out from the object position of the second conjunct. Consider the tree diagram corresponding to (25c):

(26)  
```
IP
  NP  IP (=S)
    Kao-o NP  I'
    Tarooj-ga VP  I  
        IP  V'
          NP I' NP V
            pro VP t\textsubscript{i} araw
               V te
                 oki
```

As (26) indicates, okite kao-o aratta does not constitute a coordinate structure. Therefore, scrambling of the object of araw is possible. Even though (25c) may sound little odd to some native speakers, when there is a stress on the object kao, the sentence sounds totally acceptable. For example:

(27)  
```
(Te zya nakute,) kao-o Taroo-ga okite aratta.
hand not face-ACC -NOM wake-up wash-past
'Taroo woke up and washed his face, (not hands).'
```
Now, compare the following examples of the -i form with the -te form counterparts:

(28)  a. Taroo-ga [[oki] [kao-o aratta]].
     -NOM wake-up face-ACC wash-past
     'Taroo woke up and washed his face.'
     b. *Taroo-ga kao-i-o [[oki] [ti aratta]].
     -NOM face ACC wake-up wash-past
     c.* Kaoi-o Taroo-ga [[oki] [ti aratta]].
     face-ACC -NOM wake-up wash-past

The ungrammaticality of (28b) and (28c) is caused by the ATB violation in which kao-o is scrambled out from the second conjunct only. The grammaticality of the sentences in (25) and (28) properly reflects the structural difference between the -te form and the -i form.

Next, let us examine cases in which only the first verb is transitive.

     -NOM face-ACC wash go-out-past
     'Taroo washed his face and went out.'
     face-ACC -NOM wash go-out-past

(30)  a. Taroo-ga [[kao-o arai] [dekaketa]].
     -NOM face-ACC wash go-out-past
     'Taroo washed his face and went out.'
b. ?Kaoi-o Taroo-ga [[t, arai] [dekaketa]].

Assuming the structural differences between the -te form and the -i form,
(30b) is expected to be a violation of the ATB because kao is extracted from the
first conjunct only. However, (30b) is not as bad as we expected. This is
because we might process the sentence as a two-IP coordination whose
second empty subject is semantically identical as in the following:

(31) a. [IP Taroo-ga [VP kao-o arai] [IP (sorekara) [e]]
         -NOM face-ACC wash and-then
dekaketa].
go-out-past
'Taroo washed his face, and then he went out.'

b. [IP Kaoj-o Tarooj-ga [VP tj arai] [IP (sorekara) ([e])]
         face-ACC -NOM wash and-then
dekaketa].
go-out-past

Sentence (31) consists of two independent IP's that are connected with the -i
form verb. The scrambling of kao-o takes place only within the first IP
without involving the second IP. Therefore, the ATB is exempt, hence, the
grammaticality of (30b). Due to this kind of ambiguity between the IP
coordination and the VP coordination, therefore, sentences like (30b) with the
representation (31b) are not counted as counterevidence for the proposed
hypothesis.6
I will next examine coordinate structures that contain two VPs sharing identical objects semantically. Observe the following:

(32) Taroo-ga sinbun-o katte yonda.
    -NOM newspaper-ACC buy read-past
    ‘Taroo bought the newspaper and read it./ Taroo bought and read the newspaper.’

Sentence (32) is well-formed. Compare (32) and the following example of the -i form:

(33) ?Taroo-ga sinbun-o kai yonda.
    -NOM newspaper-ACC buy read-past
    ‘Taroo bought the newspaper and read it./ Taroo bought and read the newspaper.’

Compared with (32), Sentence (33) is awkward. Further, consider another example of the -i form:

(34) a. Hanako-ga keeki-o yaite tabeta.
    -NOM cake-ACC bake eat-past
    ‘Hanako baked the cake and eat it./ Hanako baked and ate the cake.

b. ?Hanako-ga keeki-o yaki tabeta.
    -NOM cake-ACC bake eat-past’
(35)  a. Taroo-ga zassi-o yonde suteta.
    -NOM magazine-ACC read throw-away-past
    ‘Taroo read the magazine and threw it away./Taroo read and threw away the magazine.’

b. ?Taroo-ga zassi-o yomi suteta.
    -NOM magazine-ACC read throw-away-past

The reason why the examples with the -i form, (33), (34b), and (35b), sound awkward to some native speakers, even though they appear to satisfy the ATB format, depends on the interpretation, that is, how the hearer processes the sentence. Consider the following:

(36)  a. Hanako-ga keekij-o [ti yaki] [ti tabeta].

b. Hanako-ga [keekij-o yaki] [e], tabeta.

In (36a), the object keeki is extracted from both conjuncts, but in the interpretation (36b), the object of the second conjunct is empty. (36b) is not an ATB violation because no extraction is involoved. Since Japanese allows empty pronouns, [e] in the second conjunct can be empty pronoun. Therefore, the sentence should be well-formed. However, those who interpret those sentences in the latter way feel the awkwardness, and the strong need for an overt pronoun sore o ‘it’ in the second conjunct in order to fill the empty position in (36b) This may be related to the phonological “heaviness.” That is, the second conjunct is shorter than the first conjunct, and they do not hold phonological balance.
In (37), sore-o, which is semantically equivalent to keeki-o in the first conjunct, is inserted in the second conjunct. Therefore, there is a phonological balance between the first conjunct and the second conjunct.

3.3.2. Relativization

First, consider the following sentences:

(38) a. Kore-ga Taroo-ga yonde suteta sinbun
    This-NOM -NOM read throw-away-past newspaper
    da.
    COP
    ‘This is the newspaper that Taroo read and threw away.’

The sentences in (38) are grammatical because the NP *sinbun* and the relative clause operator in C SPEC are coindexed and the operator c-commands its trace.

    This-NOM -NOM read throw-away-past newspaper COP
    ‘This is the newspaper that Taroo read and threw away.’

b. Kore-ga [[Taroo-ga [[t_i yomi] [t_i suteta]]] sinbun] da.
In (39), the ATB format is not violated because the relative clause operator that is coindexed with *sinbun* is extracted from both of the conjuncts, as the tree (39c) shows this clearly. Further, consider sentences in (40) and (41):

    This-NOM -NOM wake-up wash-past shoe COP
    ‘These are the shoes that Taroo washed after he woke up.’
    (Lit. *‘These are the shoes that Taroo woke up and washed.’*)

b. Kore-ga [[Taroo-ga [okite t; aratta]] kutu; da.

(41) a. ?*Kore-ga Taroo-ga oki aratta kutu da.
    This-NOM -NOM wake-up wash-past shoe COP
    ‘These are the shoes that Taroo washed after he woke up.’

b. ?*Kore-ga [[Taroo-ga [[oki [t; aratta]]]] kutu; da.

The ungrammaticality (or at least awkwardness) of (41) attributes to the violation of the ATB format by extracting the object (relative clause operator) from only the second conjunct.
The following examples are cases in which the object of the first VP is extracted:

(42) a. Taroo-ga kesite neta terebi-ga kowareta.
   \[-\text{NOM} \text{ turn-off sleep-past T.V.-NOM broke-past}\]
   'The T.V. that Taroo turned off before going to bed got broken./*The T.V. that Taroo went to bed after turning off [e] got broken.'

b. [[Taroo-ga [pro, \text{tj} kesite] neta]] terebi-\text{g}a kowareta.

c.

   \[-\text{NOM} \text{ turn-off sleep-past T.V.-NOM broke-past}\]
   *'The T.V. that Taroo turned off and went to bed got broken.'

b. *[[Taroo-ga [\text{tj} kesi] [neta]]] terebi-\text{i}g\text{a} kowareta.
The sentences in (43) are obviously unacceptable because of the violation of the ATB format. Also, it is impossible to think (43) is IP conjunction because the NP terebi moved over the second conjunct, unlike (31). Therefore, the movement involves the second conjunct. However, the following sentence is acceptable even though it appears to violate the ATB format, which is the sentence I discussed in Chapter II:

   This-NOM -NOM store-to go buy-past sake COP
   'This is the sake that Taroo went to the store and bought.'

b. Kore-ga [Taroo-ga [mise-e iki] [t katta]] sake da.

The reason why sentences like (44) are acceptable is that the action represented by the second VP is the purpose of the action represented by the first VP. This phenomenon can be observed in English as we also saw in Chapter II (Ross 1965).
(45) This is the whisky that John went to the store and bought.

However, if we consider the ATB as a constraint on Move-alpha, how can we explain the sentences above? A possibility is that this kind of VP conjunction with the -i form can be represented by the same structure as the -te form as an exception. That is, the first VP-like conjunct is actually an embedded sentence with pro because it does not appear that the relationship between the first VP and the second VP is semantically equal. That is, this kind of VP conjunction does not simply enumerate actions semantically. Instead, the first VP represents the purposive movement of the second VP in a sequence. Those sentences like (46a) and (46b) can be semantically replasable with sentences consisting of a purpose clause such as (46c):

(46) a. Taroo-ga tosyokan-e itte hon-o karita.
-NOM library-DAT go book-ACC borrow-past
'Taroo went to the library and borrowed a book.'

b. Taroo-ga tosyokan-e iki hon-o karita.
-NOM library-to go book-ACC borrow-past
'Taroo went to the library and borrowed a book.'

c. Taroo-ga hon-o kari-ni tosyokan-e itta.
-NOM book-ACC to-borrow library-ACC go-past
'Taroo went to the library to borrow a book.'

As I have discussed, the ATB is crucial to movements from conjuncts of the flat structure. In other words, if the scrambling from one conjunct can occur in a certain sentence, then the conjuncts do not consist of a flat structure.
Observe the following sentences including a relative clause in which the first VP denotes a purposive action:

(47) a. Sore-ga kinoo Taroo-ga eigakan-e itte mita
it-NOM yesterday -NOM theatre-to go see-past
eigada.
movie-COP

'It is the movie that Taroo went to the theatre and saw yesterday.'

b. Sore-ga kinoo Taroo-ga eigakan-e iki mita
it-NOM yesterday -NOM theatre-to go see-past
eigada.
movie COP

'It is the movie that Taroo went to the theatre and saw yesterday.'

As we see in (47b), the extraction of *eiga* takes place without any problem. Therefore, I conclude that even though the first verb has the -i form, the structure of the conjuncts does not have to be flat. The structure of the sequential -i conjunction in which it has a connotaion of a purposive movement is represented by the same construction as that of the -te conjunction, even though the -te form and the -i form of verbs are distinguished on the basis of the structures for most of the cases. If this hypothesis is correct, the object extraction by scrambling can also take place as well as relativization.

(48) a. Taroo-ga mise-e iki sake-o katta.
-NOM store-to go sake-ACC buy-past
‘Taroo went to the store and bought the sake.’

b. Taroo-ga sake-o mise-e iki katta.
-NOM sake-ACC store-to go buy-past

c. Sake-o Taroo-ga mise-e iki katta.\(^8\)
sake-ACC -NOM store-to go buy-past

Both (48b) and (48c) are totally acceptable. Compare the sentences in (48) with the following examples of the -te form:

(49) a. Taroo-ga mise-e itte sake-o katta.
-NOM store-to go sake-to buy-past

‘Taroo went to the store and bought the sake.’

b. Taroo-ga sake-o mise-e itte katta.
-NOM sake-ACC store-to go buy-past

c. Sake-o Taroo-ga mise-e itte katta.
sake-ACC -NOM store-to go buy-past

The same result is obtained as that of (48) since the structure of (48) is the same as that of (49) and also since the ATB does not apply to both of the cases, or even if it applies, it applies vacuously.

3.3.3. Cleft Sentences

Next, let us consider cleft sentences which contain coordinate structures. First, observe the following:
Both sentences in (50) are grammatical because the first verb and the second verb share the same object zassi. However, consider the following sentences:

(51) a. Taroo-ga kesite neta no-wa kono terebi da.
   -NOM turn-off sleep thing-TOP this TV COP
   ‘It is this TV that Taroo turned off before going to bed.’

   -NOM turn-off sleep thing-TOP this TV COP
   *‘It is this TV that Taroo turned off and went to bed.’

(51a) is grammatical while (51b) is ungrammatical. (51b) is ill-formed because the object (operator) of the verb kesi in the first conjunct is moved as we see in the following:

(52) [CP[OP]i [[IP Taroo-ga [[[e], kesi] [neta]]]] no]-wa kono terebi da.
A similar phenomenon has already been observed in the previous section regarding relativization. Let us look at more examples:

(53)  a. Taroo-ga tosyokan-e itte karita no-wa
     -NOM library-to go borrow-past thing-TOP
     kono hon da.
     this book COP
     ‘It is this book that Taroo went to the library and borrowed.’

b. Taroo-ga tosyokan-e iki karita no-wa
     -NOM library-to go borrow-past thing-TOP
     kono hon da.
     this book COP
     ‘It is this book that Taroo went to the library and borrowed.’

Although the sentences in (51) exhibit different grammatical judgements, the sentences in (53) are both well-formed. The reason why (53b) is acceptable in spite of violating the ATB format is that the structure of (53b) is the same as (53a) because the first verb represents the purpose of the second verb.

3.3.4. **Yoo-to-suru**

*Yoo to suru* is a modal that means ‘to try/attempt to do something’. In this section, we will see how *yoo to suru* behaves with the *-te* form and the *-i* form. Let us consider the following:

(54)  a. Taroo-ga gohan-o tabete dekake-yoo-to-sita.
     -NOM meal-ACC eat go-out-try-past
'Taroo tried to eat the meal and leave home.'
'Taroo ate the meal and tried to leave home.'

b. Taroo-ga gohan-o tabe dekake-yoo-to-sita.
-NOM meal-ACC eat go-out-try-past
'Taroo ate the meal and tried to leave home.'
**'Taroo tried to eat the meal and leave home.'

In the example of the -i form (54b), *yoo to suru cannot take the first VP gohan-o tabe in its scopal domain while *yoo to suru in the example of the -te form (54a) can expand its domain to the first VP. Sentences (54a) and (54b) are illustrated in the following tree diagrams (55a) and (55b), respectively:

(55) a. (= (54a))
In (55a), ne-yoo-to-suru can take the first VP ie-e kaette in its scopal domain, whereas in (55b) it cannot take the first VP in its domain. Therefore, ie-e kaeru in (55b) cannot take the meaning ‘attempt to go home,’ in that the action denoted by the first VP ie-e kaeru takes place before “Taroo” tries to realize the action denoted by the second VP. This hypothesis of structural representation accounts for the ungrammaticality of the second interpretation of (54b). Examine the following simplified trees:

(56)

\[\text{VP}_1 \text{ te } \text{ V-yoo-to-suru} \text{ VP}_2\]

(57) a.

\[\text{VP}_1 \text{ CONJ VP}_2 \text{ V-yoo-to-suru}\]

b. *

\[\text{VP}_1 \text{ CONJ VP}_2 \text{ yoo-to-suru}\]
If (57b) is considered as the structural representation of (54b), the second interpretation of (54b) must be grammatical because *yoo-to-suru* c-commands both V₁ and V₂ in its domain. However, since it does not have the reading "try to eat the meal," (57b) is not possible. In other words, *yoo-to-suru* cannot appear under INFL.

How about the case of purposive sentences?

(58) a. Taroo-wa tosyokan-e itte hon-o kari-yoo-to-sita.
   -TOP library-to go book-ACC borrow-try-past
   'Taroo tried to go to the library and borrow the book.'
   'Taroo went to the library and tried to borrow the book.'

b. Taroo-wa tosyokan-e iki hon-o kari-yoo-to-sita.
   -TOP library-to go book-ACC borrow-try-past
   'Taroo tried to go to the library and borrow the book.'
   'Taroo went to the library and tried to borrow the book.'

In (58b), unlike (54b), both interpretations are possible. This can be explained by our hypothesis that the structure of purposive sentences such as (58b) is not the same as that of coordinate sentences such as (55b) as I have already pointed out in the previous section. Since there is no structural difference between (58a) and (58b), (58b) can take both of the interpretations as (58a). Again, this phenomenon does not contradict the structures of the -te/-i form I provided as a hypothesis.
3.4. Subjacency

In this section, I will examine the Subjacency Condition in order to show that the hypothesis proposed in the thesis of the structural representation of the -te form, in which the first clause is embedded in the matrix clause, respects the Subjacency in movements such as scrambling. If it does not respect the Subjacency, our hypothesis needs to be reconsidered. First of all, I will review the previous studies on this constraint.\(^\text{10}\)

3.4.1. The Subjacency Condition in English

In order to introduce and examine the Subjacency Condition, I will adopt English in this section. I assume that English has a transformation called "Extraposition from NP" "whereby a (certain type of) complement of a (generally indefinite) nominal can be detached form the NP containing it, and extraposed (= moved to clause-final position) (Radford 1981:227)." Consider the following examples illustrating Extraposition from NP: (The following examples in this section are taken from Radford(1981:227-233).)

(59) \begin{align*}
a. & \text{A critical review of his latest book has just appeared.} \\
b. & \text{A critical review } _{\text{...}} \text{ has just appeared of his latest book.}
\end{align*}

The italicized prepositional phrase in (59a) is moved into the clause-final position in (59b) by application of Extraposition. However, this operation does not simply involve rightward movement of some constituent to the end of some clause. Examine the following:
The fact that a critical review of his latest book has just appeared is very worrying.

b. The fact that a critical review ___ has just appeared of his latest book is very worrying.

c. *The fact that a critical review ___ has just appeared is very worrying of his latest book.

The reason why the phrase of his latest book cannot be moved to the position after worrying as in (60c) is due to the following constraint:

Subjacency Condition

No constituent can be moved out of more than one containing NP- or S-node (in any single rule-application).

In other words, NP and S are bounding nodes that limit the number of the constituent boundaries crossed by any moved element in any single movement. Let us observe the boundaries of (60a):

Moving the PP of his latest book after appeared as in (60b) does not violate (61) since the PP crosses only one bounding node NP1. In contrast, moving PP of his latest book after worrying as in (60c) obviously violate (61) since the PP crossed three bounding nodes NP1, S, and NP2.

Now, I will examine how the Subjacency Condition works with WH-movement. WH-movement seems to be a counterexample to the Subjacency
Condition as shown in (63):

(63) What do you think that you are doing?

This sentence is derived from the following D-structure by application of WH-movement:

(64) \[\text{COMP } [S_1 \text{ you think } [S_\text{ that } [S_2 \text{ you are doing } \text{what}]]]\]

Sentence (63) seems to violate the Subjacency Condition, in that the WH-phrase \textit{what} crosses two bounding nodes $S_1$ and $S_2$. However, this is not the case because \textit{what} is not directly moved into the matrix COMP position. That is, this long-distance WH-movement actually involves two steps. In the first step, \textit{what} is moved into the subordinate clause COMP, and then subsequently moved into the matrix COMP, which is the sentence-initial position, as shown in (64). (65) shows the two steps operation:

(65) \[\text{[CP, what} + \text{WH} [S_1 \text{ you think } \text{[CP, t [COMP that } [S_2 \text{ you are doing t } ]]]]^{12}\]

Further, examine “long-distance” movement. Consider the movement out of a complement clause. For example$^{13}$:

(66) \[\text{The woman[CP, who} _i [S I think } [CP, \text{ that } [S \text{ you said } \text{[CP, that } [S \text{ everyone hated } [e] _i]]]]]\]

The WH-phrase \textit{who} cannot move from its D-structure position indicated
by \([e]_i\) to CP3 in one step, due to Subjacency. This must proceed step-by-step in order that each step respects Subjacency. In the process, \(\textit{who}\) first moves into CP1, then moves into CP2. Finally, it moves into CP3. By these steps, the grammaticality of the sentence (66) is accounted for.\(^{13}\)

In the next section, I will examine whether or not this constraint can be applicable to Japanese on the basis of Saito's study (1985).

### 3.4.2. The Subjacency Condition in Japanese

At the beginning of this chapter, I proposed the structure of the -\(\textit{te}\) form conjunction as the following:

\[
(67)
\]

The first conjunct, which is connected with the second conjunct by the -\(\textit{te}\) form verb, is a subordinate clause. If this hypothesis is correct, a question naturally arises as to the relation between movement and the Subjacency Condition. Before we go on to consider the relation between the structure of the -\(\textit{te}\) form conjunct and the Subjacency Condition, I will devote the first part of this section to a review of the previous studies of Subjacency in...
3.4.2.1. Previous Studies on Subjacency in Japanese

First, let us review Saito's study (1985) on the Subjacency Condition. Observe the following examples:

(68) \[S[NP_{CP} \text{OP}_j [S \text{Taroo-ga } t_j \text{ katta}] \text{ hon}_j \text{ o}_i [S \text{Hanako-ga } t_i \text{ nakusita}]]\]

lose-past

'Hanako lost the book that Taroo bought.'

(68) is perfectly grammatical, satisfying the Subjacency Condition, since the NP \text{Taroo-ga katta hon-o} crosses only one bounding domain \text{S}. What about the following?

(69) \[S \text{Sono hon-o [S Taroo-ga [VP_{S} [S Ziroo-ga } t_i \text{ nakusita}]]}\]

that book-ACC -NOM -NOM lose-past to\[] COMP think-past

'Taroo thought that Ziroo lost the book.'

(70) \*Ano neko-o [S Taroo-ga [NP_{S} [e] t_i \text{ katta}]\text{ hito-o}]\]

That cat-ACC -NOM buy-past person-ACC sagasiteiru.

looking-for

'Taroo is looking for the person who bought that cat.'
Because everyone bought beer, Taroo bought wine.'

(69) does not violate the Subjacency Condition, due to the successive-cyclic adjunction, in which the moved NP sono hon-o can move to the sentence-initial position in two steps, that is, first adjoining to the matrix VP, and then adjoining to the matrix S. (70) and (71) are ruled out by the Subjacency Condition and the adjunct condition effect, respectively. Even though the successive-cyclic adjunction is possible, (70) is still ruled out by the Subjacency Condition in that a moved constituent must cross NP and S simultaneously in the process of scrambling out of relative clause.

Let's observe an example of "weak pure complex NP" below (Saito 1985:246):

(72) *Bill-o [sJohn-ga [NP[sMary-ga t_i saketeiruto yuu]
ACC NOM NOM avoiding COMP say
uwasa-o] kiita].
rumor-ACC hear-past

'John heard a rumor (which says) that Mary is avoiding Bill.'

Like the cases of the extraction from the relative clause, (72) is ruled out by Subjacency.
As we have seen in this section, the Subjacency Condition is applicable to Japanese as well, and also successive-cyclic adjunction is possible. In the following section, I will discuss scrambling out of the -te form conjunct and examine if it obeys the Subjacency Condition.

3.4.2.2. Scrambling out of the -Te Form Conjunct

In Section 3.3.1, we discussed the cases of the -te form conjunction. Consider the following:

(73) a. Tarooi-ga [s proi okite] kao-o aratta.
    -NOM wake-up face-ACC wash-past
    'Taroo woke up and washed his face.'

b. [sTarooi-ga kaoj-o [s proi okite] tj aratta].
    -NOM face-ACC wake-up wash-past

c. Kaoi-o [sTarooj-ga [s proj okite] ti aratta].
    face-ACC -NOM wash-past

c'.

```
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    -NOM wake-up face-ACC wash-past
    'Taroo woke up and washed his face.'

b. [sTarooi-ga kaoj-o [s proi okite] tj aratta].
    -NOM face-ACC wake-up wash-past

c. Kaoi-o [sTarooj-ga [s proj okite] ti aratta].
    face-ACC -NOM wash-past

c'.

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    face-ACC -NOM wash-past

c'.

```
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b. [sTarooi-ga kaoj-o [s proi okite] tj aratta].
    -NOM face-ACC wake-up wash-past

c. Kaoi-o [sTarooj-ga [s proj okite] ti aratta].
    face-ACC -NOM wash-past

c'.

```
In Sentence (73c) corresponding to (73c'), the moved NP kao-o crosses only one bounding node, S. Therefore, the sentence is perfectly grammatical even though it sounds relatively awkward, compared to (73a) and (73b).

Now, I examine an example in which a constituent is moved out of the first conjunct that is subordinate to the matrix sentence:

(74) a. Tarooj-ga \[s \text{ pro}_i \text{ kao-o aratte} \] dekaketa.
      \(-\text{NOM}\) face-ACC wash go-out-past
      ‘Taroo washed his face and went out.’

b. Kaoi-o \[s \text{ Tarooj-ga } [s \text{ pro}_j t_i \text{ aratte}] \text{ dekaketa.}\]
      face-ACC -NOM wash go-out-past
\(b'\)

As we discussed in the preceding section, based on Saito's argument (1985), the NP kao-o is moved to sentence-initial position in two steps, first adjoining to the matrix VP and then to the matrix IP in terms of successive-cyclic
scrambling. Accordingly, it can be concluded that the hypothesis on the structure of the -te conjunction respects the Subjacency Condition.

3. 5. Extraction from Conjuncts in LF

In the preceding sections, I have examined instances of Move-alpha at S-structure with the ATB. This section is devoted to an investigation of the ATB application to coordinate structures in LF. For that purpose, I will refer to Quantifier Raising (QR) in English and WH-movement and QR in Japanese as movements in LF.

3. 5. 1. Quantifier Raising (QR) in English

May (1977) argues that Quantifier Raising occurs at LF. This is a process by which a quantificational phrase is moved from its original position at S-structure to a position where it receives its scope in LF. Regarding QR, May provides a constraint on QR which is that "every quantifier must c-command all occurrence of the variable it binds" and also proposes the following rule (1977:9):

(75) Condition on Quantifier Binding

Every quantified phrase must properly bind a variable.

Consider examples of QR below:\textsuperscript{18}

(76) a. John loves everyone.

b. \([_{s}\text{Everyone}_{i} [_{s}\text{John loves}_{t_{i}}]]\)
The quantified phrase *everyone* adjoins to S, leaving its trace at the object position as LF representation (76b) shows. The scope of *everyone* is its c-command domain. This approach can capture scope ambiguities. Observe the following representations.

(77)  

a. Everyone loves someone.
   
   b. [_{S\text{Everyone}}_{i} \left[_{S\text{someone}}_{j} [_{S t_{i}} \text{loves } t_{j}]]\right]
   
   c. [_{S\text{Someone}}_{j} [_{S\text{everyone}}_{i} [_{S t_{i}} \text{loves } t_{j}]]]

(77b) and (77c) are two distinct LF representations associated with (77a). Both (77b) and (77c) are well-formed since both quantified phrases, *everyone* and *someone*, c-command their traces, and hence the variables are properly bound. In (77b), the quantified phrase *everyone* has wide scope over the quantified phrase *someone* since *everyone* c-commands *someone*, while (77c) *someone* has wide scope over *everyone*. Therefore, there are two possible readings for (77a): a reading under which it is being asserted that for each person, there is some person or other that he/she loves, and a reading where it is being asserted that there is a person who is loved by everyone. These two distinctive LF representations can explain the ambiguous readings of (77a) structurally.

Now, let us consider instances of extraction from conjuncts in LF by referring to examples of QR. Observe the following examples in (78):

(78)  

a. Someone woke up and called everyone.
   
   b. *_{S\text{Someone}}_{i} [_{S\text{everyone}}_{j} [_{S t_{i}} \text{woke up and called } t_{j}]]
   
   c. *_{S\text{Everyone}}_{j} [_{S\text{someone}}_{i} [_{S t_{i}} \text{woke up and called } t_{j}]]
d. \([S \text{Someone}_{i} [\text{st}_{i} [\text{VP woke up and} [\text{VP everyone}_{j} [\text{VP called t}_{j}] ]]]]\)

In (78), the quantified phrases, *someone* and *everyone*, are extracted from the first and the second conjunct, respectively. If the ATB is exempt in LF, (78b) and (78c) should be both possible. Since both (78b) and (78c) are the same with respect to extraction cites, there should be no differences if (78b) and (78c) are correct. However, our reading suggests it is not true. There is only one possible reading for (78a), in which *someone* takes wide scope over *everyone*. Therefore, the LF structure of (78a) is actually (78d) where only *someone* adjoins to S, and *everyone* adjoins to VP. QP adjunction to VP is possible (May 1985). Therefore, (78d) does not violate the ATB. Thus, it can be concluded that the ATB is a constraint on movements in LF.

3.5.2. WH-movement and QR in Japanese

Saito (1985), following Huang (1982), claims that WH-phrases move to COMP in LF in Japanese. Consider the following examples from Saito (1985:103):

(79) a. \([_{S}\text{John-wa} [_{VP}\text{Mary-ga} \text{pro}_{i} \text{yomu maeni}] [_{VP} \text{sono} \text{hon}_{i-o} \text{yonda}]])\]

\text{book-ACC read-past}

'John read that book before Mary read it.'
b. \( ?^*_{[\text{John}-wa \ [v_p [\text{Mary}-ga \ pro_i \ yomu \ maeni]_i]_v_p \ dono \ -TOP \ -NOM \ read \ before \ which \ book-ACC \ read-past \ Q} \) [\text{hon}_i-o \ yonda]] \) no]

'Which book did John read before Mary read it.'

c. \([s_{\text{Dono} \ hon}_i-o [s_{\text{John}-wa} \ [v_p [\text{Mary}-ga \ pro_i \ yomu \ maeni]_i]_v_p \ yonda]] \) no]

(79a) and (79b) are basically constructed in the identical structure except \textit{dono} in (79b) instead of \textit{sono} in (79a). Saito accounts for the ungrammaticality of (79b) in terms of the weak crossover constraint. The definition of the weak crossover constraint Saito provides in his argument is the following:

\[(80) \quad \text{A variable cannot be the antecedent of a pronoun that it does not c-command.}\]

(Reinhart 1976. Cf. also Chomsky 1976)

In S-structure representation (79a), the \textit{pro} takes \textit{sono hon} as its antecedent. On the other hand, in S-structure representation (79b), the \textit{pro} takes the WH-phrase \textit{dono hon} as its antecedent. However, (79b) is ill-formed. The reason can be explained if we consider that there is LF WH-movement. That is, \textit{dono hon} moves into COMP in LF. Therefore, \textit{dono hon} c-commands both \textit{pro} and its trace. Since this trace does not c-command \textit{pro}, the configuration violates (80). Hence, (79b) is ill-formed. On the other hand, (79c) is fine because \textit{dono hon} is scrambled out at S-structure.
Assuming that WH-movement is an instance of Move-alpha in LF as Saito (1985) argues, let us consider the following coordinate sentences:

\[(81)\]

(a) ??Taroo-ga nani-o tabe neta no.

-NOM what-ACC eat sleep-past Q

'What did Taroo eat before going to bed?' (Lit.*'What did Taroo eat and go to bed?)

b. *[CP Nani-o [s Taroo-ga[Vp t i tabe neta]]-no]
c. Taroo-ga nani-o tabete neta no.

-NOM what-ACC eat sleep-past Q

\[(82)\]

(a) ??Taroo-ga oki nani-o tabeta no.

-NOM wake-up what-ACC eat-past Q

'What did Taroo eat after waking up?' (Lit.*'What did Taroo wake up and eat?')

b. *[CP Nani-o [s Taroo-ga [Vpoki t i tabeta]]-no]
c. Taroo-ga okite nani-o tabeta no.

-NOM wake-up what-ACC eat-past Q

If the ATB is exempt in LF, (81a) and (81b) should be as good as (81c) and (82c). However, Sentences (81a) and (82a) sound more awkward than the examples with the -te form, (81c) and (82c). If we assume that the ATB applies to coordinate structures in LF, this phenomenon can be accounted for by the fact that the extraction of WH-phrase *nani violates the ATB since *nani moves to COMP from the object position in the first or second conjunct in LF as LF representations (81b) and (82b) show.
In (83a), *nani* moves to the COMP position from the object position in the first sentence. Therefore, the sentence does not violate the ATB since this movement of *nani* does not take place in a coordinate structure. Likewise, in (83b), *nani* moves to the COMP position from the object position in the second sentence. Therefore, interpreted as in (83a) and (83b), (81a) and (82a) sound well-formed, respectively.

The evidence from English in this section suggests that the ATB is a constraint at LF as well as at S-structure although Japanese could not provide the same evidence due to language specific properties. Since examples of Move-alpha at S-structure we examined do not affect LF representations in such a way that violates the ATB, it may be concluded that the ATB applies to sentences in LF once. In other words, the ATB is a constraint on coordinate structures in LF.

3. 6. Summary

In this chapter, I discussed the structure of Japanese coordination, focusing on the -*te* form and the -*i* form conjunctions. In the first section, I presented my hypothesis on the structures of the -*te* form and the -*i* form conjunctions. The -*te* form conjunction, which has been treated as an instance of coordination, does not actually have a coordinate structure, that is, it does not simply consist of a juxtaposition of the conjuncts in the flat structure. By our hypothesis, the -*te* form sentence is bi-clausal, in which the first clause is embedded in the matrix clause. On the other hand, the -*i* form conjunction can be considered as coordination because it consists of conjuncts in a flat structure, similar to English coordination.
In Section 3, I developed the argument supporting our hypothesis on the basis of the Across-the-Board rule. If the structures of the -te form and the -i form differ as I proposed, then they should manifest syntactic differences. I compared the -te form and the -i form with regard to movement: scrambling, relativization, and cleft sentences. We found that they are more restrictions on the -i form that is caused by violation of the Across-the-Board, since the -i form conjunction is a flat structure. On the other hand, since the structure of the -te form is bi-clausal, movement can occur more freely in the -te form sentences. Also, I discussed another dissimilarity between the -te form and the -i form in terms of the scopal domain of the modal yoo to suru. Yoo to suru in the -i form sentence cannot take the first VP in its scopal domain, while yoo to suru in the -te form sentence can take either the second VP or both VP's. This phenomenon can be accounted for by the proposal that the -te form and the -i form are represented in different structures. I also showed that scrambling out of the -te form conjunct respects the Subjacency Condition. The conclusion is that the process of scrambling out of the -te form conjunct does not violate the Subjacency Condition because of successive cyclic adjunction.

In Section 5., I examined Move-alpha in LF. The argument led us to conclude that the ATB applies to sentences in LF since extraction from one conjunct is not possible in LF movements. The evidence for this came from English quantifier scope. Unfortunately, Japanese could not provide the same evidence due to language specific properties, although what we observed in Japanese does not contradict the assumption that the ATB applies in LF.

In Chapter IV, I will provide the concluding remarks.
Notes of Chapter III

1Miyagawa (1983) points out three distinctive characteristics between the -te form and the -i form as shown below:

(i) Case drop

Mary-ga suteeki -o/*0 tabe, Taroo-ga tempura-o
-NOM steak -ACC/ eat -NOM -ACC
tabeta.
eat-past
'Mary ate steak, and Taroo ate tempura.'

As we see in (i), the Case drop can occur only in the case of the -te form.

(ii) Deletion of NP complement

a. Taroo-ga Ziroo-ni sono koto-o kiite/kiki, ...
   -NOM -by that thing-ACC hear
   'Taroo heard that from Ziroo, and ...'

b. sono koto-o kiite/kiki, ...

c. Ziroo-ni kiite/*kiki, ...

d. Taroo-ga kiite/*kiki, ...

e. kiite/*kiki

As the reason for this phenomenon, Miyagawa stipulates that "an infinitive (the -i form) must assign at least one theta-role to a fully specified NP; if the infinitive is transitive, the fully-specified NP must be the direct object."
(iii) Scrambling

a. *Taroo-ga keri, Yosiko-ga hoori, Ziroo-ga hirotte, ...  
   -NOM kick -NOM throw -NOM pick
   ‘Taroo kicked (it), Yosiko threw (it), Jiro picked (it) up, and ...’

b. Taroo-ga kette Yosiko-ga hootte, Ziroo-ga hirotte, and ...’

According Miyagawa, (iiiia) is ungrammatical because “the transitive infinitives occur without their object NPs.”

2For more detailed information, see Martin(1975:394,395,479).

3I prefer saying these sentences are awkward to claiming they are “ungrammatical.” In my judgement, (11) and (12) are acceptable, while (13) is awkward to say.

4Japanese has two classes of verbs: those with stems ending in i or e and those whose stems end in consonants. In 201 Japanese Verbs (Lange:1971: xi-xviii), the former is named Class I and the latter is named Class II. The infinitive form of Class II verbs ends in i, such as kai, tobi, kami, and sasi. Although verbs in Class I don’t necessarily end in i in the form of infinitives, I still call those infinitives -i form in this investigation.

5I obtained this idea from Miyagawa’s argument (1983:1). He states that “the infinitive (the -i form) in Japanese is that form of the verb which cannot be morphologically analyzed, i.e. it is deplete of any affixation” while the gerund (the -te form) “is formed by suffixing the ‘continuative’ -te to the verb root.”

6This kind of interpretation (IP coordination with an empty subject) is
possible only when the element in the first conjunct moves to the new position in the first clause because the scrambling cannot involve two independent sentences, that is, the constituent cannot move into another independent sentence.

7In fact, my survey shows that some people do not accept those sentences such as (33b), (34b), and (35b) even though the majority of them consider those sentences acceptable. In my personal judgement, I feel the strong need for sore o in the second conjunct.

8For some native speakers, (48c) may sound awkward. It may be caused by the distance between the trace and the position of sake after scrambling is applied. The same awkwardness can be observed in (49c) to those who consider (48c) awkward. This common phenomenon is a strong evidence for my proposal that the sentences in (48) are represented by the same structure as those in (49) on account of the purposive characteristic of the -i conjunction.

9According to Kuno (1973:205), sentences of the -i form like (54b) can take both interpretations. However, my judgement differs from his.

10In order to simplify the argument on the Subjacency Condition, I will adopt S and S' instead of IP and CP throughout this particular section.

A single instance of movement can cross at most one bounding node, where the bounding nodes are S and NP.

Chomsky (1973) proposed that this kind of movement is "successive cyclic."

See Rizzi's study on Subjacency in Italian (1982).

Saito (1985:252) provides the definition of the Subjacency Condition as the following by assuming that NP and S (or S') are the bounding nodes in Japanese:

(i) In the following configuration, where A and B are bounding nodes, Y cannot be moved to the position of X and conversely:

... X ... [A ... [B ... Y ... ] ... ] ... X ...

It may not cross it because it is still under S (that is created by adjunction).

Referring to Yoshimura's argument (1984), Saito (1985:246-247) remarks that "scrambling is constrained by the adjunct condition as well" and that "the result of scrambling out of adjuncts varies depending on the nature of the adjunct..."

Saito indicates this sentence with ? rather than *.

May (1977) defines that "the SCOPE of a quantified phrase is everything which it c-commands."

In order to simplify the argument, I will adopt S instead of IP.
I am grateful to Dr. Shigeru Miyagawa for providing the following discussion and the judgement of ambiguity (personal communication).

In this argument, I will adopt the -i form as an instance of coordination which is constructed in the flat structure as I have proposed in this thesis.
CHAPTER IV
CONCLUDING REMARKS

In this thesis, I examined the Across the Board and discussed the structures of Japanese coordinate structures, focusing on the -te form and the -i form of verbs. I claimed that the -te form conjunction and the -i form conjunction have distinctive structural representations as follows:

(1) a. Taroo-ga utatte odotta.
   -NOM sing dance-past
   ‘Taroo sang and danced.’

b. Taroo-ga utai odotta.
   -NOM sing dance-past
   ‘Taroo sang and danced.’

(2) a. IP(=S)
   NP        I'
   Tarooi-ga VP I
   IP        V ta
   NP        odor
   [e]i       VP I
   V              te
   utaw

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Sentences (1a) and (1b) correspond to the tree diagrams, (2a) and (2b), respectively. As shown above, the -te form, which has been treated as an instance of coordination, is not actually coordination in terms of the structure due to the fact that the structure of the sentence with the -te form does not simply consist of the juxtaposition of the conjuncts in the flat structure, whereas the -i form sentence consists of the juxtaposition of the conjunct having a flat structure. In (2a), the first conjunct is embedded in the matrix IP as a subordinate clause. I adopted the ATB as a constraint on coordinate structures in order to investigate the structural difference between the -te form and the -i form.

I observed some instances of Move-alpha at S-structure in both the -te conjunction and the -i conjunction. The first evidence is scrambling.

(3)  a. Kao-o Taroo-ga okite aratta.
    face-ACC -NOM wake-up wash-past
    ‘Taroo woke up and washed his face.’

  b.*Kao-o Taroo-ga oki aratta.
    face-ACC -NOM wake-up wash-past
The difference on grammaticality between (3a) and (3b) can be accounted for by the structural difference between the the -te form and the -i form. In (3b), the object of the second conjunct kao-o is scrambled out to the sentence-initial position. This operation violates the ATB since the -i form conjunction is a flat structure. In (3b), the object kao-o can move because the ATB is exempt for the -te form conjunction, which is not a flat structure.

The second evidence is relativization.

   This-NOM -NOM wake-up wash-past shoe COP
   ‘These are the shoes that Taroo washed after he woke up.’

b. ?*Kore-ga Taroo-ga oki aratta kutu da.
   This-NOM -NOM wake-up wash-past shoe COP
   ‘These are the shoes that Taroo washed after he woke up.
   (Lit. *‘These are the shoes that Taroo woke up and washed.’)

As observed in the examples of scrambling, the grammaticality is explained by the ATB. The ungrammaticality of (4b) is attributed to the violation of the ATB format by extraction the object (relative clause operator) from only the second conjunct.

The third evidence is cleft sentences.

(5) a. Taroo-ga kesite neta no-wa kono terebi da.
   -NOM turn-off sleep thing-TOP this TV COP
   ‘It is this TV that Taroo turned off before going to bed.’
   (Lit. *‘It is this TV that Taroo turned off and went to bed.’
b. *Taroo-ga kesi neta no-wa kono terebi da
     NOM turn-off sleep thing-TOP this TV COP

     *'It is this TV that Taroo turned off and went to bed.'

(5b) is ill-formed because only the object (operator) of the verb kes in the first conjunct is moved, hence violating the ATB.

  The fourth evidence is yoo-to-sutu.

(6) a. Taroo-ga gohan-o tabete dekake-yoo-to-sita.
     -NOM meal-ACC eat go-out-try-to-past

     'Taroo tried to eat the meal and leave home.'

     'Taroo ate the meal and tried to leave home.'

b. Taroo-ga gohan-o tabe dekake-yoo-to-sita.
     -NOM meal-ACC eat go-out-try-to-past

     'Taroo ate the meal and tried to leave home.'

     *'Taroo tried to eat the meal and leave home.'

The reason why (6b) cannot have two readings is that yoo-to-suru cannot take the first VP gohan-o tabe in its domain since yoo-to-suru attaches to the second verb dekake. On the other hand, the -te form conjunction has two readings since yoo-to-suru attaching to the second verb dekake can take the first VP in its domain. This phenomenon also suggests the structural difference between the -te form and the -i form.

  In Chapter III, I discussed the purposive coordinate sentence as an exception. If the action denoted by the second conjunct represent the purpose of the action denoted by the first VP in the -i form conjunction, the structure
of those conjuncts does not consist of a flat structure. Let us look at the following examples of scrambling and *yoo-to-suru* and compare them with (3b) and (6b):

(7) a. Taroo-ga mise-e iki sake-o katta.
   -NOM store-to go sake-ACC buy-past
   ‘Taroo went to the store and bought the sake.’

b. Taroo-ga sake-o mise-e iki katta.
   -NOM sake-ACC store-to go buy-past

c. Sake-o Taroo-ga mise-e iki katta.
   sake-ACC -NOM store-to go buy-past

(8) Taroo-wa tosyokan-e iki hon-o kari-yoo-to-sita.
   -TOP library-to go book-ACC borrow-try-to-past
   ‘Taroo tried to go to the library and borrow the book.’

   ‘Taroo went to the library and tried to borrow the book.’

(7b), (7c), and (8) are all well-formed. I claimed that this kind of purposive coordinate structures with the -i form are represented by the same structure as the -te form conjunction, in which the first conjunct is actually an embedded sentence with *pro*. Therefore, the ATB is exempt to the sentences above.

Assuming that Quantifier Raising occurs in LF (May 1977), I examined the ATB in LF.

(9) a. Someone woke up and called everyone.
b. *[^s Someone[^s everyone[^st t woke up and called t]]]

c. *[^s Everyone[^s someone[^st t woke up and called t]]]

d. [^s Someone[^st [VP woke up and [VP everyone[^VP called t]]]]]

In (9), the quantified phrases, *someone and *everyone, are extracted from the first and the second conjunct, respectively. If the ATB is exempt in LF, (9b) and (9c) should be both possible. However, there is only one possible reading for (9a), in which *someone takes wide scope over *everyone. Therefore, the LF structure of (9a) is actually (9d) where only *someone adjoins to S, and *everyone adjoins to VP if we assume that QP adjunction to VP is possible (May 1985). (9d) does not violate the ATB. Thus, it can be concluded that the ATB is a constraint on movements in LF.

Huang(1982) and Saito(1985) claim that WH-movement occurs in LF in Chinese and Japanese. Assuming this hypothesis, I examined the ATB in LF, by referring to extraction from one conjunct in coordinate structures. Unfortunately, however, I could not provide evidence that support the assumption that the ATB applies in LF.
LIST OF REFERENCES


