TOUGH CONSTRUCTIONS IN JAPANESE

by

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ABSTRACT

This thesis proposes an analysis of the *tough* construction in Japanese. It is proposed that there are actually two *tough* constructions, each derived by a different kind of movement. Three kinds of data which support the claim made here are presented: *tough* constructions with scrambling, *tough* constructions with reflexives, and nominals derived from *tough* constructions. It is argued that non-movement analysis is not appropriate and that both *tough* constructions are derived by movement. It is shown that *tough* constructions with a 'tend to' reading can also be accomodated by this analysis. The analysis accounts for a wide range of interactions between *tough* constructions and other phenomena, which have not been previously focused on in the literature.

RÉSUMÉ

Cette thèse propose une analyse de la construction en *difficile* (*tough* construction) en Japonais. On considère qu'il y a en fait deux constructions en *difficile*, qui proviennent chacune d'un mouvement différent. Trois sortes de données sont présentées pour soutenir l'argument: les constructions en *difficile* avec brouillage (scrambling), les constructions en *difficile* avec les réfléchis, et les syntagmes nominaux dérivés de constructions en *difficile*. On discute l'idée que l'analyse des constructions en *difficile* non basée sur le mouvement n'est pas satisfaisante et que le mouvement doit être invoqué pour les expliquer. On montre que les constructions en *difficile* avec le sens 'avoir tendance à' peuvent être aussi expliquées par cette analyse. Cette analyse rend aussi compte de nombreux cas d'interaction entre les constructions en *difficile* et autres phénomènes, qui n'ont encore jamais fait l'objet d'études approfondies dans la littérature.

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CHAPTER 1

INTRODUCTION

Tough constructions have been problematic ever since the beginning of GB analysis Although many studies have been done on this topic, they all fail to account for certain data. Some attempts have been made to analyze the Japanese *tough* construction, but they are not sufficient. We will observe that there are forms which behave strangely when combined with another syntactic process; until now, there has been no account for such data. The purpose of this thesis is to advance an analysis to solve the problems which have been observed and the data which we will examine. Our primary concern is to account for the *tough* construction in Japanese, but an analysis of Japanese data can also give some insight into the English *tough* construction.

In this introductory chapter, I will discuss what kind of sentence I am focusing on (section 1.1), previous studies which are to be examined in this thesis (sections 1.2 and 1.3), the goal of the thesis (section 1.4) and its organization (section 1.5).

1.1. *Tough* Constructions

It is important at this point to clarify what kind of construction I will be investigating. Inoue (1978) divided the Japanese *tough* construction into four types.

Type I

(1) a. kono hon-ga John-ni yomi-yasu-i[1]
this book-Nom John-Dat read-easy-Pres
'This book is easy for John to read.'

[1] The root of this verb is considered to be *yom*. The *-i* in *yomi* is inserted for phonological reasons.

Type II

b. saikin Taroo-wa totemo netsuki-niku-i
recently Taroo-Top very much get to sleep-hard-Pres
'Recently, Taroo has had a lot of difficulty getting to sleep.'

Type III

c. momen mono-ga kawaki-yasu-i
cotton textile-Nom dry-easy-Pres
'Cotton textiles dry easily.'

Type IV

d. eriito-ga tsuyoi zasetsu kan-o ajiwai-yasu-i
elites-Nom strong frustration-Acc experience-easy-Pres
'Elites easily feel a strong sense of frustration.'

The difference between types I and II on the one hand and types III and IV on the other is whether the verb to which the *tough* morpheme is attached is 'self-controllable' or not. In (1a) and (1b), the verbs *yomu* and *netsuku* are self-controllable; on the other hand, the verbs in (1c) and (1d), *kawaku* and *ajiwau*, are non-self-controllable. Inoue uses the term 'self-controllable' in the following sense: in (1b), the action of 'reading' is able to be controlled by the Agent, while in (1c), the fact of 'drying' cannot be controlled by anything. So she designates the former type of verb as [+self-controllable] and the latter as [-self-controllable]. The difference between types III and IV is whether the sentence has a 'tend to' reading or not. In (1d), it is possible to restate the sentence as 'Elites tend to feel a strong sense of frustration'. In (1c), however, it is not possible to restate the sentence as 'Cotton textiles tend to dry'. The difference between type I and type II is whether the sentence is expressing the speaker's judgement or the subject's judgement. Sentence (1a) expresses a speaker's judgement, whereas sentence (1b) expresses the subject's judgement.

I will focus on the type I construction since it is parallel to the English *tough* construction and previous studies have also considered type I to be the *tough* construction

in Japanese. In this thesis, I will also try to account for the type IV construction which has not previously been dealt with.

1.2. Previous Research (English)

Previous work on the English *tough* construction is summarized very briefly. Chomsky (1977) discusses wh-movement and lists the following characteristics of such movement:

(2) a. it leaves a gap
    b. where there is a bridge, there is an apparent violation of subjacency since Comp-to-Comp movement is allowed.
    c. it observes CNPC[2]
    d. it forms wh-islands

The *tough* construction does show indeed the above characteristics.

(3) a. $John_i$ is easy (for us) to please t_i.
    b. (?)$John_i$ is easy (for us) [to convince Bill [that he should meet t_i]]
    c. *$John_i$ is easy (for us) [to describe to Bill [a plan [to assassinate t_i]]]
    d. *Which $sonatas_i$ is the $violin_j$ easy [to play t_i on t_j]

From this observation he claims that the *tough* construction is derived by wh-movement and has the following structure (Chomsky 1981):

(4) John is $[_{AP}$ easy $[_{S'}$ O_i $[_S$ PRO to please t_i]]]

In this structure, an empty operator, O, is moved from a base-generated position, which is now occupied by a trace, to a Comp position. The subject *John* is base-generated in the matrix subject position and is related to the moved empty operator by a rule of predication.[3]

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[2] CNPC is an acronym of complex NP constraint which states that no element can be extracted out of a complex NP.

[3] See Chomsky (1977) for a full account of the predication rule.

1.3. Previous Research (Japanese)

There are several studies which deal with the *tough* construction in Japanese,[4] but I will present just one analysis from the latest article on this topic, Takezawa (1987). His main concern is to account for varying grammaticality of the following sentences.

(5) a. *[PP anna taipu-no zyosei-to]$_i$-ga (John-nitotte)
that type of woman-with-Nom John-for

[NP[S' e_j e_i kekkon site iru] otoko$_j$]-to hanasi-nikui
marry do man-with talk-hard
'[With that type of woman]$_i$ is hard (for John) to talk to
[NP the man [S' who marries e_i].'

b. [kono te-no hanzai]$_i$-ga (keisatu-nitotte)
this kind of crime-Nom police-for

[NP[S' e_j e_i okasita] ningen$_j$]-o sagasi-yasui
commit man-Acc search-easy

'[This kind of crime]$_i$ is easy (for the police) to search for
[NP a man [S' who committed e_i]].'

Sentence (5a) shows an island violation. The element *anna taipu-no zyosei to* 'with that type of woman' is extracted from a complex NP (henceforth CNP) island, which makes the sentence ungrammatical. This is parallel to the English data. As we have observed, the English *tough* construction is considered to involve wh-movement, so we expect *tough* movement not to be possible from an island. This is exactly the result that we get in sentence (5a). That is, since *tough* movement is considered to be wh-movement, the extraction is not allowed from the CNP. Based on this data, Takezawa claims that the *tough* construction in Japanese has the following structure.[5]

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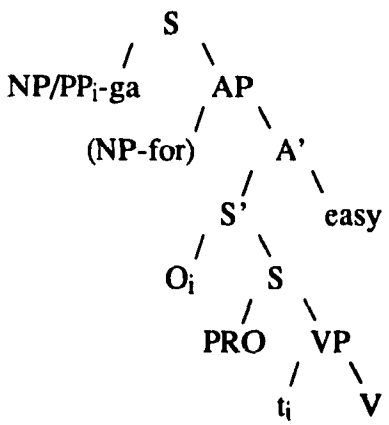
[4] Inoue (1978), Saito (1982), Kuroda (1987), Montalbetti, Saito and Travis (1982) and Takezawa (1987) among others.

[5] In this thesis, I assume that *-ni* and *-nitotte* are interchangeable. So the structure in (6) is the same as that in (i).

(i) [S NP/PP$_i$-ga [AP (NP-ni) [S' O$_i$ [S PRO$_{(j)}$ ...t$_i$...V]]yasui]]

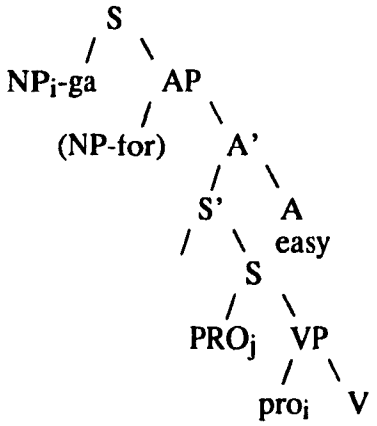
(6)



However, the grammaticality of sentence (5b) is not predicted by this structure. If the *tough* construction has the structure in (6), an empty operator is moved from base generated position to Comp position, which is wh-movement. If this movement crosses an island, as in (5b), the sentence should be ungrammatical due to the island violation.

Given this fact, Takezawa claims that this kind of *tough* construction, in which an NP is moved, is derived from the following structure.

(7)



In this structure, movement is not involved; the NP in the sentence-initial position and the rest of the sentence are related by the "aboutness" relation.[6] Since there is no movement involved in this structure, island construction does not affect this sentence, assuming that subjacency (island condition) concerns movement. This is a brief summary of Takezawa's

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Refer to Takezawa (1987: 183) for further discussion of *-ni* and *-nitotte*. Saito (1982) and Kuroda (1987) provide more details.

[6] "Aboutness" relation is not a syntactic relation but a pragmatic one.

(1987) concerns the *tough* construction. We will discuss his argument in more detail in chapter 4 and show that his non-movement analysis of the *tough* construction is not necessary.

1.4. Goals

The goal of this thesis is to clarify the structure of the *tough* construction by examining the Japanese data. Although there have been several attempts to account for the *tough* construction, as we have seen above, there are still problems with these studies. We will return to Takezawa's analysis in chapter 4 and discuss the problems concerning the Japanese data there. I will present here certain English data which has been problematic (Chomsky 1977, 1981).

(8) Which violins are the sonatas easy to play on?

According to Chomsky's analysis, this sentence should be ungrammatical since wh-question formation violates the wh-island. Let us compare the sentences in (8) and (3d). Sentence (3d) has the following structure.

(9) The violin$_j$ is [easy [O_j [PRO to play sonatas on tj]]

In this sentence, an empty operator is moved to the Spec of CP, forming a wh-island. If we make a question by moving *sonatas* to the sentence-initial position, sentence (3d), repeated here as (10), is derived.

(10) *Which sonatas$_i$ is the violin$_j$ [easy [O_j [PRO to play t_i on t_j]

Since this movement is wh-movement and crosses the wh-island formed by the empty operator movement, the sentence is ungrammatical.

Sentence (8) is derived in the same way as (10). The structure of sentence (8) is given in (11).

(11) The sonatas$_i$ are [easy [O_i [PRO to play t_i on the violins]]

In this sentence, an empty operator is moved from the object position to a comp position. This process forms a wh-island, according to Chomsky's analysis. Therefore, we predict

that if we derive a wh-question by moving *the violin* to the sentence-initial position, the derived sentence should be ungrammatical as in (10), since this movement crosses the wh-island. However, this prediction is not borne out.

(12) Which violins$_j$ are the sonatas$_i$ [easy [O_i [PRO to play t_i on t_j]]]

This has been a problem for the GB approach right from the start. Generally, a wh-movement analysis is assumed for the *tough* construction but it generates certain problems. This implies that we have to go back to the starting point and ask whether the *tough* construction is really derived by wh-movement or not. In this thesis I will examine the Japanese *tough* construction and claim that such constructions are derived by two types of movement. I will show how the analysis proposed here will account for a variety of data in Japanese and also how it will account for the problem in English. In Japanese, I would also like to give an account for the *tough* construction which has a 'tend to' reading. So far, no attempt has been made to deal with that type of construction, but I will incorporate it in my analysis.

1.5. Organization

In chapter 2, the basic analysis of the *tough* construction and its consequences are presented. In chapter 3, all the conceivable structures for *tough* constructions are examined and we will argue that those which are proposed in this thesis are the only possible ones. In chapter 4, *tough* constructions in which an element is extracted from an island are considered and Takezawa's argument is discussed. Chapter 5 is the conclusion.

CHAPTER 2

NP-MOVEMENT AND WH-MOVEMENT

2.0. Introduction

In this chapter, the analysis of NP-movement and wh-movement in *tough* constructions is given. I shall first clarify some terminology which I will use in this chapter. For the sake of convenience, I distinguish *tough* constructions as follows:

(1) Theme *tough* construction

a. kono hon-ga (Taroo-nitotte) toshokan-de yomi-yasu-i
this book-Nom (Taroo-for) library-at read-easy-Pres
'This book is easy (for Taroo) to read at the library.'

Location *tough* construction

b. kono toshokan-ga (Taroo-nitotte) hon-o yomi-yasu-i
this library-Nom (Taroo-for) book-Acc read-easy-Pres
'At this library, it is easy (for Taroo) to read the book.

Goal *tough* construction

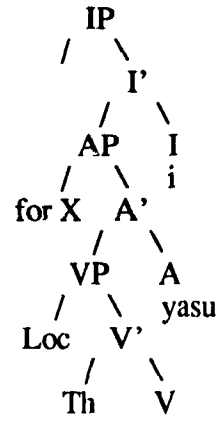
c. Hanako-ga (Taroo-nitotte) hon-o kasi-yasu-i
Hanako-Nom (Taroo-for) book-Acc lend-easy-Pres
'To Hanako, it is easy (for Taroo) to lend a book.'

In (1a), the sentence-initial element *kono hon* 'this book' is the Theme of the sentence. I therefore call this type of sentence the Theme *tough* construction. In (1b) and (1c), the sentence-initial elements, *kono toshokan* 'this library' and *Hanako*, are Location and Goal respectively, and so I call the former sentence a Location *tough* construction and the latter a Goal *tough* construction. In this way, I distinguish *tough* constructions in terms of the element which is in the sentence-initial position.

2.1. The Analysis

In this thesis I will make the following claim. The (short) Theme *tough* construction[1] (as in (1a)) is derived by NP-movement and other *tough* constructions are derived by wh-movement. I assume the structure which involves NP-movement to be as follows.

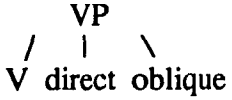
(2)



In this structure, *yasui* 'easy' takes a VP complement.

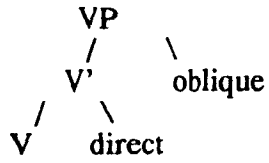
I assume, following Larson (1988), that V can assign Accusative case only when it is governed by Infl. Larson observes that, in the double object construction, there is an asymmetry between direct object and oblique object. The data which he presents suggest that the direct object c-commands the oblique object. This fact cannot be captured by the structures such as those in (3) and (4), which were frequently assumed before Larson made his claim.

(3)



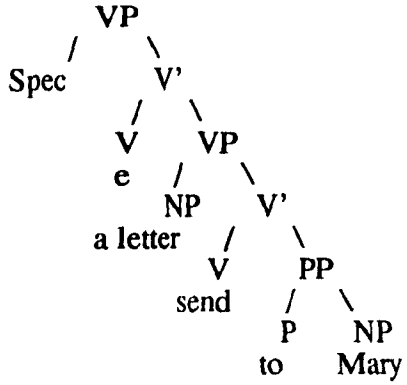
[1] I will discuss the long Theme tough construction in chapter 4. I am using the word 'long' to indicate the tough construction which involves a movement which crosses clause, while 'short' involves inside-clause movement. Until chapter 4, I will use the term 'Theme tough construction' for the short Theme tough construction.

(4)



Larson therefore proposes the following deep structure for a double object construction:

(5)



In this structure, the direct object *a letter* c-commands the oblique object *to Mary*. This structure thus captures the asymmetry which the data suggest.

In the surface form, *send* should be to the left of *a letter*, so Larson assumes that the verb raises to the upper V position. The motivation for this comes from two generalizations which have been noted. The first, following Roberts (1985), is that a verb must be in a head position of a projection governed by Infl to receive tense and agreement information. The second is the generalization that case is assigned under government, as claimed by Travis (1985), Koopman (1985) and Stowell (1981). Larson assumes that a verb raises to the upper V to satisfy these generalizations. This in turn assumes that Accusative case is assigned when a V is governed by Infl. Thus, in the lower verb position, a verb is not governed by Infl and cannot assign Accusative case. If it moves to the upper verb position, however, it is governed by Infl and can assign Accusative case to *a letter*. To explain verb raising in double object constructions, Larson claims that Accusative case is assigned only when a verb is governed by Infl.

Going back to the structure shown in (2), we assume, following Larson, that the verb cannot assign Accusative case to the Theme since V is not governed by Infl. As a result, the Theme has to move to the sentence-initial position to get Case.

I also assume that there is no VP-internal subject in this structure. This is predicted by Burzio's generalization.

(6) Burzio's generalization

A verb which fails to assign Accusative case fails to theta-mark an external argument. (Burzio 1986: 184)

Since we are assuming that the verb cannot assign Accusative case because it is not governed by Infl in this structure, it cannot assign an external argument either, according to Burzio's generalization.

Note that movement in the structure in (2) is subject to other conditions. First of all, it does not cross barriers.[2] The maximal projections which this movement crosses are AP and VP. Assuming that Infl is lexical in Japanese, both projections are L-marked; they are not BC and barriers. Secondly, this movement does not violate the specified subject condition;[3] this is simply because there is no subject in this structure due to Burzio's generalization. Thus, this NP-movement obeys all conditions.

The *tough* construction which is derived by wh-movement has the following structure.

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[2] The definitions of barriers and other related terms are given in below. (Chomsky 1986 : 14)

(i) Blocking Category (BC)

γ is a BC for β iff γ is not L-marked and γ dominates β.

(ii) Barriers

γ is a barrier for β iff (a) or (b):

(a) γ immidately dominates δ, δ a BC for β;

(b) γ is a BC for β, γ =/= IP.

(iii) L-mark

α L-marks β iff α is a lexical category that theta-governs β.

[3] The definition of Specified Subject Condition (SSC) is given below (Williams 1986: 118).

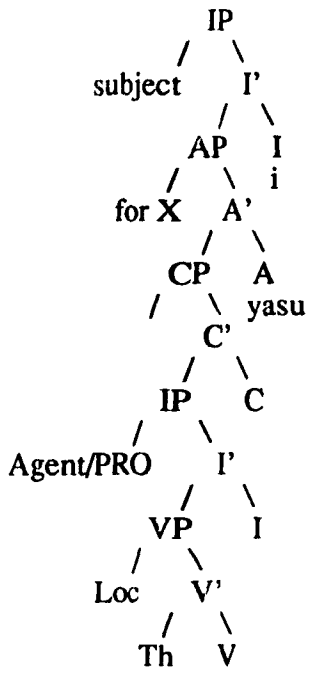
No rule may relate X and Y in the structure

....X...[$_\alpha$....Z...W_1YW_2...]$_\alpha$...

(or:...[$_\alpha$...Z...W_1YW_2...]$_\alpha$...X...)

Where Z is the subject of W_1YW_2.

(7)



In this structure, *yasui* 'easy' takes a CP complement. I assume, following Chomsky (1981), that an empty operator is base-generated in either of the positions indicated as Location or Theme in this structure and then moves to Spec of CP. In addition to that, in the case of Japanese, an empty operator is generated in Agent position in certain structures and moves to Spec of CP. The matrix subject is base-generated and is related to the empty operator in Spec of CP by a rule of predication. In this structure, V is governed by Infl, which makes it able to assign Accusative case to the object position.

To sum up, the claim here is that *yasui* has two different argument structures as shown in (2) and (7).

2.2. Consequences

If we adopt the claim presented here, the following consequences arise. Below I present data from scrambling, anaphoric coreference, and NP formation and consider their implications.

2.2.1. Scrambling Phenomena

We will examine the following phenomena. In the Theme *tough* construction, scrambling of an internal argument is possible, while in the Goal and Location *tough* constructions, such scrambling is not allowed.

(8) Location *tough* construction

a. Gakko-no toshokan-ga gakusei-nitotte kono zisho-o tsukai-yasu-i
school-Gen library-Nom students-for this dictionary-Acc use-easy-Pres
'It is easy for students to use this dictionary at a school library.'

b. ***Kono zisho$_i$-o** gakko-no toshokan-ga gakusei-nitotte t_i tsukai-yasu-i
'This dictionary, it is easy for students to use at a school library.'

(9) Goal *tough* construction

a. Taroo-ga Hanako-nitotte kono sigoto-o tanomi-yasu-i
Taroo-Nom Hanako-for this job-Acc ask-easy-Pres
'Taroo is easy for Hanako to ask this job.'

b. ***Kono sigoto$_i$-o** Taroo-ga Hanako-nitotte t_i tanomi-yasu-i
'This job, Taroo is easy for Hanako to ask.'

(10) Theme *tough* construction

a. Kono zisho-ga gakusei-nitotte gakko-no toshokan-de tsukai-yasu-i
this dictionary-Nom student-for school-Gen library-at use-easy-Pres
'This dictionary is easy for students to use at a school library.'

b. **Gakko-no toshokan$_i$-de** kono zisho-ga gakusei-nitotte t_i tsukai-yasui
'School library, this dictionary is easy for students to use.'

(11) a. kono hon-ga (Taroo-nitotte) Hanako-ni age-yasu-i
This book-Nom (Taroo-for) Hanako-Dat give-easy-Pres
'This book is easy for Taroo to give Hanako.'

b. **Hanako$_i$-ni** hon-ga (Taroo-nitotte) t_i age-yasu-i
'To Hanako, this book is easy (for Taroo) to give.'

First we will consider the 'scrambling' operation.

2.2.1.1. Scrambling

In Japanese, NPs can move anywhere fairly freely.

(12) a. Taroo-ga Hanako-ni hon-o ageta
Taroo-Nom Hanako-Dat book-Acc gave
'Taroo gave a book to Hanako'

b. Hanako$_i$ -ni Taroo-ga t_i hon-o ageta
Hanako-Dat Taroo-Nom t book-Acc gave
'To Hanako Taroo gave a book.'

c. hon$_i$ -o Taroo-ga Hanako-ni t_i ageta
book-Acc Taroo-Nom Hanako-Dat t gave
'A book Taroo gave to Hanako.'

d. hon$_j$ -o Hanako$_i$ -ni Taroo-ga t_i t_j ageta
book-Acc Hanako-Dat Taroo-Nom t t gave
'A book to Hanako Taroo gave.'

e. Hanako$_i$ -ni hon$_j$ -o Taroo-ga t_i t_j ageta
Hanako-Dat book-Acc Taroo-Nom t t gave
'To Hanako a book Taroo gave.'

It is considered that the free word order phenomenon shown in (12) is a consequence of the application of scrambling.[4] Sentence (12a), which has the 'indirect object-direct object' sequence, is the basic word order in Japanese.[5] In (12b), an NP, *Hanako-ni*, which is assigned Dative case is scrambled to the sentence-initial position. In (12c), an NP, *hon-o* 'a book', which is assigned Accusative case is scrambled to the sentence-initial position. In (12d), two NPs, *hon-o* and *Hanako-ni*, are scrambled and an NP which is assigned Accusative case is in the sentence-initial position. In (12e), two NPs are also scrambled but the NP which is assigned Dative case is in the sentence-initial position here. Thus, scrambling occurs quite freely in Japanese.

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[4] Refer to Harada (1977) and Saito (1985) among others.

[5] Refer to Hoji (1985).

We will assume that there are three types of scrambling in Japanese: long-distance, clause-internal, and VP-internal.[6]

(13) Three Types of Scrambling

a. Long-distance scrambling	necessarily A'-movement
b. Clause-internal scrambling	either A or A'-movement
c. VP-internal scrambling	necessarily A-movement

Examples of these types of scrambling are given below.

(14) Long-distance scrambling

a. Sono hon$_i$ -o Taroo-ga Hanako-ga t_i katta to omotteiru
that book-Acc Taroo-Nom Hanako-Nom bought COMP think
'That book, Hanako thinks that Taroo bought.'

b. sensei$_i$-ni Taroo-ga Hanako-ga t_i Jiroo-o shookaisita to itta
teacher-Dat Taroo-Nom Hanako-Nom Jiroo-Acc introduced COMP said
'To the teacher, Taroo said that Hanako introduced Jiroo.'

(15) Clause-internal scrambling

a. Sono hon$_i$ -o Taroo-ga t_i katta
that book-Acc Taroo-Nom bought
'That book, Taroo bought.'

b. sensei$_i$-ni Hanako-ga t_i Jiroo-o shookaisita
teacher-Dat Hanako-Nom Jiroo-Acc introduced
'To the teacher, Hanako introduced Jiroo.'

(16) VP-internal scrambling

a. Taroo-ga sono non$_i$ -o Hanako-ni t_i ageta
Taroo-Nom that book-Acc Hanako-Dat gave
'Taroo gave that book to Hanako'

b. Hanako-ga Jiroo$_i$-o sensei-ni t_i shookaisita
Hanako-Nom Jiroo-Acc teacher-Dat introduced
'Hanako introduced Jiroo to the teacher.'

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[6] Saito (1992) claims that there are two types: long-distance scrambling and clause-internal scrambling. Long-distance scrambling is necessarily A'-movement and clause-internal scrambling is A- or A'-movement, based on the claims made by Webelhuth (1989) and Mahajan (1989). Tada (1990) and Ohkado (1992) reach the same conclusion and also claim that there is one more type of scrambling: VP-internal. VP-internal scrambling is necessarily A-movement. For more details, refer to the articles mentioned.

The structures for these types of scrambling are as follows:

(17) a. Long-distance scrambling: [NP_i -o [$_{IP}$ NP-ga [$_{CP}$ t_i [$_{IP}$ NP-ga t_i V] Comp]V]]
b. Clause-internal scrambling: [NP_i -o [$_{IP}$ NP-ga t_i V]
c. VP-internal scrambling: [$_{IP}$ NP-ga [$_{VP}$$NP_i$ -o[$_{VP}$ NP-ni t_i V]]]

We will now examine the scrambling operation in *tough* constructions. Since we would like to observe the relation between wh-movement and *tough* constructions, we will deal with long-distance scrambling and clause-internal scrambling, which are virtually identical to wh-movement. We will use scrambling to show that *tough* movement other than Theme *tough* movement is an instance of wh-movement. If those types of *tough* movement are really wh-movement, scrambling to those *tough* constructions will be blocked. Thus, it is important to establish that these types of scrambling observe island effects in other situations.

Harada (1977) and Haig (1976) propose that scrambling observes island constraints by showing that it is subject to the complex NP constraint. Yoshimura (1984) shows that scrambling is prohibited from affecting adjuncts. Kuno (1978) has also pointed out that scrambling is subject to island constraints. The relevant examples, from Saito (1985), are given in (18) and (19).

(18) a. Ano hon_i-o [$_S$ John-ga [$_{S'}$ Mary-ga t_i katta to] omotte iru rasii]
that book-Acc John-Nom Mary-Nom bought Comp think seem
'It seems that John thinks that Mary bought that book.'

b. ?*Ano hon_i-o [$_S$ John-ga [$_{NP}$[$_S$ t_j t_i katta] $hito_j$]-o sagasite iru rasii]
that book-Acc John-Nom bought person-Acc looking-for seem
'It seems that John is looking for the person who bought that book.'

(19) a. $Tookyoo_i$-ni [$_S$ Mary-ga [$_{S'}$ John-ga t_i ikitagatte iru to] omotte iru rasii]
Tokyo-to Mary-Nom John-Nom want-to-go Comp think seem
'It seems that Mary thinks that John wants to go to Tokyo.'

b. ?*$Tookyoo_i$-ni [$_S$ Mary-ga [$_{Adjunct}$ John-ga t_i ikitagatte iru noni]
Tokyo-to Mary-Nom John-Nom want-to-go although
musisite iru rasii]
ignoring seem
'It seems that, although John wants to go to Tokyo, Mary is ignoring that fact.'

In (18b), *ano hon* 'that book' is extracted from a complex NP, and in (19b), *Tookyoo-ni* 'to Tokyo' is extracted from an adjunct. The fact that both sentences are ungrammatical indicates that this type of scrambling is subject to island constraints.

2.2.1.2. The *Tough* Construction and Scrambling

As we briefly observed at the beginning of this section, the application of scrambling results in different statuses for the derived sentences. If scrambling is applied to the Location *tough* construction, such as (8a), the derived sentence is ungrammatical, as shown in (8b). The same thing is true of the Goal *tough* construction as in (9) On the other hand, if scrambling is applied to Theme *tough* sentences as in (10a) and (11a), the derived sentences are grammatical, as shown in (10b) and (11b). In (10b) Location is scrambled, and in (11b) Goal is scrambled. Further examples are given below:

Location *Tough* Construction

(20) a. 2 kai-no heya-ga terebi-o mi-yasu-i
2 floor-Gen room-Nom TV-Acc watch-easy-Pres
(lit.) 'A room on the second floor is easy to watch TV programs in.'

b. ***terebi$_i$-o** 2 kai-no heya-ga t_i mi-yasu-i
TV-Acc 2 floor-Gen room-Nom watch-easy-Pres
(lit.) 'TV programs, a room on the second floor is easy to watch in.'

Goal *Tough* Construction

(21) a. Hanako-ga (Taroo-nitotte) sinzitsu-o hanasi-yasu-i
Hanako-Nom Taroo-for truth-Acc tell-easy-Pres
(lit.) 'Hanako is easy for Taroo to tell the truth to.'

b. ***sinzitsu$_i$-o** Hanako-ga (Taroo-nitotte) t_i hanasi-yasu-i
truth-Acc Hanako-Nom Taroo-for tell-easy-Pres
(lit.) 'The truth, Hanako is easy for Taroo to tell to.'

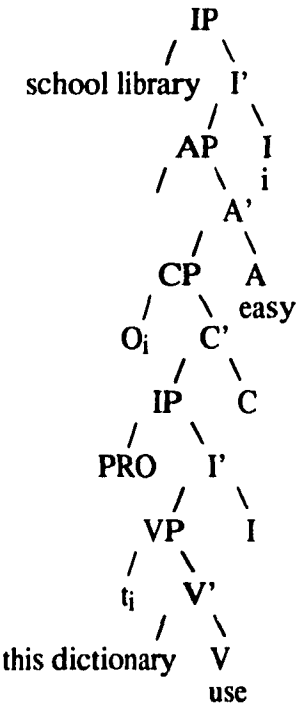
Theme *Tough* Construction

(22) a. Keeki-ga kono naifu-de kiri-yasui
cake-Nom this knife-by cut-easy
'This cake is easy to cut with this knife.'

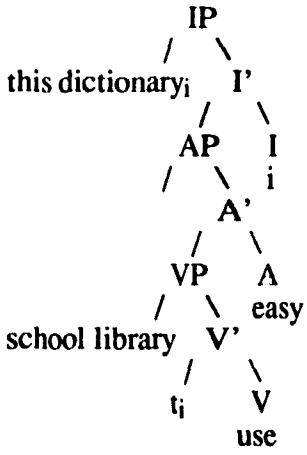
b. **Kono naifu$_i$-de** keeki-ga t_i kiri-yasui
'This knife, a cake is easy to cut.'

This fact is accounted for by our claim that the Theme *tough* construction is derived by NP-movement and the Goal and Location *tough* constructions are derived by wh-movement. Since Goal and Location *tough* sentences are derived by a wh-movement, the process forms wh-island. This blocks the application of further wh-movement to these sentences. Take (8a) and (10a), for example; the structures for those sentences are given in (23) and (24), respectively.

(23)



(24)

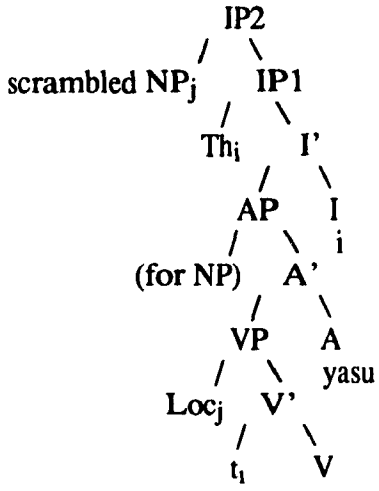


In structure (23), an empty operator is moved from the Spec of VP to the Spec of CP by wh-movement. As a result, if scrambling is applied to the sentence, the derived sentence is ungrammatical as shown in (8b), due to the wh-island violation. On the other hand, the Theme *tough* construction, the structure of which is given in (24), is derived by NP-movement. There is no wh-island in this construction. Thus, scrambling is allowed, as in (10b). This process of scrambling does not cross barriers: the maximal projections AP and VP are L-marked and not blocking categories. Hence they are not barriers.

Note that the scrambling that applies to the Theme *tough* construction is clause-internal scrambling. As we saw in the previous subsection, this can be either A- or A'-movement; that means that we should examine both cases. We have already considered the case where scrambling is considered to be A'-movement. Let us now examine the case that scrambling is A-movement. We will observe that A-movement is also allowed as in the case of A'-movement.

The structure in which scrambling is applied to the Theme *tough* construction is given in (25).[7]

(25)



Since neither *tough* movement nor scrambling in this case is wh-movement, there is no island violation. What is relevant here is Binding: whether t_i in (25) is bound by its governing category or not. The definition of governing category is given in (26).

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[7] We assume, following Saito (1992), that the scrambled NP is adjoined to the IP.

(26) Governing Category

βis a governing category for α if and only if β is the minimal category containing α, a governor of α, and a SUBJECT accessible to α.[8]

The scrambled NP is adjoined to IP, but this position is inside the governing category of the NP trace. In this structure, the scrambled NP is adjoined to IP2. Now, IP2 and IP1 together constitute one category. Therefore, the governing category of the NP trace is a whole sentence including IP2. In the governing category, NP trace is bound by the scrambled NP as desired.

We have seen that the fact that application of scrambling to the Location *tough* construction derives an ungrammatical sentence while scrambling in a Theme *tough* construction derives grammatical sentence is accounted for by our claim that the Theme *tough* construction is derived by NP-movement whereas the Goal and Location *tough* constructions are derived by wh-movement.

2.2.2. A Consequence for English Data

There is a parallel phenomenon in English to the *tough* construction with scrambling in Japanese. The analysis proposed in this thesis can also account for this phenomenon, as we will see in this section. Recall that a problematic case of a*tough* construction in English was discussed above. The relevant sentences are repeated in (27) and (28)

(27) a. The violin is [$_{AP}$ easy [$_{S'}$ O_i [$_S$ PRO to play sonatas on t_i.]]]

b. *Which sonatas$_j$ is the violin [$_{AP}$ easy [$_{S'}$ O_i [$_S$ PRO to play t_j on t_i.]]]

(28) a. The sonatas are [$_{AP}$ easy [$_{S'}$ O_i [$_S$ PRO to play t_i on the violin.]]]

b. Which violin$_j$ are the sonatas [$_{AP}$ easy [$_{S'}$ O_i [$_S$ PRO to play t_i on t_j.]]]

Sentence (27a) is a *tough* sentence, where an empty operator O is moved from the object position of *on*.; this is an instance of wh-movement. Wh-movement is applied to sentence (27a), and sentence (27b) is derived;*which sonata* is moved from the object position of *play*

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[8] Chomsky (1981: 211).

to the sentence-initial position, crossing an island formed by *tough* movement. This sentence is deviant due to the island violation. This is what we expect based on Chomsky's analysis.

In sentence (28a), an empty operator is moved from the object position of *play*, this is considered to be wh-movement. In sentence (28b), *which violin* is wh-moved from the object position of *on* to the sentence-initial position, crossing an island formed by *tough* movement. This process is exactly the same as in (27) but the derived sentence is grammatical. This has been an unsolved problem ever since Chomsky (1977) proposed an analysis for the *tough* construction.

Chomsky proposed a solution for this problem but it is problematic theoretically. His solution is that reanalysis applies in *tough* constructions. For example, the sentence in (29a) becomes (29b) after reanalysis.

(29) a. The sonatas$_i$ are easy O_i PRO to play t_i.

b. The sonatas$_i$ are [$_{AP}$[$_A$ easy to play] t_i].

After reanalysis, the trace is no longer A'-bound by an empty operator but is an anaphor. Keeping this analysis in mind, let us consider the problematic sentence. After reanalysis, sentences (27a) and (28a) becomes (30a) and (30b), respectively.

(30) a. The violin$_j$ is [$_{AP}$[$_A$ easy to play] sonatas on t_j.]

b.The sonatas$_i$ are [$_{AP}$[$_A$ easy to play] t_i on the violin.]

In the case of (30a), wh-movement of *sonatas* is an extraction from within a category formed by reanalysis. In case of (30b), the element which is extracted is a "peripheral" element. In the case of wh-movement of a "peripheral" element, as in (30b), extraction is permitted.

If we take the analysis proposed here for Japanese *tough* constructions, this strange phenomenon in English can be accounted for straightforwardly. Let us therefore apply this analysis to the English data. Sentence (27a) is not a Theme *tough* construction since the *tough* moved element *the violin* is not a Theme in the embedded clause. Thus, this

movement is considered to be wh-movement, forming an island. Wh-movement is not allowed in (27) due to the subjacency condition. On the other hand, sentence (28a) is a Theme *tough* sentence since the *tough*-moved element ***the sonata*** is a Theme in the embedded clause. We have claimed that this kind of *tough* movement is a type of NP-movement and does not form an island; therefore, there is no problem if wh-movement is applied to the sentence. Thus, sentence (28b) is grammatical.

We have provided a unified solution for these apparently related phenomena.

2.2.3. Anaphoric Coindexing

In Japanese, there is an anaphoric expression *zibun* 'self'. It has been said that this reflexive is a long-distance anaphor that exhibits subject orientation (Kuno (1973), Kuroda (1965), among others). The main difference between the English reflexive *himself/herself* and the Japanese reflexive is illustrated in (31).

(31) a. [Mary$_i$ said [that Suzy$_j$ told Sara$_k$ about herself$*_{i/j/k}$.]]

b. [Taroo$_i$-ga [Jiroo$_j$-ga Hanako$_k$-ni zibun$_{i/j/*k}$-no koto-o hanasita to] itta]
Taroo-Nom Jiroo-Nom Hanako-Dat self-Gen matter-Acc told that said
'Taroo$_i$ said that Jiroo$_j$ told Hanako$_k$ about self$_{i/j/*k}$.'

In (31a), *herself* can refer to the embedded subject *Suzy* or the object *Sara* but it cannot refer to the matrix subject *Mary*. The reflexive in English can refer to either subject and object if they are local to the reflexive. On the other hand, in (31b), *zibun* can refer to the matrix subject *Taroo* or the embedded subject *Jiroo* but not the object *Hanako*. The reflexive in Japanese can refer to the subject across the clause boundary but not to the object.[9]

Keeping this point in mind, let us examine the *tough* construction with a reflexive.

[9] The behavior of the Japanese reflexive cannot be explained by the binding theory of Chomsky (1981). Several attempts have been made to explain its peculiar behavior. Refer to Katada (1991) and Progovac & Franks (1991) for further details.

(32) a. Taroo$_i$-ga sensei-nitotte zibun$_i$-no kuruma-de kaesi-yasu-i[10]
Taroo-Nom teacher-for self's car-by let go home-easy-Pres
'Taroo$_i$ is easy for the teacher to let him go home by self$_i$'s car.'

b. Taroo$_i$-ga Hanako-nitotte zibun$_i$-no kuruma-ni nose-yasu-i
Taroo-Nom Hanako-for self-Gen car-in make-ride-easy-Pres
'Taroo$_i$ is easy for Hanako to make ride in self$_i$'s car.'

---

[10] Some speakers might feel that these sentences are not completely grammatical. This is due to a pragmatic effect. In general, stative predicates have only an exhaustive listing reading (Kuroda 1965, Kuno 1973).

There are three kinds of *-ga* marking in Japanese: one is for neutral descriptions of actions or temporary states as shown in (a); the second is for exhaustive listings as shown in (b); and the third is for object marking as shown in (c). Data are from Kuno (1973:38).

a. Ame-ga hutte imasu
rain-Nom falling is
'It is raining.'

b. John-ga gakusei desu
John-Nom student is
'(Of all the people under discussion) John (and only John) is a student.' 'It is John who is a student.'

c. Boku-wa Mary-ga suki desu
I-Top Mary-Nom fond of am
'I like Mary.'

As shown in (b), exhaustive listing *-ga* has a specific reading. The parallel expression in English for this reading is 'it is X that ...', as shown in the second translation. If the predicate is stative, only the exhaustive listing interpretation is possible (Kuno 1973: 148).

We need a context to interpret the meaning of stative predicates. The tough construction also includes a stative predicate, so such a sentence is marginal when it is given without context. If we add a sentence before the *tough* construction, marginality disappears.

(i) dono hon-ga toshokan-de yomi-yasu-i desu-ka
which book-Nom library-at read-easy-Pres Cop-Q
'Which book is easy to read at a library?'

(ii) kono hon-ga toshokan-de yomi-yasu-i desu
this book-Nom library-at read-easy-Pres Cop
'This book is easy to read at a library.'

If there is sentence (i) occurs before sentence (ii), then sentence (ii) is more natural than if it occurs alone.

c. Taroo$_i$-ga Hanako-nitotte zibun$_i$-no ie-de nekasi-tsuke-yasu-i
Taroo-Nom Hanako-for self-Gen house-at send to sleep-easy-Pres
'Taroo is easy for Hanako to send (him) to sleep at self's house.'

As we expected, the subject of a *tough* construction can be the antecedent of the reflexive *zibun*. However, there are examples in which the subject cannot serve as an antecedent.

(33) a. *Taroo$_i$-ga Hanako-nitotte zibun$_i$-no sigoto-o tanomi-yasu-i
Taroo-Nom Hanako-for self-Gen job-Acc ask-easy-Pres
(lit.) 'Taroo$_i$ is easy for Hanako to ask for self$_i$'s job.'

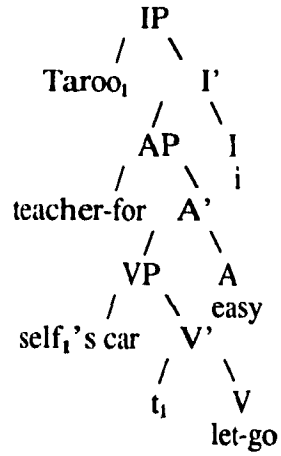
b. *Taroo$_i$-ga Hanako-nitotte zibun$_i$-no koto-o hanasi-yasu-i
Taroo-Nom Hanako-for self-Gen matter-Acc tell-easy-Pres
(lit.) 'Taroo$_i$ is easy for Hanako to tell self$_i$'s matter.'

c. *Jiroo$_i$-ga Taroo-nitotte zibun$_i$-no koojoo-o makase-yasu-i
Jiroo-Nom Taroo-for self's company-Acc entrust-easy-Pres
(lit.) 'Jiroo$_i$ is easy for Taroo to entrust self$_i$'s company to.'

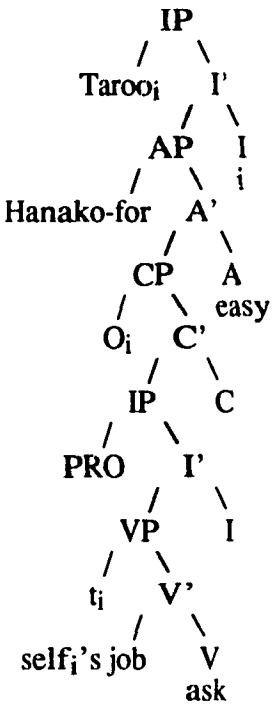
In these sentences, the subjects do not serve as antecedents of *zibun* 'self'. This is not in accordance with our previous observation concerning the Japanese reflexive. The difference between (32) and (33) is that the sentences in (32) are the Theme *tough* constructions and those in the (33) are Goal *tough* constructions. Here again, we have a situation in which the Theme and Goal *tough* constructions have differing grammaticality.

The difference between (32) and (33) can be derived from our assumption concerning the structure of the *tough* construction. The structures of (32a) and (33a) are given in (34) and (35) respectively.

(34)



(35)



The crucial difference between (34) and (35) is that in (34) there is no empty operator between the reflexive and the antecedent, while in (35) there is an empty operator. We may suppose that this empty operator blocks the relation between a reflexive and an antecedent.

This result can be derived from general principles as follows. Koopman and Sportiche (1982) propose the 'Bijection Principle'; which is a way of accounting for the weak crossover (henceforth WCO) effect.

(36) Bijection Principle

There is a bijective correspondence between variables and A'-positions.

This principle is intended to limit the possible relations between variables and A'-positions. They restate this principle as follows: every variable is locally bound by one and only one A'-position and every A'-position locally binds one and only one A-position. The definition of variable is given in (37).[11]

[11] Koopman and Sportiche (1982: 147).

(37) Variable

α is a variable if α is in an A-position
is locally A'-bound

(38) Binding

X binds Y iff X c-commands Y, and X and Y are coindexed

Locally Bind

Y is locally bound by X iff Y is bound by X and if Z binds Y then either Z binds X or Z=X

Let us examine the kind of English data explained by the Bijection Principle. Koopman and Sprtiche give a sentence with parasitic gap.

(39) *Who did you give a picture of e_i to e_i.[12]

This sentence is deviant because it violates the Bijection Principle, in that the A'-position, *who*, locally binds two A-positions, e_i and e_i. Note, that neither empty category c-commands the other. The deviance of this sentence cannot be accounted for by the WCO effect, since nothing crosses the element which has the same index.

Let us now return to the question of the *tough* construction with reflexives. We have observed that there are examples whose subjects are not able to serve as antecedents of *zibun*. The structure for these sentences is given in (35). We have suggested that the existence of an empty operator in this structure has something to do with the deviance of these sentences. Indeed, the empty operator binds two argument positions: trace of the dative gap, *Taroo*, and reflexive *zibun*. Both elements have the same indices and are c-commanded by an empty operator.

There is a problem, however. Consider the following English sentence:

(40) Which student did John show t_i his_i test paper?

In this sentence, *which* binds both t_i and *his*, which is a potential violation of the Bijection Principle. However, this sentence is grammatical. This is accounted for by saying that *his* is locally bound by t_i and not by *which*. Thus, *his* in this sentence is not a variable

[12] Koopman and Sportiche (1982: 148).

according to the definition in (37). As a result, *which* does not bind two variables, and this sentence does not violate the Bijection Principle.[13]

If we account for the grammaticality of the English sentence (40) in this way, then the same explanation should hold for the *tough* sentences we are focusing on, since the positions of the trace and the pronoun (reflexive in the case of *tough* constructions) in these sentences are the same. In other words, in sentence (33), the trace, which is in an A-position, seems to bind the reflexive *zibun*, since the trace c-commands the reflexive and both elements have the same indices. If this is the case, there are no longer two variables in this sentence and the sentence becomes immune to a violation of the Bijection Principle. We would then have no principled explanation for the ungrammaticality of (33).

This problem can readily be solved with a small change in the definition of variable. Remember that Japanese reflexives are subject-oriented. This is the difference between a Japanese reflexive, as in (33) and an English pronoun, as in (40). Since the Japanese reflexive is subject-oriented, it is not possible to consider that *zibun* in the structure in (35) is anaphorically dependent on the trace in non-subject position as pronouns are in the case of English sentence (40). Thus, its reference must be directly to the subject position. That means that there is no way for reflexives not to become variables as in English. This intuition can be built into the theory with the following definition.

(41) Variable (revised)

α is a variable	i) if it is in an A-position
	ii) if it is A'-bound
	iii) if it is not referentially dependent on any element within the domain of the A'-binder

Reflexive *zibun* is in an A-position, is A'-bound by the empty operator and cannot be dependent on t_i since the Japanese reflexive is subject-oriented. Thus, *zibun* in the structure in (35) counts as a variable. As a result, an empty operator binds two variables in

[13] Barss and Lasnik (1986).

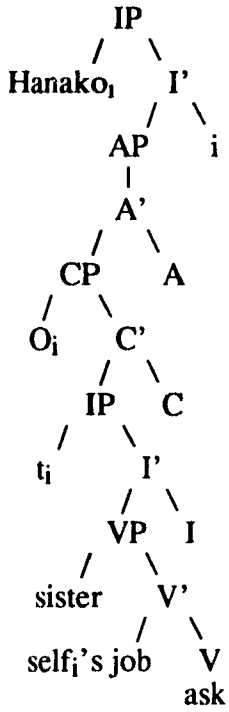
A-position, which is a violation of the Bijection Principle. This explains the data presented in (33).

Let us consider a case of an Agent *tough* construction with reflexives as shown in (42).

(42) Hanako-ga imooto-ni zibun-no sigoto-o tanomi-yasu-i
Hanako-Nom younger sister-Dat self's job-Acc ask-easy-Pres
(lit) 'Hanako is easy to ask self's job of younger sister.'
'It is easy for Hanako to ask self's job of her sister.'

The structure for this sentence is given in (43).

(43)



This is a parallel structure to that of the Location and Goal *tough* constructions. But sentence (42) is grammatical, contrary to Location and Goal *tough* constructions with reflexives. This is accounted for in the following way. Based on the definition of variable in (41), *zibun* in *zibun-no sigoto* 'self's job' is not a variable, since it does not satisfy (41iii). If *zibun* were not referentially dependent on any element within the domain of the A'-binder, it would not be a variable. But this is not true of this structure. The t_i is inside the domain of the A'-binder and *zibun* is referentially dependent on it since t_i is in subject position and can be the antecedent of *zibun*. Thus the empty operator binds only t_i in the relevant sense, and this is not a violation of the Bijection Principle.

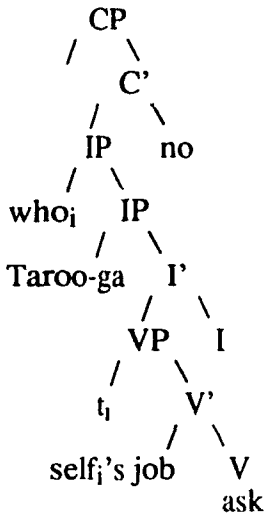
Note that the revised definition of variable is similar to the original one. In the case of English, referential dependence is determined purely by c-command. If pronoun is c-commanded, it can always be referentially dependent on the c-commanding element. So the original definition of variable and the revised one have the same effect in English. In the case of Japanese, however, the revised definition is important. As we have seen, *zibun* is subject-oriented, so the element which *zibun* can be referentially dependent on should be in subject position. Even if an element c-commands *zibun*, if the element is not in the subject position, *zibun* is not referentially dependent on it.

There is an independent motivation for assuming the revised definition of variable. It is also relevant for other structures. Consider the following sentence.

(44) *Dare$_i$-ni Taroo-ga zibun$_i$-no sigoto-o tanomu-no
who-Dat Taroo-Nom self's job-Acc ask-Question
'Who does Taroo ask self's job of?'

The structure of (44) is given in (45).

(45)



In this sentence, since t_i is not in the subject position, *zibun* in *zibun-no sigoto* 'self's job' cannot referentially depend on t_i. *Dare-ni* 'to whom', which is in an A'-position, binds t_i and *zibun*. Thus the sentence would be ungrammatical according to the Bijection Principle. The revised definition of variable works for question sentences, which shows that there is an independent motivation for assuming it.

2.2.4. Derived NPs

When deriving NPs from *tough* sentences, we again observe the difference in grammaticality between the Theme *tough* construction and other *tough* constructions. First, let us examine the general principles underlying the derivation of NPs in Japanese. In that language, NPs that are parallel in interpretation to a sentence can be derived. For example, from sentence (46a), we can derive an NP as shown in (46b), where the Genitive marker *-no* and the noun formation sufix *-sa* are added.

(46) a. yane-ga akai
roof-Nom red
'The roof is red.'

b. yane-no aka-sa
roof-Gen red-ness
'roof's redness'

Let us consider the derivation of NPs that are related to *tough* sentences in a similar fashion.

(47) a. kono hon-ga toshokan-de yomi-yasu-i
this book-Nom library-at read-easy-Pres
'This book is easy to read at a library.'

b. kono hon-no toshokan-de-no yomi-yasu-sa
this book-Gen library-at-Gen read-easy-ness
(lit.) 'This book's at a library's read easiness.'

(48) a. kono sigoto-ga Taroo-ni tanomi-yasu-i
this job-Nom Taroo-Dat ask-easy-Pres
'This job is easy to ask Taroo.'

b. kono sigoto-no Taroo-e-no tanomi-yasu-sa[14]
this job-Gen Taroo-to-Gen ask-easy-ness
(lit.) 'This job's to Taroo's ask easiness.'

[14] The dative marker *-ni* in *Taroo-ni* in (48a) changes its form when it is combined with the Genitive marker *-no* as in *Taroo-e-no*. But this change is not syntactic.

(49) a. kono toshokan-ga hon-o yomi-yasu-i
this library-Nom book-Acc read-easy-Pres
(lit) 'This library is easy to read books in.'

b. *kono toshokan-no hon-no yomi-yasu-sa[15]
this library-Gen book-Gen read-easy-ness
(lit.) 'This library's book's read easiness.'

(50) a. Taroo-ga kono sigoto-o tanomi-yasu-i[16]
Taroo-Nom this job-Acc ask-easy-Pres
(lit.) 'Taroo is easy to ask for this job.'

b. *Taroo-no kono sigoto-no tanomi-yasu-sa
Taroo-Gen this job-Gen ask-easy-ness
(lit.) 'Taroo's this job's ask easiness.'

The (a) examples above are *tough* sentences and the (b) examples are derived NPs. Sentences (49b) and (50b) are ungrammatical while (47b) and (48b) are grammatical The difference between (47) and (48) on the one hand and (49) and (50) on the other is that the former sentences are derived from Theme *tough* constructions whereas the latter come from

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[15]One might give the sentence as follows:

(i) kono toshokan-de-no hon-no yomi-yasu-sa
this library-at-Gen book-Gen read-easy-ness
(lit) 'At this library's book's read easiness '

One might then say that this sentence is derived from a Location tough constructions We are going to claim here that NP formation from Location tough construction is not possible, so this sentence might be a problem for our approach However, in fact, this sentence is not derived from a Location tough construction but from the Theme tough construction in (47b) NP formation from the Theme tough construction is repeated in (ii).

(ii) kono hon-no toshokan-de-no yomi-yasu-sa

The NP in (i) is derived from this sentence by scrambling *toshokan-de-no* into the sentence-initial position. Indeed, other NPs derived from Theme tough constructions also allow the application of scrambling.

(iii) kono sigoto-no Taroo-e-no tanomi-yasu-sa (=(48b))

(iv) **Taroo-e-no** kono sigoto-no tanomi-yasu-sa

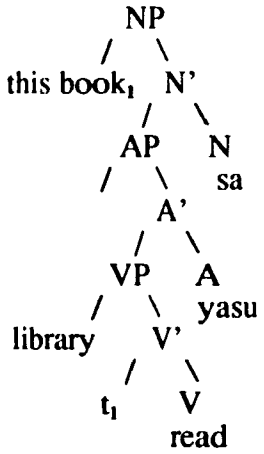
When we scramble *Taroo-e-no* in sentence (iii) to the sentence-initial position, sentence (iv) is derived; this sentence is grammatical. Thus we can conclude that sentence (i) is not a problem for this analysis.

[16] Note that this is a Goal tough construction, that is, *Taroo* is a Goal in this sentence.

other *tough* constructions. Sentence (49a) is a Location *tough* construction and (50a) is a Goal *tough* construction.

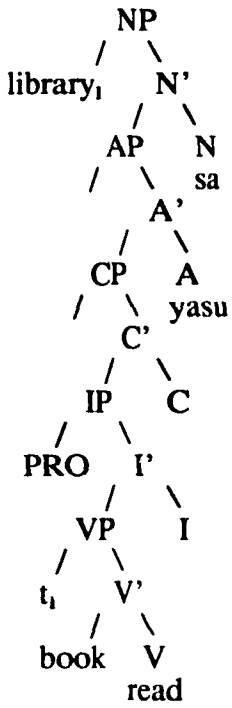
The difference in grammaticality between (47) and (48) on the one hand and (49) and (50) on the other stems from this structural difference. I assume here that lexical word formation is possible after syntactic derivation, as assumed in Kageyama (1982) and Shibatani and Kageyama (1988). In other words, syntactic structure affects word formation, for example, NP formation in this case. I also assume that NP formation from a sentence is a matter of replacing IP by NP, and that the rest of the structure remains intact. The structures of *tough* constructions after NP formation are given in (51) and (52).[17]

(51)



[17] With regard to case assignment, it is considered that if NP is dominated by NP, the genitive marker *-no* is assigned in case of normal NP structures. In the case of NP formation from a sentence, which we are focusing on here, I assume that genitive case is assigned as follows. If the sentence becomes an NP, the ability to assign Case disappears due to the NP feature, and genitive *no* is assigned. There are several ways to excute this, but I will not discuss them here, since it is not important for my analysis.

(52)



The verb *yom* 'read', the adjective *yasu* 'easy' and the Nominalizing suffix *-sa* form one word at the surface level. We assume that the verb is moved to the head of AP, and then the verb and adjective as a whole move to the head of NP. This process is similar to the movement of a verb to an Infl. In the case of (51), the verb *yom* moves to the adjective *yasu* and finally to the nominalizing *-sa* without any problem. In the case of (52), however, this movement is blocked by the existence of I and C. In the structure which is derived by the movement of the verb *yom* to the adjective *yasu*, the trace of the verb is not properly governed, which is a violation of the Empty Category Principle (ECP). The definitions of the ECP and related notions are given below.

(53) ECP

Traces must be properly governed.[18]

(54) Proper government

α properly governs β iff α theta-governs β or α antecedent-governs β.[19]

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[18] Cf. Chomsky (1981: 250).

[19] Cf. Chomsky (1986: 17).

(55) Theta government

α theta-governs β iff α governs β and α theta-marks β.

(56) Antecedent government

α antecedent-governs β iff α governs β and α is coindexed with β.

(57) Government[20]

α governs β iff

(i) α is a governor;

(ii) α m-commands β;

(iii) no barrier intervenes;

(iv) minimality is respected.

Where governors are: (i) heads,

(ii) coindexed XPs.

(58) Relativized Minimality[21]

X α-governs Y only if there is no Z such that

(i) Z is a typical potential α-governor for Y,[22]

(ii) Z c-commands Y and does not c-command X.

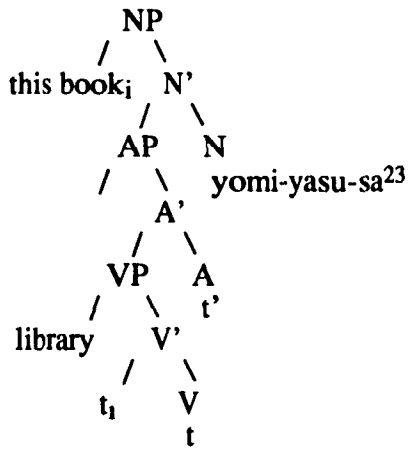
In view of these definitions, let us consider the structures in (51) and (52). When the verb *yom* is moved to the head of NP via the head of AP, the resultant structures will be as follows.

[20] Cf. Rizzi (1990: 6).

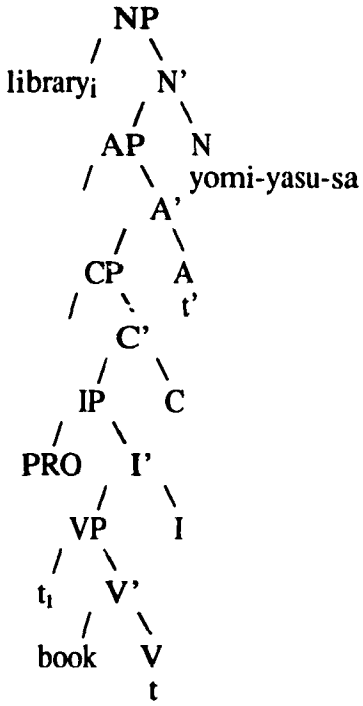
[21] Rizzi (1990: 7).

[22] I leave out the definition of "typical potential governor" because it is not important here.

(59)



(60)



To satisfy the ECP, trace should be either theta-governed or antecedent-governed. In these structures, the traces are not theta-governed according to the definition in (55); thus traces should be antecedent-governed. In (59), *t* is antecedent governed by *t'* since there are no intervening barriers. Thus *t* in (59) satisfies the ECP. On the contrary, in (60), *t* cannot be antecedent-governed by *t'*. Given the definition of relativized minimality in (58), *t'* antecedent-governs *t* only if there is no Z as described in the definition. However, the I in

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[23] The *-i* between the verb *yom* and the adjective *yasu* is considered to be inserted for phonological reasons.

(60) is a potential antecedent-governor for *t*; I c-commands *t* and does not c-command *t'*, which blocks government from *t'* to *t*. Thus, this structure violates the ECP.

In this way, the deviance of sentences (49b) and (50b) is accounted for by the difference in their structures.

Why, then, is this kind of movement not blocked in a simple *tough* sentence? For example, in the structure in (61) below, the verb, adjective *yasu* and Infl *-i* are considered to be combined into one word in the course of derivation. The process which combines verb, adjective and Infl is not blocked in this case; it is assumed that the verb moves to the head of IP, the head of CP, the head of AP and finally the head of NP, observing the ECP. Then why is this kind of movement blocked in the case of derived NPs? This is considered to be due to the subcategorization features of the noun formation suffix *-sa*.[24] The suffix *-sa* is considered to have a [+N] feature and therefore must be combined with elements which are compatible with the [+N] feature. That is, *-sa* subcategorizes for elements with [+N]. A is considered to have the features [+N, +V], I is considered to have [-N] and C is considered to be neutral for this feature. Let us compare the derivation of NP and IP. The structures are shown in (61) and (62).

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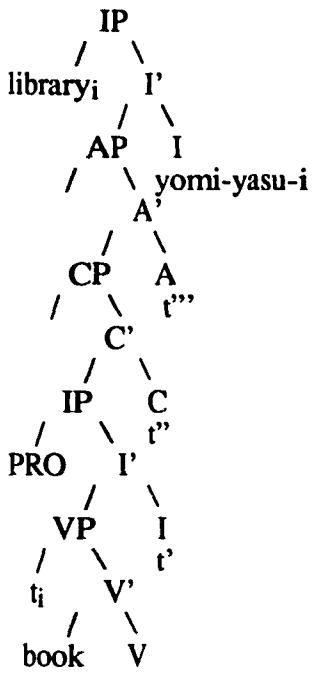
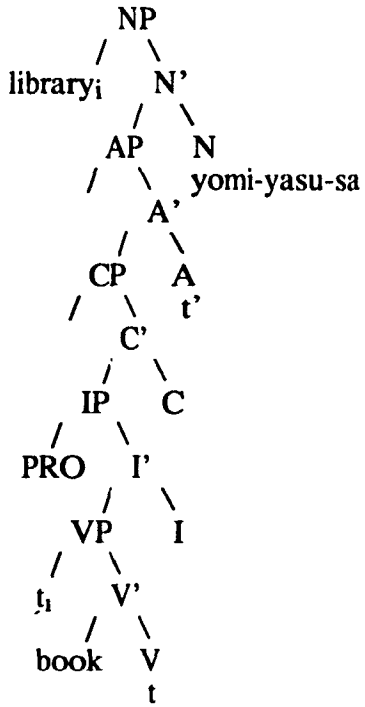
[24] This results in a puzzle concerning selection. There is a condition called 'atom condition' (Williams 1981) which roughly states that morphological selection should be local. My analysis does not follow this condition, but I will not discuss this problem any further in this thesis.

(61)



(62)



We need to make the following stipulation. When there is a head sequence as in the structures above, the heads (except verb) which will be combined should be compatible with the topmost head. In (62), if the verb moves to Adj via I and C, the sequence in N is *V-I-C-yasu-sa*. Here, *yasu* is an adjective, with the features [+N, +V], which are compatible the topmost element *-sa*. C is neutral so it is also compatible with-*sa*. I is [-N]

which is not compatible with *-sa*. Thus, the sequence *V-I-C-yasu-sa* is not allowed. In the case of (61), on the other hand, the sequence of heads is *V-I-C-yasu-I*. The topmost element I requires the other elements to be verbal. The adjective *yasu* is [+N, +V], which is compatible with I since it has a [+V] feature. There is no problem with C since it is neutral. I is compatible with the topmost I since they are the same category. Thus, the sequence *V-I-C-yasu-I* is allowed.

Therefore, the only option which is left for (62) is to skip I and C, but this option is also prohibited as we have observed above. The derivation violates the ECP. In the case of a sentence, however, a verb can move to the adjective via I and C. This is not incompatible with the topmost Infl. Thus, the remaining traces all satisfy the ECP.

2.3. Summary

In this chapter, I have presented the claim that the Theme *tough* construction is derived by NP-movement whereas other *tough* constructions are derived by wh-movement. I also presented four consequences for this claim as it affects scrambling, anaphoric coindexing, derived NPs and English data. Scrambling is allowed in the Theme *tough* construction but not in Location and Goal *tough* constructions. This is accounted for as follows: since the Theme *tough* construction is derived by NP-movement, no wh-island is involved. On the other hand, since the Location and Goal *tough* constructions are derived by wh-movement, scrambling is prohibited because of a wh-island violation.

In the case of anaphoric coindexing, if the Location and Goal *tough* constructions involve anaphoric expressions, the structures are disallowed due to a Bijection Principle violation, because an empty operator binds two variables. The definition of variable is also revised in this chapter.

With regard to derived NPs, the reason why NPs may not be derived from *tough* constructions other than Theme constructions is due to the structure. In the case of Theme *tough* constructions, there is no embedded clause so there is no IP inside the structure. In

the case of other*tough* constructions, there is an IP in the embedded clause and the head of this IP blocks head movement.

As for the English data, we show that a hitherto problematic grammatical sentence which looks like a violation of the island condition is in fact a Theme *tough* construction, which, we claim, is derived by NP-movement. Thus wh-movement is applicable without an island violation. Thus we observe that the claim presented here is also able to account for some English data which was problematic for earlier accounts.

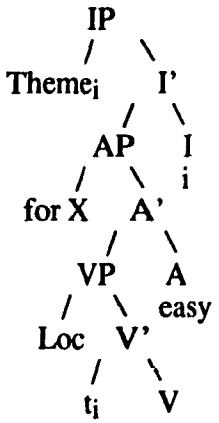
CHAPTER 3

POSSIBLE STRUCTURES

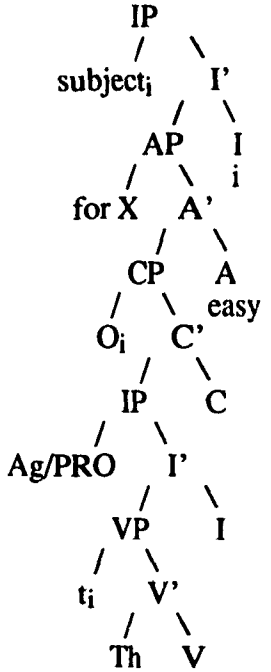
3.0. Introduction

In the previous chapter, I proposed that the Theme *tough* construction and other *tough* constructions have different structures, repeated here in (1) and (2) respectively, and I have discussed the consequences of that proposal.

(1)



(2)



In this chapter, I would like to show how the structures in (1) and (2) are generated in terms of more basic factors. For this purpose, I will examine all the possible structures for the *tough* construction and eliminate those other than (1) and (2) for independent reasons. We will begin by considering the possible factors involved in forming these structures. These factors are as follows: i) whether the adjective *yasui* 'easy' takes a VP or CP complement; ii) whether *yasui* takes an external argument or not; iii) whether an embedded subject is PRO or a lexical NP. Given the possible options above, then theoretically, six different structures could be formed by choosing the different values for these options. The six different choices are as follows.

(3) Complement: VP vs. CP
Theta grid of *yasui*: [+/- subject]
Embedded subject: PRO vs non-PRO (=overt NP)

(4) i) [+subj, VP] ii) [-subj, VP]
iii)[+subj, CP, non-PRO] iv)[-subj, CP, non-PRO]
v)[+subj, CP, PRO] vi)[-subj, CP, PRO]

Note here that, concerning the selection of the option [+/- subject], if a sentence has a [+subject] value, that means, that*yasui* has an external argument, which is assigned to the sentence-initial position, that is, there is a base-generated matrix subject in the structure. On the other hand, if the sentence is [-subject], *yasui* does not have an external argument to assign to sentence-initial position; in other words, there is no base-generated matrix subject in the structure.

In Japanese, either PRO or a lexical NP can appear in the embedded subject position, while this is not the case in English. This difference stems from the difference in Nominative case assignment. I base my discussion on Saito's (1982) work on the Nominative case assignment. Saito assumes that Nominative case is not assigned by Infl in Japanese but is realized structurally. If the NP is dominated by IP, Nominative case is realized. This is similar to what has been claimed for Genitive case assignment in English

and Japanese. Assuming this account for Nominative case assignment, a subject NP can appear overtly in the embedded clause regardless of the tense features of the lower clause.

This contrasts with English, where Nominative case is assigned by Infl, and thus an overt NP cannot appear as the embedded subject in a *tough* construction. As for PRO, since the subject position is not governed as in English, PRO can also appear in Japanese. This accounts for the fact that either PRO or NP can appear in Japanese *tough* constructions.

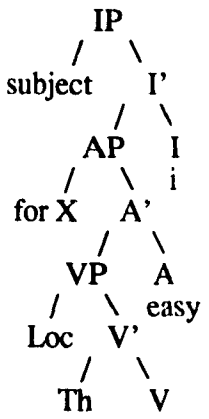
Note also that there is no surface difference between the structure proposed for *yomi-yasu* 'read-easy' with a VP and that with a CP, although the former does not include Infl and the latter does. This is due to a phonological effect. In the structure which has Infl, the word comprising verb plus Infl is *yom-u* 'read-Infl'. If this word is combined with *yasu* 'easy', the inflection *-u* becomes *-i* by phonological assimilation and the derived word is *yom-i-yasu*. On the other hand, in the structure without Infl, *yom* and *yasu* are combined without any Infl. The Japanese phonological skeleton is a consonant-vowel structure. Thus, if two consonants are adjacent, a vowel must be inserted. Because of this phonological requirement, a vowel is inserted between *yom* and *yasu*, which results in the form *yom-i-yasu*. In this way, the two structures appear the same, but the *-i* is there for different reasons.

In the following subsections, we will examine all the possible structures for the *tough* construction one by one.

3.1. [+subj, VP]

This is a structure in which the matrix subject is base-generated and *yasui* takes a VP complement as in (5).

(5)



Elements which bear any kind of theta role can appear in the subject position. Here, I will only examine sentences in which Location, Goal and Theme are in the matrix subject position since other elements behave in the same way.[1]

(6) a. *Toshokan-ga (gakusei-nitotte) soko-de kono hon yomi-yasu-i
library-Nom (student-for) there-at this book read-easy-Pres
(lit.) 'The library is easy (for a student) to read this book there.'

b. *Hanako-ga (Taroo-nitotte) hon watasi-yasu-i
Hanako-Nom Taroo-for book hand-in-easy-Pres
(lit.) 'To Hanako is easy for Taroo to hand in a book.'

c. *kono hon-ga (gakusei-nitotte) toshokan-de kono hon yomi-yasu-i
this book-Nom (student-for) library-at this book read-easy-Pres
'This book is easy (for a student) to read this book at a library.'

Here, the asterisk means that these sentences cannot have the structure as (5). I am not saying that the actual strings are ill-formed; rather, I am saying that the structure in (5) cannot be the underlying structure for these sentences. If sentences (6a) and (6b) have the structure in (5), we would not be able to account for the data given in chapter 2. We have observed that scrambling is prohibited in Location and Goal *tough* constructions because

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[1] As I mentioned earlier, Agent is not assigned in this structure since the verb cannot assign Accusative case. This is predicted by Burzio's Generalization as discussed above.

I continue to assume that Agent (external theta role) is not assigned in this structure. However, if we assume that Agent is assigned in this structure, even if Accusative case is not assigned, the result does not change. For example, suppose an Agent NP is in subject position; the derived structure is still ungrammatical since Accusative case is not assigned to the Theme. This is a violation of the Case Filter.

they involve wh-islands. However, if structure (5) were allowed for the Location and Goal *tough* constructions, we would not have an account for scrambling anymore, because there is no wh-island involved in that structure. In the same way, if we assume this structure, we do not have an account for anaphoric coindexing and derived NPs, either. The crucial point in accounting for these phenomena is that their structures have an empty operator, in the case of anaphoric coindexing, and an embedded structure, in the case of derived NPs. Therefore, if we assume this structure for the Location and Goal *tough* constructions, we do not have any account for these phenomena.

Sentence (6c) is not allowed with this structure because the object NP *kono hon* 'this book' does not receive case from the verb *yom* 'read'; *-o* is the manifestation of Accusative case. In all the examples in (6), objects do not surface with *-o*, which shows that the NPs are not assigned case. Note that we are assuming that a verb can assign Accusative case only when it is governed by Infl. In this structure, the verb is not governed by Infl so it cannot assign case to the object. As a result, all sentences derived from this structure will be ungrammatical because the object does not receive Accusative case, in violation of the Case Filter as given in (7).

(7) Case Filter
Every overt NP must be assigned abstract case.

This shows that, on the basis of this structure, we cannot derive grammatical *tough* sentences. In other words, this structure is not a correct one for the *tough* construction.

3.2. [-subj, VP]

In this structure, *yasui* 'easy' takes a VP complement, as in (5), and the matrix subject is not base generated. Note that the strings in (8b) and (8c) are ill-formed with this structure, that is, these sentences cannot have this underlying structure. These strings are well-formed with other structure. In this section, we will discuss why these sentences cannot have this structure.

(8) a. kono hon$_i$-ga (gakusei-nitotte) toshokan-de t_i yomi-yasu-i
this book-Nom (student-for) library-at read-easy-Pres
'This book is easy (for a student) to read at a library.'

b. *Hanako-ga (Taroo-nitotte) hon watasi-yasu-i
Hanako-Nom (Taroo-for) book hand in-easy-Pres
(lit.) 'To Hanako is easy for Taroo to hand in a book.'

c. *kono toshokan$_i$-ga (gakusei-nitotte) t_i hon yomi-yasu-i
this library-Nom (student-for) book read-easy-Pres
(lit.)'This library is easy (for a student) to read books in.'

In (8a), the Theme NP, *kono hon* 'this book', is moved to the sentence-initial position since it cannot receive case in the base-generated position for the same reason mentioned above. This is a correct structure for the Theme *tough* construction. The Theme *tough* construction with this structure is in accordance with the data presented in chapter 2. Since this sentence is derived by NP-movement, nothing prevents scrambling. The Bijection Principle is not relevant since there is no A'-position. This structure is, in fact, the one that we have assumed for the Theme *tough* construction.

On the other hand, if we assume this structure for the Location and Goal *tough* constructions as in (8b) and (8c), we cannot account for the data presented in chapter 2 since this structure does not involve a wh-island, an empty operator or an embedded structure, as was discussed in the previous section. Incidentally, these sentences are also ruled out since the object NP *hon* 'book' is not assigned Accusative case.

In this structure, the Location element or the Goal element is moved to the sentence-initial position. But even if these elements are not moved, the derived sentences will not be grammatical, as shown in (9).

(9) a. *kono toshokan-de hon yomi-yasu-i
this library-at book read-easy-Pres
(lit.) 'This library is easy to read books in.'

b. *Hanako-ni hon watasi-yasu-i
Hanako-to book hand in-easy-Pres
(lit.) 'To Hanako is easy to hand in a book.'

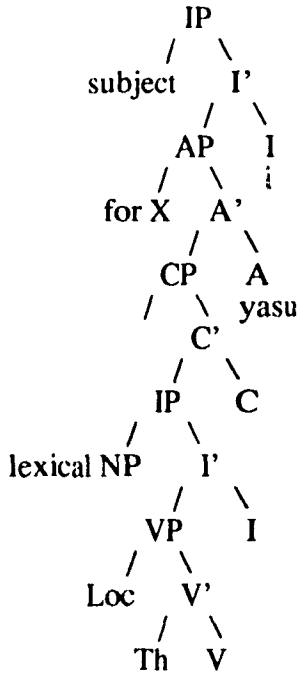
In these sentences, the object NPs still do not receive case. Hence, they are ungrammatical.

We have seen in this subsection that the Theme *tough* construction has the [-subj, VP] structure, but the other constructions do not.

3.3. [+subj, CP, non-PRO]

In this subsection, we will consider a structure which takes CP as the complement of *yasui* 'easy', and has a matrix subject and overt embedded subject. This structure is given in (10) and the relevant sentences are given in (11).

(10)



(11) a. gakusei$_i$-ga O$_i$ t$_i$ toshokan-de hon-o yomi-yasu-i
student-Nom library-at book-Acc read-easy-Pres
(lit.) 'Students are easy to read books at a library.'
'It is easy for students to read books at a library.'

b. ?toshokan-ga O$_i$ gakusei-ga t$_i$ hon-o yomi-yasu-i
library-Nom student-Nom book-Acc read-easy-Pres
(lit.) 'The library is easy for students to read books (in).'

c. ?kono hon-ga O$_i$ gakusei-ga toshokan-de yomi-yasu-i
this book-Nom student-Nom library-at read-easy-Pres
(lit.) 'This book is easy for students to read at a library.'

Here we assume that the complement of *yasui* is a predicate so *yasui* must take either NP or CP with an operator. As for the existence of an operator in complement of CP, there are good reasons to assume an empty operator for *tough* constructions other than Theme ones, as we saw in chapter 2.

Since we assume that there should be an empty operator in this structure, the coindexing of the matrix subject and the gap must be achieved by predication in the sense of Williams (1980).

Sentence (11a) has an empty operator base-generated in the embedded subject position; it moves to Spec of CP, which is coindexed with the matrix subject *gakusei* 'student'. The grammaticality of this sentence shows that this structure is a correct one for the Agent *tough* construction.

In (11b), an empty operator is base generated in the Location position and moves to the Spec of CP. The empty operator is coindexed with the subject. In (11c), an empty operator is base-generated in the Theme position and moves to the Spec of CP. These two sentences are awkward but grammatical. The reason for the awkwardness will be discussed in the next subsection, after we discuss the contrast between the 'easy' and 'tend to' readings.

It is important to note the following point. Since we assume that an empty operator is moved to the Spec of CP, and we have also assumed that this process is a wh-movement, forming a wh-island, one would expect that further scrambling to these sentences would be prohibited.[2] But when *toshokan-de* 'at a library' in (11) is scrambled to the sentence-initial position, the derived sentence is grammatical, contrary to our expectations.

(12) **toshokan-de**$_i$ gakusei-ga t_i hon-o yomi-yasu-i
library-at student-Nom book-Acc read-easy-Pres
(lit.) 'At a library, students are easy to read books.'

[2] As was discussed in chapter 2, I assume that scrambling is an instance of wh-movement.

One might think this is a problem for the analysis assumed here and conclude that this sentence should not be derived by an empty operator movement, given that the scrambled sentence (12) is grammatical. However, this is not a problem, since a sentence whose appearance is the same as (11a) can be derived from an other structure, as we will observe in subsection 3.5.[3] As we will see, there is no empty operator movement involved. Therefore, we conclude that the reason why sentence (12) is grammatical is because it does not have the derivation given here.[4] If we apply scrambling to the other two sentences, (11b) and (11c), the derived sentences are ungrammatical as expected.

(13) a. ***hon-o**$_i$ toshokan-ga gakusei-ga t_i yomi-yasu-i
book-Acc library-Nom student-Nom read-easy-Pres
(lit.) 'Books, at a library are easy for a student to read.'

b. ***toshokan-de**$_i$ hon-ga gakusei-ga ti yomi-yasu-i
library-at book-Nom student-Nom read-easy-Pres
(lit.) 'At a library, books are easy for a student to read.'

In sentence (13a), scrambling is applied to sentence (11b), and in (13b) scrambling is applied to (11c). Both sentences are ungrammatical as we would expect.

3.4. [-subj, CP, non-PRO]

This is a structure, without a matrix subject which takes CP as a complement of *yasui* 'easy' and an overt embedded subject. The structure for this type is similar to (10), except that it does not have a base-generated matrix subject. Since there is no matrix subject, empty operator movement is not necessary. If the operator moves to Spec of CP in the subjectless structure, it violates the requirement for a variable. Like Chomsky (1982: 31),

[3] The relevant sentence is (23) in section 3.5.

[4] I do not have an explanation of why I am assuming that the basic structure for sentence (12) is (23) rather than (11a). To decide which structure sentence (12) is derived from, we have to know whether the sentence includes an empty operator or not. If it is derived from (11a), there should be an empty operator, whereas if it is derived from (23), there should be no empty operator, but there is no test to examine this point empirically. We can just make an assumption based on the scrambling data. Therefore, we will assume here that (12) is derived from (23) without further explanation.

we assume the following: each LF variable must either be assigned a range by its operator or be assigned a value by an antecedent that A-binds it. Suppose an empty operator moves to Spec of CP; there will then be a variable in the original position of the operator and the variable will be bound by the empty operator. In this structure, however, there is no antecedent which assigns a value to the variable. Thus, this structure with an empty operator in Spec of CP can not exist.

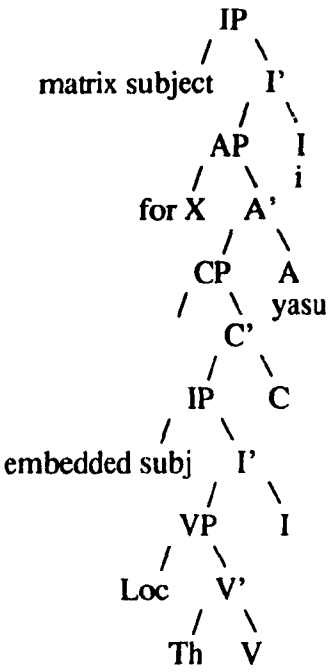
Consider the following sentence.

(14) gakusei-ga toshokan-de hon-o yomi-yasu-i
student-Nom library-at book-Acc read-easy-Pres
(lit.) 'Students tend to read books at a library.'

One might notice that this sentence appears the same as (11a). The difference between (11a) and (14) is that the former is derived by wh-movement whereas there is no movement involved in the latter. Another important difference between (11a) and (14) is that the subject position is different. The subject NP *gakusei* 'student' is in the embedded subject position in (14), but in (11a) it is in the matrix subject position. I would like to claim that these sentences have different meanings. In Japanese, there are two readings for *yasui* 'easy'. One is 'easy' and the other is 'tend to' as we observed in chapter 1. For example, sentence (14) can potentially have two readings: '(Not teachers but) students are easy to read books at a library (since student are given some privileges)', the other is 'Students tend to read books at a library'. I claim that these two readings stem from the difference in the two structures. That is, the difference in position of the Agent triggers the difference in meaning. A 'tend to' reading is only possible when the matrix subject position remains empty and an 'easy' reading is associated with the other sentences. The 'tend to' reading derives from a sentence in which the Agent is in the embedded subject position and there is no NP in the matrix subject position (refer to the structure (15)). On the other hand, if the Agent is in the matrix subject position, the meaning of the *tough* sentence is 'easy'. Since the Agent NP is in the embedded subject position in (14) and there is no NP in the matrix subject position, this sentence has a 'tend to' reading. Sentence (11a), on the other hand,

has the first reading: '(not teachers but) students are easy to read books at a library'; that is, it has an 'easy' reading, because the subject *gakusei* 'student' is considered to be in the matrix subject position.

(15)



This claim is supported by the data below. If an idiom chunk appears in an argument position, a sentence is ungrammatical. Therefore, an idiom chunk can appear in the subject position of a raising verb, which is considered not to assign a θ-role to its subject position.

(16) The shit seems to have hit the fan.

On the other hand, if the subject of the verb is an argument position, the idiom chunk is excluded.

(17) *The shit tried to hit the fan.

Sentence (17) is ungrammatical.

This shows that the use of an idiom chunk can serve as a diagnostic indicating whether a position is an argument position or not. This is exactly the device we need in this situation. We have been assuming that if an Agent is in the embedded subject position, the 'tend to' reading appears. In other words, if the embedded subject position is an argument position and the matrix subject position is not, the sentence has a 'tend to' reading. On the other

hand, if the matrix subject position is an argument position, the 'easy' reading appears. Therefore, we would expect that idiomatic readings would be possible only in a 'tend to' context, in which the matrix subject position is a non-argument position. An idiom we can use to test this is:

(18) a. Heso-ga cha-o wakasu
navel-Nom tea-Acc boil
'A navel boils tea.' ('What a huge joke')

Let us examine this expression in the *tough* construction.

(19) a. Heso-ga cha-o wakasi-yasu-i
'A navel tends to boil tea.' (There tends to be a ridiculous situation.)
*'A navel is easy to boil tea.'

In (19a), if we interpret the sentence with the 'tend to' reading, it still retains its idiomatic sense. On the other hand, if we interpret the sentence with the 'easy' reading, it does not retain its idiomatic sense. As this sentence clearly shows, the idiomatic reading is impossible when we interpret it using the 'easy' reading.

This shows that there is indeed a structural difference between sentences with a 'tend to' reading and those with an 'easy' reading. This is strong support for our claim that the difference in meaning stems from the difference in structure.

It is not surprising that the same morpheme can have both 'easy' and 'tend to' readings. We can observe a similar fact in English. Verbs such as *start* and *begin* have features of both a control verb and a raising verb.

(20) a. John started eating an apple.

b. It started to rain.

The verb *start* in sentence (20a) is similar to a control verb whereas in sentence (20b) it is like a raising verb.[5] The meanings of the two sentences are as follows: sentence (20a) means that an event of 'John's eating' happened because of John; on the other hand, the meaning of sentence (20b) is that the event is started by itself.

---

[5] Perlmutter (1970).

The meaning of *yasui* is comparable that of *start*. A sentence which has an 'easy' reading has the meaning that a certain event often happens because of a property of the subject. This is parallel to the meaning of (20a). On the other hand, the 'tend to' reading has the meaning that a certain event often happens just because it often happens. This is parallel to the meaning of (20b). In this way, it is very natural, cross-linguistically, to have 'easy' and 'tend to' meanings associated with one morpheme.

Let us go back to the sentences (11b) and (11c), which are ambiguous. The sentences are repeated here for convenience.

(21) a. ?toshokan-ga O_i gakusei-ga t_i hon-o yomi-yasu-i
library-Nom student-Nom book-Acc read-easy-Pres
(lit.) 'The library is easy that students read books.'

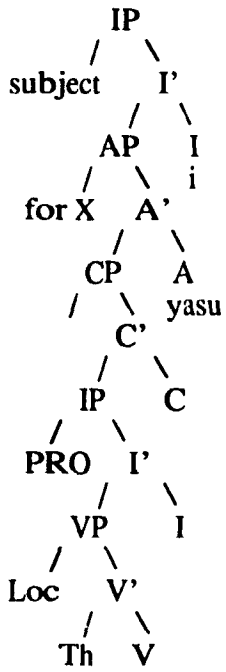
b. ?kono hon-ga O_i gakusei-ga toshokan-de yomi-yasu-i
this book-Nom student-Nom library-at read-easy-Pres
(lit.) 'This book is easy that students read at a library.'

These sentences are difficult to interpret right away. This is because there are two analyses for each sentence. Since the matrix subject is manifested, the sentence is forced to have the 'easy' reading. However, in the same sentence, there is an Agent in the embedded clause. As we have discussed, if there is an Agent in the embedded clause, the sentence has a 'tend to' reading. Usually, these two constructions do not appear in the same sentence. This is why the sentences like (21a) and (21b) are difficult to interpret. Although there is some difficulty in determining the meaning, I do not consider these sentences as ungrammatical, but rather as somewhat anomalous.

3.5. [+subj, CP, PRO]

What we will consider in this section is the structure which takes a base-generated matrix subject, a CP complement, and PRO in the embedded subject position.

(22)



We can derive the following sentences.

(23) a. gakusei$_i$-ga PRO$_i$ toshokan-de hon-o yomi-yasu-i
student-Nom library-at book-Acc read-easy-Pres
(lit.)'Students$_i$ are easy PRO$_i$ to read books at a library.'

b. toshokan-ga O$_i$ PRO$_k$ t$_i$ hon-o yomi-yasu-i
library-Nom book-Acc read-easy-Pres
(lit.) 'The library is easy O$_i$ PRO to read books t$_i$ in.'

c. hon-ga O$_i$ PRO$_k$ toshokan-de t$_i$ yomi-yasu-i
book-Nom library-at read-easy-Pres
(lit.) 'Books are easy O$_i$ PRO to read t$_i$ at a library.'

In the case of the Location *tough* construction, this structure is a correct one and we have been assuming it from the beginning. In sentence (23a), matrix subject *gakusei* 'student' is base-generated and PRO is in the embedded subject position. Wh-movement is not involved in this sentence. In sentence (23b), matrix subject *toshokan* 'library' is base-generated and an empty operator is generated in the Location position and moves to the Spec of CP. Sentence (23c) is derived in the same way; in this sentence an empty operator is generated in the Theme position and moves to the Spec of CP. In (23a), the matrix

subject and PRO are coindexed by control. In (23b) and (23c), the matrix subject and the gap are coindexed by predication as we discussed in section 3.3.

As the sentences in (23) show, this structure is a correct one for Agent, Location and Theme *tough* constructions. Note here that the Theme *tough* construction can have two structures: one involves NP-movement and the structure [-subj, VP] and the other involves this structure [+subj, CP, PRO]. However, if further wh-movement applies to these sentences, only the sentence derived by NP-movement can be shown to be well-formed. Sentences derived from the two structures are repeated here in (24a) and (24b) respectively.

(24) a. kono hon$_i$-ga [$_{VP}$ toshokan-de t_i yomi]-yasu-i
this book-Nom library-at read-easy-Pres
'This book is easy to read at a library.'

b. kono hon-ga [$_{CP}$ O_i PRO toshokan-de t_i yomi]-yasu-i
this book-Nom library-at read-easy-Pres
'This book is easy to read at a library.'

If we apply further scrambling to these sentences, we get the following sentence.

(25) toshokan$_i$-de kono hon-ga t_i yomi-yasu-i

This sentence is grammatical, which suggests that sentence (24a) is an available structure for the Theme *tough* construction. In other words, since sentence (24b) involves an empty operator movement, it forms a wh-island. This should block scrambling. However, (25) is still a possible sentence, because of the NP movement structure.

As we observed in 3.3, there is an Agent *tough* construction which has the structure in (10); this is repeated here as (26).

(26) a. gakusei$_i$-ga O_i t_i toshokan-de hon-o yomi-yasu-i
student-Nom library-at book-Acc read-easy-Pres
(lit.) 'Students are easy to read books at a library.'

At that point, I mentioned that the application of scrambling to this sentence, which is derived by wh-movement, seems not to be prohibited, as shown in (12), repeated here as (27).

(27) **toshokan-de**$_i$ gakusei-ga t_i hon-o yomi-yasu-i
library-at student-Nom book-Acc read-easy-Pres
(lit.) 'At a library, students are easy to read books.'
(lit.) 'At a library, students tend to read books.'

But I mentioned that, in reality, sentence (27) does not have the structure as in (26) but has other structure. The other structure is the one in (22), namely (23a). This is also an Agent *tough* construction but does not include wh-movement. Therefore, there is no problem with sentence (12), where scrambling is applied to the Agent *tough* construction, being grammatical.

3.6. [-subj, CP, PRO]

For the tree for this structure, refer to (22). The difference between the previously discussed structure and this one is that this structure does not have a matrix subject. Since there is no base generated matrix subject, it is considered that there is no movement in this structure for the same reason mentioned in 3.4. The following sentence is derived from this structure.

(28) PRO toshokan-de hon-o yomi-yasu-i
library-at book-Acc read-easy-Pres
'It tends PRO to read books at a library.'

In this sentence, we can get the meaning in which PRO refers to an arbitrary Agent. We observed in section 3.4. that if the Agent is in the embedded subject position, the sentence has the 'tend to' meaning and that is true of this sentence.

3.7. Summary

In this chapter, we have considered all conceivable structures for *tough* constructions by varying the relevant factors, one by one. We have observed that the *tough* construction which has an 'easy' reading has the structures [-subj, VP] and [+subj, CP, PRO]. Others are eliminated for independent reasons. The structures that are not eliminated, [-subj, VP]

and [+subj, CP, PRO], are the ones that we have claimed to be possible structures for the *tough* construction at the beginning.

We have also observed that the 'tend to' reading *tough* construction, which is peculiar to Japanese, correlates with the existence of the matrix subject.[6] If the Agent is in the embedded subject position and there is no matrix subject, the sentence has the 'tend to' reading, while if NP is in the matrix subject position, we get the 'easy' reading. The fact that the difference in the Agent position induces the meaning difference has been supported by the idiom chunk diagnostics. Since idiom chunks cannot appear in an argument position, the idiomatic reading cannot co-exist with the 'easy' reading.

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[6] The reason why English does not have a 'tend to' reading tough construction is accounted for by the difference in Nominative case assignment and the obligatoriness of the subject. In English, the clause which *easy* takes must always be infinitive. That is, Infl is considered to be marked as [-finite] and does not have the ability to assign Nominative case to the subject position. Since no case is assigned to the subject position, there should not be an overt NP in that position. Also, in the matrix subject, there should be an overt element since the matrix sentence is always [+finite] and has the ability to assign case. Recall that the structure which has a 'tend to' reading is the one which does not have an overt subject in the matrix sentence. The English data are not compatible with this requirement: hence, there is no tough construction with a 'tend to' reading.

This accounts for the fact that only Japanese has this construction. However, there still remains the question of why an empty matrix subject triggers the 'tend to' reading. I do not have any answer for this question at present.

CHAPTER 4

TOUGH CONSTRUCTION AND SUBJACENCY

4.0. Introduction

In this chapter, we will discuss *tough* constructions in which movement crosses an island. Before illustrating what kind of problems we will be dealing with, we should discuss the Theme *tough* construction once again. We have been assuming that this type of *tough* construction involves NP-movement. Up to now, when we have discussed the Theme *tough* construction, we have been referring only to sentences which involve short Theme *tough* movement, by which I mean the kind of *tough* construction which involves movement that does not cross a clause boundary. We have not seen an instance of the long Theme *tough* construction, by which I mean a *tough* construction in which movement does cross a clause boundary. I assume that the long Theme *tough* construction is derived by wh-movement, since it patterns like other instances of wh-movement.

In English, the *tough* construction is considered to be derived by wh-movement; one of data upon which this assumption is based is the sentence given below (Chomsky 1977).

(1) This book$_i$ is easy [PRO to ask students [PRO to read t_i]]

This sentence is not perfectly acceptable but it is not ungrammatical either. If this movement were an instance of NP-movement, the sentence should be ungrammatical due to condition A of the binding theory which states that an anaphor must be bound in its governing category. In this sentence, the governing category is denoted by the innermost brackets, and the trace is not bound within it. This leads us to assume that this type of movement must be an instance of wh-movement.

In the same way, the Japanese *tough* construction corresponding to (1) is also grammatical.

(2) kono hon$_i$-ga [gakusei-ni [t_i yomu] yooni ii] yasu-i
this book-Nom student-to read to ask easy-Pres
'This book$_i$ is easy to ask students to read t_i.'

If the movement involved in this sentence were NP-movement, the sentence should be ungrammatical due to the violation of condition A of the binding theory, as in the case of sentence (1).

Let us check how the long Theme *tough* construction behaves with scrambling, reflexives and nominalization, which we analyzed in chapter 2. If the long Theme *tough* construction involves wh-movement, it should behave like Location and Goal *tough* constructions. The relevant data are given in (3), (4) and (5).

(3) Scrambling

a. hon$_i$-ga (oya-nitotte) [O_i [PRO gakkoo-ni t_i kifu-suru] to
book-Nom (parents-for) school-to donation-do Comp
happyoo-si]-yasu-i
announcement-do-easy-Pres
'It is books that it is easy (for parents) to announce to donate to a school.'

b. ***gakkoo$_j$-ni** hon$_i$-ga (oya-nitotte) [O_i [PRO t_j t_i kifu-suru] to
school-to book-Nom (parents-for) donation-do Comp
happyoo-si]-yasu-i
announcement-do-easy-Pres
'It is to a school that it is easy (for parents) to announce to donate books.'

(4) Reflexive

a. *Taroo$_i$-ga (Jiroo-nitotte) [PRO [PRO zibun$_i$-no ie-de
Taroo-Nom (Jiroo-for) self's house-at
korosita]-to ii]-yasu-i
kill-COMP say-easy-Pres
(lit.) 'Taroo$_i$ is easy for Jiroo to tell (someone) that he killed at self$_i$'s house.'

(5) Nominalization

a. *kono hon-no gakusei-e-no yomu yoo ni ii-yasu-sa
this-book-Gen student-to-Gen read to tell-easy-ness
(lit.) 'The easiness to tell students to read this book.'

Sentence (3a) involves a long Theme *tough* movement. When we scramble *gakkoo-ni* 'to the school' to the sentence-initial position, the derived sentence is ungrammatical as in (3b).

This indicates that long Theme *tough* movement is a type of wh-movement since the scrambling, an instance of wh-movement, is blocked. This is the same as with Goal and Location *tough* constructions. Sentence (4) is ungrammatical, that is, the subject *Taroo* cannot serve as an antecedent of *zibun*. This is the same behavior as with the Goal and Location *tough* constructions, which we have claimed involve wh-movement. Sentence (5) is a nominalized form of sentence (2) and is ungrammatical. This again is parallel behavior to the Goal and Location *tough* constructions. Judging from these data, we confirm that the long Theme *tough* construction is derived by wh-movement, as the theory predicts.

Given these remarks, we expect the movement in the long Theme, Location, and Goal *tough* constructions to be sensitive to the island effect. Take the long Theme *tough* construction below, for example.

(6) *Sake$_i$-ga [S'[S Taroo-ga t_i nonda] ato] kuruma-de kaeri-niku-i
alcohol-Nom Taroo-Nom drink by car after car-by go back-hard-Pres
(lit.) 'Alcohol$_i$ is hard to go back by car after Taroo drinks t_i.'

In this sentence, the subject *sake* 'alcohol' is *tough*-moved from the adjunct phrase *Taroo-ga sake-o nonda ato* 'after Taroo drinks alcohol', which forms an island. The sentence is ungrammatical due to the island violation. This is consistent with what has been observed in the literature (e.g. Chomsky 1977).

However, there are sentences which seem not to display island effects.

(7) [kono te-no hanzai]$_i$-ga [NP[S' e_j e_i okasita] hito$_j$]-o sagasi-yasu-i[1]
this kind-Gen crime-Nom commit man-Acc search for-easy-Pres
(lit.) 'This kind of crime is easy to search for a man who committed.'

In this sentence, *kono te-no hanzai* 'this kind of crime' is extracted from the complex NP (CNP) *kono te-no hanzai-o okasita hito* 'the man who committed this kind of crime' which is considered as an island. But the sentence is well-formed.

In this chapter, we will discuss why sentences like (7) are grammatical in Japanese.

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[1] I will use *e* to indicate an empty category when we are discussing the empty category is a trace or not.

4.1. Takezawa's Analysis

Takezawa (1987) claims that there are two ways of deriving the *tough* construction in Japanese: one by movement and the other by base generation. He compares sentences like (7), which do not seem to display island effects, with sentences like (8).

(8) *[PP Anna taipu-no zyosei-to]$_i$-ga (John-nitotte)
that type of woman-with-Nom John-for

[NP[S' pro$_j$ e$_i$ kekkon-siteiru]otoko$_j$]-to hanasi-nikui
marry-do-Pres man-with talk-hard

(lit.) 'That type of woman is hard (for John) to talk to the man who married.'

In this sentence, the PP *anna taipu-no zyosei-to* 'with that type of woman' is extracted from a CNP. This sentence is ungrammatical, as we expect. Observing this data, Takezawa claims that a *tough* construction such as (7) does not involve movement, so the sentence is immune to the island violation. On the other hand, a sentence, like (8) is derived by movement, which makes the sentence ungrammatical due to the island violation.

He presents three arguments, shown in (9), which lead him to claim that there is a *tough* construction which does not involve movement.

(9) A. The *tough* construction does not observe the complex NP constraint.
B. There are sentences which do not involve gaps.
C. The construction allows a resumptive pronoun.

In the following sections, I will show that these three arguments are not convincing.

4.1.1. Subjacency

Takezawa's explanation of argument A above is the following. Consider sentences (7) and (8) again. If the sentence in (7) were derived by movement, *kono te-no hanzai* 'this kind of crime' would originally be in the object position of the verb *okasita* 'committed', and would be moved to the sentence-initial position, crossing S' and NP. The sentence should be ungrammatical due to a complex NP constraint (CNPC) violation. But in fact it is grammatical. Therefore he claims that a sentence like (7) is not derived by movement. Based on the fact that Japanese allows empty pronouns to appear freely, he claims that the

subject NP, *kono te-no hanzai* is base-generated in its position and there is an empty pronoun in the object position of the verb inside the CNP. The pronoun in the object position is coindexed with the NP in the subject position as shown in (10).

(10) [kono te-no hanzai]$_i$-ga (keisatsu-nitotte) [[pro$_i$ okasita] hito]-o sagasi-yasui

On the other hand, sentence (8) is ungrammatical. He claims that this type of *tough* construction, namely one in which a PP is extracted from a CNP, is derived by movement. Hence, the sentence (8) is ungrammatical due to a violation of subjacency, which is consistent with the data.

The point is that he claims that, if an NP is considered to be extracted from an island, then the sentence does not involve movement, whereas, if a PP is extracted from an island, the sentence is derived by movement[2] and thus is subject to island constraints.

However, Takezawa's account has a serious problem. If his claim were true, sentence (6), repeated here as (11), in which an NP is extracted from an adjunct, should be grammatical for the same reason as (7): according to his analysis, a construction in which an NP is extracted from an island is considered not to involve movement.

(11) *Sake$_i$-ga [$_{S'}$[$_S$ Taroo-ga e$_i$ nonda] ato] kuruma-de kaeri-niku-i
alcohol-Nom Taroo-Nom drink after car-by go back-hard-Pres
(lit.) 'Alcohol$_i$ is hard to go back by car after Taroo drinks t$_i$.'

If there were no movement involved, as Takezawa suggests, there should be no violation in this sentence and the sentence should be grammatical. However, contrary to what his analysis predicts, it is ungrammatical, as shown in (11).

Saito (1985) claims that topic and relative constructions do not involve movement in sentences in which an NP is extracted, giving the same kind of data as Takezawa gives for *tough* constructions. But there is a serious difference between topic and relative constructions on the one hand and *tough* constructions on the other. Consider the following data, which are from Kuno (1973).

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[2] See Takezawa (1987: 217).

(12) Extraction from CNP

a. Relative construction

[NP[S[NP[S e_i e_j kite iru] yoohuku$_j$]-ga yogorete iru] sinsi$_i$]
wearing suit -Nom dirty be gentleman

(lit.) 'A gentleman who the suit that (he) is wearing is dirty'

b. Topic construction

sono sinsi$_i$-wa [S[NP[S e_i e_j kite iru] yoohuku$_j$]-ga yogorete iru
that gentleman-Top wearing suit -Nom dirty be

'Speaking of that gentleman, the suit he is wearing is dirty.'

(13) Extraction from adjunct

a. Relative construction

[NP[S[adjunct e_i sinda noni] dare-mo kanasimanakatta] hito$_i$]
died although anyone saddened-not-was person

(lit.) 'The person who, although (he) died, no one was saddened.'

b. Topic construction

sono hito$_i$-wa [S[adjunct e_i sinda noni] dare-mo kanasimanakatta]
that person-Top died although anyone saddened-not-was

'Speaking of that person, no one was saddened although (he) died.'

In these sentences, elements are extracted from CNPs (sentences in (a)) and from adjuncts (sentences in (b)). Although these sentences are considered to violate subjacency, they are all grammatical. Thus Saito claims that these sentences do not involve movement. If we go back to Takezawa's claim and compare the examples (12) and (13) of relative and topic constructions to (7) and (11) with *tough* constructions, we will observe a crucial difference in grammaticality between (13) and (11). That is, extraction from an adjunct is ungrammatical in *tough* constructions such as (11) while it is grammatical in topic and relative constructions such as (13). If Takezawa's claim were correct, the extraction of an NP from the adjunct position should be grammatical, as it is in the case of topic and relative constructions. But the data do not support Takezawa's claim. This makes his treatment of the *tough* construction in the same manner as topic and relative constructions suspect.

4.1.2. Non-Gap Sentences

The second reason that Takezawa presents for the non-movement analysis is that non-gap sentences such as (14) are found in Japanese.

(14) kooitta ziko-ga (higaisha-nitotte)
this kind of accident-Nom injured party-for
bakudaina songaibaisyoo-o seikyuusi-yasui
enormous amount of compensation-Acc claim-easy-Pres
(lit.) 'This kind of accident is easy (for the injured party) to claim an enormous amount of compensation.'

If this sentence is derived by movement, there should be a gap in it, but he claims that there is no corresponding gap for the subject NP *kooitta ziko* 'this kind of accident'. However, this account also has a problem. If we look at sentence (14) carefully, we find that there is another sentence which could be considered its base form.

(15) higaisha-ga **kooitta ziko-ni**
injured party-Nom this kind of accident-to

bakudaina songaibaisyoo-o seikyuusuru.[3]
enormous amount of compensation-Acc claim do

'The injured party claims an enormous amount of compensation
for this kind of accident.'

In (15), *kooitta ziko* is in a prepositional phrase and the meaning of the PP is 'to this kind of accident'. Sentence (14) is considered to be derived from sentence (15). Thus, there is a gap before *bakudaina* 'enormous' in (14), contrary to Takezawa's claim.

Furthermore, his reasoning becomes weaker, if we compare sentence (14) to the following sentences. Sentence (16) is a topic sentence and sentence (17) a relative sentence. Both topic and relative sentences are considered not to involve movement in Japanese. Thus, we expect not to find gaps in these sentences.

(16) Sakana-wa [$_S$ tai-ga oisii]
fish-Top red snapper-Nom tasty
'Speaking of fish, red snapper is tasty.'

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[3] Takezawa gives one more sentence which is supposed to show that there is no gap in the tough construction.

(i) kotosi (gakusei-nitotte-wa) gengogaku-ga ii sigoto-o mituke-nikui rasii
this year (student-for-T p) linguistics-Nom good job-Acc find difficult seem

(lit.) 'It seems that this year linguistics is difficult (for students) to find a good job in.'

I present this in a note since it includes several points which I do not consider in this thesis. For example, the sentence involves two predicates, *nikui* and *rasii*, and the topicalized *for*-phrase. These are not relevant to this thesis. However, the point here is whether we can find a possible base sentence which involves the subject NP *gakusei* 'student' or not; as it happens, we can. Actually, there are two possible base forms depending on how we interpret sentence (i).

(ii) kotosi **gengogaku-no** gakusei-ga ii sigoto-o mituke-nikui rasii
this year linguistics-Gen student-Nom good job-Acc find difficult seem

(lit.) 'This year, it seems that students of linguistics are difficult to find a good job.'

(iii) kotosi gakusei-ga ii sigoto-o **gengogaku-de** mituke-nikui rasii
this year student-Nom good job to linguistics find difficult seem

(lit.) 'This year, it seems that students are difficult to find a good job in linguistics.'

As shown (ii) and (iii), we can find base forms for the sentence (i). However, tough movement from the genitive position in (ii) is beyond the scope of this thesis.

(17) sakana-o yaku nioi
fish-Acc roast smell
'The smell which comes out when we roast fish.'

These are examples of famous non-gap sentences in Japanese. For these sentences, we cannot propose a possible base form. We might deliberately try to form a base sentence such as (18) for (16), but it would be awkward.

(18) ?tai-ga **sakana-no nakade** oisii
red snapper-Nom among fish tasty

In the same way, if we try to form a base sentence for (17), we have to add a clause-like element, as shown in (19).

(19) sakana-o yaku **toki-ni deru nioi**
fish-Acc roast when-at comes out smell
'The smell which comes out when we roast fish.'

Therefore, sentences (16) and (17) are considered to be real non-gap sentences. Compared to these sentences, it is dubious to claim that (14) is a non-gap sentence since we can find a possible base sentence which is completely grammatical.

Furthermore there are data which show that topic and relative constructions, on the one hand, and the *tough* construction, on the other, are different types of constructions.

(20) a. Relative

sakana-o yaku nioi
fish-Acc roast smell
'The smell which comes out when we roast fish.'

b. Topic

kono nioi-wa sakana-o yai te iru na
this smell-Top fish-Acc roast be Judgment
'Judging from this smell, I think somebody is roasting fish.'

c. *Tough*

*kono nioi-ga sakana-o yaki yasui
this smell-Nom fish-Acc roast easy
'This smell is easy to produce when we roast fish.'

As we have observed, if we want to find a base form for the sentence, we must add a clause like 'which comes out when', as shown in the English translation. As (20b) shows,

we can make a topic construction by using the same sentence as (20a). In this sentence, the missing element is also a clause, as shown in the English translation. As for the *tough* construction in (20c), however, we cannot make a grammatical sentence from the same sentence as (20a) and (20b). If the *tough* construction were really a non-gap sentence, then (20c) should be grammatical with the sense shown in the English translation. However, this is not true. This shows that the *tough* construction is different from topic and relative constructions. Therefore, Takezawa's claim that it can be a non-gap sentence like relative and topic constructions is dubious.

4.1.3. Resumptive Pronoun

The third argument for claiming that *tough* constructions in Japanese do not involve movement concerns resumptive pronouns. Let us first describe some data related to resumptive pronouns in English.

Consider the following relative clause in English.

(21) The man who$_i$ John saw t_i.

It is considered that the relative clause is derived by wh-movement. Thus *who* is base generated in the object position of *saw* and moves to the Spec of CP. If we replace the trace of *who* with *him*, we still get a marginally grammatical sentence, as in (22). The is from Chomsky (1982).

(22) The man who$_i$ John saw him$_i$.

Furthermore, if we construct a sentence in which the relation of *who* and its trace or pronoun violates the island condition, the sentence which has the pronoun is grammatical but marginal and the one which does not is ungrammatical.

(23) a. ?The man who$_i$ [$_{IP}$ they think [$_{CP}$ that [$_{IP}$ [$_{CP}$ if [$_{IP}$ Mary marries him$_i$]]
then everyone will be happy.]]

b. *The man who$_i$ [$_{IP}$ they think [$_{CP}$ that [$_{IP}$ [$_{CP}$ if [$_{IP}$ Mary marries t_i]]
then everyone will be happy.]]

Observing this data, we cannot assume that, in sentence (23a), *who* is moved from the object position of *marries* to the Spec of CP, and after that, the pronoun *him* is inserted in the trace position, because this movement violates the subjacency condition, assuming that it is a condition on movement. Therefore, it has been said that, where there is a pronoun, the sentence should not be derived by movement. That is, *who* is base-generated in the Spec of CP and related to the pronoun by predication. This kind of pronoun is called a resumptive pronoun and it is interpreted like wh-trace.

Having examined this argument concerning the nature of English resumptive pronouns, let us observe how Takezawa extends the argument to *tough* construction. Before Takezawa, Saito (1985) discussed resumptive pronouns in Japanese; Takezawa applies Saito's argument to *tough* construction. Thus, let us first consider the nature of resumptive pronouns in Japanese.

Saito (1985) observes that Japanese relative constructions do not observe the island condition, as shown in (24).

(24) [NP[S[NP[S e_i e_j kite iru] yoohuku$_j$]-ga yogorete iru] sinsi$_i$]
wearing suit -Nom dirty be gentleman
(lit.) 'A gentleman who the suit that (he) is wearing is dirty.'

The relative construction allows resumptive pronouns as in (25), cited from Kuno (1973).

(25) ?[NP[S watasi-ga kare$_i$-no namae-o wasurete simatta] okyakusan$_i$]
I-Nom he-Gen name-Acc have-forgotten guest
'the guest who I have forgotten his name'

The sentence with a resumptive pronoun, (25), is considered to be derived by non-movement, as in the English case. However, the English counterpart of (24) is ungrammatical due to the subjacency violation. The difference between English and Japanese stems from the fact that Japanese is a pro-drop language. Saito's claim is that since Japanese is a pro-drop language, it is not strange for it to have a null resumptive pronoun. Thus, he claims that the empty category in sentence (24) is an empty resumptive pronoun. Since, if there is a resumptive pronoun in a structure, we have assumed that

there is no movement involved, it is plausible to assume that there is no movement in sentence (24). Therefore the sentence is grammatical.

Takezawa extends this argument to the *tough* construction. He gives a sentence which does not observe subjacency, repeated here in (26), and one which allows a resumptive pronoun, (27).

(26) [kono te-no hanzai]$_i$-ga [NP[S' e$_j$ e$_i$ okasita] hito$_j$]-o sagasi-yasu-i
this kind-Gen crime-Nom commit man-Acc search for-easy-Pres
(lit.) 'This kind of crime is easy to search for a man who committed.'

(27) ?sono gakusei$_i$-ga (Yamada-sensei-nitotte)
that student-Nom Yamada-professor-for
kare$_i$-no namae-o oboe-niku-i
he-Gen name-Acc memorize difficult-Pres
'That student$_i$ is hard (for Prof. Yamada) to remember his$_i$ name.'

Sentence (26) is grammatical, even though an NP, *kono te-no hanzai* 'this kind of crime', is extracted from the CNP, which is an island. Sentence (27) shows that the *tough* construction with the resumptive pronoun *kare* 'he' in the Genitive is grammatical, though marginal.

From these data, Takezawa concludes that the *tough* construction in Japanese does not involve movement.

However, there are several problems concerning this argument. The first is that Takezawa seems to use resumptive pronouns as a diagnostic for non-movement. In other words, his argument is that if a construction ever allows resumptive pronouns, then that construction is never derived by movement. However, originally, the argument concerning resumptive pronouns was that a sentence allows resumptive pronouns only when it is not derived by movement. If the resumptive pronoun disappears, the same sentence is considered to be derived by movement. Thus the argument based on resumptive pronouns is true only of the applicable sentence. The fact that a construction can take a resumptive pronoun does not mean that all instances of the construction are derived by non-movement.

Therefore, we cannot directly connect the presence of resumptive pronouns and the non-movement analysis for the *tough* construction as a whole.

The second problem is a more basic problem concerning the Japanese resumptive strategy. In English, the resumptive pronoun strategy is implicated only when the sentence contains a pronoun. When the overt pronoun exists, it is considered that the sentence does not involve movement for the reason given above. However, the argument here is that, in the case of Japanese, the resumptive pronoun can be null. The question arises of how we know whether the empty pronoun is a resumptive pronoun or a trace. The original argument depends on the existence of a pronoun, but here we even do not have that cue to claim that the sentence is derived by non-movement.

One might say that we can judge whether a sentence contains an empty resumptive pronoun or not by examining whether the sentence observes subjacency or not. If the sentence does not observe the subjacency condition, then it contains an empty resumptive pronoun. However, this argument is circular. Since the sentence contains a pronoun and does not observe the subjacency condition, we conclude that it does not involve movement. The two condition--whether the sentence includes pronoun or not and whether it observes the subjacency condition or not--are the two independent motivations for assuming that the sentence does not involve movement. And now we are saying that whether a resumptive pronoun is present or not is determined based on whether the sentence observes the subjacency condition or not. In other words, if the sentence does not observe subjacency, then it does not involve movement. This is the same as Takezawa's first argument, which, we have seen, has a problem.

Even if we accept the account that if a sentence does not observe subjacency, it contains a resumptive pronoun, we cannot immediately conclude that the *tough* construction as a whole, or at least the form which involves extraction from a CNP, is derived by non-movement. This is because we have examples which observe the subjacency condition.

(28) a. Hanako-ga [[Jiroo-ni e_i kasi-ta] hon_i]-o mitsuker-u
Hanako-Nom Jiroo-to lend-Past book-Acc find-Pres
'Hanako finds a book which (she) lent to Jiroo.'

b. *$Jiroo_j$-ga Hanako-nitotte [[e_j e_i kasi-ta] hon_i-o] mitsuke-yasu-i
Jiroo-Nom Hanako-for lend-Past book-Acc find-easy-Pres
(lit.) '$Jiroo_i$ is easy for Hanako to find a book which (she) lent to t_i.'

Sentence (28a) has a CNP in the object position. From the CNP, *Jiroo* is *tough*-moved to the sentence-initial position; the derived sentence is ungrammatical, contrary to Takezawa's claim. We will discuss these data in detail in the following section. Takezawa could at best claim that specific sentences which allow an empty resumptive pronoun are derived by non-movement. That is, the relative construction as a whole is considered to be derived by movement but, if there is a resumptive pronoun, that particular sentence is considered to be derived by non-movement. In other words, his argument does not affect the analysis of the *tough* construction as a whole.

As we have seen in this section, Takezawa's three arguments for the non-movement analysis are not convincing. A non-movement analysis of the *tough* construction is thus not borne out.

4.2. The *Tough* Construction and Subjacency

Since we have concluded that a non-movement analysis of the *tough* construction is not well founded, we must now address the question of why sentence (7), repeated here as (29a), is grammatical even though it involves a violation of the subjacency condition.

(29) a. [kono te-no hanzai]$_i$-ga [$_{NP}$[$_S$' e_j e_i okasita] $hito_j$]-o sagasi-yasu-i
this kind-Gen crime-Nom commit man-Acc search for-easy-Pres
(lit.) 'This kind of $crime_i$ is easy to search for a man who committed e_i.'

b. [kooitta itazura]$_i$-ga (senseigata-nitotte)
this kind of trick-Nom teachers-for
[$_{NP}$[$_S$' e_j e_i si-ta] $seito_j$]-o mituke-yasu-i
do-Past pupil-Acc find-easy-Pres
(lit.) '$trick_i$ is easy (for teachers) to find a pupil who played e_i.'

c. [sooiu ronbun]i-ga (watasi-nitotte)
that kind of paper-Nom me-for

[NP[S' ej ei kai-ta] gakuseij]-o hyookasi-niku-i
write-Past student-Acc evaluate-difficult-Pres

(lit.) 'That kind of paper$_i$ is difficult (for me)
to evaluate a student who wrote e_i.'

In these sentences, the subject NP is extracted from the CNP, which is considered as an island. Nevertheless, these sentences are grammatical. However, as we have seen briefly above, there are also examples which are subject to the subjacency condition.

(30) a. Hanako-ga [[Jiroo-ni e_i kasi-ta] hon$_i$]-o mitsuker-u
Hanako-Nom Jiroo-to lend-Past book-Acc find-Pres
'Hanako finds a book which (she) lent to Jiroo.'

b. *Jiroo$_j$-ga Hanako-nitotte [[e_j e_i kasi-ta] hon$_i$-o] mitsuke-yasu-i
Jiroo-Nom Hanako-for lend-Past book-Acc find-easy-Pres
(lit.) 'Jiroo$_i$ is easy for Hanako to find a book which (she) lent to t_i.'

(31) a. Taroo-ga [naifu-de e_i tot-ta] keeki$_i$]-o hito-ni ager-u
Taroo-Nom knife-with take past cake-Acc people-to give-Pres
'Taroo gives someone a cake which (he) takes with knife.'

b. *naifu$_j$-ga Taroo-nitotte [[e_j e_i tot-ta] keeki$_i$]-o hito-ni age-niku-i
knife-Nom Taroo-for take-Past cake-Acc people-to give-difficult-Pres
(lit.) 'The knife$_i$ is difficult for Taroo to give someone a cake
which (he) took with t_i.'

(32) a. Taroo-ga [[keeki-o e_i kitta] naifu$_i$]-o ara-u
Taroo-Nom cake-Acc cut knife-Acc wash-Pres
'Taroo washes a knife with which (he) cut cake.'

b. *Keeki$_j$-ga Taroo-nitotte [[e_j e_i kitta] naifu$_i$]-o arai-niku-i
cake-Nom Taroo-for cut knife-Acc wash-difficult-Pres
(lit.) 'A cake$_i$ is difficult for Taroo to wash the knife with which (he) cut t_i.'

If we derive *tough* sentences from the sentences in (a) above, the derived sentences are ungrammatical due to the subjacency condition. For example, in (30), *Jiroo* is moved from the CNP to the sentence-initial position and the derived sentence (30b) is ungrammatical. We expect the *tough* sentences in (b) to be ungrammatical. But why is there a difference between (29) and (30)-(32)? If we carefully compare the sentences in (29) on the one hand and (30)-(32) on the other, we will notice that there is a difference in the internal structure

of the CNP. In the former sentences, the head of the CNP is the subject of the sentence, while in the latter it is other than the subject. For example, in (30a), the head of the CNP, *hon* 'book' is an object of the sentence *Jiroo-ni hon-o kasu* 'lend a book to Jiroo', while in (29a), the head of the CNP, *hito* 'man', is the subject of the sentence *hito-ga kono te-no hanzai-o okasu* 'a man commits this kind of crime'. We can generalize this phenomenon as follows: if the head of the CNP is a subject, further extraction from the CNP is allowed, whereas if the head of the CNP is other than a subject, further extraction is not allowed.

This reminds us of Chomsky's vacuous movement hypothesis, which states that wh-movement for subjects does not take place at S-structure.[4] The consequences of this hypothesis are as follows. Sentence (33) is from Chomsky (1986b: 48).

(33) What do you wonder [$_{CP}$ who saw t]

If we do not accept the vacuous movement hypothesis and assume that *who* in subject position should move to Spec of CP at S-structure, this sentence should be ruled out due to a subjacency violation. However, the sentence is relatively grammatical. This fact is captured by the vacuous movement hypothesis. *Who* in subject position does not move at S-structure, so *what* can move to the higher Spec of CP via the lower Spec of CP, without violating subjacency.

The reason that Chomsky must specify the level at which the wh-element in subject position does not move is that, if we assume a wh-element does not move at LF either, we have the following problem.

(34) *How do you wonder [$_{CP}$ who fixed the car t]

If *who* stays in its original position at LF, this sentence should be grammatical. *How* moves to the higher Spec of CP via the lower Spec of CP, without violating subjacency. A trace of *how* is not theta-governed, so it needs antecedent government. If there is an intermediate trace in the lower Spec of CP, the trace of *how* is antecedent-governed by the intermediate trace. Thus, this sentence would be supposed to be grammatical, contrary to

[4] See Chomsky (1986b). This idea is originally from George (1980).

the fact. That is the reason why the wh-element in subject position must move at LF: if it moves, it blocks antecedent government of the trace.

A similar claim about relative clauses can be found in Williams (1980). He differentiates the structures of an infinitival relative with a subject as a head and one with a non-subject as a head.

(35) a. A man to do the job

b. A man to talk to

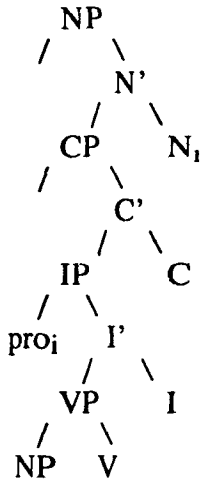
The relative in (35a) has a subject as a head and that in (35b) has a non-subject as a head. Williams claims that the relative with a non-subject involves wh-movement and the one with a subject does not. Thus the structures for (35) are as follows.

(36) a. A man$_i$ [$_{CP}$[$_{IP}$ PRO$_i$ to do the job]]

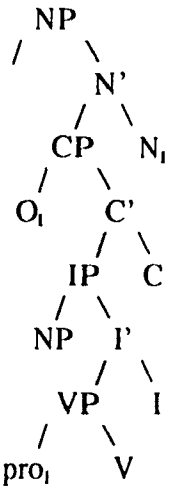
b. A man$_i$ [$_{CP}$ O$_i$ [$_{IP}$ PRO$_k$ to talk to t$_i$]]

This phenomenon in English is parallel to what we have observed for *tough* constructions with a CNP. Let us examine the structures of Japanese CNP in (37).

(37) a. subject as a head



b. non-subject as a head



The head of the structure (37a) is subject of the embedded clause and the one of (37b) is non-subject. In the former structure, extraction from the CNP is allowed, whereas, in the latter structure, extraction from the CNP is prohibited. We cannot apply Williams' analysis directly to the Japanese sentences, since no movement is involved in the relative clauses

and is *pro* exists in Japanese. To capture this different behavior, we assume here that an empty operator is base-generated in the case of (37b) whereas no empty operator need be generated in the case of (37a).[5] The reason for this is as follows. Williams claims that the head of a relative has to govern the head of the variable chain under strictly local conditions. A similar assumption is made by Safir (1986), who states that the head of the relative clause has to bind the highest element in the relative clause. The basic idea here is that the NP has to bind the highest position. This is the reason why we have to assume the existence of an empty operator in (37b): the highest position is *student*, which is not related to the head *window*. If there is an empty operator, it is the highest element in this structure and it is bound by *window*, the head of the relative clause, in the desired way.

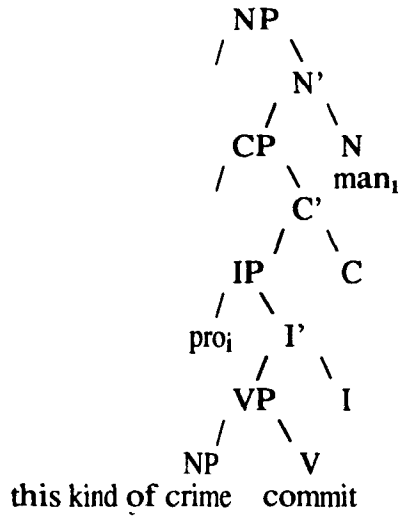
On the other hand, in the case of (37a), the highest position is *pro*, which is bound by the head *student*, as it should be. Thus there is no need to posit an empty operator in this structure.

If subjacency is a condition on movement and not on representation, as we have been assuming, the presence of the empty operator in relative clauses does not affect the data showing that the relative construction does not observe the island condition.

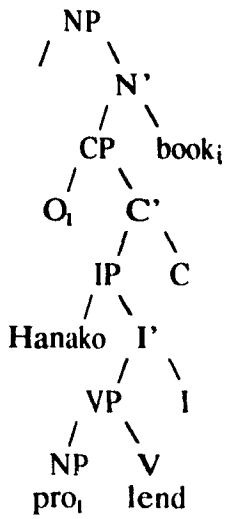
Let us examine how this assumption accounts for the data in *tough* constructions with a CNP. Take the CNPs in (29a) and (30b) for example. The structure (38a) is the CNP in (29a) and (38b) is the one in (30b).

[5] Refer to Cinque (1990) for a similar assumption.

(38) a. subject as a head



b. non-subject as a head



In case of a non-subject-head CNP, there is an empty operator base-generated in the Spec of CP as shown in (38b), and extraction of *Hanako*, in this case, from the CNP is prohibited. In terms of the violation of subjacency, both structures are the same, since there is only one barrier in each structure, CP. The difference is a result of the ECP. For example, in (38b), if the NP *Hanako* in the subject is extracted, then since the subject position is not theta-governed, it has to be antecedent-governed. However, the empty operator in the Spec of CP blocks this kind of government according to the relativized minimality. Other extractions such as Goal and Location from the structure in (38b) are also ungrammatical, for the same reason as in the case of Theme. That is, Goal and Location are not theta-governed and their traces must be antecedent-governed. But this kind of government is blocked by the existence of the empty operator.

On the other hand, extraction of 'this kind of crime' from the CNP in (38a) is allowed. The trace of it is theta-governed so this structure is not a violation of the ECP.

4.3. Summary

In this chapter, we have examined certain data which seem not to observe subjacency. This was the motivation for Takezawa's (1987) non-movement analysis. We have considered Takezawa's analysis and showed that the reasoning underlying his non-

movement analysis is not convincing. In fact, the only structures which seem not to observe subjacency are cases of extraction from a CNP whose head noun is a subject. Other CNPs and all adjunct clauses are islands for *tough* movement. The peculiar behavior of subjects is also observable in English constructions involving two wh-words in an embedded clause. In these constructions, if one of the wh-words is in the subject position, extraction from the embedded clause is permitted; while, if neither of them is in the subject position, extraction from this embedded clause is excluded. Thus Chomsky (1986b) proposes the vacuous movement hypothesis, which states that a wh-phrase in a subject position need not move to Spec of CP at S-structure.

This is exactly what we have observed in the CNP constructions. Williams (1980) proposes a similar analysis for infinitival relatives in English. What he claims is that a relative clause whose head is a subject does not involve movement while one whose head is a non-subject does involve movement. We cannot apply this analysis directly to the Japanese data so we have assumed that there is a base-generated empty operator of non-subject-head CNPs. This analysis accounts for the CNP data.

We have observed that CNPs which seem not to observe the subjacency condition are not only found in Japanese, a similar phenomenon also exists in English, which is accounted for by an independent analysis. Thus the peculiar behavior of *tough* constructions with CNPs does not affect the analysis of *tough* constructions as a whole.

CHAPTER 5

CONCLUSION

In this thesis, I have examined *tough* constructions in Japanese and proposed that they are generated by two types of movement. This analysis accounts for a wider range of data than previous accounts.

In chapter 2, I claimed that the Theme *tough* construction is derived by NP-movement and other types of *tough* constructions are derived by wh-movement. By making this distinction, three kinds of data are accounted for. One is that *tough* constructions other than those with Themes do not allow scrambling. This is accounted for in the following way: since non-Theme *tough* constructions are derived by wh-movement, the application of scrambling, which is an instance of wh-movement, violates the island effect. The second type data involving *tough* constructions with a reflexive expression. The fact that, in non-Theme *tough* constructions, the subject can not serve as an antecedent of a reflexive expression is accounted for by the presence of an operator, together with the Bijection Principle and a revised definition of variable. The structure of non-Theme *tough* constructions involves an empty operator, which binds two variables in the construction; this is a violation of the Bijection Principle. The third kind of data concerns NPs derived from is derived from *tough* construction.

The factors involved in generating the structures which are proposed in chapter 2 are further explored in chapter 3. It is shown that these are the only structures which can derive correctly *tough* constructions; other structures are ruled out for independent reasons. The analysis of the *tough* construction with the 'tend to' reading is also presented in this chapter. This particular type of *tough* construction had not previously been analyzed but I show that it is a type of *tough* construction that is defined by the position of the Agent. If there is an Agent in the embedded subject position, the sentence has a 'tend to' reading.

Supporting evidence is provided by the idiom chunk diagnostic. The reason why this type of *tough* construction does not exist in English is accounted for by the difference in Nominative case assignment in the two languages.

In chapter 4, *tough* construction which violate subjacency are examined. Certain sentences seem to violate subjacency but are grammatical. Takezawa (1987) has claimed that there is no movement in such sentences. I show that the reasons for his claim are not convincing. Similar peculiar behavior related to the subject position is observed in English, too. I account for these data by assuming that in the case of a CNP whose head is a subject, there must be a base-generated empty operator in the Spec of CP, along the lines of the vacuous movement hypothesis proposed by Chomsky (1986b).

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