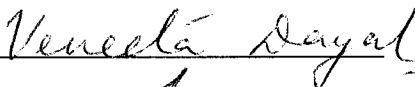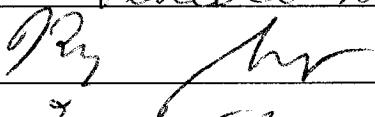SYNTAX AND SEMANTICS OF

CONCEALED CAUSATIVE CONSTRUCTIONS IN JAPANESE

by

MASAAKI FUJI

A Dissertation submitted to the

Graduate School-New Brunswick

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Linguistics

written under the direction of

Professor Maria Bittner

and approved by

Maria Bittner

Veneeta Dayal

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New Brunswick, New Jersey

October, 2003

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ABSTRACT OF THE DISSERTATION

Syntax and Semantics of Concealed Causative Constructions in Japanese

by MASAAKI FUJI

Dissertation Director:

Maria Bittner

This dissertation investigates syntax and semantics of concealed causative constructions in Japanese within the framework of Bittner's (1999b) dynamic cross-linguistic semantics. The concealed causative constructions we focus on consist of the internally headed relative clause construction (IHRC) and the sort-sensitive pronoun construction (SSPC).

In chapter 2 we argue that what I call the sort-sensitive pronoun (SSP) in Japanese shows a host of quite peculiar properties that the ordinary pronoun never shows.

In chapter 3 we compare the Japanese and the Navajo IHRCs, and show that the properties of the Japanese IHRC are in almost every respect distinct from those of the Navajo IHRC, which is known to be a type of restrictive relative clause. We further observe that the Japanese IHRC exhibits virtually the same semantic restrictions as those imposed on the SSPC.

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Chapters 4 and 5 are concerned with previous analyses of the Japanese IHRC. We conclude that none of them can fully explain the syntactic and semantic peculiarities of the Japanese IHRC.

In chapter 6 we show that although the IHRC and the SSPC in Japanese look quite different at surface level, detailed investigation reveals striking similarities between them. Syntactically, they must contain exactly one SSP overtly or covertly, and they behave like sentential coordination. Semantically, they can be characterized by the direct cause condition, which says that the eventuality of the right conjunct must be the direct cause of the termination of the eventuality of the left conjunct.

To capture these unexpected similarities, we claim in chapter 6 that the IHRC and the SSPC in Japanese are two varieties of the same construction, i.e., the concealed causative construction. We argue that syntactically, both constructions function as sentential coordination at LF with the SSP in the right conjunct as the coordinator, and that semantically, the SSP in both constructions, when interpreted by dynamic cross-linguistic semantics, triggers a particular type-mismatch that can only be resolved by a causative type-lifting operator. We argue that this operator brings into the computation the directness of the termination that the direct cause condition tries to capture.

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ACKNOWLEDGEMENT AND DEDICATION

In this world of uncertainty, there is one thing that is absolutely certain to me: this thesis could never have been completed without my committee members' constant academic and moral support.

First and foremost, I am grateful to the chair of my committee, Maria Bittner, whose influence can be seen everywhere in this thesis. I first got interested in peculiarities of Japanese internally headed relative clauses about ten years ago when she talked in a Semantics II class about how to explain the so-called indefiniteness restriction on the internal head of the Lakhota internally headed relative clause. I noticed that Japanese internally headed relative clauses did not show this restriction, and got interested in explaining why this was so. This was the beginning. Since then, I have made a lot of appointments with Maria to discuss a countless number of points concerning this strange construction. She has always been willing to spend hours after hours giving me detailed comments and suggestions even on my wildest ideas, and her dedication to linguistics as a serious science has always struck me as inspiring. Also, she has never forgotten giving me encouragement and support in the most generous way. It is with deep respect and lasting affection that I again say thanks, Maria.

My special thanks go to Veneeta Dayal, who has helped me most generously from the very beginning to the end of my time at Rutgers. I am grateful to her for not only giving me detailed comments and suggestions on my earlier papers on Japanese internally headed relative clauses, but also showing me how to do research in the field of syntax/semantics interface with her own work on the correlative construction in Hindi. I would also like to thank her for her continuous moral support. Her belief in me has been saved me many times. Without her continuous encouragement and support, I would have given up completing my dissertation a long time ago.

I am very grateful to Roger Schwarzchild, who has always given me encouragement and support without reservation. He has believed in me and has supported me continuously. This did not change a bit even after my long absence from Rutgers. It has been my great pleasure to discuss various aspects of my research and other topics with him and I have greatly benefited from such discussion. I would like to thank him especially for carefully reading the draft of the dissertation and giving me back the copy, with his detailed comments and suggestions written on almost every page.

I would like to thank Toshiyuki Ogihara, the external committee member, for his continuous support and encouragement. His comments and criticism on the draft of the dissertation have greatly improved its quality. He even came to Rutgers not only to

present his paper but also to listen to and give comments on my ideas on Japanese internally headed relative clauses. This meeting was enormously helpful.

I would also like to express my gratitude to the faculty at the department of linguistics at Rutgers for providing me with a top-notch environment in which I can happily pursue my own project. I would thank the following faculty for their encouragement and support at various occasions: Ken Safir, Jane Grimshaw, Vivian Déprez, Akinbiyi Akinlabi, Alan Prince.

I owe a debt to Noriko Imanishi and Ken'ichi Mihara, who brought me into linguistics when I was an undergraduate student, and have helped me in many ways since then. I would like to especially thank Ken'ichi Mihara, not only for his own work on the Japanese internally headed relative clause construction, but also for listening to my ideas on this construction, giving me valuable comments and suggestions, and even sending me important but not readily available papers on this construction.

I am indebted to Ukaji Masatomo, Akira Ikeya, Masaru Kajita, Ohtsu Yukio, Takao Yagi, and Osamu Koma, who have helped me generously with their teaching, advice and encouragement since I was a graduate student at Tokyo Gakugei University. I am especially grateful to Masaru Kajita, for giving me an opportunity to present my idea at Sophia University and for providing me with invaluable comments and suggestions.

I would like to thank Naoyuki Takagi, Takako Niwa, Yukio Oshima, and Yoko Uchida, my colleagues at Tokyo University of Marine Science and Technology, who provided me with generous support so that I was able to finish writing this thesis in the United States.

It is my great pleasure to thank Takeo Kurafuji, who was at Rutgers with me for many years and provided me not only with invaluable comments and suggestions on my various ideas, but also with moral support, encouragement, and friendship.

Among past and present fellow students, I would especially like to thank Strang Burton, Vieri Samek-Lodovici, Yael Sharvit, Olga Babko-Malaya, Christine Brisson, Eric Bakovic, Edward Keer, Ron Artstein, Nicole Nelson, Susanne Preuss, Thomas Werner, Rong Yang and Yoko Futagi.

I would also like to express my gratitude to Emmyo Niwa, who generously gave me personal English lessons on every possible occasion he could find when I was still at an elementary school with absolutely no knowledge of English language. His enthusiasm toward English cultivated my interest in English and ultimately in science of language.

Finally, I would like to thank my father, mother and brother back in Japan, who have always supported me. Without their love and understanding, I could not have even come to Rutgers in the first place.

This dissertation is dedicated to my father.

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LIST OF ABBREVIATIONS

Nom: Nominative

Acc: Accusative

Gen: Genitive

Dat: Dative

Loc: Locative

Top: Topic

Nmn: Nominalizer

Past: Past

Pres: Present

Perf: Perfect

Prog: Progressive

prn: pronoun

Neg: Negation

Det: Determiner

CL: Classifier

Asp: Aspectual Verb

CHAPTER 1. INTRODUCTION

This thesis is an attempt to explain syntax and semantics of a certain subset of

what I call *concealed causative constructions* in Japanese. The concealed causative

constructions in Japanese that I will focus on in this thesis consist of the following two

constructions: *sort-sensitive pronoun construction* and *internally headed relative clause*

construction (IHRC construction).[1] They are exemplified in (1) and (2). In (1) underlined

portions are intended to be anaphorically related. In (2) the underlined portion is the head

of the relative clause.

(1) *Sort-Sensitive Pronoun Construction*

<u>Ken</u>-ga   heya   kara   deteki-ta;

<u>Ken</u>-Nom   room from   come.out-Past

Naomi-ga   {a. <u>sore</u>^{s}-o   / b. <u>soko</u>^{s}-o / c. ϕ}   tukamae-ta.

Naomi-Nom   {a. <u>him</u>^{s}-Acc/ b. <u>him</u>^{s}-Acc/ c. ϕ}   catch-Past

'<u>Ken</u> came out of the room; Naomi caught {a. <u>him</u>^{s}/ b. <u>him</u>^{s}/ c. <u>him</u>^{s}}.'

---

[1] Japanese exhibits at least another construction that can be argued to belong to the concealed causative construction: *the VV compound construction*, as shown in (i).
(i) John-ga   ki-o   [$_V$ kiri-taosi]-ta.
     John-Nom tree-Acc [$_V$ cut-make.fall]-Past
     'John made the tree fall by cutting it.'
In this thesis I will ignore this construction and will focus on the sort-sensitive pronoun construction and IHRC construction, except in Appendix, where I will briefly discuss why the VV compound construction can be classified as the concealed causative construction.

(2)   *IHRC Construction*

John-wa   [[sara-no   ue-ni   <u>ringo</u>-ga

John-Top   [[plate-Gen   upper.area-Loc   <u>apple</u>-Nom

at-ta   ] no]-o   toriage-ta.

be-Past   ]Nmn]-Acc   pick.up-Past

'John picked up an apple that was on a plate.'

The sort-sensitive pronoun construction is a kind of parataxis, a series of syntactically and semantically related sentences without overt coordinating or subordinating conjunctions. For example, the two consecutive sentences in (1) are not just two randomly selected sentences juxtaposed with each other. Rather, they are subject to severe syntactic and semantic constraints. Syntactically, for instance, they need to contain what I will call *a sort-sensitive pronoun* in an argument position of the second sentence. The Japanese sort-sensitive pronoun comes in three varieties, *sore*, *soko*, and a zero form (represented by ϕ). Semantically, for example, the sort-sensitive pronoun needs to be anaphorically associated with its antecedent in the immediately preceding sentence. Otherwise, the construction is judged unacceptable.

On the other hand, the IHRC construction is a kind of relative clause construction, whose head nominal appears inside the relative clause itself. For example, in (2), the head nominal *ringo* 'apple' appears inside the relative clause nominalized by the determiner *no*. This construction is also subject to several tricky syntactic and semantic constrains.

One syntactic constraint is concerned with where the IHRC can occur. It has been observed in the literature that the IHRC can occur rather freely in subject or object position, but it often resists to occur in other syntactic positions. Semantically, for example, this construction is said to be subject to Kuroda's (1975/76, 1992) relevancy condition, which says that the IHRC must be construed to be directly relevant to the pragmatic content of its matrix clause.

The rough characterizations of both constructions just presented may lead one to suspect that they are simply two unrelated constructions, and hence they need to be treated separately. We will begin with our study guided by this intuition. However, as we reveal more and more properties of both constructions, we will come to realize that our initial intuition is misleading, and that we should treat them as two varieties of one construction, *concealed causative construction.*

The term "concealed causative" is first introduced by Bittner (1999b), who observes that "if a causal relation is syntactically concealed (only its arguments are overtly expressed), then it is semantically direct (no intermediate causes)." Let us refer to constructions conforming to this generalization as concealed causative constructions. According to Bittner (1999b), concealed causative constructions are found in various languages that are genetically unrelated, and moreover they do not form a natural class.

For instance, Bittner (1999b) convincingly argues that the meaning "direct cause" is found in resultative complements in English and causative subjects in Miskitu. In both

cases there is no morpheme that provides this meaning. Moreover, it is reasonable to assume that English and Miskitu are genetically unrelated, and that resultative complements and causative subjects do not form a natural class.

In this thesis we assume with Bittner (1999b) that "direct cause" is an element of meaning that can appear only when there is no morphological realization for it, whether overt or covert. This particularly implies that any construction in any language, even though seemingly unrelated to causation on the surface, may turn out to be a concealed causative construction if we can successfully detect the meaning "direct cause" that is deeply concealed in such a construction.

I will argue in this thesis that the sort-sensitive pronoun construction and the IHRC construction in Japanese are in fact concealed causative constructions. In a sense the meaning "direct cause" in those constructions is concealed so "skillfully" that the constructions have been traditionally treated as totally unrelated to causation. I believe there are two reasons for this successful concealment.

First, the Japanese concealed causative constructions lack a crucial piece of information that is useful to recover the invisible meaning of direct cause. In contrast, the concealed meaning is easily detectable in resultative constructions such as English resultative complements.

(3) John shot [Mary dead].

In (3) it is relatively easy to see that the shooting event is the direct cause of Mary's becoming dead. The reason for this easy detection comes from the fact that both the cause and the resulting state are overtly expressed in (3). I will argue in chapter 6 that in the Japanese concealed causative constructions, only the cause but not the resulting state is overtly expressed. I believe this additional concealment makes it harder for us to detect the existence of the meaning "direct cause" in the Japanese case.

Second, it is difficult in the first place to even identify both the sort-sensitive pronoun construction and the IHRC construction in Japanese. For instance, no researchers, except for Tsubomoto (1993, 1994, 1995, 1998), have noticed the existence of sort-sensitive pronoun constructions, as far as I am aware. I believe that traditionally, the sort-sensitive construction has been simply regarded as two consecutive sentences in a discourse. This difficulty is related to a difficulty in differentiating sort-sensitive pronouns from ordinary pronouns. As we will show in chapter 2, sort-sensitive pronouns allow us to observe their true nature only when their antecedent is [+human]. Otherwise, their existence is concealed by the prevalence of ordinary pronouns.

The IHRC construction is also difficult to identify. There are several reasons for this. First, as we will see in chapter 3, what has been called IHRC constructions cross-linguistically subsumes at least two extremely different types of constructions: a Japanese type and a Navajo type. They share only two defining properties of IHRC constructions.

The other five properties are not shared. Thus it is almost impossible to use the established properties of Navajo IHRCs to justify the existence of the IHRC in Japanese.

Second, there is a semantic/pragmatic constraint on the IHRC construction in Japanese. Kuroda (1975/76, 1992) notices that the IHRC must be interpreted to be directly relevant to the pragmatic content of its matrix clause. This condition, which he calls relevancy condition, is extremely vague but seems to have a profound impact on the acceptability of the IHRC construction. The existence of such a vague but decisive semantic condition is part of the reason why the identification of acceptable IHRCs is particularly difficult and why acceptability judgements among Japanese linguists of theoretically crucial examples are tend to be different from linguist to linguist. For example, if one wants to claim that Japanese IHRC constructions are constrained by Subjacency, then he or she tends to construct unconsciously an IHRC construction that violates not only Subjacency but also the relevancy condition in a certain way.

Third, what we call IHRC constructions in Japanese seems to subsume various subtypes. This makes it extremely hard to achieve sweeping generalizations over the Japanese IHRC constructions in general. In this thesis I would like to focus primarily on a certain subset of the IHRCs in object position and those IHRCs in subject position.

However, this way of curving out the data is not arbitrary. There seems to be an unexpected restriction on what Case the IHRC can receive. Namely, it has been pointed out in the literature (see Ohara 1996, among others) that native speakers uniformly accept

the IHRCs with the accusative case –o and those with the nominative case –ga, but they tend to reject the IHRCs with the dative case –ni or the instrumental case –de. I believe this restriction indicates that the core data we must focus on are those IHRCs that receive either Accusative or Nominative Case.

Further, as Chomsky (1981) points out, the distinction among data between core and periphery is inevitable in scientific research searching for explanation. In linguistics an explanatorily adequate theory is required to explain what is called logical problem of language acquisition. Thus in linguistics the core data is the data that allow us to construct principles of UG, which can be interpreted as consisting of part of Language Acquisition Device. Thus if you focus on a certain set of data and successfully derives from the data a generalization that follows from principles of UG, then the set of data you have chosen to arrive at the generalization must belong to the core data.

As we will see in chapter 6, the final condition on the semantics of the IHRC construction we will arrive at is based on the meaning "direct cause." I assume with Bittner (1999b) that this is an element of meaning that is not expressible by any morpheme of any language. If a certain element of meaning is not expressible overtly in any human languages, then it is reasonable to assume that the meaning in question is supplied by principles of UG. If the reasoning in the preceding paragraph is correct, then this means that the data we are to pick out to formulate the final condition must belong to the core data.

The organization of the thesis is as follows. In chapter 2 we examine morphological, syntactic and semantic properties of sort-sensitive pronouns in Japanese. We compare properties of sort-sensitive pronouns and those of ordinary pronouns, and reveal a host of peculiar properties of the former. In chapter 3 we compare properties of the Japanese IHRC construction and those of the Navajo IHRC construction, and point out that these constructions do not share any properties except the two defining properties of IHRCs. In chapter 4 we review several approaches to the Japanese IHRC construction, and conclude that none of them are satisfactory. In chapter 5 we introduce Fuji's (1998) DRT analysis of the Japanese IHRC construction, and point out there remain empirical and conceptual difficulties with this analysis. In Chapter 6 we propose a new analysis based on Bittner's (1999b) dynamic cross-linguistic semantics that can explain the peculiar properties of both the sort-sensitive and the IHRC constructions. Chapter 7 offers concluding remarks.

CHAPTER 2. SORT-SENSITIVE PRONOUNS IN JAPANESE

2.1. Introduction

Carlson (1977) proposes a sortal distinction between entities with transitory properties and entities with temporally stable properties. The former entities are called stage-level entities and the latter individual-level entities. This sortal distinction is also used to differentiate predicates into two categories: *stage-level predicates* (*SLPs*) and *individual-level predicates* (*ILPs*). The SLP takes stage-level entities as arguments, and the ILP takes individual-level entities as arguments.

Since Milsark (1974) and Carlson (1977) a number of different types of constructions have been argued in generative grammar to be sensitive to what is now called the stage-level/individual-level distinction of a predicate (henceforth *SLP/ILP distinction*), but it has never been reported, as far as I know, that there exists a pronoun that is sensitive to this sortal distinction.[1,2] In English, for instance, personal pronouns are not sensitive to the SLP/ILP distinction in the sense to be illustrated in (1). (Hereafter, an intended anaphoric relation will be indicated with underline.)

---

[1] The grammatical phenomena that have been argued to be sensitive to this type of distinction include: the existential construction (Milsark 1974), indefinite subjects (Milsark 1974), perceptual verb complements (Carlson 1977), temporal adjuncts (Kratzer 1988), and absolute constructions (Stump 1981).

[2] It is worth noting that the distinction similar to the SLP/ILP distinction precedes the proposals in generative grammar made by Milsark (1974) and Carlson (1977).

(1) a. <u>Ken</u> came out of the room. Naomi arrested <u>him</u>. [SLP/SLP]

b. <u>Ken</u> was handsome. Naomi arrested <u>him</u>. [ILP/SLP]

c. <u>Ken</u> came out of the room. Naomi loved <u>him</u>. [SLP/ILP]

d. <u>Ken</u> was handsome. Naomi loved <u>him</u>. [ILP/ILP]

The discourses in (1), each consisting of two sentences, exhaust every possible combination of SLP and ILP. For example, in (1a) the first sentence contains the SLP *came out of the room*, which is followed by a sentence with the SLP *arrested*. This combination is indicated as [SLP/SLP]. The fact that all the combinations in (1) are permissible verifies the claim that English pronouns are insensitive to the SLP/ILP distinction, as expected.

In this chapter I will pursue the possibility that in Japanese there is a set of pronouns that are sensitive to the SLP/ILP distinction. This type of pronoun in Japanese typically take forms of *sore* and *soko*, and can be associated with a human antecedent, as shown in (2) through (5), where the pronouns *sore* and *soko* in each of the second sentences are anaphorically linked to the subject NP in the first sentence. I will call such

a pronoun a *sort-sensitive pronoun*, which will be glossed as an English personal pronoun such as *him, her, them,* etc. with a superscript *s*.[3]

(2) [SLP/SLP]

Ken-ga   heya kara deteki-ta.

Ken-Nom   room from come.out-Past

'Ken came out of the room.'

Naomi-ga   {a. sore^s/ b. soko^s}-o   tukamae-ta.

Naomi-Nom   {a. him^s/ b. him^s}-Acc   catch-Past

'Naomi caught {a. him^s/ b. him^s}.'

(3) [ILP/SLP]

Ken-ga   hansamu dat-ta.

Ken-Nom   handsome be-Past

'Ken was handsome.'

Naomi-ga   {a. *sore^s/ b. *soko^s}-o   tukamae-ta.

Naomi-Nom   {a. *him^s/ b. *him^s}-Acc catch-Past

'Naomi caught {a. *him^s/ b. *him^s}.'

(4) [SLP/ILP]

Ken-ga   heya kara   deteki-ta.

Ken-Nom room from   come.out-Past

'Ken came out of the room.'

---

[3] I used the term 'stage-level pronoun' in Fuji (2001) to refer to the sort-sensitive pronoun. Tsubomoto (1995) coined the term "individual/situation denoting pronoun" to denote the same kind of pronoun.

Naomi-ga   {a. *$\underline{sore}^s$/ b. *$\underline{soko}^s$}-o   aisitei-ta.

Naomi-Nom   {a. *$\underline{him}^s$/ b. *$\underline{him}^s$}-Acc   love-Past

'Naomi loved {a. *$\underline{him}^s$/ b. *$\underline{him}^s$}.'

(5) [ILP/ILP]

$\underline{Ken}$-wa   hansamu   dat-ta.

$\underline{Ken}$-Top   handsome   be-Past

'$\underline{Ken}$ was handsome.'

Nomi-ga   {a. *$\underline{sore}^s$/ b. *$\underline{soko}^s$}-o   aisitei-ta.

Naomi-Nom   {a. *$\underline{him}^s$/ b. *$\underline{him}^s$}-Acc   love-Past

'Naomi loved {a. *$\underline{him}^s$/ b. *$\underline{him}^s$}.'

The data in (2) through (5) appear to indicate that the Japanese pronouns *sore* and *soko* with a human antecedent are restricted to occur only in the environment depicted above as [SLP/SLP]. Based on the data above, let us formulate a condition that this type of pronoun must satisfy. I will call such a condition *predicate condition*, which is stated in (6).

(6) Predicate Condition (first approximation)

The sort-sensitive pronoun must be an argument of an SLP, and must also be referentially associated with an antecedent NP of a stage-level sort.

In fact, the predicate condition above is just an approximation, which we will revise in later chapters. I believe, however, that it still captures essential properties of

sort-sensitive pronouns, and is thus useful as a convenient descriptive generalization when we examine the previous literature on this unique kind of pronoun.

Of course, this rather peculiar type of pronoun is not the only type of personal pronoun in Japanese. It is well-know that Japanese has a set of regular personal pronouns that are immune to this SLP/ILP distinction. For example, the pronoun *kare* 'he/his/him' can be used in the environments in which all the possible combinations of predicate types are realized, as shown in (7).

(7) a. [SLP/SLP]

Ken-ga   heya   kara   deteki-ta.

Ken-Nom   room   from   come.out-Past

'Ken came out of the room.'

Naomi-ga   kare^f-o   tukamae-ta.

Naomi-Nom   him^f-Acc   catch-Past

Naomi caught him^f.'

   b. [ILP/SLP]

Ken-wa   hansamu   dat-ta.

Ken-Top   handsome   be-Past

'Ken was handsome.'

Naomi-ga   kare^f-o   tukamae-ta.

Naomi-Nom   him^f-Acc   catch-Past

'Naomi caught him^f.'

c. [SLP/ILP]

Ken-ga heya-kara deteki-ta.

Ken-Nom room-from come.out-Past

'Ken came out of the room.'

Naomi-ga kare^f-o aisitei-ta.

Naomi-Nom him^f-Acc love-Past

Naomi loved him^f.'

d. [ILP/ILP]

Ken-wa hansamu dat-ta.

Ken-Top handsome be-Past

'Ken was handsome.'

Nomi-ga kare^f-o aisitei-ta.

Naomi-Nom him^f-Acc love-Past

'Naomi loved him^f.'

Let us call this regular type of pronoun a *sort-free pronoun*, for its occurrence is not regulated by a sortal difference of a predicate. I will gloss it as a corresponding English personal pronoun with a superscript *f*.

Summing up, we have shown that in addition to regular pronouns, Japanese has a special kind of pronoun whose distribution seems to be sensitive to the SLP/ILP distinction. We have identified the Japanese pronouns *sore* and *soko* as belonging to this type of pronoun and have called them sort-sensitive pronouns. We have also introduced the term sort-free pronoun for regular pronouns.

In the next section I will concentrate on the sort-sensitive pronoun *sore*, and will review one previous study of this unique pronoun.

2.2. Tsubomoto's Analysis of the Sort-Sensitive Pronoun *Sore*

2.2.1. Introduction

As far as I am aware, the use of *sore* we have just described has rarely been mentioned in the literature, but its existence has not entirely gone unnoticed. In Tsubomoto (1993, 1994, 1995, 1998), he made a significant contribution to our understanding of this use of the pronoun *sore* and other related constructions. In this section I will introduce his observations and proposals on what we call sort-sensitive pronouns.

Before introducing his treatment of *sore*, I would like to comment on the nature of Tsubomoto's works.

First, they are written in Japanese. So I will translate the terms and concepts he has coined into English myself. I will quote his original Japanese terms, in addition to their English translations. This is to make sure that I, not the original author, have chosen the particular English words, and so I am solely responsible for any errors in translation.

Second, his papers are not written within the framework of truth-conditional semantics. Still, some of the terms he uses are identical or similar to the theoretically

loaded terms of truth-conditional semantics. Unfortunately, he does not give precise

definitions for those terms, so it should be kept in mind that we do not know at present

whether or not they are actually identical or similar to the corresponding concepts in

truth-conditional semantics.

2.2.2. Tsubomoto (1995)

In this section I would like to take a special look at Tsubomoto (1995). He claims

in this paper that the pronoun *sore* are four-way ambiguous in the following sense.

(8) a. *sore* as an *individual-denoting* pronoun (his original term, *kotai sizi*
'individual-denoting')

b. *sore* as an *individual/situation-denoting* pronoun (his original term,
kotai-zyookyoo sizi 'individual/situation-denoting'), and

c. *sore* as a *situation-denoting* pronoun (his original term, *zyookoo sizi*
'situation-denoting')

d. *sore* as a pronoun with a *conjoining function* (his original term, *setuzoku kinoo*
'conjoining function').

The following are his examples illustrating this four-way ambiguity.

(9) a. [individual-denoting *sore*]

sumimasen, *sore*-o totte-kudasai.

excuse.me *prn*-Acc bring-please

'Excuse me, but please bring *that* to me.'

b. [individual/situation-denoting *sore*]

deteikootosuru Taro.   butyoo-ga   *sore*-o   yobi-tome-ru.

being.about.to.leave Taro manager-Nom   *prn*-Acc   call.out.-stop-Pres

'Taro being about to leave. The manager stopps him by calling out.'

c. [situation-denoting *sore*]

A: komatteirunda.

'I'm at a loss.'

B: *sore*-o   nantokasite   koso,   otoko-da.

prn-Acc manage.to.solve   only.when   man-be.Pres

'It is not until you solve *it* that you will be entitled to be a man.'

d. [*sore* with a conjoining function]

A: konnitino   ryuusei-wa watasi-no keieinouryoku-ni

today-Gen rise-Top   I-Gen   management.ability-Dat

ou-tokoro-ga   ookiin-da.

depend.on-Nmn-Nom great-be.Pres

'The rise of the company today greatly depends on my management

ability.'

B: *sore*-o (*sore*-ga) sono itibu demo anna hanzaisya-ni

prn-Acc (*prn*-Nom) prn-Gen part even that criminal-Dat

muzamuzato watasu tumori-wa nai.

without.resistance give.away intention-Top does.not.exist

'*For this reason*, I have no intention to give away any part of the company

to that criminal without any resistance.'

(Tsubomoto 1995: 86)

Let me comment on each use of *sore*. The first use of *sore*, i.e., the individual-denoting *sore*, is supposed to denote what Tsubomoto calls 'individual' (*kotai* in Japanese), and the referent is restricted to a non-human entity. In (9a) the pronoun is used deictically, possibly with a pointing gesture, to denote something like a book which is not proximal to the speaker.

Second, let us examine Tsubomoto's individual/situation-denoting *sore*. Tsubomoto indicates that the second use of *sore* seems to show the mixed characteristics of both the individual- and the situation-denoting *sore*. This position is reflected in his remark that this kind of *sore* denotes "not just *Taro*, but the *Taro* that contains a situation of his being about to leave. (Tsubomoto 1995: 86)"

There is one interesting point about his example in (9b). That is, he employs not an ordinary sentence but a special kind of relativized NP for the antecedent for *sore* to appear in. This NP is repeated as (10).

(10)   [$_{NP}$ [$_{IP}$ dete-ikootosu-ru]   Taro]

[$_{NP}$ [$_{IP}$ leave-be.about.to leave-Pres] Taro]

'Taro being about to leave'

Obviously, this is not just an ordinary NP, because it can stand alone just like a full-fledged sentence, as the discourse (9b) shows. As Tsubomoto observes in his (1998) book, this NP, often used as a stage direction, gives a vivid description of a transitory situation. We will call this type of NP a *stage direction NP* (SDNP).

This type of NP does not seem to be unique to Japanese. In Tsubomoto (1998), he observes that English has a similar type of NP for stage direction that can be used alone like a sentence .[4]

(11)   [$_{NP}$ Fergus, [$_{VP}$ walking outside Dil's place]].

(The Crying Game by Neil Jordan)

I have found several more examples from the same text.[5]

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[4] As Tsubomoto himself observes, this type of NP has been recognized in the literature. It has been called an honorary NP (cf. Safir 1983) or an NP with a pseudo-modifier (cf. Declerck 1981). The honorary NP is a sort of small clause that looks just like an NP with the head noun followed by a participial, AP, or PP.
(i)   [Workers angry about the pay] is just the sort of situation they wanted to avoid. (Safir 1983)
(ii) We heard a loud noise in the kitchen. We opened the door, and what/who did we see?
      [John(,) fighting with a dog]!   (Tsubomoto 1998, based on Declerck's (1981) example)

(12) a.　[$_{NP}$ Dave [$_{VP}$ walking, holding Dil by the arm]].

　　b.　[$_{NP}$ Fergus, [$_{PP}$ outside the hair salon]].

　　c.　[$_{NP}$ Dil and Fergus [$_{VP}$ making their way to their seats at the bar]].

　　d.　[$_{NP}$ A figure [$_{VP}$ sitting down at the bar]]. It is Jude.[6]

In the following, I will gloss a Japanese SDNP as a corresponding English SDNP.

Now let us move on to the third type of *sore*, i.e., the situation-denoting *sore*. This

type of *sore* seems to refer to a transitory situation. Thus, in (9c), *sore* in the second

sentence denotes a transitory situation of *my being at a loss*, which is depicted by the first

sentence.

Tsubomoto's fourth type of *sore*, he claims, has a conjoining function, and is

followed by either the Accusative Case marker (*–o*) or the Nominative Case marker

(*–ga*). This type of *sore* means something like *for this reason* or *in spite of this* in

English, depending on the context. In (9c), *sore* connects the first sentence with the

second by indicating that the former constitutes the reason for the latter.

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[5] The script is available at http://scifiscripts.name2host.com/msol/cryinggame.pdf
[6] This use of *it* in *it is Jude* may be thought of as a kind of sort-sensitive pronoun, since the pronoun seems to refer to a specific spatio-temporal slice of a figure sitting down at the bar.

2.2.3. Remarks on Tsubomoto's Analysis

Having introduced each use of *sore*, let us focus on the second use of *sore* in Tsubomoto's list.

First of all, I would like to show that Tsubomoto's SDNP is sensitive to the SLP/ILP distinction. Take, for example, a relativized NP which contains an individual-level predicate like *segatakai* 'tall.Pres,' as in (13), and see if it can be used as an SDNP in a stage direction sequence, as in (14).

(13) a.   [$_{NP}$ [$_s$ segatakai]   otoko]

           [$_{NP}$ [$_s$ tall.Pres]   otoko]

           'a man, who is tall'

(14) a.   otoko-ga   isu-ni   suwat-tei-ru.

           man-Nom   chair-Loc   sit-be-Pres

           'There is a man sitting in a chair.'

       * [$_{NP}$ [$_{IP}$ segatakai] otoko].   /   Otoko-wa   segatakai.

       * [$_{NP}$ [$_{IP}$ tall.Pres]   man].   /   man-Top   tall

       * The man, who is tall. / The man is tall.

          denwa-ga   nar-u.

          phone-Nom   ring-Pres

          'The phone rings.'

b.   otoko-ga   isu-ni   suwat-tei-ru.

man-Nom   chair-Loc sit-be-Pres

'There is a man sitting in a chair.'

[NP [IP yukkurito tatiagar-ootosu-ru   ] otoko].

[NP [IP slowly   stand.up-be.about.to-Pres] man]

'The man standing up slowly.'

denwa-ga   nar-u.

phone-Top ringa-Pres

'The phone rings.'

As (14a) shows, the relativized NP *segatakai otoko* 'the man, who is tall' cannot be used as an SDNP, although its corresponding sentence can be used in a stage direction sequence. On the other hand, (14b) shows that if the relativized NP contains an SLP such as *tatiagar-ootosu-ru* 'stand.up-be.about.to-Pres,' then the NP can serve as an SDNP and stand alone like a sentence.

Now, I will show that Tsubomoto's individual/situation-denoting *sore* is identical to our sort-sensitive pronoun *sore*, exhibiting the same kind of SLP/ILP distinction. Since he uses SDNPs for the antecedent of *sore* to appear in, we would also like to use them when we check if his *sore* obeys the SLP/ILP distinction. However, as we have just shown, SDNPs themselves are constrained by the SLP/ILP distinction, and thus we cannot check the combinations [ILP/SLP] and [ILP/ILP] with SDNPs, but this is not

problematic for our purpose here. We can instead use the corresponding stage direction

sentences when SDNPs are unavailable.

(15) a. [SLP/SLP]

Taro to buyoo-ga   kaigisitu   de   hanasitei-ru.

Taro and manager-Nom   boardroom   in   be.speaking-Pres

'Taro and the manager are speaking in a boardroom.'

[$_{NP}$ [$_I$ deteik-ootosu-ru   ]   Taro$_I$].

[$_{NP}$ [$_I$ leave-be.about.to-Pres]   Taro$_I$]

'Taro being about to leave.'

butyoo-ga   sore^s-o   yobi-tome-ru.

manager-Nom   him^s-Acc   call.out-stop-Pres

The manager stops him^s by calling out.'

b. [ILP/SLP]

Taro to buyoo-ga   kaigisitu   de   hanasi-tei-ru.

Taro and manager-Nom   boardroom   in   speak-be-Pres

'Taro and the manager are speaking in a boardroom.'

Taro-wa   segatakai.

Taro-Top   tall.Pres

'Taro is tall.'

* butyoo-ga   sore^s-o   yobi-tome-ru.

* manager-Nom   him^s-Acc   call.out-stop-Pres

'*The manager stops him^s by calling out.'

c.   [SLP/ILP]

Taro to buyoo-ga   kaigisitu   de   hanasi-tei-ru.

Taro and manager-Nom   boardroom   in   speak-be-Pres

'Taro and the manager are speaking in a boardroom.'

[$_{NP}$ [$_{IP}$ deteik-ootosu-ru | <u>Taro</u>].

[$_{NP}$ [$_{IP}$ leave-be.about.to-Pres]   <u>Taro</u>]

'Taro being about to leave.'

* butyoo-ga   <u>sore^s</u>-o   aisitei-ru.

* manager-Nom   <u>him^s</u>-Acc   love-Pres

'*The manager loves <u>him^s</u>.'

d.   [ILP/ILP]

Taro to buyoo-ga   kaigisitu   de   hanasi-tei-ru.

Taro and manager-Nom   boardroom   in   speak-be-Pres

'Taro and the manager are speaking in a boardroom.'

<u>Taro</u>-wa   segatakai.

<u>Taro</u>-Top   tall

'<u>Taro</u> is tall.'

* butyoo-ga   <u>sore^s</u>-o   aisitei-ru.

* manager-Nom   <u>him^s</u>-Acc   love-Pres

'*The manager loves <u>him^s</u>.'

The contrast in (15) shows that Tsubomoto's *sore*, embedded in a stage direction

sequence, must be an argument of an SLP and be associated anaphorically with an

argument of an SLP. This means that Tsubomoto's *sore* satisfies the predicate condition

on a sort-sensitive pronoun. Thus, we may conclude that Tsubomoto's individual/situation-denoting *sore* is identical to our sort-sensitive pronoun *sore*.

I would like now to move on to evaluate his analysis of the individual/situation-denoting *sore*. As I have already mentioned, the term *kotai-zyookyoo sizi* 'individual/situation-denoting' has been coined by Tsubomoto to indicate that this use of *sore* seems to denotes "not just *Taro*, but the *Taro* that contains a situation of his being about to leave. (Tsubomoto 1995: 86)" Although I believe he is somehow on the right track, he does not say what it really means for a proper name to contain a situation in his framework. More concretely, he needs to clarify in what way the individual/situation-denoting *sore* behaves like the individual-denoting *sore* or the situation-denoting *sore* and why.

2.3. Differences between Sort-Sensitive and Sort-Free Pronouns

2.3.1. Introduction

In this section I will investigate basic morphological and syntactic properties of sort-sensitive pronouns in great detail. This is necessary, since the existence of this type of pronoun has rarely been noticed and no systematic research of its properties has been done. We first compare differences between sort-sensitive and sort-free pronouns with respect to morphological features such as [+/- human], gender and number. We next

focus on differences between sort-sensitive and sort-free pronouns with respect to how far a pronoun and its antecedent can be separated syntactically.

2.3.2. Differences in Morphological Features

2.3.2.1. [+/- human]

A first difference in morphological features between sort-sensitive and sort-free pronouns is concerned with the feature [+/-human]. We will see in the following that sort-sensitive pronouns can refer to both a human and a non-human antecedent, but each sort-free pronoun must refer to either a human or a non-human antecedent, but not both.

As shown in (16), the sort-sensitive pronouns *sore* and *soko* can refer to both a human and a non-human antecedent.

(16) a. Ken-ga   heya kara   deteki-ta.

Ken-Nom   room from   come.out-Pres

'Ken came out of the room.'

Naomi-ga   {a. sore^s/ b. soko^s}-o   tukamae-ta.

Naomi-Nom {a. him^s/ b. him^s}-Acc   catch-Pres

'Naomi caught him^s.'

b. booru-ga   atama megakete   tonde-ki-ta.

ball-Nom   head   toward   fly-come-Past

'A ball came toward the head.'

Sue-ga　　　{a. sore^s/ b. soko^s}-o　　　uti-kaesi-ta.

Sue-Nom　　{a. it^s/ b. it^s}-Acc　　　hit-return-Past

'Sue hit it^s back.'

In contrast, while the sort-free pronoun *kare* has to refer to a human antecedent, the sort-free pronoun *sore* (i.e., Tsubomoto's individual-denoting *sore*) has to refer to a non-human antecedent, as (17) and (18) show.

(17) a.　Ken-ga　　　heya-ni　　i-ru.

Ken-Nom　　room-Loc　be-Pres

'Ken is in the room.'

kare^f-wa　totemo　ookii.

he^f-Top　　very　　tall

'He^f is very tall.'

b.　Kookyo-ga　　　　　　Tokyo-no　　　tyuusin-ni　　　itisitei-ru.

Imperial Palace-Nom　　Tokyo-Gen　center-Loc　　be.located-Pres

'The Imperial Palace is located in the center of Tokyo.'

* kare^f-wa　　　　totemo　ookii.

* he^f-Top-Nom　very　　　large

'*He^f is very large.'

(18) a.　Ken-ga　　　heya-ni　　i-ru.

Ken-Nom　room-Loc　be-Pres

'Ken is in the room.'

* sore^f-wa   totemo   ookii.

* it^f-Top   very   tall

'*It^f is very tall.'

b.   Kookyo-ga   Tokyo-no   tyuusin-ni   itisitei-ru.

Imperial Palace-Nom   Tokyo-Gen   center-Loc   be.located-Pres

'The Imperial Palace is located in the center of Tokyo.

sore^f-wa   totemo   hiroi.

it^f-Top-Nom   very   large

'It^f is very large.'

2.3.2.2. Gender

A second difference in morphological features between sort-sensitive and sort-free pronouns is that when their antecedent has the feature [+human], each sort-sensitive pronoun can refer to both a male and a female antecedent, but each sort-free pronoun must refer to either a male or a female antecedent, but not both.

The data in (19) and (20) show that sort-sensitive pronouns can refer to both a male and a female antecedent.

(19)   Ken-ga   heya-kara   deteik-ootosi-ta.

Ken-Nom   room-from   leave-be.about.to-Past

'Ken was about to leave the room.'

Sue-ga   {a. <u>sore</u>^s/ b. <u>soko</u>^s}-o   tukamae-ta.

Sue-Nom {a. <u>him</u>^s/ b. <u>him</u>^s}-Acc   catch-Past

'Sue caught {a. <u>him</u>^s/ b. <u>him</u>^s}.'

(20)   <u>Naomi</u>-ga   heya kara deteik-ootosi-ta.

<u>Naomi</u>-Nom room from leave-be.about.to-Past

'<u>Naomi</u> was about to leave the room.'

Sue-ga   {a. <u>sore</u>^s/ b. <u>soko</u>^s}-o   tukamae-ta.

Sue-Nom {a. <u>her</u>^s/ b. <u>her</u>^s}-Acc   catch-Past

'Sue caught {a. <u>her</u>^s/ b. <u>her</u>^s} her.'

In contrast, the data in (21) and (22) indicate that each sort-free pronoun must refer to either a male or a female antecedent, but not both.

(21)   <u>Ken</u>-ga   heya-kara   detei-ootosi-ta.

<u>Ken</u>-Nom room-from   leave-be.about.to-Past

'<u>Ken</u> was about to leave the room.'

Sue-ga   {a. <u>kare</u>^f/ b. *<u>kanozyo</u>^f}-o   tukamae-ta.

Sue-Nom {a. <u>him</u>^f/ b. *<u>her</u>^f}-Acc   catch-Past

'Sue caught {a. <u>him</u>^f/ b. *<u>her</u>^f}.'

(22)   <u>Naomi</u>-ga   heya kara deteik-ootosi-ta.

<u>Naomi</u>-Nom room from leave-be.about.to-Past

'<u>Naomi</u> was about to leave the room.'

Sue-ga   {a. *<u>kare</u>^f/ b. <u>kanozyo</u>^f}-o   tukamae-ta.

Sue-Nom {a. *<u>him</u>^f/ b. <u>her</u>^f}-Acc   catch-Past

'Sue caught {a. *<u>him</u>^f/ b. <u>her</u>^f} her.'

<u>2.3.2.3. Number</u>

A third difference between sort-sensitive and sort-free pronouns with respect to morphological features is concerned with whether or not a pronoun needs the plural marker -ra when it refers to a plural antecedent. Generally, sort-free pronouns need the plural marker –ra when used to refer to a plural antecedent. In contrast, sort-sensitive pronouns need not be pluralized when they refer to a plural antecedent, and in fact they cannot be pluralized at all.

(23) a.   <u>Ken to Bob</u>-ga   heya   kara   deteik-ootosi-ta.

          <u>Ken and Bob</u>-Nom room from   leave-be.about.to-Past

          '<u>Ken and Bob</u> were about to leave the room.'

    * Yoko-wa <u>kare</u>^{f}-o   yobi-tome-ta.

    * Yoko-Top <u>him</u>^{f}-Acc call.out-stop-Past

      '*Yoko stopped <u>him</u>^{f} by calling out.'

    b.   <u>Ken to Bob</u>-ga   heya   kara   deteik-ootosi-ta.

          <u>Ken and Bob</u>-Nom room from   leave-be.about.to-Past

          '<u>Ken and Bob</u> were about to leave the room.'

          Yoko-wa <u>kare-ra</u>^{f}-o yobi-tome-ta.

          Yoko-Top <u>them</u>^{f}-Acc call.out-stop-Past

          'Yoko stopped <u>them</u>^{f} by calling out.'

(24)   Ken to Bob-ga   heya kara   deteik-ootosi-ta.

Ken and Bob-Nom   room from   go.out-be.about.to-Past

'Ken and Bob were about to leave the room.'

Yoko-ga   {a. sore^s/ b. soko^s}-o   yobi-tome-ta.

Yoko-Nom   {a. them^s/ b. them^s}-Acc them^s-Acc   call.out-stop-Past

'Yoko stopped {a. them^s/ b. them^s}by calling out.

b.   Ken to Bob-ga   heya   kara   deteik-ootosi-ta.

Ken and Bob-Nom   room from   go.out-be.about.to-Past

'Ken and Bob were about to leave the room.'

Yoko-ga   {a. *sore-ra^s/ b. *soko-ra^s}o yobi-tome-ta.

Yoko-Nom   {a. them^s/ b. them^s}-Acc   call.out-stop-Past

'Yoko stopped {a. *them^s/ b. *them^s} by calling out.

2.3.3. Distance between Pronouns and Antecedents

2.3.3.1 Deictic and Non-Deictic Uses

A first difference between sort-sensitive and sort-free pronouns with respect to

distance between pronouns and antecedents is concerned with whether or not the

antecedent of a pronoun need not be linguistically present, i.e., whether or not a pronoun

is allowed to be used deictically.

A sort-free pronoun can be used deictically or non-deictically. In (25a), for

example, the sort-free pronoun *kare* is used deictically, possibly with a pointing gesture,

and is felt to denote a certain human object in the non-linguistic context. In (25b) the

pronoun *kare* refers back to the NP *Ken* in the preceding sentence. Thus, it is obvious that

kare can also be used non-deictically or referentially.

(25) a.   sumimasen,   kare^f-o   isu-ni   suwarasete-kudasai.

         excuse.me   him^f-Acc   chair-Loc   make.sit-please

         'Excuse me, but please make him^f sit in the chair.'

     b.   Ken-ga   heya kara   deteki-ta.

         Ken-Nom   room-from   come.out-Past

         'Ken came out of the room.'

         Naomi-ga   kare^f-o   tukamae-ta.

         Naomi-Nom him^f-Acc catch-Past

         'Naomi caught him^f.'

In contrast, sort-sensitive pronouns cannot be used as a deictic pronoun. It can

only be used in a non-deictic way. This is shown by the contrast between (26) and (27).

(26)   sumimasen,   {a. *sore^s/ b. *soko^s}-o   isu-ni   suwarasete-kudasai.

         excuse.me   {a. him^s/ b. him^s}-Acc   chair-Loc make.sit-please

         'Excuse me, but please make {a. *him^s/ b. *him^s} sit in the chair.'

(27)   Ken-ga   heya   kara   deteki-ta.

         Ken-Nom room   from   come.out-Past

         'Ken came out of the room.'

Sue-ga   {a. <u>sore</u>[s]/ b. <u>soko</u>[s]}-o   tukamae-ta.

Sue-Nom {a. <u>him</u>[s]/ b. <u>him</u>[s]}-Acc catch-Past

'Naomi caught {a. <u>him</u>[s]/ b. <u>him</u>[s]}.'

2.3.3.2. Anaphoric Dependency over an Intervening Sentence

In the preceding section we have seen that sort-sensitive pronouns need a linguistic antecedent. This requirement is just the beginning of a list of finer restrictions on distance between sort-sensitive pronouns and their antecedents.

A second difference between sort-sensitive and sort-free pronouns with respect to distance between pronouns and their antecedents is concerned with a discourse in which two originally consecutive sentences, which contain a pronoun and its antecedent, are separated by another sentence. Sort-sensitive pronouns cannot refer back to their antecedent over the intervening sentence, whereas sort-free pronouns can. Observe the contrast between (28) and (29).

(28)   <u>Ken</u>-ga   heya-kara   deteik-ootositei-ta.

          <u>Ken</u>-Nom room-from   leave-be.about.to-Past

          '<u>Ken</u> was about to leave the room.'

          soto-de-wa   ame-ga   hagesiku   hut-tei-ta.

          outside-Loc-Top   rain-Nom   heavily   rain-be-Past

          'Outside, it was raining heavily.'

Mary-ga   {a. *sore^s/ b. *soko^s}-o   yobi-tome-ta.

Mary-Nom {a. *him^s/ b. *him^s}-Acc   call.out-stop-Past

'Mary stopped {a. *him^s/ b. *him^s} by calling out'

(29)   <u>Ken</u>-ga   heya-kara   deteik-ootositei-ta.

<u>Ken</u>-Nom room-from   leave-be.about.to-Past

'<u>Ken</u> was about to leave the room.'

soto-de-wa   ame-ga   hagesiku   huttei-ta.

outside-Loc-Top   rain-Nom   heavily   be.raining-Past

'Outside, it was raining heavily.'

Mary-ga   <u>kare</u>^f-o   yobi-tome-ta.

Mary-Nom   <u>him</u>^f-Acc   call.out-stop-Past

'Mary stopped <u>him</u>^f by calling out.'

2.3.3.3. Anaphoric Dependency Involving Two Consecutive Sentences

We have seen that both sort-sensitive and sort-free pronouns can be used if a pronoun refers back to an antecedent NP in the immediately preceding sentence. But this generalization is still not fine-grained enough. To see this, let us consider the case in which the antecedent is part of a conjoined NP. Sort-sensitive pronouns cannot refer to part of a conjoined NP, whereas sort-free pronouns can. This point is shown by the contrast between (30) and (31).

(30)   [Ken to Sue]-ga   heya kara   deteik-oyootositei-ta.

[Ken and Sue]-Nom   room from   come.out-be.about.to-Past

'Ken and Sue were about to come out of the room.'

Mary-ga   {a. *sore^s/ b. *soko^s}-o,.

Mary-Nom {a. *him^s/ b. *him^s}-Acc

'Ken, tyotto   matte'   to   it-te,   yobi-tome-ta

'Ken, a.minute wait' Comp by.saying   call.out-stop-Past

'Mary stopped {a. *him^s/ b. *him^s} by saying, "Ken, wait a minute."'

(31)   [Ken to Sue]-ga   heya kara   deteik-oyootositei-ta.

[Ken and Sue]-Nom   room from   come.out-be.about.to-Past

'Ken and Sue were about to come out of the room.'

Mary-ga   kare^f-o   yobi-tome-ta.

Mary-Nom   him^f-Acc   call.out-stop-Past

'Mary stopped him^f by calling out.'

2.3.3.4. Anaphoric Dependency within a Sentence

Let us next consider if an anaphoric dependency is possible between a pronoun in a complement clause and its antecedent in a matrix clause. Sort-sensitive pronouns are not allowed to enter into such an anaphoric relation, as shown in (32).

(32)   * Tom-wa   Sue-ni   [sore^s/soko^s-ga kizutui-ta]   koto-o   hanasi-ta.

     * Tom-Top Sue-Dat [he^s/he^s-Nom   get.hurt-Past] Nmn-Acc tell-Past

     '*Tom told Sue that he^s got hurt.'

In contrast, this kind of anaphoric dependency poses no problems for sort-free pronouns.

(33)　　Tom-wa　Sue-ni　[kare^f-ga　kizutui-ta]　koto-o　　hanasi-ta.

　　　　Tom-Top　Sue-Dat　[he^f-Nom　get.hurt-Past] Nmn-Acc　tell-Past

　　　　'Tom told Sue that he^f got hurt.'

2.3.4. An Intuitive Interpretive Difference

Finally, there is a sharp interpretive difference between sort-sensitive and sort-free pronouns. In the following, I will use *kare* 'he/his/him' to exemplify behavior of a sort-free pronoun, and also I will compare sort-sensitive and sort-free pronouns in a discourse where the antecedent is [+human].

(34)　　Taro-ga　　　heya　kara　　deteik-ootosi-teita.

　　　　Taro-Nom　　room　from　　leave-be.about.to-Past

　　　　'Taro was about to leave the room.'

　　　　Yoko-ga　　{a. sore^s/b. soko^s}-o　yobi-tome-ta.

　　　　Yoko-Nom　{a. him^s/ b. him^s}-Acc　call.out-stop-Past

　　　　'Yoko stopped {a. him^s/ b. him^s} by calling out.

(35)   Taro-ga   heya   kara   deteik-ootosi-teita.

Taro-Nom   room   from   leave-be.about.to-Past

'Taro was about to leave the room.'

Yoko-ga   kare^f-o   yobi-tome-ta.

Yoko-Nom   him^f-Acc   call.out-stop-Past

'Yoko stopped him^f by calling out.'

For native speakers of Japanese including myself, there is a sharp interpretive difference

between the sort-sensitive pronoun *sore/soko* and the sort-free pronoun *kare* in the above

kind of discourse. In the following, I will use here the terms 'individual' and 'spatio-

temporal slice of an individual' in an intuitive sense.

When a sort-sensitive pronoun is used as in (34), it feels as if the pronoun refers

to not the individual Taro, but rather a specific spatio-temporal slice of the individual

Taro that was about to leave the room. Let us call this interpretation the *specific spatio-*

temporal reading.

On the other hand, when the pronoun *kare* is used as in (35), we feel that the

pronoun refers to the individual Taro, but not a specific spatio-temporal slice of the

individual Taro that was about to leave the room. However, since *kare* and its antecedent

in (35) are arguments of an SLP, let me restate our intuition by using the notion "spatio-

temporal slice of an individual." I believe it can be done by saying that the pronoun *kare*

can denote any possible spatio-temporal slice of *Taro*, which need not be the specific

spatio-temporal slice of Taro that was about to leave the room. I will call this interpretation the *non-specific spatio-temporal reading*.

If this intuitive difference is genuine, then we can predict that the sort-free pronoun *kare*, but not sort-sensitive pronoun *sore/soko*, can denote any spatio-temporal slice of Taro. This prediction is actually borne out.

(36)   <u>Taro</u>-ga   heya kara   deteik-ootosi-teiru.

<u>Taro</u>-Nom   room from   leave-be.about.to-Pres

'<u>Taro</u> is about to leave the room.'

Yoko-wa   *kinoo*   {a. *<u>sore</u>^{s}/b. *<u>soko</u>^{s}}-o   yobi-tome-ta.

Yoko-Top *yesterday* {a. *<u>him</u>^{s}/ b. *<u>him</u>^{s}}-Acc call.out-stop-Past

'Yoko stopped {a. *<u>him</u>^{s}/ b. *<u>him</u>^{s}} by calling out *yesterday*.

(37)   <u>Taro</u>-ga   heya kara   deteik-ootosi-teiru.

<u>Taro</u>-Nom   room from   leave-be.about.to-Pres

'<u>Taro</u> is about to leave the room.'

Yoko-wa   *kinoo*   <u>kare</u>^{f}-o   yobi-tome-ta.

Yoko-Top *yesterday* <u>him</u>^{f}-Acc   call.out-stop-Past

'Yoko stopped <u>him</u>^{f} by calling out yesterday.'

As the above contrast shows, the sort-free pronoun *kare* can refer to the spatio-temporal slice of Taro that existed yesterday, whereas the sort-sensitive pronoun *sore* cannot. This is compatible with our intuition that the sort-sensitive pronoun has the specific spatio-temporal reading and the sort-free pronoun has the non-specific spatio-temporal reading.

2.3.5. Summary

In this section we have observed some morphological, syntactic and interpretive differences between sort-sensitive and sort-free pronouns. We have found that each sort-sensitive pronoun can, but each sort-free pronoun cannot, refer to both human and non-human antecedents, to both male and female antecedents, and to both singular and plural antecedents. We have also found that the sort-sensitive pronoun, but not the sort-free pronoun, must refer to the antecedent that is inside the immediately preceding sentence. Further, we have pointed out that the sort-sensitive pronoun has the specific spatio-temporal reading, whereas the sort-free pronoun has the non-specific spatio-temporal reading.

2.4. Sort-Sensitive Pronouns in Carlsonian Sorted Logic

2.4.1. Carlson (1977)

2.4.1.1. Carlson's (1977) Ontology

Carlson (1977) proposes a sorted logic in which the entities are divided into three subtypes. i.e., objects, kinds, and stages. Objects are ordinary individuals such as my former landlord Mr. Cox or the square table in my kitchen that keep their identity over

time and can occupy only one place at a time. Kinds, on the other hand, are not ordinary individuals but are individuals usually consisting of every member of the given kind such as *the dodo* in *the dodo is extinct*. Kinds are therefore different from objects in that only the kinds may occupy more than one place at a time and only the kinds may tie the objects together, not the other way round. Objects and kinds jointly form the domain of individuals. Stages are different from both objects and kinds in that they are conceived of as spatially and temporally bounded manifestations of some objects or kinds. Hence, both objects and kinds have realizations as object-stages and kind-stages, respectively, in a certain place at a certain time.

To connect those subtypes, Carlson (1977) posits two manifestation relations R and R'; R connects a stage either to the object it is a stage of, or to the kind it is a kind of, and R' connects an object to the kind it is an object of. A formula like $R(a, b)$ can be read as "a is a stage of individual b", "stage a is a temporal slice of individual b", or "stage a realizes object b". Similarly, a formula like $R'(a, b)$ is to be read as "a is an object of kind b", or "object a realizes kind b".

2.4.1.2. Carlson's (1977) Treatment of Inter-Sentential Anaphora

Carlson (1977) notices that English pronouns exhibit two distinct uses in terms of what they most naturally denote when used as inter-sentential anaphors with bare plurals as antecedents. He shows this point by contrasting discourses such as those in (38).

(38) a.　Dogs bark. *They* have a vocal tract.

　　　b.　Dogs entered the room. *They* tore apart the couch.

In (38a), *they* in the second sentence most naturally denotes the same entity as its antecedent (*dogs*) in the first sentence. So replacing *they* by *dogs* yields an equivalent sentence. On the other hand, in (38b), *they* in the second sentence most naturally denotes not just dogs but a subset of dogs, i.e., the dogs that entered the room. Hence, simply replacing *they* by *dogs* in this case does not give rise to an equivalent sentence. Instead, to yield an equivalent sentence, *they* must be replaced by a definite description such as *the dogs that entered the room*.

To account for this interpretive difference, Carlson (1977) adapts Cooper's (1976) treatment of pronouns to his domain-sorting framework.

Carlson (1977) assumes with Cooper (1976) that English pronouns are homonyms, which translate into either (39a) or (39b).

(39) a. $\lambda P[\check{}P(x)]$

        (the set of properties associated with some contextually assigned entity x)

    b. $\lambda P[\exists x[\forall y[\check{}S(z)](y) \leftrightarrow x=y] \& \check{}P(x)]$

        (the set of properties associated with some unique entity x, which is uniquely related to some contextually assigned entity z in some contextually assigned way S)

Let us consider how Carlson utilizes these formulas to account for the interpretive difference exhibited in (38). First, the formula in (39a) is conceived of, as usual, as the translation for pronouns such as *they* in (38a), where the free variable x denotes the plural-dog made salient by the first sentence of discourse (38a).

Now let us move on to the formula (39b). Note that it contains two free variables, a "relation" variable S and an entity variable z. (S is a variable of type $<e,<s,<e,t>>>$, so the term "relation" is being used loosely here.) In one of the appendices to his dissertation, Carlson proposes a variant of the formula in (39b) that associates both of the free variables in (39b) to stages of individuals in some way or another, as shown in (40), where the superscripts on the variables indicate their sort (the superscripts o and s are abbreviations for object sort and stage sort, respectively.)

(40) $\lambda P[\exists x^{o}[\forall y^{o}[\check{}S(z^{s})](y^{o}) \leftrightarrow x^{o}=y^{o}] \& \check{}P(x^{o})]$

In (40) S is taken to be a variable over functions mapping stages into properties of objects and z^s is taken as a variable over stages.

In the body of the text, however, Carlson uses a simplified version of (40), in which a relation variable T of type $<e^s,<e^o,t>>$ is replaced for the variable S. The following is the simplified version of (40) that Carlson seems to assume. Let us call this translation *stage-sensitive E-type translation* .

(41) $\lambda P[\exists x^o[\forall y^o[T(z^s)](y^o) \leftrightarrow x^o=y^o] \& {}^\vee P(x^o)]$

I will adopt this simplified version to illustrate how Carlson accounts for the interpretive difference between (38a) and (38b). Let us first take a look at the discourse in (38a), repeated here as (42).

(42)   Dogs bark. They have a vocal tract.

The analysis trees for the sentences in (42) and their translations are given in (43), where *bark"* is a set of individuals that bark, and *have.vocal.tract"* is a set of individuals that have a vocal tract.

(43) a.   dogs bark$_t$,3

               dogs$_T$,1   bark$_{IV}$,2

1. λP[ˇP(d)]
2. bark''
3. λP[ˇP(d)](^bark'')

   = bark''(d)

b.   they have.a.vocal.tract$_t$,3

           they$_T$,1   have.a.vocal.tract$_{IV}$,2
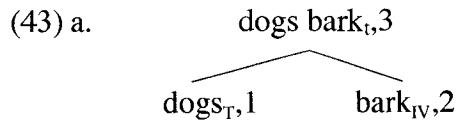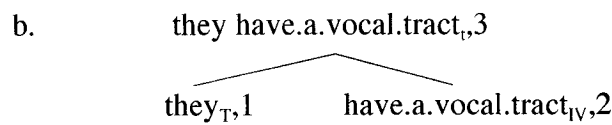
1. λP[ˇP(x^i)]
2. have.vocal.tract''
3. λP[ˇP(x^i)](^have.vocal.tract'')

   = have.vocal.tract''(x^i)

Carlson assumes that the variable x in the second sentence is assigned a value by a context of use. This means that the individual "dogs," introduced into the context of use by the first sentence, is the most natural candidate for the value of the variable, and is actually assigned under the anaphoric reading that we are interested in. This accounts for the substitution fact noted above.

Carlson's treatment of the inter-sentential anaphora in (38b), repeated here as (44), crucially relies on his stage-sensitive E-type translation of a pronoun given in (41). The analysis trees and their translations of the discourse in (44) are shown in (45).

(44)   Dogs entered the room. They tore apart the couch.

(45) a.   dogs entered.the.room,3

dogs,1   entered.the.room,2

1. $\lambda P[^{\vee}P(d)]$

2. $\lambda k^{o}\exists x^{s}[R(x^{s}, k^{o}) \wedge \text{enter.room'}(x^{s})]$

3. $\lambda P[^{\vee}P(d)](^{\wedge}\lambda k\exists x^{s}[R(x^{s}, k) \wedge \text{enter.room'}(x^{s})])$

$= \exists x^{s}[R(x^{s}, d) \wedge \text{enter.room'}(x^{s})]$

b.   they tore.apart.the.couch,3

they,1   tore.apart.the.couch,2

1. $\lambda P[\exists x^{o}[\forall y^{o}[[T(z^{s})](y^{o}) \leftrightarrow x^{o}=y^{o}]\&^{\vee}P(x^{o})]]$

2. $\lambda k^{o}\exists z^{s}[R(z^{s}, k^{o}) \wedge \text{Tore'}(z^{s})]$

3. $\lambda P[\exists x^{o}[\forall y^{o}[[T(z^{s})](y^{o}) \leftrightarrow x^{o}=y^{o}]\&^{\vee}P(x^{o})]](^{\wedge}\lambda k^{o}\exists z^{s}[R(z^{s}, k^{o}) \wedge \text{Tore'}(z^{s})])$

$= \exists x^{o}[\forall y^{o}[[T(z^{s})](y^{o}) \leftrightarrow x^{o}=y^{o}]\&^{\vee\wedge}\lambda k^{o}\exists z^{s}[R(z^{s}, k^{o}) \wedge \text{Tore'}(z^{s})] (x^{o})]]$

$= \exists x^{o}[\forall y^{o}[[T(z^{s})](y^{o}) \leftrightarrow x^{o}=y^{o}]\&\exists z^{s}[R(z^{s}, x^{o}) \wedge \text{Tore'}(z^{s})]]$

The translation of the first sentence is rather straightforward. It states that there is a stage

of plural-dog that entered the room. In the translation of the second sentence, however,

there are two free variables, a stage-related relation variable T and a stage-level variable

z^{s}, that need to be assigned appropriate values by an assignment g. So we must determine

what those variables most naturally denote in the context of use.

First, the stage-level variable z^s receives an appropriate value from the preceding sentence. This is because the interpretation of the first sentence makes salient a stage of a certain plural-dog that entered the room, and this stage can act as a natural candidate for a possible antecedent for z^s.

Second, the relation variable T looks for some salient relation between the stage of a plural-dog and some unique object–level entity x that is supposed to have torn apart the couch. Among many possible candidates, the relation denoted by the realization relation R seems to be the most natural candidate for the value of T, presumably because R makes the topical coherence possible between the first and the second sentences, by identifying the plural-dog in the first sentence with the entity in the second sentence that tore apart the couch.

Suppose the above reasoning is correct, and suppose a to be the constant in the sorted logic denoting the stage of the plural-dog that entered the room. Then, we can rewrite the final line of the translation of the second sentence as follows.

(46) $\exists x^o [\forall y^o [[R(a)](y^o) \leftrightarrow x^o = y^o] \ \& \ \exists z^s [R(z^s, x^o) \wedge \text{Tore'}(z^s)]]$

= $\exists x^o [\forall y^o [R(a, y^o) \leftrightarrow x^o = y^o] \ \& \ \exists z^s [R(z^s, x^o) \wedge \text{Tore'}(z^s)]]$

This translation states that there is a unique object-level entity x that has a as one of its realizations and the same object-level entity x also has a certain realization z that tore

apart the couch. Considering what a and R actually denote, this formula virtually says that there is a unique plural-dog that has a stage of entering the room and also has a stage of tearing apart the couch.

Now we are in a position to see how Carlson captures the difference between sentences (38a) and (38b). Let us repeat them here as (47a) and (47b), with the final translations, given in (48) and (49).

(47) a.   Dogs bark. *They* have a vocal tract.

    b   Dogs entered the room. *They* tore apart the couch.

(48) a.   bark"(d)

    b.   have.vocal.tract"(x^i)

(49) a. $\exists x^s[R(x^s, d) \wedge \text{enter.room'}(x^s)]$

    b. $\exists x^o[\forall y^o[[T(z^s)](y^o) \leftrightarrow x^o = y^o] \ \& \ \exists f[R(f, x^o) \wedge \text{Tore'}(f)]]$

The pronoun *they* in (47a) is translated as an individual-level variable in (48b). This variable seeks its value from the context of utterance. And the individual *dogs* made salient by the first sentence of (47a) is a natural candidate for the value. This accounts for why *they* in (47a) can be substituted by *dogs*, with the truth value intact. In contrast, in (49b), there is no free variable of individual sort. This accounts for the reason that *they* in (47b) cannot be replaced by the plural-dog in the preceding sentence. If there is no variable in the sentence that seeks an object or kind, then it is not possible to pick out

such an entity in the first place. Instead, there is a free stage-level variable z in the translation of the second sentence of (47b) that forms a crucial part of the meaning of *they*, as can be seen from formula (49b). This stage-level variable also seeks its value from the context of utterance, and, as we have discussed above, it most naturally picks out the stage made salient by the preceding sentence, i.e., the stage of the plural-dog that entered the room. This accounts for why *they* in (47b) can be replaced by the definite description *the dog that entered the room.*

2.4.2. A Carlsonian Analysis of Sort-Sensitive Pronouns

In section 2.1. we have established that the Japanese pronouns *sore* and *soko* are sort-sensitive pronouns, which obey the predicate condition, repeated here as (50).

(50)   Predicate Condition (first approximation)

The sort-sensitive pronoun must be an argument of an SLP, and must also be referentially associated with an antecedent NP of a stage-level sort.

This characterization of sort-sensitive pronouns naturally leads us to the analysis in which Carlson's stage-sensitive E-type translation of an English pronoun, repeated here as (51), also represents the meaning of the sort-sensitive pronoun *sore* in Japanese.

(51) $\lambda P[\exists x^o[\forall y^o[T(z^s)](y^o) \leftrightarrow x^o=y^o]\&^{\vee}P(x^o)]$

Take, for example, the following discourse, where the sort-sensitive pronoun *sore/soko*

appears, and apply Carlson's analysis to it.

(54) Ken-ga   heya-ni   haittekita.

Ken-Nom room-Loc entered

Naomi-wa   {a. sore^s/ b. soko^s}-o   tukamaeta.

Naomi-Top   {a. him^s/ b. him^s}-Acc   caught

'Ken entered the room. Naomi caught {a. him^s/ b. him^s}.'

(55) a.   Ken-ga heya-ni.haittekita,3

Ken-ga,1   heya-ni.haittekita,2

1. $\lambda P[^{\vee}P(ken)]$

2. $\lambda q^o \exists x^s[R(x^s, q^o) \wedge \text{enter.room'}(x^s)]$

3. $\lambda P[^{\vee}P(ken)](^{\wedge}\lambda q \exists x^s[R(x^s, q) \wedge \text{enter.room'}(x^s)])$

= $\exists x^s[R(x^s, ken) \wedge \text{enter.room'}(x^s)]$

b.   Naomi-ga sore/soko-o tukamaeta,5

     Naomi, 4   sore/soko-o tukamaeta, 3

        sore/soko-o, 1   tukamaeta, 2
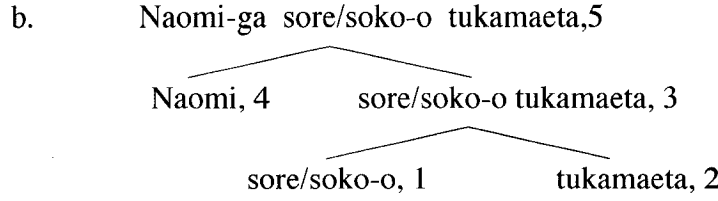
1. $\lambda Q \exists x [\forall y [T(w, y) \leftrightarrow x=y] \& \breve{}Q(x)]$

2. $\lambda \wp \lambda u^{\breve{}} \wp ([^{\wedge} \lambda v \exists f \exists z [R(z, u) \& R(f, v) \& \text{catch}(z, f)]])$

3. $\lambda u \exists x [\forall y [T(w, y) \leftrightarrow x=y] \& \exists f \exists z [R(z, u) \& R(f, x) \& \text{catch}(z, f)]]$

4. $\lambda P^{\breve{}} P(naomi)$

5. $\exists x [\forall y [T(w, y) \leftrightarrow x=y] \& \exists f \exists z [R(z, naomi) \& R(f, x) \& \text{catch}(z, f)]]$

In the final line of the translation of the second sentence, there are two free variables T and w; T denotes a contextually salient relation, and w denotes a contextually salient stage. Thus, the formula says that there is an object x, which is uniquely related to some contextually salient stage w in some contextually salient manner T, and that object x has a stage f such that f is caught by a stage z of Naomi. Given Carlson's style of assignment, T is assigned the realization function R and w is assigned the stage of Ken's entering the room. Hence, the formula eventually says that Ken has a contextually salient stage of entering the room, and a stage of Naomi stands in a catching relation to a stage of Ken.

In fact, this analysis can extend to sort-free pronouns as well when they are embedded in a context in which predicates of both first and second sentences are of stage-level sort. Take, for example, the following discourse.

(56) a. <u>Ken</u>-ga   heya-ni   i-ta.   Naomi-ga   <u>kare</u>^{f}-o   turesat-ta.

<u>Ken</u>-Nom room-Loc be-Past   Naomi-Nom <u>him</u>^{f}-Acc take.away-Past

'<u>Ken</u> was in the room. Naomi took <u>him</u>^{f} away.'

The analysis trees for each sentence and their traslations are as follows.

(57) a.   Ken-ga heya-ni.ita,3

         Ken-ga,1   heya-ni.ita,2
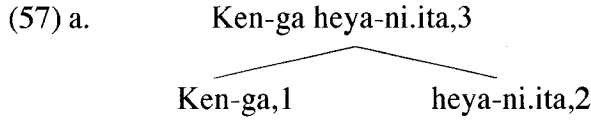
1. $\lambda P[^\vee P(ken)]$

2. $\lambda q^o \exists x^s [R(x^s, q^o) \wedge \text{be.in.room'}(x^s)]$

3. $\lambda P[^\vee P(ken)](^\wedge \lambda q \exists x^s [R(x^s, q) \wedge \text{be.in.room'}(x^s)])$

   $= \exists x^s [R(x^s, ken) \wedge \text{be.in.room'}(x^s)]$

b.   Naomi-ga kare-o turesatta,5

      Naomi, 4   kare-o turesatta, 3

            kare-o, 1   turesatta, 2
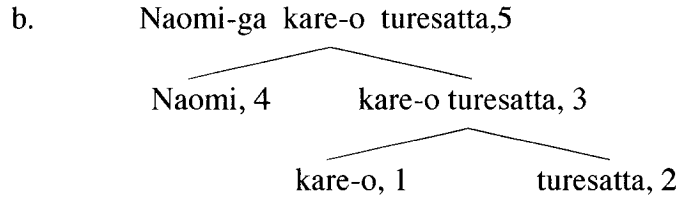
1. $\lambda Q \exists x [\forall y [T(w, y) \leftrightarrow x=y] \& {}^\vee Q(x)]$

2. $\lambda \wp \lambda u^\vee \wp ([^\wedge \lambda v \exists f \exists z [R(z, u) \& R(f, v) \& \text{take.away}(z, f)]])$

3. $\lambda u \exists x [\forall y [T(w, y) \leftrightarrow x=y] \& \exists f \exists z [R(z, u) \& R(f, x) \& \text{take.away}(z, f)]]$

4. $\lambda P^\vee P(naomi)$

5. $\exists x [\forall y [T(w, y) \leftrightarrow x=y] \& \exists f \exists z [R(z, naomi) \& R(f, x) \& \text{take.away}(z, f)]]$

Just like the case with a sort-sensitive pronoun, the last formula in (57b) can be construed

to say that Ken has a contextually salient stage of being in the room, and a stage of

Naomi stands in a taking-away relation to a stage of Ken. This seems to correctly capture

the meaning of the discourse in (56), which is the case of [SLP/SLP].

On the other hand, it is obvious that the other combinations of predicates do not

allow us to use Carlson's stage-sensitive E-type translation. Rather, they need to be

translated as ordinary pronouns.

(58) a.　　[SLP/ILP]

　　　　Ken-ga heya-ni i-ta.　　　　Naomi-ga　　kare^f-o　aisitei-ta.

　　　　Ken-Nom room-Loc be-Past　Naomi-Nom　him^f-Acc love-Past

　　　　'Ken was in the room. Naomi loved him^f.'

　　b.　　[ILP/SLP]

　　　　Ken-ga noppo-dat-ta.　Naomi-ga　kare^f-o　　turesat-ta.

　　　　Ken-Nom tall-be-Past　Naomi-Nom him^f-Acc　take.away-Past

　　　　'Ken was tall. Naomi took him^f away.'

　　c.　　[ILP/ILP]

　　　　Ken-ga noppo-dat-ta.　Naomi-ga　kare^f-o　　aisitei-ta.

　　　　Ken-Nom tall-be-Past　Naomi-Nom him^f-Acc　love-Past

　　　　'Ken was tall. Naomi loved him^f.'

Thus, we can say that under Carlson's analysis of pronouns, Japanese sort-free pronouns translate into Carlson's stage-sensitive E-type pronouns only when they are arguments of an SLP, and their antecedents are also arguments of an SLP.

Considering the facts we have examined so far, we can summarize our findings regarding differences between sort-sensitive and sort-free pronouns in Japanese in the following diagram.

(59)

	Sort-Sensitive Pronouns Translation	Sort-Free Pronouns Translation
[SLP/SLP]	OK $\lambda P[\exists x^o[\forall y^o[T(z^s)](y^o) \leftrightarrow$ $x^o=y^o]\&^\vee P(x^o)]$	OK $\lambda P[\exists x^o[\forall y^o[T(z^s)](y^o) \leftrightarrow$ $x^o=y^o]\&^\vee P(x^o)]$
[ILP/SLP]	OUT	OK $\lambda P[^\vee P(x)]$
[SLP/ILP]	OUT	OK $\lambda P[^\vee P(x)]$
[ILP/ILP]	OUT	OK $\lambda P[^\vee P(x)]$

2.4.3. A Problem with a Carlsonian Analysis of Sort-Sensitive Pronouns

2.4.3.1. Introduction

If our Carlsonian analysis of Japanese pronouns is correct, we will expect that at least semantically both sort-sensitive and sort-free pronouns behave in the same way when they are put into a context where predicates of both the first and the second sentences are of a stage-level kind, as in (60). (In what follows, we will use *sore* and *kare* as typical sort-sensitive and sort-free pronouns, respectively.)

(60)   Ken-ga   heya-ni   i-ta.

            Ken-Nom   room-Loc   be-Past

            'Ken was in the room.'

            Sue-ga   {a. $\underline{sore}^{s}$/ b. $\underline{kare}^{f}$}-o   turesat-ta.

            Sue-Nom {a. $\underline{him}^{s}$/ b. $\underline{him}^{f}$}-Acc   take.away-Past

            'Sue took {a. $\underline{him}^{s}$/ b. $\underline{him}^{f}$} away.

We have already observed that there are various kinds of differences between *sore* and *kare*. Among those differences, I will focus on the interpretive difference pointed out in 2.3.2.. We will first see that this difference can be restated in more accurate terms so that we can make it a semantic condition on *sore*. Then we will show that this condition poses a serious problem with the Carlsonian analysis discussed in 2.4.2..

2.4.3.2. Temporal Condition

As we have pointed out in 2.3.2., there is an interpretive difference between the two pronouns: *sore* has the specific spatio-temporal reading, whereas *kare* has the non-specific spatio-temporal reading. In (60a), for example, we can say that *sore* has the specific spatio-temporal reading, for *sore* must refer to Ken's specific stage, i.e., his stage of being in the room. On the other hand, in (60b), we can say that *kare* shows the non-specific spatio-temporal reading, since *kare* is allowed to refer to not just Ken's specific stage, but rather any one of Ken's possible stages which are not necessarily made salient by the preceding sentence.

Our Carlsonian analysis of Japanese pronouns seems to be compatible with the non-specific spatio-temporal reading, but not the specific spatio-temporal reading. To see this, observe the Carlsonian translation of the second sentence in (60), as shown in (61).

(61) $\exists x[\forall y[T(w, y) \leftrightarrow x=y] \ \& \ \exists f \exists z[R(z, s) \ \& \ R(f, x) \ \& \ \text{take.away}(z, f)]]$

In (61) the verb *take.away* takes two stage-level variables, z and f. The former is a certain stage of Sue, and the latter a certain stage of Ken. A problem arises with the specific spatio-temporal reading, because there is no guarantee for the variable f to denote the specific stage of Ken's being in the room, which is made salient by the preceding

sentence. This lack of restriction on the denotation of f, in contrast, is what we expect from the non-specific spatio-temporal reading.

Let us now make more precise the problem with the lack of restriction on the denotation of f in the case of *sore*.

There seems to be an interpretive difference between *sore* and *kare* with respect to temporal closeness between the eventualities of the first and the second sentences in a discourse like (60), repeated here as (62).

(62) Ken-ga heya-ni i-ta.

    Ken-Nom room-Loc be-Past

    'Ken was in the room.'

    Sue-ga {a. sore^s/ b. kare^f}-Acc turesat-ta.

    Sue-Nom {a. him^s/ b. him^f}-Acc take.away-Past

    'Sue took {a. him^s/ b. him^f} away.

Intuitively, if *sore* is used as in (62a), Sue's action has to take place while Ken is still in the room. On the other hand, if *kare* is used as in (62b), Sue can take away Ken from, say, his car after he left the room. In other words, in (62a), the eventuality of the first sentence must temporally overlap the eventuality of the second sentence. On the other hand, in (62b), the two eventualities can be temporally separated. This temporal

restriction on the use of *sore* will be referred to as temporal condition, and is formulated

in (63).

(63)　　Temporal Condition (first approximation)

The eventuality of a sentence with the antecedent of a sort-sensitive pronoun
must temporally overlap the eventuality of a sentence with the sort-sensitive
pronoun.

This condition is further supported by the following contrast between (64a) and

(64b).

(64)　　*kinoo*　　Ken-ga　　heya-ni　　i-ta.

yesterday　Ken-Nom　room-Loc　be-Past

'*Yesterday*, Ken was in the room.'

kesa　　　　Sue-wa　　{a. *$sore^s$ /b. $kare^f$}-o　　turesat-ta.

this.morning　Sue-Top　{a. *him^S/b. him^f}-Acc　take.away-Past

'*This morning*, Sue took {a. *him^S/b. him^f} away.'

The contrast in (64) shows that if we use two different time adverbials (*yesterday* and *this*

morning) to temporally separate the eventualities of the two sentences, then *sore* can no

longer be anaphorically linked to the antecedent *Ken*. In contrast, *kare* can still refer back

to *Ken* in this context. This is precisely what the temporal condition predicts.[7]

The existence of the temporal condition poses a serious problem with the

Carlsonian analysis of the sort-sensitive pronoun *sore*. To see this, let us examine the

Carlsonian translation of the second sentences in (64), given in (65). (We will ignore

temporal adverbials here.)

(65) $\exists x[\forall y[T(w, y) \leftrightarrow x{=}y]$ & $\exists f\exists z[R(z, s)$ & $R(f, x)$ & take.away$(z, f)]]$

Given our discussion on how to interpret this kind of formula, it roughly says that Ken

has a contextually salient stage of being in the room, and a stage of Sue stands in a

taking-away relation to a stage of Ken. The problem with this formula for *sore* is that the

formula does not give us any clue as to the temporal relation between the contextually

salient stage w of Ken's being in the room and the stage f of Ken's being taken away by

Sue. In other words, this formula allows any temporal relation between the two stages,

yet the sort-sensitive pronoun *sore* must be used in a discourse in which the eventuality

---

[7] In chapter 6 we will derive the unacceptability of this discourse from interaction between independently motivated semantics and pragmatics.

of the first sentence overlaps the eventuality of the second sentence, as the temporal

condition requires.

Note that the above problem does not arise for sort-free pronouns. This is because

their non-specific spatio-temporal reading is not constrained by the temporal condition,

and hence the Carlsonian stage-sensitive E-type translation just fit well with their

semantics.

2.4.4. Summary

In this section we have applied Carlson's stage-sensitive E-type pronoun analysis

to sort-sensitive and sort-free pronouns in Japanese. We have shown that although his

analysis can capture the non-specific spatio-temporal reading of sort-free pronouns, it

cannot explain the specific spatio-temporal reading of sort-sensitive pronouns.

2.5. The Sort-Sensitive Pronoun Construction as Coordination

In section 2.3. we have seen various differences between sort-sensitive and sort-

free pronouns. Among them, we have observed in section 2.3.3. that the sort-sensitive

pronoun must be neither too far away from, nor too close to, its antecedent NP: the sort-

sensitive pronoun must be an argument of the main predicate of a sentence, and its

antecedent must also be an argument of the main predicate of a sentence that immediately precedes the sentence containing the pronoun.

We have also seen that in addition to this tight syntactic relationship, these two sentences exhibit a tight semantic relationship: the eventuality of the sentence containing the antecedent NP must overlap the eventuality of the sentence containing the pronoun, as the temporal condition requires.

Given these observations, I will propose that the sort-sensitive pronoun effectively functions as a kind of sentential coordinator, and that the sentence containing sort-sensitive pronoun (CP^2) forms a constituent structure with the immediately preceding sentence containing its antecedent NP (CP^1), as illustrated in (66). The topmost node in (66b) can be just another CP like a familiar coordination, or it can be a Text (T) node.

(66) a.　Tom-ga　　heya　kara　detekoyootositei-ta;

　　　　　Tom-Nom　room　from　be.about.to.leave-Past;

　　　　　Sue-ga　　sore-o　　　tukamae-ta.

　　　　　Sue-Nom　sore-Acc　catch-Past

　　　　　'Tom was about to leave the room; Sue caught him.'

b.

```
                        CP/T^[+sc]
                   _____|_____
                  |                 |
              CP^1[+sc]          CP^2[+sc]
                  |              ___/\___
                  IP          IP^[+sc]    C
            ___/\___        ___/\___
           |        |      |        |
          NP        I'    NP      I'^[+sc]
           |      __/\__   |     __/\__
          Tom    VP    I Sue   VP^[+sc]   I
              __/\__    |    __/\__       |
             PP     V  PAST NP^[+sc]  V  PAST
            _/\_    |         |       |
        room from be.about.to.leave sore^[+sc] catch
```
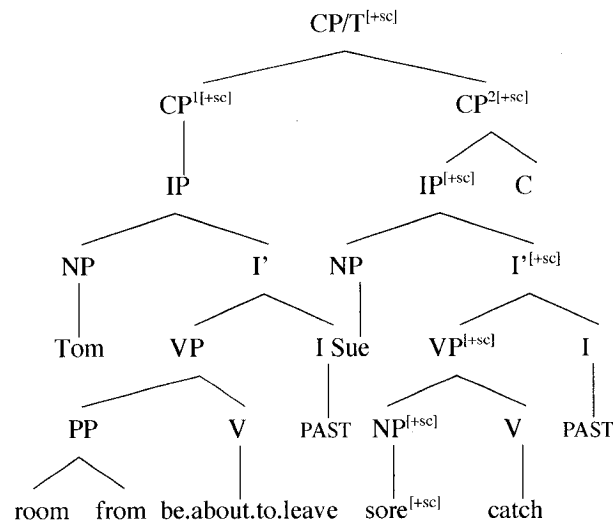
There are five pieces of evidence that the sort-sensitive pronoun, in effect, assumes a conjoining function.

First, it is impossible to use more than one sort-sensitive pronoun in one sentence, even though each sort-sensitive pronoun satisfies every condition on the sort-sensitive pronoun discussed so far. This is expected if each sentence containing a sort-sensitive pronoun virtually functions as a conjunct, because generally speaking, each conjunct is supposed to contain one coordinator. Compare the following sentences:

(67) a.   Ken-ga   Bill-o   kuuchuu-takaku   nagetobasi-ta.

          Ken-Nom   Bill-Acc   in.the.air-high   throw.away-Past

          'Ken threw Bill away high in the air.'

    * sore^s-ga   sore^s-o   rakka-titen made hasitte   subayak   uketome-ta.

    * he^s-Nom him^s-Acc fall-point   to   running quickly receive-Past

    '*He^s quickly run to the falling point and received him^s.'

b.   Ken-ga   Bill-o   kuuchuu-takaku   nagetobasi-ta.

    Ken-Nom Bill-Acc   in.the.air-high   throw.away-Past

    'Ken threw Bill away high in the air.'

    kare-wa   sore^s-o   rakka-titen made hasitte subayak   uketome-ta.

    he^f-Top him^s-Acc fall-point   to   running quickly   receive-Past

    'He^f quickly ran to the falling point and received him^s.'

Second, it is possible to repeat conjuncts with a sort-sensitive pronoun theoretically ad infinitum, as we expect if the sort-sensitive pronoun functions virtually as a coordinator.

(68)   kodomo-ga yootien   kara kaer-ootositei-ta;

    child-Nom kindergarten from return.be.about.to-Past

    'A child was about to return home from kindergarten.'

    sore-ga toyuu-de   yuukais-are-ta;

    he-Nom on.the.way-Loc   kidnap-Pass-Past

    'He was kidnapped on the way.'

    sore-o   nantokasite tasukedasi-ta;

    him-Acc manage.to   rescue-Past

    '(They) managed to rescue him.'

sore-ga   hutatabi   yuukaisare-ta.

he-Nom once.again   kidnap-Pass-Past

'He was kidnapped once again.'

Third, there appears to be a dialectal difference between native speakers of Japanese concerning acceptability judgements of a pair of sentences such as the following.

(69) a.   Taro-ga   heya kara   deteik-ootosi-ta.

Taro-Nom   room from   go.out-be.about.to-Past

'Taro was about to leave the room.'

Sue-ga   sore^s-Acc   yobi-tome-ta.

Sue-Nom   him^s-Acc   call.out-stop-Past

'Sue stopped him^s by calling out.

a.   Taro-ga   heya kara   deteik-ootosi-ta.

Taro-Nom   room from   go.out-be.about.to-Past

'Taro was about to leave the room.'

sore^s-o   Sue-ga   yobi-tome-ta.

him^s-Acc   Sue-Nom   call.out-stop-Past

'Sue stopped him^s by calling out.

The difference between (69a) and (69b) is whether or not scrambling applies to the object NP of the second sentence. It appears to be the case that if (69a) is acceptable to some

native speaker of Japanese, then (69b) is also acceptable to him or her, but not vice versa.

This seems to indicate that to those who do not accept (69a), the sort-sensitive pronoun

becomes more like a coordinator, since coordinators in general appear most naturally

between the two sentences they conjoin.

Fourth, Japanese has a number of genuine adverbials, consisting of *sore* followed

by a postposition, that are used to connect two sentences.

(70) a.　　[$_{CP}$ Ken-ga　　kuruma-o kat-ta　　]; *sore-ni*,

　　　　　　[$_{CP}$ Ken-Nom car-Acc　　buy-Past]; *sore-Loc*,

　　　　　　[$_{CP}$ Sue-ga　　ie-o　　　　kat-ta　　].

　　　　　　[$_{CP}$ Sue-Nom house-Acc buy-Past]

　　　　　　'Ken bought a car; in addition, Sue bought a house.'

　　　b.　　[$_{CP}$ Ken-ga　　kaze-o　　hii-ta　　]; *sore-de*,

　　　　　　[$_{CP}$ Ken-Nom cold-Acc catch-Past]; *sore-Loc*,

　　　　　　[$_{CP}$ Sue-ga　　kusuri-o　　kat-ta　].

　　　　　　[$_{CP}$ Sue-Nom medicine-Acc buy-Past]

　　　　　　'Ken caught a cold; *for this reason*, Sue bought medicine.'

　　　c.　　[$_{CP}$ Ken-ga　　kuruma-o kat-ta　　]; *sore-to*,

　　　　　　[$_{CP}$ Ken-Nom car-Acc　　buy-Past]; *sore-with*,

　　　　　　[$_{CP}$ Sue-ga　　ie-o　　　　kat-ta　　].

　　　　　　[$_{CP}$ Sue-Nom house-Acc buy-Past]

　　　　　　'Ken bought a car; *in addition*, Sue bought a house.'

d.   [CP Ken-ga   ki-ta   ]; *sore-kara*,

[CP Ken-Nom come-Past]; *sore-from*,

[CP Sue-ga   ki-ta   ].

[CP Sue-Nom come-Past]

'Ken came; *after that*, Sue came.'

Further, Tsubomoto (1995) cites an example in which even *sore-ga* '*sore*-Nom'

and *sore-o* '*sore*-Acc' are used as a genuine sentential connector, as we have already seen

in section 2.2.1. I will repeat his example as (71).

(71) A: konnitino   ryuusei-wa watasi-no keieinouryoku-ni

today-Gen rise-Top   I-Gen   management.ability-Dat

ou-tokoro-ga   ookiin-da.

depend.on-Nmn-Nom great-be.Pres

'The rise of the company today greatly depends on my management ability.'

B: {*sore-o*/   *sore*-ga }   sono itibu   demo   anna   hanzaisya-ni

{*prn*-Acc/ *prn*-Nom}   prn-Gen part even   that   criminal-Dat

muzamuzato   watasu   tumori-wa   nai.

without.resistance give.away intention-Top does.not.exist

'*For this reason*, I have no intention to give away any part of the company to

that criminal without any resistance.'

Given the evidence above, it is not surprising that although still an argument NP, the sort-sensitive pronoun in Japanese has assumed an additional function of a sentential coordinator.

To capture this function of a sort-sensitive pronoun, I would like to propose that it has an additional categorial feature [+sentential coordinator] (abbreviated [+sc]), which percolates up to the topmost node to make the whole structure a virtual sentential coordination. I will assume that this virtual coordination structure is licensed by the condition in (72).

(72)   *Licensing Condition for the Virtual Sentential Coordination*
        The following structure is a virtual sentential coordination at LF iff the topmost YP with the feature [+sc] immediately dominates the two maximal projections XP and YP, which contain an IP as their complement.

        YP[+sc]
        ┌──────────┴──────────┐
        XP   YP
      ┌──┴──┐   ┌──┴──┐
      IP   X   IP   Y
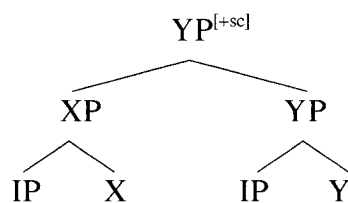
As indicated in (66), repeated here as (73), the sort-sensitive pronoun construction satisfies the licensing condition for the virtual sentential coordination.

(73) a.   Tom-ga   heya   kara   detekoyootositei-ta;

Tom-Nom room from be.about.to.leave-Past;

Sue-ga   sore-o   tukamae-ta.

Sue-Nom sore-Acc catch-Past

'Tom was about to leave the room; Sue caught him.'

b.

Tree diagram:

- CP/T$^{[+sc]}$
  - CP$^{1[+sc]}$
    - IP
      - NP → Tom
      - I'
        - VP
          - PP
            - room from
          - V → be.about.to.leave
        - PAST
  - CP$^{2[+sc]}$
    - IP$^{[+sc]}$
      - NP → Sue
      - I'$^{[+sc]}$
        - VP$^{[+sc]}$
          - NP$^{[+sc]}$ → sore$^{[+sc]}$
          - V → catch
        - I → PAST
    - C
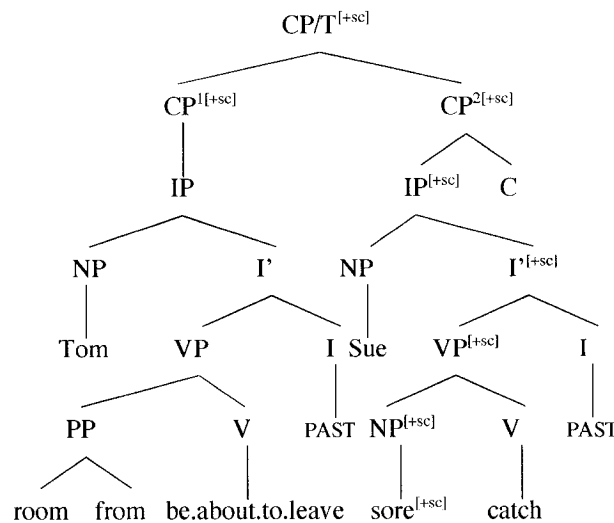
2.6. Conclusion

In this chapter we have first presented evidence that there is a special type of pronoun in Japanese whose antecedent must be an argument of an SLP and whose subcategorizing predicate must also be an SLP. We have named this type of pronoun the sort-sensitive pronoun, and have shown that its morphological, syntactic and interpretive properties are strikingly different from those of ordinary pronouns. Finally, we have

presented evidence that the sort-sensitive pronoun functions both as a pronominal argument and as a sentential coordinator.

CHAPTER 3. THE INTERNALLY HEADED RELATIVE CLAUSE

CONSTRUCTIONS IN JAPANESE AND NAVAJO

3.1. Introduction

It has been observed that Japanese has two types of relativization, exemplified in

(1) and (2), where the head of a relative clause is underlined.[1]

(1)   Internally Headed Relative Clause

John-wa   [[Mike-ga   sara-no   ue-ni   ringo-o

John-Top   [[Mike-Nom plate-Gen   upper.area-Loc apple-Acc

oi-ta   ] no]-o   toriage-ta.

put-Past]Nmn]-Acc   pick.up-Past

'John picked up an apple that Mike put on a plate.'

(2)   Externally Headed Relative Clause

John-wa   [Mike-ga   sara-no   ue-ni

John-Top   [Mike-Nom plate-Gen   upper.area-Loc

$[_{NP} e_i]$ oi-ta   ] ringo-o   toriage-ta.

$[_{NP} e_i]$ put-Past] apple$_i$-Acc   pick.up-Past

'John picked up an apple that Mike put on a plate.'

In (1) the head of the relative clause, *ringo* 'apple', is inside the relative clause itself.

Thus, this type of clause is called the *Internally Headed Relative Clause* (IHRC). In (2),

---

[1] I will use English restrictive and non-restrictive relative clauses to translate Japanese IHRCs.

in contrast, the head is outside the relative clause and the corresponding empty NP is inside the relative clause. This type of relative clause is called the *Externally Headed Relative Clause* (EHRC).[2]

In this chapter I will show that there is a number of syntactic and semantic differences between Japanese IHRCs and Navajo IHRCs. More concretely, we will observe two sets of facts: one is concerned with universal characterization of IHRCs and the other is about differences between Japanese-type IHRCs and Navajo-type IHRCs.

In each of the subsections 3.2. and 3.3., we will first examine two defining properties of IHRCs, which I will call *universal conditions of IHRCs*. Then, we will examine a number of syntactic and semantic differences between Japanese IHRCs and Navajo IHRCs. They will be called *language-particular conditions of IHRCs*.

3.2. Conditions on IHRC Constructions in Japanese

3.2.1. Universal Conditions on IHRC Constructions

There are at least two conditions that IHRCs in any language must obey. The condition we will examine first is the following:

---

[2] IHRCs are alternatively called head-internal relative clauses, internal relative clauses, headless relative clauses, or pivot-independent relative clauses. EHRCs are alternatively referred to as external relative clauses, or headed relative clauses. See Andrews (1975) and Keenan (1985), among others.

(3)   [P-1] Argument Condition

        An IHRC is a nominalized sentence that functions as a syntactic argument to

        the main predicate.

In Japanese IHRCs, *no* or *tokoro* is used as a nominalizer. Observe (4):

(4)   Sue-wa   [otoko-ga   deteik-ootosi-ta   ] *no/tokoro*-o   tukamae-ta.

        Sue-Top [otoko-Nom leave-be.about.to-Past] *Nmn/Nmn*-Acc   catch-Past

        'Sue caught a man who was about to leave.'

Note that the sequence inside the brackets is an independent sentence, as shown in (5a).

So without help of a nominalizer, it can never be used as an argument of a predicate, as

indicated in (5b).

(5) a.   otoko-ga deteik-ootosi-ta.

         man-Nom leave-be.about.to-Past

         'A man was about to leave.'

    b. * Sue-wa   [otoko-ga   deteik-ootosi-ta   ]ϕ-o   tukamae-ta.

       * Sue-Top [man-Nom leave-be.about.to-Past] ϕ-Acc   catch-Past

Note also that the bracketed sentence is combined with *no/tokoro* to form a constituent, which is then followed by the Accusative Case marker *o*. This shows that the constituent consisting of a sentence and *no/tokoro* functions as a nominal argument.

The second universal condition of IHRCs is the following:

(6)   [P-2] Internal Head Condition
         An IHRC contains the head of a relative clause.

It is reasonable to assume that in (4) the subject NP of the subordinate clause functions as the head of a relative clause. This assumption is supported by the observation that what Sue caught is not a proposition that a man was about to leave, but a specific man that was about to leave. This is only compatible with the analysis in which the subject NP *otoko* 'man' functions as the head of the relative clause.

3.2.2. Language-Particular Conditions on IHRC Constructions

3.2.2.1 Proper Names as Internal Heads

We will show that there are at least four langauge-particular conditions. The first language-particular condition we are dealing with is the following:

(7) |P-3| Proper Name Condition

A proper name cannot function as an internal head.

In Japanese IHRCs, the proper name condition is violated, and proper names can be used as an internal head, as shown in (8).

(8) a.   <u>Ken</u>-ga   ie-kara   detekita | no-o   tukamae-ta.

[<u>Ken</u>-Nom house-from   come.out-Past] Nmn-Acc catch-Past

'I caught <u>Ken</u>, who came out of the house.'

b.   Gozira-ga |<u>Queen Elizabeth II</u>-ga   Tokyo-wan-ni

Godzilla-Nom [<u>the Queen Elizabeth II</u>-Nom   Tokyo-bay-Loc

ukan-dei-ta   ] no-o   tukami-age-ta

float-Prog-Past] Nmn-Acc catch-lift-Past

'Godzilla caught and lifted <u>the Queen Elizabeth II</u>, which was floating in Tokyo bay.'

3.2.2.2. Indefiniteness of Internal Heads

The second language-particular condition is concerned with what determiner is allowed inside an internal head.

(9)   [P-4] Weak NP Condition

The internal head must be a weak NP.

In (9) we have employed the notion "weak NP" to refer to a type of NP whose determiner is "weak." This notion is based on Milsark's (1977) classification of determiners. According to him, determiners can be divided into weak determiners and strong determiners. The former includes determiners such as the indefinite determiners *a* and *some*, the quantifiers *many* and *few*, and number determiners. The latter includes determiners such as the definite determiner *the*, demonstratives, and the quantifiers *all*, *every* and *most*. In what follows, we will also use the term "strong NP" to refer to the type of NP whose determiner is "strong" in the sense just discussed.

As the sentences in (10) show, strong determiners can be part of the internal head in Japanese IHRCs. This means that Japanese IHRCs do not obey the weak NP condition.

(10) a.   [[subete-no usagi]-ga   deteki-ta] no-o   tukamae-ta.

[[all-Gen   rabbit]-Nom   come.out-Past] Nmn-Acc catch-Past

'I caught all the rabbits, which came out"

b.   [[kono usagi]-ga   deteki-ta   ] no-o   tukamae-ta.

[[this rabbit]-Nom   come.out-Past] Nmn-Acc   catch-Past

'I caught this rabbit, which came out.'

c.   [[<u>daibubun-no usagi</u>]-ga   deteki-ta | no-o   tukamae-ta

[[most-Gen   rabbit]-Nom come.out-Past] Nmn-Acc   catch-Past

'I caught most of the rabbits, which came out.'

3.2.2.3. Split Internal Heads

The third language-particular condition is concerned with whether or not IHRCs

allow internal heads to be split.

(11)   [P-5] Split Head Condition

The internal head cannot be split.

As Kuroda (1975/76, 1992) observes, Japanese IHRCs allow a split internal head, as (12)

shows.[3]

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[3] Kuroda published a series of papers on IHRCs in *Papers in Japanese Linguistics*: (Kuroda 1974, 1975-76, 1976-77). These works are reprinted in Kuroda 1992.

(12) a.　　[Zyunsa-ga　　　doroboo-o　kawa-no hoo-e　oitumeteit-ta　　| no-ga

　　　　　　　[policeman-Nom　thief-Acc　　tward.river　　　track.down-Past |Nmn-Nom

　　　　　　　ikioiamatte　　　hutaritomo　kawa-no naka-e　tobikon-da.

　　　　　　　exceed.power　both　　　　into.river　　　junp-Past

　　　　　　　'A policeman was tracking down a thief toward the river, and both, losing

　　　　　　　control, jumped into the river.'

　　　b.　　Sue-wa　[Bill-ga　　heya-de Ken-to　　naguri-at-tei-ta　　　| no-o

　　　　　　　Sue-Top　[Bill-Nom　room-in Ken-with　hit-each.other-Pres-Past] Nmn-Acc

　　　　　　　hutaritomo oidasi-ta.

　　　　　　　both　　　kick.out-Past

　　　　　　　'Bill was hitting with Ken in the room, and Sue kicked out both of them'

Thus, we can conclude that Japanese IHRCs can violate the split head condition.

3.2.2.4. Predicate Type of IHRCs

The fourth language-particular condition is concerned with the type of predicate

used in IHRCs.

(13)　　　[P-6] Predicate Type Condition

　　　　　The predicate of the IHRC cannot be individual-level.

It is claimed in Uchibori (1991), among others, that Japanese IHRCs obey this condition and cannot take an individual level predicate. Observe the following.

(14) a. * Ken-wa [otoko-ga   hansamu-na   ] no-o   taihosi-ta.

       * Ken-Top [man-Nom handsome-be.Pres] Nmn-Acc arrest-Past

       '*Ken arrested a man, who is handsome.'

   b. * Sue-wa [otoko-ga   ooki-i   ]no-o   nagut-ta.

       * Sue-Top [man-Nom big-Pres] Nmn-Acc hit-Past

       '*Sue hit a man, who is big.'

   c. * Ken-wa [sono inu-ga   Akita-inu dea-ru] no-o   ketobasi-ta.

       * Ken-Top [the   dog-Nom Akita-dog be-Pres] Nmn-Acc kick-Past

       '*Ken kicked the dog, which is an Akita.'

What the sentences in (14) indicate is that individual level predicates such as *hansamu-na* 'handsome-be.Pres', *ooki-i* 'big-be.Pres', and *Akita-inu dea-ru* 'Akita-dog be-Pres' cannot be used as a predicate in IHRCs. This is also claimed to be one of the differences between IHRCs and EHRCs in Japanese. The EHRCs corresponding to (14) are perfectly grammatical.

(15) a.   Ken-wa [[$_{NP}$ e$_i$] hansamu-na   ] otoko$_i$-o   taihosi-ta.

       Ken-Top [[$_{NP}$ e$_i$] handsome-be.Pres] man-Acc   arrest-Past

       'I arrested a young man who is handsome.'

b.   Sue-wa [[_{NP} e_i]   ooki-i   ] okoto-o   nagut-ta.

Sue-Top [[_{NP} e_i] big-be.Pres] man-Acc   hit-Past

'Sue hit a man who is big.'

c.   Ken-wa [[_{NP} e_i] Akita-inu   dea-ru] sono inu-o   ketobasi-ta.

Ken-Top [[_{NP} e_i] Akita-dog be-Pres] the   dog-Acc   kick-Past

'Ken kicked the dog, which is an Akita.'

3.2.2.5. Precedence and Adjacency Condition

3.2.2.5.1. Introduction

In this section I will propose a language-particular temporal condition on the IHRC in Japanese. The condition will be called precedence and adjacency condition, which consists of two sub-conditions, precedence condition and adjacency condition.

Section 3.2.2.5. is organized as follows. In 3.2.2.5.2. I introduce some generalizations proposed by Kuroda on the semantic/pragmatic relation between the IHRC and the main clause. In 3.2.2.5.3. and 3.2.2.5.4. I sharpen these generalizations, based on additional evidence. In 3.2.2.5.5. I offer some concluding remarks.

3.2.2.5.2. Peculiarities of Temporal Interpretation of IHRCs

In the mid seventies, Kuroda noticed that Japanese IHRCs show some interpretive

peculiarities that are not shared by EHRCs and proposed the following generalization to

describe them.

(16)   The Relevancy Condition

For [an IHRC] to be acceptable, it is necessary that it be interpreted

pragmatically in such a way as to be directly relevant to the pragmatic content

of its matrix clause.   (Kuroda 1975/76, 1992)

This generalization is stated rather vaguely to subsume several sub-conditions. Among

them, the following two sub-conditions are relatively clear:

(17) a.   The Simultaneity Condition

The IHRC is interpreted as simultaneous with the time reference of the matrix

clause.   (cf. Kuroda 1975/76, 1992)

    b.   The Co-Locationality Condition

The two events represented by the IHRC and the matrix clause involve the same

physical location.   (cf. Kuroda 1975/76, 1992)

The intuitive content of these conditions is illustrated in (18). (In the following examples,

I will offer an additional sentential translation with the emphasis on the temporal

properties of the IHRC, in addition to a regular translation that is based on English

relative clauses.)

(18)   John-wa   [Mike-ga   ringo-o   sara-no   ue-ni   oi-ta]

         John-Top [Mike-Nom apple-Acc   plate-Gen top-Loc   put-Past]

         no-o   toriage-ta.

         Nmn-Acc   pick.up-Past

         'John picked up an apple that Mike put on a plate.'

         'Immediately after Mike put an apple on the plate, John picked it up (from the

         same plate).'

In the second sentential translation of (18) the subordinating conjunction *immediately*

after reflects the simultaneity condition, and the phrase *from the same plate* reflects the

co-locationality condition.

In the next two sections I will show that the simultaneity condition as it is stated

in (17a) is still vague and propose that the condition can be decomposed into two

independent temporal conditions, i.e., precedence condition and adjacency condition.

3.2.2.5.3. Adjacency Condition

As part of Kuroda's simultaneity condition, I will propose a language-particular

condition that is concerned with temporal adjacency between two eventualities. I will call

this condition adjacency condition.

(19)   [P-7a] Adjacency Condition:

The eventuality of the IHRC must be temporally adjacent to the eventuality of

the main clause.

The evidence for the adjacency condition is illustrated in (20) and (21). In (20) the

eventuality of the suspect's coming here is interpreted as adjacent to the eventuality of

my arresting him. This interpretation is incompatible with two time adverbials denoting

non-adjacent time intervals. As a consequence, the sentence in (21) is unacceptable.

(20)   watasi-wa [hannin-ga   kotira-ni yatteki-ta]   no-o

I-Top   [suspect-Nom   here-to   come-Past]   Nmn-Acc

tukamae-ta.

arrest-Past

'I arrested a suspect who was coming here.'

'A suspect came here, and immediately afterwards I arrested him (here).

(21) * watasi-wa [*kinoo*   hannin-ga   kotira-ni   yatteki-ta | no-o

* I-Top   [*yesterday* suspect-Nom   here-to   come-Past| Nmn-Acc

kesa   tukamae-ta.

this.morning   arrest-Past

'*This morning, I arrested a suspect who was coming here yesterday.'

'*Yesterday, a suspect came here, and this morning, I arrested her (here).'

EHRCs, on the other hand, need not conform to the adjacency condition, as (22) and

(23) show.

(22)   boku-wa [kotira-ni   yatteki-ta   ] hannin-o   tukamae-ta.

I-Top   [here-to   come-Past   ] suspect-Acc   arrest-Past

'I arrested a suspect who was coming here.'

(23)   boku-wa [*kinoo*   kotira-ni   yatteki-ta | hannin-o

I-Top   [*yesterday* here-to   come-Past   ]   suspect-Acc

kesa   tukamae-ta.

this.morning   arrest-Past

'This morning, I arrested a suspect who was coming here yesterday.'

3.2.2.5.4. Precedence Condition

From Kuroda's simultaneity condition, we can extract another language-particular condition that is concerned with temporal order between the eventuality of the IHRC and the eventuality of the main clause. I will call this condition *precedence condition*.

(24)   [P-7b] Precedence Condition:

The eventuality of the IHRC must precede the eventuality of the main clause.

Evidence for the precedence condition ocmes from the contrast between the sentence in (25a) and the sentence in (25b). On the pragmatically salient reading, the sentence in (25b) is unacceptable even though the adjacency requirement can be met.

(25) a.   Tom-wa   [usagi-ga   ana   kara   deteki-ta   ]   no-o

Tom-Top   [rabbit-Nom   hole   from   come.out-Past]   Nmn-Acc

tukamae-ta.

catch-Past

'Tom caught a rabbit that came out of a hole.'

'Immediately after a rabbit came out of a hole, Tom caught it.'

b. * [Tom-ga   <u>usagi</u>-o   tukamae-ta]   no-wa   ana   kara

   * [Tom-Nom   <u>rabbit</u>-Acc   catch-Past]   Nmn-Top   hole from

    deteki-ta.

    come.out-Past

    '*A rabbit that Tom caught came out of a hole.'

    '*Immediately after Tom caught a rabbit, it came out of a hole.'

No precedence requirement is imposed on EHRCs, as the sentences in (26) show.

(26) a.   Tom-wa   [ana   kara   deteki-ta   ]   <u>usagi</u>-o   tukamae-ta.

      Tom-Top [hole from   come.out-Past]   <u>rabbit</u>-Acc   catch-Past

      'Tom caught a rabbit that came out of a hole.'

   b.   [Tom-ga   tukamae-ta]   <u>usagi</u>-wa   ana   kara   deteki-ta.

      [Tom-Nom   catch-Past]   <u>rabbit</u>-Top   hole   from   come.out-Past

      'The rabbit that Tom caught came out of a hole.'

3.2.2.5.5. Conclusion

In this section we have observed that Kuroda's relevancy condition can be decomposed into the simultaneity condition and the co-locationality condition. Then we have sharpened the simultaneity condition, so that we have obtained the two temporal conditions that Japanese IHRCs must obey, i.e., the adjacency condition and the precedence condition

Let us combine these conditions into *precedence and adjacency condition* (PAC).

(27)   [P-7] Precedence and Adjacency Condition (PAC)

The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

3.3. Conditions on IHRC Constructions in Navajo

3.3.1. Universal Conditions of IHRC Constructions

Let us move on to examine properties of Navajo IHRCs. First, we will make sure that Navajo IHRCs exhibit the two universal conditions of IHRCs. The first defining condition is repeated in (28).

(28)   [P-1] Argument Condition

An IHRC is a nominalized sentence that functions as a syntactic argument to the main predicate.

In Navajo IHRCs, the relative clause is nominalized by means of the definite determiner/nominalizer/complementizer. (cf. Platero 1974, Barss, Hale, et al. 1992, Shauber 1979) According ot Platero (1974), they are divided into two subtypes: nonpast nominalizers and past nominalizers, as shown in (29).

(29) a.   Nompast Nominalizers: -yígíí , - ígíí

     b.   Past Nominalizers: -yéę , -éę , - áą

Examples of Navajo IHRCs with various types of nominalizers are given in (30a) through

(30d).

(30) a.   [łééchąą'í hastiin   yishxash-éę] nahał'in

        [dog   man   bit-Nmn   ] is.barking

        'The dog that bit the man is barking.'

     b.   [ashkii ałháą'-áą   ] yádoołtih

        [boy   3S-was:snoring-Nmn]   3S-will:speak

        'The boy who was snoring is talking.'

     c.   [ashkii ałhosh-ígíí   ] ałháą

        [boy   imp.3.sleep-Nmn]   imp:3:snore

        'The boy who is sleeping is snoring.'

     d.   [ashkii Mary   yí'dísooł-éę | deezgo

        [boy   Mary   whistle-Nmn] fall

        'The boy who was whistling at Mary fell.'

I will argue that each nominalized part of the sentences in (30) is an independent sentence

followed by a nominalizer and functions as a syntactic arguments for the main predicate.

First, each nominalized portion of the sentences in (30), when used without a nominalizer, can stand alone as an independent sentence, as shown in (31a) through (31d).

(31) a. asłééchąą'í hastiin   bishxash

dog   man   bit

'The man bit the dog.' (preferred reading)

or 'The dog bit the man.'

b. ashkii ałhą́ą́'

boy   3S-was.snoring

'The boy was snoring.'

c. ashkii ałhosh

boy   imp.3.sleep

'The boy is sleeping.'

d. ashkii Mary yí'dísooł

boy Mary   whisle

'The boy was whisling at the girl.'

Second, note that the main predicate of each of the sentences from (30a) to (30d) is an intransitive verb, requiring a single syntactic argument. Also note that the nominalized part is the only possible argument available to the main predicate in each case. Hence, we can conclude that the nominalized portion of the sentences from (30) acts as a syntactic argument to the main predicate.

Navajo IHRCs also satisfy the second defining condition of IHRCs, given in (32).

(32)   [P-2] Internal Head Condition

An IHRC contains the head of a relative clause.

It is obvious that the main predicates in sentences from (30a) through (30d), i.e., *nahaɬ'in* 'is.barking', *yádooɬtih* '3S-will.speak', *aɬhą́ą́* 'imp.3.*snore*', and *deezgo* 'fall', require some individual, rather than a proposition. In fact, the sentential translations for (30a) though (30d) suggest that each predicate is related to some NP in the IHRC that denotes an individual.

3.3.2. Language-Particular Conditions on IHRC Constructions

3.3.2.1. Proper Names as Internal Heads

Now let us move on to the properties of IHRCs that differentiate Japanese type of IHRC from IHRCs in other languages including Navajo.

In this section, we will examine if the internal head of Navajo IHRCs can be a proper name.

(33)   [P-3] Proper Name Condition

A proper name cannot function as an internal head.

As opposed to Japanese IHRCs, Navajo IHRCs obey this condition.[4] Thus, the internal head of Navajo IHRCs may not be a proper name. To see this, let us examine three cases. First, the contrast in (34a) and (34b) shows that in Navajo, when a proper name is used as an internal head, the IHRC becomes unacceptable.

(34) a. * [John   aɬhosh-ígíí | aɬháá

          * [John   imp.3.sleep-Nmn]   imp:3:snore

          '*John, who is sleeping, is snoring.'

    b.   [at'eed   aɬhosh-ígíí | aɬháá

          [girl   imp3.sleep-Nmn]   imp:3:snore

          'The girl who is sleeping is snoring.'

Second, consider the case in which both a proper name and an indefinite NP appear as arguments in the IHRC. In that case, only the indefinite NP can be interpreted as the internal head.

---

[4] The Korean IHRC is just like the Japanese counterpart in this regard. Chung (1999), for example, cites the following Korean IHRC with a proper name as the internal head.

(i)   Ku   hyengsa-nun   [John-i   pang-eyse   nao-nun   kes]-ul   cheyphoha-ess-ta.
       The detective-Top [John-Nom   room-from   come.out-Adn Nmn]-Acc   arrest-Past-DE
       'The detective arrested John, who was coming out of the room.'

(35) [John   at'ééd   yí'dísool-ę́ę̨]   deezgo

      [John   girl   whistle-Nmn]   fall

      '*John, who was whistling at Mary, fell.'

      'The girl who John was whistling at fell.'

Third, if two arguments in the IHRC are proper names, neither of them can function as the internal head. Hence, the following sentence has no possible interpretation.

(36) [John   Mary   yí'dísool-ę́ę̨]   deezgo

      [John   Mary   whistle:Nmn]   fall

      '*John, who was whisling at Mary, fell.'

      '*Mary, who John was whisling at, fell.'

We many conclude from the three cases just examined that Navajo IHRCs do not allow proper names to become internal heads.

3.3.2.2. Indefiniteness of Internal Heads

The second language-particular condition I would like to examine is whether or not internal heads must be indefinite.

(37)   [P-4] Weak NP Condition

          The internal head must be a weak NP.

In fact, IHRCs in many languages such as Lakhota require the internal head to exclude a

strong determiner. As we have already seen, Japanese IHRCs are exceptional in this

regard.[5] In this section, we will show that Navajo behaves just like Lakhota in that the

internal head must be a weak NP.

Let us first consider the sentence in (38), in which the subject is a strong NP and

the object a weak NP. In this case, only the object NP can be interpreted as the internal

head.

(38)   [ʔaʔałtsʰʷoʔ   at'ééd   yí'tadísooł-ę́e | deezgo

          [everyone   girl   whistle-Nmn   ]   fall

          '*Everyone who was whistling at the girl fell.'

          'The girl that everyone was whistling at fell'

---

[5] Korean IHRCs behave like Japanese IHRCs here, too. The following IHRC from Chung (1999) contains
the internal head modified by *yuilha-n* 'only-Adn'.

(i)   [[[John-i   ssu-n   ] yuilha-n nonmun]-i   chayksang-wiey iss-ten   kes |-ul
          [[[John-Nom write-Adn] only-Adn paper]-Nom desk-on   exist-Adn Nmn]-Acc
          Tom-i   kacyeka-ess-ta.
          Tom-Nom take.away-Past-DE
          'Tom took away the unique paper that was on the desk that John wrote.'

Given our claim that both the weak NP condition and the proper name condition

hold in Navajo, we can predict that if we replace a proper name for an object weak NP,

the sentence becomes unacceptable. This prediction is actually borne out.

(39)   [ʔaʔałts^{hw}oʔ   Mary   yí'tadísooł-ę́e]   deezgo

        [everyone   Mary   whistle-Nmn]   fall

        '*Everyone who was whistling at the Mary fell.'

        '*Mary, who everyone was whistling at, fell'

3.3.2.3. Split Internal Heads

Let us go on to the third language-particular condition that distinguishes between

Japanese IHRCs and Navajo IHRCs.

(40)   [P-5] Split Head Condition

        The internal head cannot be split.

Contrary to Japanese IHRCs, a split internal head is not allowed in Navajo.

(41)   * [ashkii   at'ééd   yizts'ǫs-ęę] dahdii'aázh

        * [boy   girl   kiss-Nmn] leave:dual

        '*A boy was kissing a girl, who left'   (Platero 1978: 54)

In (41), there are two indefinite NPs in the IHRC, and the main predicate requires a plural

subject due to the requirement posed by the suffix *aázh* 'dual'. So if both *ashkii* 'boy'

and *at'ééd* 'girl' were able to form a split internal head, this sentence would be

acceptable. The fact that it is not indicates that a split internal head is unavailable in

Navajo.

3.3.2.4. Predicate Type of IHRCs

The fourth language-particular condition that differentiates between Japanese

IHRCs and Navajo IHRCs is whether or not the predicate of the IHRC can be individual-

level.

(42)   [P-6] Predicate Type Condition

        The predicate of the IHRC cannot be individual-level.

Navajo IHRCs violate this condition, and can take an individual level predicate as their

matrix predicate. The sentences in (43a) through (43c) show that *patsolnəh*, 'handsome',

t'opa'i 'ugly', and *nɛnɛːz* 'tall', which denote some temporally stable properties, can be used as main predicates.

(43) a. ashkii (eyol) patsolnəh

boy (very) handsome

'The boy is (very) handsome.'

b. ashkii (eyol) t'opa'i

boy (very) ugly

'A boy is (very) ugly.'

c. ashkii (eyol) nɛnɛːz

boy (very) tall

'A boy is (very) tall.'

The above sentences can be embedded with an appropriate nominalizer attached, and become grammatical IHRCs, as the sentences in (44) show.

(44) a. [ashkii (eyol) patslonəh-ígíi] deezgo

[boy (very) handsome-Nmn] fall

'The boy who is (very) handsome fell.'

b. [ashkii (eyol) t'opa'i -ígíi] deezgo

[boy (very) ugly-Nmn] fall

'The boy who is (very) ugly fell.'

c. |ashkii   (eyol)   nɛnɛːz-ígíí| deezgo

[boy   (very)   tall-Nmn] fell

'The boy who is (very) tall fell.'

3.3.2.5. Precedence and Adjacency Condition

3.3.2.5.1. Temporal Adjacency

The fifth language-particular condition that differentiates between Japanese

IHRCs and Navajo IHRCs is whether or not the eventuality of the main clause and the

eventuality of the IHRC are temporally adjacent with each other.

(45) |P-7a| Adjacency Condition:

The eventuality of the IHRC must be temporally adjacent to the eventuality of

the main clause.

Contrary to what we saw in Japanese, Navajo IHRCs do not obey the adjacency

condition.

(46)   [ashkii 'atanah   Mary   yí'dísool-ę́ę̀] əchinəh deezgo

[boy   yesterdy   Mary   whistle-Nmn] today   fall

'The boy who was whistling at Mary yesterday fell today.'

The eventualities of both the IHRC and the main clause are temporally separated due to

the two temporal adverbials *'atanah* 'yesterday' and *achinah* 'today'. Still, the sentence

is acceptable.

3.3.2.5.2. Temporal Precedence

The final language-particular condition we will consider is precedence condition.

(47)   [P-7b] Precedence Condition:

The eventuality of the IHRC must precede the eventuality of the main clause.

The sentences in (48) indicate that as opposed to Japanese IHRCs, Navajo IHRCs do not

follow the precedence condition.

(48) a.   [ashkii jiina   Mary   yi'disooł-ę́ę] 'atanah   deezgo

[boy   today   Mary   whistle-Nmn] yesterday   fall

'The boy who was whistling at Mary today fell yesterday.'

b.   [ashkii ałhosh-ígíí   ] 'atanah   deezgo

[boy   sleeping-Nmn] yesterday fell

'The boy who is sleeping fell yesterday.'

The eventualities of both the IHRC and the main clause are temporally separated due to the two temporal adverbials *'atanah* 'yesterday' and *achinah* 'today'. Still, the sentence is acceptable.

3.3.2.5.2. Temporal Precedence

The final language-particular condition we will consider is precedence condition.

(47)   [P-7b] Precedence Condition:

The eventuality of the IHRC must precede the eventuality of the main clause.

The sentences in (48) indicate that as opposed to Japanese IHRCs, Navajo IHRCs do not follow the precedence condition.

(48) a.   [ashkii jiina   Mary   yi'disooł-ę́ę] 'atanah   deezgo

       [boy   today   Mary   whistle-Nmn] yesterday   fall

       'The boy who was whistling at Mary today fell yesterday.'

    b.   [ashkii ałhosh-ígíí   ] 'atanah   deezgo

       [boy   sleeping-Nmn] yesterday fell

       'The boy who is sleeping fell yesterday.'

In (48), *jíína* 'today' appears in the IHRC and *'atanah* 'yesterday' in the main clause. This forces us to interpret the eventuality in the main clause as preceding the eventuality in the IHRC. In (48b), the eventuality depicted in the IHRC denotes the ongoing activity, which follows, rather than precedes, the eventuality of the main clause that happened 'yesterday'.

3.3.2.5.3. Conclusion

Given above discussion, we can conclude that Navajo IHRCs do not observe precedence and adjacency condition.[6]

(49)   [P-7] Precedence and Adjacency Condition:

The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

---

[6] Kim (1992) suggests that Korean IHRCs are constrained by Kuroda's simultaneity condition by citing the contrast in (i) and (ii).

(i)   Tom-un [sakwa-ka   cayngpan-uy-ey   iss-nun kes]-ul   mekessta.
        Tom-Top [apple-Nom tray-top-Loc   exist-PN Nmn]-Acc ate
        'Tom ate the apple that was on the tray.'
(ii)   *Tom-un [sakwa-ka   eche   cayngpan-uy-ey iss-nun kes]-ul   mekessta.
        *Tom-Top [apple-Nom yesterday tray-top-Loc exist-PN   Nmn]-Acc ate

3.4. Remarks on Culy's (1990) Generalization

3.4.1. Independency Condition for IHRCs

Culy (1990) observes that languages with IHRCs seem to share the following three properties:

(50)   The Three Properties of Languages with IHRCs

[1] They have nominalized sentences in other constructions.

[2] They have a basic word order SOV.

[3] They are pro drop languages.   (Culy 1990: 199)

This set of seemingly universal characteristics have been noticed by many linguists (see, for example, Cole 1987). But it is Culy who focuses on the first property and sharpens it so that it has a status of an implicational universal. His universal is called *independency condition* for IHRCs.

(51)   Independency Condition for IHRCs

A language will have IHRCs only if it also has other similar nominalized sentences with the independency properties.   (Culy 1990: 203)

In order for any condition to make a prediction, the notions employed in the condition must be defined clearly. So it is necessary to flesh out notions like "other similar nominalized sentences" and "the independency properties." Culy first defines the independency properties as follows:

(52)   Independency Properties:

a.   The reference of the arguments in an IHRC is independent of the other argument in the matrix clause. In other words, there is no obligatory control from the matrix clause, and neither is there obviation, whereby some argument in the relative clause would have to be different from an argument in the matrix clause.   (Culy 1990: 202)

b.   The tense, aspect, and mood of an IHRC are independent of the tense, aspect, and mood of the matrix clause. Thus, there is nothing like a 'sequence of tenses' holding between the matrix clause and an IHRC. Neither is a particular mood, or other verb form, required by the matrix verb, as for example, the subjunctive mood is required by certain verbs in languages having the subjunctive.   (Culy 1990: 202)

Culy then tries to clarify the meaning of the notion "other similar nominalized sentences with the independency properties" by listing up concrete examples. As examples of this notion, he cites nominalized complements such as indirect discourse complements (e.g. indirect questions, complements of verbs of saying and belief) and factive complements (e.g. 'the fact that', 'the idea that').

In spite of his effort, Culy does not seem to succeed in defining his universal clearly. We still cannot figure out what conditions must be met for two constructions to be "similar."

Further, his universal does not seem to be applicable to Japanese IHRCs, because they do not show the second piece of the independency properties, given in (52b). As discussed in section 3.2.2.5., Japanese IHRCs obey both the precedence condition and the adjacency condition, which require a specific temporal connection between the eventualities of the main clause and the IHRC. This means that the tense of the IHRC is dependent on the tense of the main clause, as opposed to the proposed property in (52b).[7]

3.4.2. Toward an Alternative

I would like to claim that Culy's Independency Condition can, and must, be sharpened to make more precise predictions.

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[7] Kim (1992) and Ohara (1996) have already pointed out that the existence of relevancy condition poses a problem with Culy's independency condition.

(53)   Implicational Universal for IHRCs

A language will have IHRCs only if it has at least one type of nominalized construction that exhibits the following two properties:

a.   The nominalized construction has an IHRC reading, in addition to its original reading.

b.   The nominalized construction has the same range of nominalizers that the IHRC construction has.

Let us first check if this universal is verified in Japanese. As discussed in Kuroda (1975/76, 1992), there is a close relationship between IHRCs and perception verb complements (PVC) in Japanese. Observe the following PVC construction:

(54)   Ken-wa [usagi-ga   ana kara deteki-ta   ] no-o   mi-ta.
        Ken-Top [rabbit-Nom hole from come.out-Past] Nmn-Acc see-Past
        'Ken saw a rabbit come out of a hole.'
        'Ken saw a rabbit that came out of a hole'

This sentence primarily means something like Ken saw the eventuality of a rabbit coming out of a hole, but there seems to be another reading that is virtually indistinguishable from the primary reading. In this secondary reading, the sentence means something like Ken saw a specific spatio-temporal slice of a rabbit that was coming out of a hole. Let us assume that the sentence in (54) has both of these two readings. I will identify the former

reading the original reading and the latter the IHRC reading. The fact that Japanese PVC construction shows both of these readings is a piece of evidence for the first condition given in (53a).

As for the second condition in (53b), consider the following sets of sentences:

(55) a.   Ken-wa   [usagi-ga   ana   kara   deteki-ta   ] *no*-o   mi-ta.

Ken-Top   [rabbit-Nom hole from come.out-Past] Nmn-Acc   see-Past

'Ken saw a rabbit come out of a hole.'

b.   Ken-wa   [usagi-ga   ana   kara   deteki-ta   ] *tokoro*-o   mi-ta.

Ken-Top   [rabbit-Nom hole from come.out-Past] Nmn-Acc   see-Past

'Ken saw a rabbit come out of a hole.'

c.   * Ken-wa   [usagi-ga   ana   kara   deteki-ta   ] *koto*-o   mi-ta.

* Ken-Top   [rabbit-Nom hole from come.out-Past] Nmn-Acc   see-Past

'*Ken saw the fact that a rabbit came out of a hole.'

(56) a.   Ken-wa   [Sue-ga   deteki-ta   ] *no*-o   tukamae-ta.

Ken-Top   [Sue-Nom come.out-Past] Nmn-Acc catch-Past

'Ken caught Sue, who came out.'

b.   Ken-wa   [Sue-ga   deteki-ta   ] *tokoro*-o   tukamae-ta.

Ken-Top   [Sue-Nom come.out-Past] Nmn-Acc catch-Past

'Ken caught Sue, who came out.'

c.   * Ken-wa   [Sue-ga   deteki-ta   ] *koto*-o   tukamae-ta.

* Ken-Top [Sue-Nom come.out-Past] Nmn-Acc catch-Past

Japanese has at least three nominalizers, i.e., *no*, *tokoro*, and *koto*. The above sentences

show that both *no* and *tokoro* are permissible nominalizers for the PVC and the IHRC

constructions, but *koto* is disallowed in both of the constructions. This fact suggests that

the second condition of the implicational universal given in (53) is satisfied in Japanese.

Next, let us examine if Navajo has a nominalized construction that exhibits the

conditions in the implicational universal in (53). Consider the following sentence, which

exemplifies the factive complement (FC) construction:

(57)   [łééchąą'í nishxash-ígíí   ]   yínii'

     [dog   2:perf:3:bite-Nmn]   perf:1:hear   (Platero 1974)

According to Platero (1974), the above sentence is ambiguous between the following two

readings.

(58) a.   I heard about the fact that the dog bid you.

    b.   I heard about the dog biting you.

I think it is reasonable to assume that the reading in (58a) is the FC complement reading

and the one in (58b) the IHRC reading. So it seems that Navajo also has a nominalized

construction that exhibits both the original reading and the IHRC reading, satisfying the

first condition of the implicational universal.

The same point can be made by observing the following sentence:

(59) |hastiin   kinłánídę́ę́   yoo   anáálwod-ígíi]   baa   áhonisin

|man   Flangstaff.from   away   3.p.run-Nmn]   3.about   1.know

Schauber (1979) reports that this sentence is ambiguous between the following two readings:

(60) a.   I am aware that the man ran away from Flagstaff.

b.   I am aware of the man who ran away from Flagstaff.

It is obvious that the reading in (60a) is the FC reading and the reading in (60b) the IHRC reading. This again shows that Navajo IHRCs exhibit both the original and IHRC readings, thus verifying once again the existence of the first condition of the universal given in (53).

How about the second condition of the implicational universal? The evidence I have managed to adduce so far suggests that Navajo IHRCs do obey the condition. At least, the non-past nominalizer -ígíí can be used in both the FVC and the IHRC, as the sentences in (61) suggest.

(61) a. [hastiin   kinłánídę́ę́   yoo   anáálwod-ígíi]   baa   áhonisin

         [man   Flangstaff.from   away   3.p.run-Nmn]   3.about   1.know

         'I am aware that the man ran away from Flagstaff.'

    b.   [at'eed   ałhosh-ígíi   ]   ałhą́ą́

         [girl   imp:3:sleep-Nmn]   imp:3:snore

         'The girl who is sleeping is snoring.'

In contrast, the nominalizer -go can nominalize neither the FVC nor the IHRC, as

the following observation by Willie (1991) suggests:

(62)   # [Mary łį́į́'   mayiisnii'- go]   yínii'

        # [Mary horse 3.3.buy-comp]   3s.1s.heard

Willie (1991) observes that the sentence in (62) "is pragmatically odd, since it could be

used only if the speaker heard some sound involved in the transaction, such as noise of

the money being put down. The complementizer -ígíí is factive, while -go occurs in

temporal/conditional construction. (Willie 1991:180-81)" I assume this means that the

sentence in (62) does not have the FC reading as in (63a) nor the IHRC reading as in

(63b).

(63) a.   I heard about the fact that Mary bought the horse.

    b.   I heard about the horse that Mary bought.

If this reasoning is correct, then we can conclude that the nominalizer -*go* cannot be used in the FVC and the IHRC.

Summing up, we have observed that the nominalizers that the FVC and the IHRC allow seem to vary in the same range.

3.5. Conclusions

In this chapter we have compared the Japanese IHRC construction and the Navajo IHRC construction. These two constructions share the two defining properties of IHRCs in general, i.e., [P-1] and [P-2].

[P-1]   Argument Condition

An IHRC is a nominalized sentence that functions as a syntactic argument to the main predicate.

[P-2]   Internal Head Condition

An IHRC contains the head of a relative clause.

But the commonalties end here. We have seen five properties that differentiate the Japanese IHRC construction and the Navajo IHRC construction.

[P-3]   Proper Name Condition

The internal head cannot be a proper name..

[P-4]   Weak NP Condition

The internal head must be a weak NP.

[P-5]   Split Head Condition

The internal head cannot be split.

[P-6]   Predicate Type Condition

The predicate of the IHRC cannot be individual-level.

[P-7]   Precedence and Adjacency Condition

The eventuality of the IHRC must precede and be adjacent to the eventuality of

the main clause.

The Navajo IHRC construction obeys [P-3] through [P-5], whereas the Japanese IHRC

construction does not. In contrast, the Japanese IHRC construction obeys [P-6] and [P-7]

but the Navajo IHRC construction does not. The existence of such differences has been

noticed in the literature, and some of those differences have been successfully accounted

for. For instance, it is possible to account for the fact that the Japanese IHRC construction

does not obey [P-3] and [P-4] if we assume that QR does not apply to the internal head of

the Japanese IHRC at LF. Further, this non-QR analysis, together with E-type pronominal

analysis, may also account for [P-5]. This type of account has been offered by Hoshi

(1995). We will review his explanation in chapter 4. As for [P-6] and [P-7], however, no

one has ever offered a successful explanation for them, as far as I am aware. We will try

to find such an explanation in chapter 6.

CHAPTER 4. SOME PREVIOUS ANALYSES OF THE IHRC CONSTRUCTION IN

JAPANESE

4.1. Introduction

In this chapter we will review some of the important studies on the IHRC

construction in Japanese. One of my own previous analyses of this construction, i.e., a

DRT analysis, will be given a separate treatment in chapter 5, where I will show its pros

and cons in great detail.

The organization of the present chapter is as follow. In 4.2. I will take a brief look

at Watanabe's (1992) analysis and its criticism by Mihara (1994). In 4.3. I will review an

extraposition/adverbial clause analysis by Tsubomoto (1991, 1994). In 4.4. I will present

evidence aginst Shimoyama's (1999) E-type pronoun analysis. I will review Odani's

(1998) analysis in 4.5., where what I will call Odani's generalization will be introduced.

All in all, it will be pointed out in this chapter that all of these studies except Odani's fail

to capture a true generalization precisely because they do not take into account the

relevancy condition at all or seriously.

4.2. An Invisible S-Structure Movement Analysis

Watanabe (1992) proposes that the internal head of the Japanese IHRC undergoes invisible S-structure movement, which obeys Subjacency. His crucial examples are the following.

(1) a.   [[John-ga   [Mary-ga   <u>subarasii ronbun</u>-o kai-ta   ] to   ]

        [[John-Nom [Mary-Nom excellent paper-Acc write-Past] Comp]

        home-tei-ta   ] no]-ga   syuppans-are-ta.

        praise-Prog-Past] Nmn]–Nom   publish-Pass-Past

        'An excellent paper which John said in praise that Mary had written was

        published.'

    b. * [[John-ga   [[Mary-ga   <u>subarasii ronbun</u>-o kai-ta   to-yuu]

        * [[John-Nom [[Mary-Nom <u>excellent paper</u>-Acc write-Past Comp   ]

        uwasa]-o   kii-ta   ] no]-ga   syuppans-are-ta.

        rumor]-Acc hear-Past | Nmn]-Nom publish-Pass-Past

        'An excellent paper which John heard a rumor that Mary had written was

        published.

The internal head is contained in the complex NP in (1b), whereas the internal head in (1a) is inside a complement. Thus Watanabe claims that Subjacency is responsible for the contrast between (1a) and (1b).

Mihara (1994) points out that unacceptability of (1b) is not due to Subjacency but due to Kuroda's relevancy condition. He observes that if *kii-ta* 'hear-Past' in (1b) changes into *kii-tei-ta* 'hear-Perf-Past', then the sentence becomes acceptable.

(2)   [[John-ga   [[Mary-ga   subarasii ronbun-o   kai-ta   to-yuu]

     [[John-Nom   [[Mary-Nom excellent paper-Acc write-Past Comp   ]

     uwasa]-o   kii-tei-ta   ] no   ]-ga   syuppans-are-ta.

     rumor]-Acc hear-Perf-Past] Nmn]-Nom publish-Pass-Past

     'An excellent paper which John had heard a rumor that Mary had written was published.

Intuitively, the difference between (1b) and (2) is whether the eventuality of the IHRC is eventive or stative: *kii-ta* 'hear-Past' is eventive and *kii-tei-ta* 'hear-Perf-Past' is stative. According to Mihara, this difference can be explained by the relevancy condition. With the help of the perfect marker *tei*, the eventuality of the IHRC in (2) can be made to be simultaneous with the eventuality of the main predicate, thus satisfying the simultaneity condition, a sub-condition of the relevancy condition.[1]
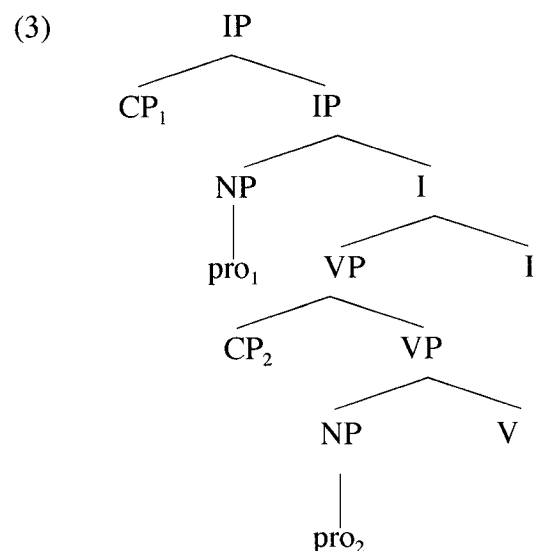
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[1] I will argue in chapters 5 and 6 that the simultaneity condition is ultimately derived from the direct cause condition. It is worth noting, however, that the simultaneity effect that Mihara's example exhibits cannot be derived form the direct cause condition. I will deal with this kind of counterexamples to my final analysis in chapter 7.

Based on the acceptability of sentences violating Subjacency such as (2), Mihara concludes that no Subjacency effect is observed in the Japanese IHRC construction, and thus the internal head of the IHRC does not undergo invisible S-structure movement .

4.3. Extraposition/Adverbial Clause Analyses

Tsubomoto (1991, 1994) proposes that the IHRC in Japanese is a base-generated extraposed clause adjoined to IP or VP. This is schematically represented below.

(3)
```
                    IP
              _____/_____
          CP₁               IP
                      _____/\_____
                    NP            I
                    |        ____/\____
                  pro₁      VP          I
                      ____/\____
                    CP₂        VP
                         ____/\____
                       NP          V
                       |
                     pro₂
```

Similar analyses are proposed by Mihara (1994) and Murasugi (1994, 1996). The structures defended by these researchers have a common feature. They posit an empty pronoun in an argument position that is coindexed with the internal head in the IHRC,

which is adjoined to VP or IP. Structurally, I believe they are on the right track, but their analyses have the following problems.

Under this type of analysis, the internal head in CP must somehow be coindexed with *pro*. But no advocates of this analysis, including Tsubomoto, do not specify how this can be done in a principled way. Without a nonstipulative mechanism that guarantees this obligatory coindexation, the analysis cannot capture the fact that the main predicate is semantically associated with the NP inside the IHRC.

Further, they notice the importance of the relevancy condition, but they simply stipulate it. Thus their analyses do not provide us with an account for why this construction is constrained by the relevancy condition in the first place.

4.4. An E-Type Pronoun Analysis

Shimoyama (1999) is an attempt to develop an E-type pronoun account of the IHRC construction that was pioneered by Hoshi (1995).[2] Her analysis crucially relies on the contrast between the following sentences.

---

[2] See Shimoyama (1999) for problems with Hoshi's (1995) E-type pronoun analysis.

(4) a.   [$_{DP}$ [daidokoro-no   mado kara   siroi   neko-ga

              [$_{DP}$ [kitchen-Gen   window from   white   cat-Nom

              haitteki-ta] *pron*   no   ]-ga   sakana-o   totte nige-ta.

              come-Past] *pron*   Det   ]-Nom   fish-Acc   catch-run.away-Past

              'A white cat   came in from the kitchen window and it stole a fish and ran

              away.'

  b. ?* [$_{DP}$ [daidokoro-no   mado kara   Lucky-ga   hiatteki-ta] *pron*   no   ]-ga

              [$_{DP}$ [kitchen-Gen   window from   Lucky-Nom   come-Past] *pron*   Det]-Nom

              sakana-o   totte-nige-ta.

              fish-Acc   catch-run.away-Past

              'Lucky came in from the kitchen window and it stole a fish and ran away.'

In her E-type pronoun analysis an empty pronoun inside the DP, i.e., *pron*, is an N-proform looking for a property rather than an individual. Hence, according to her, a property-denoting expression such as *siroi neko* 'white cat' can be an internal head, but a proper name such as *Lucky* cannot.

She notices, however, that there is a serious problem with her analysis: the contrast above disappears if the IHRC occurs in the direct object position.

(5)   Taro-wa   [[daidokoro-no   mado   kara {a. siroi neko   / b. Lucky

          Taro-Top   [[kitchen-Gen   window   from {a. white cat   / b. Luky

          /c. Isadora-no   neko}-ga   haitteki-ta   ]no-o   tukamae-ta.

          /c. Isadora-Gen   cat}-Nom   come.in-Past]Nmn-Acc   catch-Past

She claims that an IHRC in the object position is not a genuine IHRC, but must be characterized as forming a natural class with *tokoro*-clauses such as the following.

(6)   Taro-wa   [[daidokoro-no mado   kara {a. siroi neko   / b. Lucky

Taro-Top [[kitchen-Gen   window from {a. white cat   / b. Luky

/c. Isadora-no neko}-ga   haitteki-ta   ]tokoro-o   tukamae-ta.

/c. Isadora-Gen cat}-Nom come.in-Past]Nmn-Acc   catch-Past

She believes that this classification is supported by the fact that a *tokoro*-clause cannot occur in the subject position.

(7)   [[daidokoro-no mado   kara {a. *siroi neko   / b. *Lucky

[[kitchen-Gen   window from {a. *white cat   / b. *Luky

/c. *Isadora-no neko}-ga   haitteki-ta   ]tokoro-ga   tukamae-rare-ta.

/c. *Isadora-Gen cat}-Nom   come.in-Past]Nmn-Acc   catch-Pass-Past

According to her, this shows that a *tokoro*-clause and a fake IHRC can occur only in the object position, but a genuine IHRC can only occur in the subject position.

Contrary to what she expects, the subject/object asymmetry that Shimoyama observes in the IHRC construction disappears once we construct IHRC constructions that observe the relevancy condition in a strict sense.

(8)   [[daidokoro-no mado kara   {a. siroi neko/ b. Lucky}-ga

[[kitchen-Gen   window from {a. white cat   /b. Lucky}-Nom

haitteko-yootosi-ta   ] no]-ga   nezumitori-ni

come.in-be.about.to-Past] Det]-Nom   mousetrap-Loc

hikkakatte ugokenakunat-ta.

caught   become.immobile-Past

'{a. A white cat /b. Lucky} were about to come in from the kitchen window

and it became immobile due to a mousetrap .'

In (8) the eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause. This is because the eventuality of a cat's coming into the kitchen continues until the mousetrap stops its movement. There can be no instant whatsoever between the two eventualities. In contrast, in (4), the eventuality of a cat's coming in precedes but, strictly speaking, cannot be adjacent to the eventuality of its stealing a fish. Even if the cat's stealing motion occurs immediately after the eventuality of its coming into the kitchen, there still exists an instant between the two eventualities. So under this strict interpretation of the relevancy condition (i.e., PAC), we can say that the sentences in (4) do not obey the adjacency condition. It is true that we still need to account for the contrast in (4), but I would like to claim, contrary to Shimoyama (1999), that it is the sentences in (4) that belong to exceptional cases, rather than the sentences in (5). I will leave for the future research how to account for this exceptional case.

4.5. Odani (1998)

Odani (1998) claims that the Japanese (Acc-marked) IHRC typically functions just like an ordinary NP object. Specifically, he observes that the eventuality depicted by the IHRC is affected and changed in a critical way by the eventuality of the main predicate. He cites contrasts such as the following to show his point.

(9) [kuruma-ga kireini arat-teat-ta]no-o

    [car-Nom clean wash-be-Past] Nmn-Acc

    {a. ??kaitaisi-ta   / b. ?untensi-ta /c. ?sawat-a /d. yogosi-ta}.

    {a. ??disassemble-Past /b. ?drive-Past / c. ?touch-Past /d. stain-Past}.

    '(I) {a. ??disassembled / b. ?drove / c. ?touched / d. stained} a car that had been washed clean.'

(10) [kuruma-ga kireini kumitate-teat-ta]no-o   kaitaisi-ta.

    [car-Nom perfectly assemble-be-Past]Nmn-Acc disassemble-Past

    '(I) disassembled a car that had been assembled perfectly.'

(11) [titi-ga to todoitabakari-no sinsya-o daizini shyako-ni

    [father-Nom just.arrived-Gen new.car-Acc carefully garage-Loc

    ire-teoi-ta   ]no-o   musuko-ga kossori untensi-ta.

    put.into-be.there-Past]Nmn-Acc son-Nom secretly drive-Past

    'His son secretly drove the new car that had just arrived that his father kept in the garage carefully.'

In (9), only the sentence with *yogosita* 'stained' sounds fine. In contrast, as (10) and (11)

show, if we change the content of the IHRC appropriately, both *kaitaisita* 'disassembled'

and *untensita* 'drove' become acceptable. According to him, this happens because the

content of the IHRC in (9) is only affected and changed by the main predicate *yogosita*

'stained'. On the other hand, the content of the IHRC in (10) is the one that can be

affected and critically changed by the main predicate *kaitaisita* 'disassembled'. The same

is true with the content of the IHRC in (11).

I believe that his observation is basically correct, and can capture the essential

semantic properties of the IHRC construction. Let us call Odani's observation Odani's

generalization, which can be formulated as follows.

(12)   Odani's Generalization

         The eventuality of the IHRC is affected and changed in a critical way by the

         eventuality of the main predicate.

In chapter 6 we will extend and make more precise Odani's generalization to

account for the semantics of the sort-sensitive pronoun construction, in addition to the

IHRC construction. We will also show in chapter 6 that the generalization so extended

follows from an independently motivated semantic theory.

CHAPTER 5. A DRT Analysis of the IHRC Construction in Japanese

5.1. Introduction

In this chapter I will review Fuji's (1998) analyses of the Japanese IHRC construction, which is based on discourse representational theory (DRT). An earlier version of this paper was read at the 7th annual meeting of the Formal Linguistic Society of Mid-America (FLSM VII), held at the Ohio State University, Columbus, Ohio, on May 17-19, 1996.

There are two major components in this chapter. In the first component (5.3-5.6) I will rather faithfully follow my argumentation in Fuji (1998), trying to show that the DRT analysis in Fuji (1998) can apparently derive the simultaneity condition from independently motivated syntax and semantics. In the second component of this chapter (5.7), however, I will present new evidence that the DRT analysis encounters both empirical and conceptual problems, and thus has to be rejected in favor of an entirely new analysis to be presented in chapter 6.

This chapter is organized as follows. In 5.2. I review the discussion in chapter 3 on how to sharpen the simultaneity condition, one of the subconditions of the relevancy condition. In 5.3. I derive the precedence and adjacency condition, which is a sharpened version of the simultaneity condition, from independently motivated temporal semantics (Kamp and Reyle 1993) and lexical meaning of the head of the IHRC. In 5.4. I derive an additional generalization pointed out by Kuroda on the locational restriction between the

IHRC and the main clause. In 5.5. I deal with sentences showing apparent violation of the

revised generalization and claim that they also follow from our analysis. In 5.6. I present

advantages of the DRT analysis. In 5.7. I point out both empirical and conceptual

problems with the DRT analysis. Finally, in 5.8., I summarize the discussion.

5.2. Review of Kuroda's Relevancy Condition

Let us quickly review how we have derived the precedence and adjacency

condition from Kuroda's relevancy condition.

Kuroda (1975/76, 1992) claims that the Japanese IHRC must satisfy the following

semantic/pragmatic condition.

(1)   The Relevancy Condition

        For a p.-i relative clause|= an IHRC] to be acceptable, it is necessary that it be

        interpreted pragmatically in such a way as to be directly relevant to the

        pragmatic content of its matrix clause.   (Kuroda, 1975/76, 1992)

This generalization subsumes, among others, the following two sub-conditions.

(2) a.   *Simultaneity Condition*

The IHRC is interpreted as simultaneous with the time reference of the matrix

clause.   (cf. Kuroda 1975/76, 1992)

b.   *Co-Locationality Condition*

The two events represented by the IHRC and the matrix clause involve the same

physical location.   (cf. Kuroda 1975/76, 1992)

Before going into how to sharpen the simultaneity condition, let us show that the

IHRC construction is actually constrained by the co-locationality condition. Observe the

following contrast.

(3) a.   Sue-wa |Ken-ga   *heya-ni*   i-ta |no-o

Sue-Top   [Ken-Nom   *room-Loc*   be-Past]   Nmn-Acc

turesat-ta.

take.away-Past

'Sue took away Ken, who was *in the room*.'

b. * Sue-wa   [Ken-ga   *heya-ni*   i-ta   ]no-o

* Sue-Top   [Ken-Nom   *room-Loc*   be-Past]Nmn-Acc

kuruma-kara   turesat-ta.

room-from   take.awy-Past

'*Sue took Ken *out of the car*, who was *in the room*.'

Sentence (3a) is acceptable only under the interpretation that Sue took Ken out of the same room that he was in until Sue's action took place. Further, sentence (3b) is unacceptable. This is due to the fact that Sue's action took place in a different location than the one Ken was in. Thus we may conclude that it is the co-locationality condition that is responsible for this type of semantic restriction on the IHRC construction.

Now let us go back to how to sharpen the simultaneity condition in (2a). We have shown that the condition can be further sharpened to the following two conditions.

(4) a.   Adjacency Condition

The eventuality of the IHRC must be temporally adjacent to the eventuality of the main clause.

b.   Precedence Condition

The eventuality of the IHRC must precede the eventuality of the main clause.

We have finally combined these conditions into the following condition.

(5)   Precedence and Adjacency Condition (PAC)

The event of the IHRC temporally precedes and is adjacent to the event of the main clause.

Our conclusion has been that Kuroda's relevancy condition has (at least) two sub-conditions: PAC and the co-locationality condition.

5.3. Derivation of PAC

5.3.1. Introduction

In this section I derive PAC, from (i) the lexical meaning of *no*, (ii) the head of the IHRC, and (iii) independently motivated semantic principles. The basic idea to be elaborated here is the following. The determiner *no* has the meaning similar to English *immediately after* or *as soon as*. This meaning of *no*, when combined with temporal semantics developed by Kamp and Reyle (1993), forces us to interpret the event of the IHRC as preceding and adjacent to the event of the main clause, thus deriving PAC. Before going into the details of the derivation of PAC, I first present the syntactic analysis of the IHRC in section 5.3.2., where I present some evidence for the following two instances of QR: the QR of the internal head, and the QR of the IHRC itself. In section 5.3.3. I state the truth conditions for the IHRC construction. In section 5.3.4. I show how we derive the truth condition compositionally from the LF-representation.

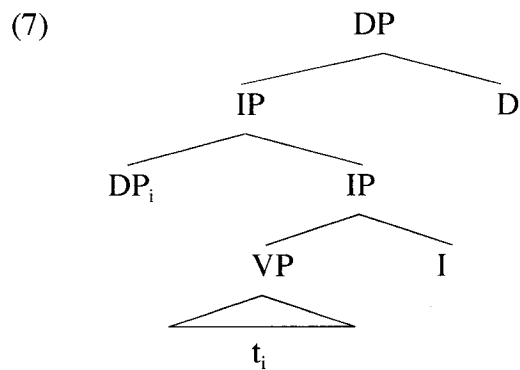### 5.3.2. LF

I assume that IHRCs are nominalized clauses generated in argument positions (see Culy 1990, Williamson 1987). In Japanese IHRCs are headed by the determiner *no*.

(6)   [$_{DP}$ [$_{IP}$ ..... Internal Head ......] [$_D$ *no*]]

I propose that there are two instances of QR that are involved in the derivation of

Japanese IHRC constructions.

First, I assume with Williamson (1987) that the internal head undergoes QR. This

gives us the following LF-representation .

(7)

```
                    DP
              _____/_____
            IP               D
         __/\__
      DP_i      IP
             __/\__
           VP       I
         _/__\_
           t_i
```

Williamson (1987) provides independent evidence from Lakhota for this type of analysis.

(8) a. *Suka wazini* ophewathu *sni*

    dog not-a I-buy   *Neg*

    'I didn't buy any dog.'

  b. * *Suka wazini* ophewathu

    * *dog not-a* I-buy

  c. * [*Suka wazini* ophewathu *sni* ki/cha]   he   sape

    [*dog not-a* I-buy PI *Neg* Det/Det] that black

    'The dog such that I didn't buy any is black.'

The contrast between (8a) and (8b) shows that *suka wazini* 'dog not-a' is a *negative polarity item* (*NPI*). (8c) shows that an NPI, if used as an internal head, cannot be licensed by the clause-mate *negation* (*Neg*), even though the same sequence of words is grammatical as an independent sentence, as is evident from (8a). Williamson's (1987) explanation of the ungrammaticality of (8c) runs as follows. She assumes that an internal head undergoes QR, and adjoins to IP (her S'). Once adjoined to IP, the internal head is outside the scope of the Neg of the IHRC. This makes the sentence ungrammatical, since NPIs must be within the scope of a Neg.

The same explanation is available for the ungrammaticality of the Japanese counterpart to (8c), if we adopt the idea that the internal head of the IHRC undergoes QR in Japanese as well.

(9) a.   *hitori-no doroboo-mo*   hayaku hasi-re-*nak*-tta.

       one-Gen thief-even   fast   run-can-*Neg*-Past.

       'No thief could run fast.'

   b.   * *hitori-no doroboo-mo*   hayaku   hasi-re-ta.

       * *one-Gen thief-even*   fast   run-can-Past

       'Any thief could run fast.'

c. * keikan-wa   [*hitori-no doroboo-mo*   hayaku

    * police.man-Top   [*one-Gen thief-even*   fast

    hasi-re-*nak*-atta   no]-o   tukamaeta.

    run-can-*Neg*-Past Det]-Acc   caught

    'No thief could run fast, and the police caught them.'

The contrast between (9a) and (9b) shows that *hitori-no doroboo-mo* 'one-Gen thief-even' is an NPI. The ungrammaticality of (9c) shows that just like the Lakhota IHRC in (8c), an NPI as the internal head cannot be licensed by the clause-mate Neg. This fact receives a natural explanation if we adopt the analysis in which the internal head undergoes QR and adjoins to IP, thus failing to be licensed by the Neg in the IHRC.

The second QR I assume for Japanese IHRCs is the adjunction of the entire IHRC to the main clause IP. It will be shown in 5.3.4. that this movement is forced by the semantics of determiner *no*. (see 5.3.4. for details.) The existence of this QR is compatible with the fact that an NPI in the Japanese IHRC is not licensed by the Neg of the main clause, as seen in (10a), while, as observed by Williamson (1987), a Lakhota counterpart to (10a), given in (10b), is fully grammatical.

(10) a.　* Mary-wa　[boku-ga teebulu-no ue-ni　*i-kko-no ringo-mo*

　　　* Mary-Top [I-Nom　table-Gen　top-on　*1-CL-Gen apple-even*

　　　oite-oita no]-o　　　tabe-*nak* atta.

　　　put-Asp Det]-Acc　　eat-*Neg*-Past

　　　'I put any apple on the table, Mary did not eat it.'

　b.　[*Suka　wazini* ophewathu　cha]　sape　　*sni*

　　　[*dog　not-a*　　I-buy　　　Det]　black　*Neg*

　　　'No dog that I bought is black.'

This contrast can be accounted for if we assume our analysis for Japanese IHRCs and

Williamson's analysis for Lakhota IHRCs. Under our analysis of Japanese IHRCs, both

the internal head and the IHRC undergo QR. This QR of the IHRC is responsible for the

ungrammaticality of (10a).[1] Since the IHRC is adjoined to the main clause IP at LF, the

main clause Neg fails to c-command the NPI inside the IHRC, thus inducing

ungrammaticality. In Lakhota, on the other hand, Williamson assumes that only the

---

[1] One might argue that the ungrammaticality of the sentence in (10a) should be attributed to some sort of
clause-mate constraint on the NPI-licensing in Japanese. But as seen from the following acceptable
sentences, the very existence of the clause-mate constraint is dubious.

　(i)　　Mary-wa　[boku-ga teebulu-no ue-ni　*i-kko-no ringo-mo*
　　　　Mary-Top [I-Nom　table-Gen　top-on　*1-CL-Gen apple-even*
　　　　oite-oita no]-o　　mi-*nak*-atta.
　　　　put-Asp Det]-Acc　see-*Neg*-Past
　　　　'Mary didn't see me putting any apple on the table.'
　(ii)　Taro-wa　[Hanako-ga　*bita-itimon* ageru no]-o　　mitakotoga-*nai*.
　　　　Taro-Top [Hanko-Nom　*a.red.cent*　give　Det]-Acc　have.seen-*Neg*
　　　　'Taro hasn't seen Hanako giving a red cent.'

internal head, but not the IHRC, undergoes QR. This means that in Lakhota the IHRC is not displaced and remains within the scope of the main clause negation at LF. Hence, the NPI in the IHRC is also within the scope the negation, and the licensing condition for NPIs is met.

Summing up so far, our double-QR analysis for Japanese IHRCs, together with Williamson's analysis of Lakhota IHRCs, can capture both the similarity and the difference between Japanese and Lakhota IHRCs. The similarity comes from the fact that in both languages the internal head undergoes QR. This eliminates the possibility that an NPI as the internal head is licensed by the Neg of the IHRC. The difference comes from the fact that Japanese IHRCs, but not Lakhota IHRCs, undergo QR. This means that only Japanese IHRC is outside the scope of the Neg in the main clause, and this Neg thus cannot c-command an NPI inside the IHRC.[2]

Given our double-QR analysis of Japanese IHRCs, the LF-representation of the sentence in (11) must be (12).

---

[2] The data justifying the QR of the Japanese IHRC are compatible with the final analysis to be presented in chapter 6. In fact, the idea that the Japanese IHRC undergoes QR will be adopted in the final analysis as well.

(11)   boku-wa [onnanoko-ga kotira-ni yattekita   no]-ni

        I-Top   [girl-Nom   here-to   came   Det]-Dat

        dekuwasita.

        came.across

        'A girl came here, and I came across her (here).'

(12)
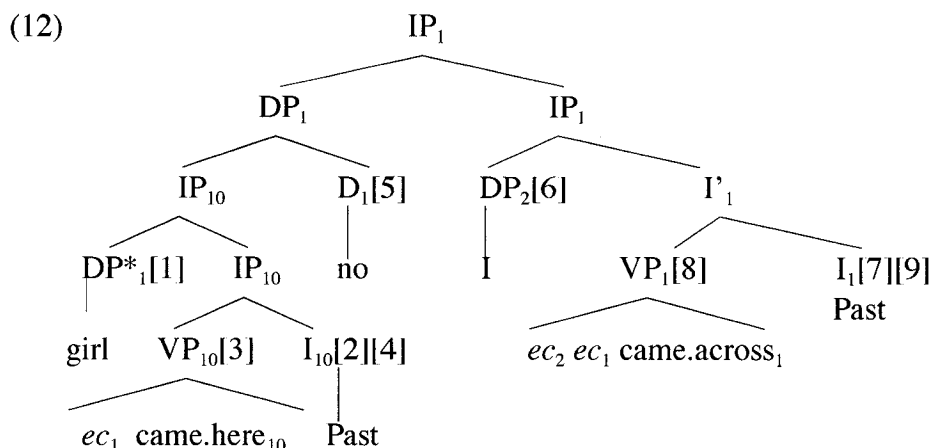
Before deriving the truth condition from this LF-representation, I mention briefly how three of the relevant indices are made available.

Firstly, the IP-adjoined internal head (DP*) and the X^0-head of the IHRC (D) are coindexed. This coindexation is established through *pronominal agreement*. I assume with Bittner and Hale (1996a, 1996b) that a functional head A pronominally agrees with some position B of an argument chain, iff A *canonically antecedent-governs*, i.e., governs and binds, B. In (12), the X^0-head of the IHRC (D) enters into a pronominal agreement relation with the IP-adjoined internal head (DP*), and thus the former is

coindexed with the latter. Semantically, this coindexation is used to identify the internal head with one of the arguments of the main predicate.

Secondly, each IP in (12) is coindexed with its verb. This coindexation is established because properties of a head project through its extended projection (see Grimshaw 1991). In (12) the index on each verb percolates up to its maximal extended projection, IP.

Thirdly, the main clause IP is coindexed with the X^0-head of the IHRC (D). This coindexation is established through *proximate binding* (see Bittner and Hale 1996b). Suppose that *no*, the X^0-head of the IHRC, is a kind of proximate morpheme, and that a proximate head must be bound by an accessible argument path. Then, *no* must be bound by the lower segment of the main clause IP in (12).[3]

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[3] I assume that the Proximate Binding Condition for Japanese is more general than the one proposed for Inuit and Warlpiri in Bittner and Hale (1996b). In Japanese, an accessible object path can be a binder, in addition to an accessible subject path, as shown in (i).

(i) *Proximate Binding Condition*
     The maximal head containing a proximate X is bound by an accessible subject (or an accessible object) path.

5.3.3. Truth Condition

From the LF-representation given in (12) we will derive the discourse representational structure (DRS) in (13). IP_{10}, the determiner *no*, and IP_1 each introduces a DRS, --- K1, K2 and K3, respectively, and the three DRSs are combined by dynamic conjunctions to produce the DRS in (13) (see Kamp 1981, Kamp and Reyle 1993). In this subsection I spell out what truth conditions this combined DRS expresses.

This DRS is true, if the following conditions are met: First, there is an individual x_1, a time period t_{10}, and an event e_{10}, such that the time t_{10} precedes the speech time t_0[2], e_{10} is an event of x_1's coming here[3], where x_1 is a girl[1], and the time of e_{10} is included in t_{10}[4]. Moreover, there is an event e_1, such that the event e_{10} precedes and is adjacent to e_1[5]. And finally, there is an individual x_2, a time period t_1, such that x_2 is the speaker[6], the time t_1 precedes the speech time t_0 [7], e_1 is an event of x_2's coming across x_1[8], and the time of e_1 is included in t_1[9]. The schematic diagram of the relevant situation is given in (13b).

(13) a.
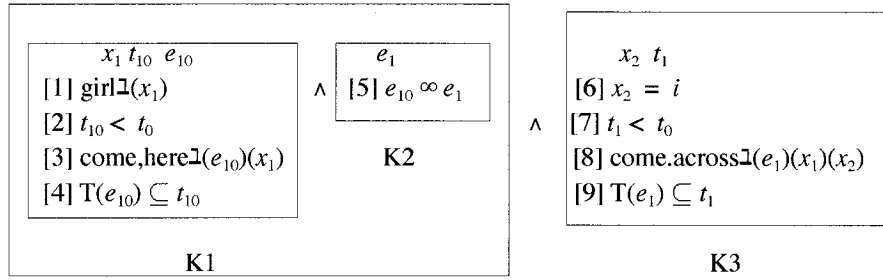
b.
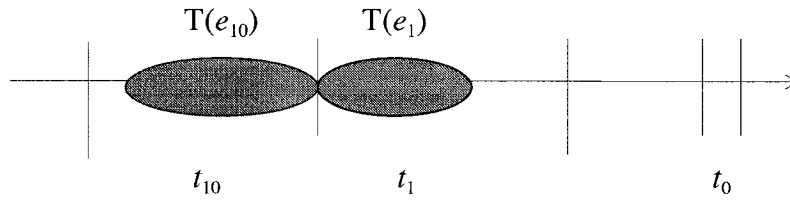
5.3.4. Compositional Derivation of the DRS

In this subsection I show how the DRS in (13a) is obtained from the LF-representation in (12), along the lines of Bittner and Hale (1996b). In so doing, the reason is made clear as to why IHRCs in Japanese must adjoin to the IP at LF.

The nominal arguments, V, and I, each introduce a variable of the relevant logical type, -- individual, event, and time period, respectively -- along with a condition on that variable. *Temporal anaphora* between V and I introduces a condition that locates the event introduced by V temporally within the time period introduced by I (see |4||9|). The determiner *no* introduces a DRS with a condition requiring temporal precedence and

adjacency. This DRS combines with the DRS of its sister (K1) to yield another DRS, which further combines with K3.

To combine compositionally the DRS obtained from K1 and K2 with the DRS of K3, the IHRC must undergo QR at LF. This need not be stipulated, but rather is derivable as follows. First, dynamic conjunctions need to combine expressions of the same type. Second, we may introduce a principle that DRSs can only be introduced by functional categories. Put differently, lexical categories such as verbs cannot introduce a DRS. This principle is consistent with the fact that in Kamp and Reyle (1993), all DRSs are introduced by functional categories. It follows from the above that if the IHRC is in situ, the sentence becomes ungrammatical due to type-mismatch. To resolve this type-mismatch, the IHRC is forced to move out of the VP and adjoin to the main clause IP, since this IP is the closest functional category that can introduce a DRS. This explains both the driving-force of the IHRC movement and the landing site of the IHRC at LF.

Now let us turn our attention to the derivation of PAC. Under our model-theoretic analysis, PAC, a sharpened version of Kuroda's relevancy condition, follows from the lexical meaning of the X^0-head of the IHRC and the independently motivated syntax and semantics. Just like English prepositions such as *immediately after* or *as soon as*, Japanese determiner *no*, as part of its lexical meaning, has a temporal condition that states that the eventuality of the verb in the subordinating clause must precede and be adjacent to the eventuality of the verb in the main clause. In order to determine the exact content

of the condition, the relevant indices need to be available to *no* at LF. Thanks to the coindexation mechanism mentioned in 5.3.2, the determiner *no* can get the correct indices without violating compositionality. The index of the verb in the subordinating clause (i.e. 10) appears on the IP of the IHRC, which is a sister to the determiner *no*. The index of the verb in the main clause (i.e. 1) appears on the determiner *no* itself. Thus, all the necessary information is available at LF to derive PAC: the lexical meaning of the determiner *no* supplies the precedence and adjacency requirement and the necessary indices are locally accessible.

5.4. Deriving Co-Locationality Condition

Recall that Kuroda's Relevancy Condition contains two explicit generalizations:

(14) a.   *The Simultaneity Condition*   (cf. Kuroda 1975/76, 1992)

The IHRC is interpreted as simultaneous with the time reference of

the matrix clause.

   b.   *The Co-locationality Condition*   (cf. Kuroda 1975/76, 1992)

The two events represented by the IHRC and the matrix clause

involve the same physical location.

The former condition has been sharpened as PAC and has been shown to derive mainly from the lexical properties of the X^0-head of the IHRC. The question we must ask ourselves now is whether the latter condition need be stipulated. In this section I show that it is just a direct consequence of our analysis developed throughout the forgoing section.

There are two properties of our analysis that jointly derive the co-locationality condition. Firstly, the lexical meaning of the determiner *no* requires the two events depicted in the IHRC and the main clause to be temporally adjacent (adjacency condition). Secondly, the coindexation mechanisms ensure that the two events share the participant expressed by the internal head. It follows from these two that the two events must take place at the same physical location. This is because the same entity cannot occupy more than one physical location at the same time.
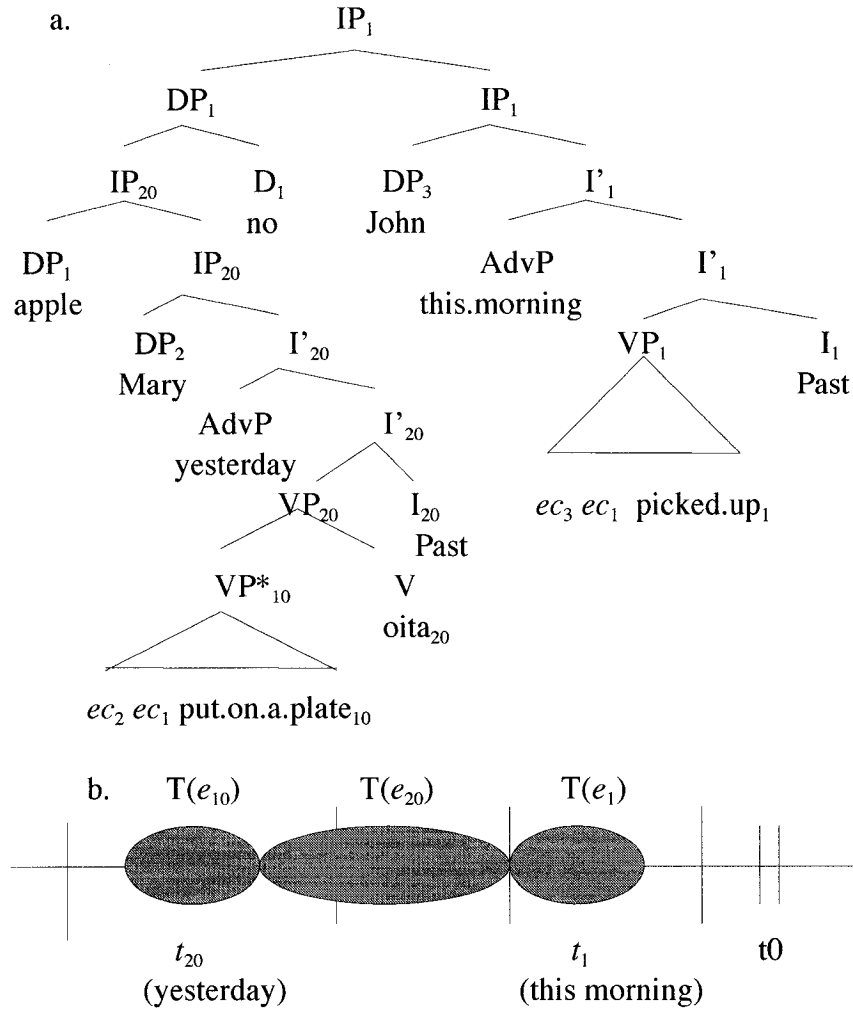
5.5. Apparent Violation of PAC

Kuroda notices that the violation of PAC (i.e., his simultaneity condition) can be saved by adding an aspectual verb *-oita* to the predicate of the IHRC.

(15) a. ?* John-wa   kesa   [Mary-ga   kinoo   ringo-o

John-Top this.morning [Mary-Nom yesterday apple-Acc

sara-no   ue-ni   oita] no-o   totta.

plate-Gen   top-on   put] Det-Acc   picked.up

Mary put an apple on a plate yesterday, and John picked it up this morning.'

b.   John-wa   kesa   [Mary-ga   kinoo   ringo-o

John-Top this.morning |Mary-Nom yesterday apple-Acc

sara-no   ue-ni   oite-*oita*| no-o   totta.

plate-Gen   top-on   put-*Asp*] Det-Acc   picked.up

'Mary had put an apple on a plate yesterday, and John picked it up this morning.'

This contrast follows from our model-theoretic analysis, if we assume that -*oita* behaves just like English aspectual verb *have* (see Kamp and Reyle 1993). The LF-representation of (15b) is given in (16a), and the diagram of the relevant situation is given in (16b). The crucial point here is that PAC is observed between the eventuality of the aspectual verb -- that is, the result state, according to Kamp and Reyle (1993)-- and the eventuality of the verb in the main clause. This is made possible by the coindexation mechanism we are assuming in this paper. The index on the aspectual verb percolates up through its extended projection. This makes the index accessible from the X^0-head of the IHRC to be the index on the aspectual verb rather than the index on the non-aspectual verb of the IHRC.

(16)

a.

IP$_1$
- DP$_1$
  - IP$_{20}$
    - DP$_1$ / apple
    - IP$_{20}$
      - DP$_2$ / Mary
      - I'$_{20}$
        - AdvP / yesterday
        - I'$_{20}$
          - VP$_{20}$
            - VP*$_{10}$
              - ec_2 ec_1 put.on.a.plate$_{10}$
            - V / oita$_{20}$
          - I$_{20}$ / Past
  - D$_1$ / no
- IP$_1$
  - DP$_3$ / John
  - I'$_1$
    - AdvP / this.morning
    - I'$_1$
      - VP$_1$
        - ec_3 ec_1 picked.up$_1$
      - I$_1$ / Past

b.

T(e_{10}) T(e_{20}) T(e_1)

t_{20} (yesterday) t_1 (this morning)   t0

5.6. Advantages of the DRT Analysis

So far I have argued that this revised generalization and the co-locationality condition are consequences of the interaction between the meaning of the determiner *no* and independently motivated syntax and semantics.

In what follows, let me summarize several advantages of our model-theoretic analysis over Kuroda's relevancy conditional approach.

First, Kuroda's relevancy condition is stated informally. Hence, it is harder to test or falsify than our model-theoretic analysis, which is explicitly stated.

Second, under Kuroda's analysis, the simultaneity condition and the co-locationality condition are logically independent. Hence, his analysis treats the co-existence of these conditions as a sheer accident. On the other hand, under our analysis, the co-locationality condition follows from the simultaneity condition. This explains why these two conditions, but not other logically possible combinations of conditions, play a role in the acceptability of the IHRCs in Japanese.

Third, the relevancy conditional approach does not explain why IHRCs, but not EHRCs, obey PAC. Under our analysis, the PAC effects are basically due to the meaning of the determiner *no*. This explains why EHRCs do not show the PAC effects: EHRCs is simply not headed by the determiner *no*.

Fourth, the relevancy conditional approach has nothing to say about the fact that a Japanese IHRC is interpreted as if it were an adverbial adjunct to the main clause, not as a restrictive relative clause, as has been indicated in the sentential translations throughout the paper.

To see this more concretely, consider the interpretation of the following sentence.

(17)   Tom-wa   [subete-no   usagi-ga   ana-no   naka-ni   haitteitta

        Tom-Top [all-Gen   rabbit-Nom hole-Gen inside-to went

        no]-o   tukamaeta.

        Det]-Acc caught

The sentence in (17), which contains an IHRC, is interpreted as (18a), rather than (18b).

(18) a.   All the rabbits went into a hole, and Tom caught them.

     b.   Tom caught all the rabbits that went into a hole.

This is shown by the fact that both (17) and (18a) imply (19), but (18b) does not.

(19)   All the rabbits went into a hole.

Therefore, the interpretation of (17) must be (18a), rather than (18b). This interpretation is exactly what we expect, given the DRS in (13a).

5.7. Problems with the DRT Analysis

This section presents new evidence to show that although it can derive essential semantic properties of the IHRC construction, the DRT analysis we have presented in the previous sections has serious problems.

First, it assumes that the internal head undergoes QR in Japanese IHRCs. This is untenable, given the discussion in chapter 4. In fact, we can show that the ungrammaticality of (9c), repeated here as (20), has nothing to do with QR.

(20)   * keikan-wa   [*hitori-no doroboo-mo*   hayaku

         * police.man-Top   [*one-Gen thief-even*   fast

         hasi-re-*nak*-atta   no]-o   tukamaeta.

         run-can-*Neg*-Past Det]-Acc   caught

         'No thief could run fast, and the police caught them.'

Note that the predicate *hayaku hasi-re-nak-atta* 'could not run fast' in the IHRC is classified as an individual-level predicate, thus violating the predicate type condition introduced in chapter 3.

(21)   [P-6] Predicate Type Condition
         The predicate of the IHRC cannot be individual-level.

This assumption is further supported by the following sentence, in which the same predicate is no longer an individual-level predicate due to the semantics of the main predicate.

(22)   mazyo-wa   [*hitori-no doroboo-mo* hayaku

         witch-Top   [*one-Gen thief-even*   fast.

         hasi-re-*nak*-atta   no]-o   hayaku hasir-eru-yoonisi-ta.

         run-can-*Neg*-Past Det]-Acc   fast   run-can-make-Past

         No thief (under discussion) could run fast, and a witch made them become fast runners.'

Sentence (22) is acceptable, precisely because in the context where a witch has a real power, one's ability to run fast is treated as a temporally unstable property, i.e., as a stage-level property.

A second problem with the analysis resides in our analysis of the contrast between (15a) and (15b). First, we can show that it is the order of time adverbials that determines the acceptability of (15a). Compare the following contrast.

(23) a.   * John-wa   *kesa* |Mike-ga   *kinoo*   ringo-o   sara-no

           * John-Top *this.morning* [Mike-Nom *yesterday* apple-Acc   plate-Gen

           ue-ni   oi-ta   ] no-o   tot-ta.

           top-Loc   put-Past] Nmn-Acc pick.up-Past

           '*John picked up this morning the apple that Mike had put on a plate yesterday.'

    b.   John-wa   [Mike-ga   *kinoo*   ringo-o   sara-no

           John-Top   [Mike-Nom *yesterday* apple-Acc   plate-Gen

           ue-ni   oi-ta   ] no-o   *kesa*   tot-ta.

           top-Loc   put-Past] Nmn-Acc *this.morning*   pick.up-Past

           'John picked up this morning the apple that Mike had put on a plate yesterday.'

From the above contrast it follows that it is not the aspectual marker –*oita* but the order of the time adverbials that determines the acceptability: if *kinoo* 'yesterday' precedes *kesa* 'this.morning', the sentence becomes acceptable, as shown in (23b).[4] Second, it is true that adding the aspectual marker –*oita* to an eventive predicate gives the predicate temporal extension. But that is not the reason why (15b) is acceptable. If that were the

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[4] Sentence (23b) seems to be a counterexample to PAC. But as the sentential gloss indicates, the IHRC can be interpreted as containing past perfect rather than simple past. The past tense marker –*ta* has often been claimed to have both the simple past interpretation and the past perfect interpretation. I believe that if the tense morpheme –*ta* is interpreted as past perfect, it gives the extension of the eventuality of the IHRC so that the eventuality of the IHRC and the eventuality of the matrix clause become adjacent. This account of course leaves the ungrammaticality of sentence (23a) unaccounted for. Fortunately. however, this new problem will receive a natural solution in chapter 6.

reason, then the IHRC with a stative predicate would have to be acceptable with the same time adverbials with the same order. This prediction is not borne out.[5]

(24)　* John-wa　*kesa*　　　|ringo-ga　*kinoo*　　　sara-no

　　　* John-Top　*this.morning*　[apple-Nom　*yesterday*　　plate-Gen

　　　ue-ni　　at-ta　] no-o　　tot-ta.

　　　top-Loc　be-Past| Nmn-Acc　pick.up-Past

　　　'John picked up this morning the apple that was on a plate yesterday.'

A third problem with the analysis is concerned with the assumption that the determiner *no* has the meaning requiring that the eventuality of the IHRC temporally precede and be adjacent to the eventuality of the main clause. This attribution of PAC to the meaning of the lexical item *no* gives rise to both empirical and conceptual problems.

First, let us consider the empirical problem. We have seen in chapter 2 that the stage-sensitive pronoun construction also exhibits the semantic property identical to PAC discussed here. This is squarely against the attribution of PAC to the lexical item *no*. The reason is simple: the determiner *no* is not involved in the stage-sensitive pronoun

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[5] I will deal with this problem in chapter 6, where the ungrammaticality of (24) will receive a Gricean explanation.

construction, but it still shows virtually the same constraint as PAC. This suggests that we must look for the origin of the constraint elsewhere.

Second, let us move on to the conceptual problem. We will show in chapter 6 that the content of PAC can be derived from what we will call *direct cause condition*, which says that the eventuality of the main clause must be the direct cause of the termination of the eventuality of the IHRC. We will assume with Bittner (1999b) that the meaning "direct cause" is the meaning that cannot be attributed to any morpheme of any language, but rather it can only be introduced in the computation of the meaning of a sentence by principles of UG. Let us call the type of meaning introduced by principles of UG *constructional meaning*. Thus the conceptual problem with the DRT analysis is that by attributing PAC to the lexical item *no*, it allows a lexical item to have a piece of constructional meaning, which seriously weakens our theory of constructional meaning, which says that constructional meaning can only be supplied by principles of UG (cf. Bittner 1999b).

5.8. Summary

In this chapter we have presented one possible analysis of the IHRC construction in Japanese that is based on DRT and GB theory. We have shown that although the analysis can capture the essential semantic conditions on the IHRC in Japanese, it has

both empirical and conceptual problems. We will see in the next chapter that a new

analysis based on Bittner's (1999b) cross-linguistic semantics can overcome the problems

with the DRT analysis.

CHAPTER 6. DIRECT CAUSE CONSTRUCTIONS AS CONCEALED CAUSATIVES

6.1. Introduction

In this chapter we argue that the sort-sensitive pronoun construction and the IHRC construction are to be analyzed as two varieties of the same construction, i.e., the concealed causative construction. We then show that its core meaning, the direct termination, is derived from independently motivated syntax and semantics.

The organization of this chapter is as follows. In 6.2. we point out that the sort-sensitive pronoun construction and the IHRC construction behave in the same way semantically. In 6.3. we argue that these constructions have virtually the same syntactic structure at LF. In 6.4. we show that the sort-sensitive pronoun has more complex structure than we have previously assumed. In 6.5. we briefly review how constructional meaning is handled in XLS. In 6.6. we see how XLS assigns the meaning "direct cause" to the resultative construction in English. In 6.7. we derive the essential semantic properties of the sort-sensitive pronoun construction and the IHRC construction from principles of XLS and Gricean maxims. In 6.9. we point out some remaining problems and discuss possible ways to revolve them. 6.9. offers concluding remarks.

6.2. Semantic Unification of the Sort-Sensitive Pronoun Construction and the IHRC Construction

In this section we will show that the sort-sensitive pronoun construction and the IHRC construction must satisfy virtually the same set of semantic conditions. Let us first summarize what we have established so far.

On the one hand, we have shown in chapter 2 that the sort-sensitive pronoun construction in Japanese must satisfy the predicate condition and the temporal condition.

(1)   *Semantic Conditions on the Sort-Sensitive Pronoun Construction*

    a.   *Predicate Condition (first version)*

        The sort-sensitive pronoun must be an argument of an stage-level predicate, and must also be associated with an antecedent NP of a stage-level sort.

    b.   *Temporal Condition (first version)*

        The eventuality of a sentence with the antecedent of a sort-sensitive pronoun must temporally overlap the eventuality of a sentence with the sort-sensitive pronoun.

On the other hand, in chapter 3, we have shown that the IHRC construction in Japanese must obey the predicate type condition and the precedence and adjacency condition.

(2) *Semantic Conditions on the IHRC Construction*

    a. *Predicate Type Condition (first version)*

        The predicate of the IHRC cannot be individual-level.

    b. *Predicate and Adjacency Condition (first version)*

        The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

The conditions in (1) and (2) are quite similar but not identical as they are. We will first show that the predicate type condition on the IHRC construction can be made more precise, and that the resulting condition is virtually identical to the predicate condition on the sort-sensitive pronoun construction. Observe the following contrast.

(3)   [SLP/SLP]

        Sue-wa [Ken-ga   heya-ni   i-ta   ]no-o   turesat-ta.

        Sue-Top [Ken-Nom room-Loc be-Past]Nmn-Acc take.away-Past

        'Sue took away Ken, who was in the room.'

(4)   [ILP/SLP]

      * Sue-wa [Ken-ga   hansamu   dat-ta]no-o   tukamae-ta.

      * Sue-Top [Ken-Nom handsome be-Past]Nmn-Acc catch-Past

      '*Sue caught Ken, who was handsome.'

(5) [SLP/ILP]

　　* Sue-wa [Ken-ga heya-ni i-ta]no-o sinzitei-ta.

　　* Sue-Top [Ken-Nom room-Loc be-Past]Nmn-Acc believe-Past

　　'*Sue believed Ken, who was in the room.'

(6) [ILP/ILP]

　　*Sue-wa [Ken-ga hansamu dat-ta]no-o sinzitei-ta.

　　*Sue-Top [Ken-Nom handsome be-Past]Nmn-Acc believe-Past

　　'*Sue believed Ken, who was handsome.'

The contrast above shows that the Japanese IHRC construction can only appear in the [SLP/SLP] environment, just like the sort-sensitive pronoun construction. Thus we must revise the predicate type condition as follows.

(7)　　*Predicate Type Condition (second version)*

　　An IHRC must be an argument of a stage-level predicate, and the predicate of the IHRC must also be a stage-level predicate.

Next, we will show that the temporal condition on the sort-sensitive pronoun construction can be sharpened so that it becomes identical to the precedence and adjacency condition on the IHRC construction. Observe the following discourse.

(8)   <u>Ken</u>-ga   dote-de   Fido-o   oikake-tei-ta;

           <u>Ken</u>-Nom river.bank-Loc Fido-Acc chase-Prog-Past;

           <u>sore</u>^{s}-ga   ikioiamatte   kawa-no naka-e   tobikon-da.

           <u>he</u>^{s}-Nom losing.control river-Gen inside-Loc jump.into-Past

           '<u>Ken</u> was chasing Fido on the river bank; losing control, <u>he</u>^{s} jumped into the

           river.'

According to the temporal condition, the eventuality of Ken's chasing Fido must

temporally overlap the eventuality of his jumping into the river. But this is not what the

discourse in (8) implies, because strictly speaking, when Ken was chasing Fido on the

river bank, he did not jump into the river, and when he jumped into the river, he was no

longer chasing Fido on the river bank. The diagram in (9) depicts this situation.

(9)

              evt1   evt2   *now*
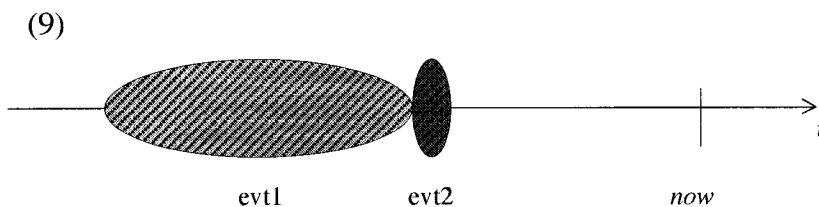
evt1:   Ken's chasing Fido on the river bank

evt2:   Ken's jumping into the river

The diagram in (9) indicates that the eventuality of Ken's chasing Fido on the river bank

is immediately followed by the eventuality of Ken's jumping into the river. This leads us

to the revision of the temporal condition, as shown in (10).

(10)   *Temporal Condition (second version)*

The eventuality of the sentence with the antecedent of a sort-sensitive pronoun must temporally precede and be adjacent to the eventuality of a sentence with the sort-sensitive pronoun.

Summing up, we have revised the temporal and predicate type conditions and the resulting sets of conditions are as follows.

(11)   *Semantic Conditions on the Sort-Sensitive Pronoun Construction*

   a.   *Predicate Condition (first version)*

A sort-sensitive pronoun must be an argument of a stage-level predicate, and must also be associated with a complement NP of a stage-level predicate.

   b.   *Temporal Condition (second version)*

The eventuality of a sentence with the antecedent of a sort-sensitive pronoun must temporally precede and be adjacent to the eventuality of a sentence with the sort-sensitive pronoun.

(12)   *Semantic Conditions on the IHRC Construction*

   a.   *Predicate Type Condition (second version)*

An IHRC must be an argument of a stage-level predicate, and the predicate of the IHRC must also be a stage-level predicate.

   b.   *Predicate and Adjacency Condition (first version)*

The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

6.3. Syntactic Unification of the Sort-Sensitive Pronoun Construction and the IHRC Construction

6.3.1. Introduction

In the previous section we have shown that the sort-sensitive pronoun construction and the IHRC construction have to obey virtually identical semantic conditions. But syntactically, these constructions have been treated rather differently. Compare (13) and (14), where the S-structures that we have posited for them are schematically represented.

(13)　　*S-Structure for the Sort-Sensitive Pronoun Construction*

　　a.　　Tom-ga　　sokoni.i-ta　　; Sue-ga　　sore^s-o　　tukamae-ta.

　　　　　Tom-Nom　there.be-Past; Sue-Nom　sore^s-Acc　catch-Past
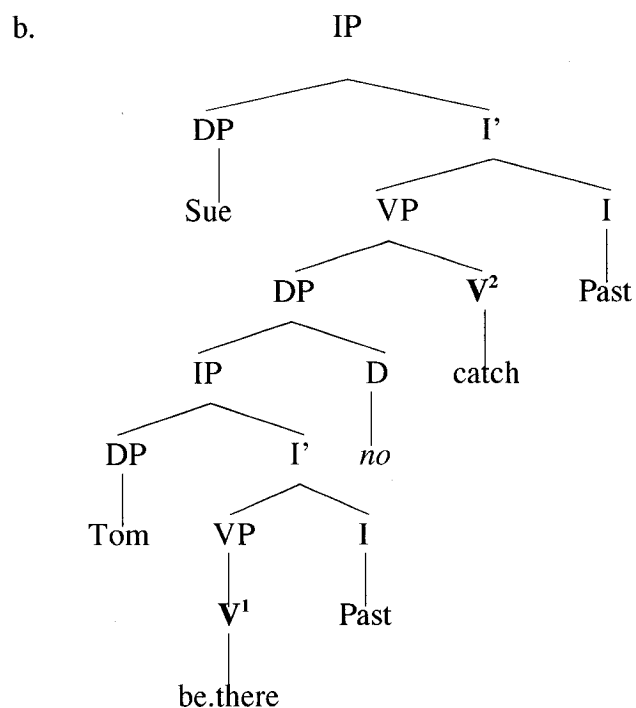
　　　　　'Tom was there; Sue caught him^s.'

　　b.
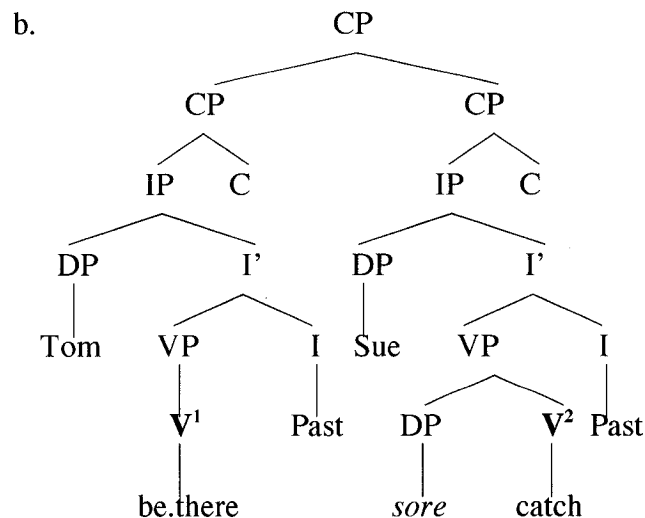
(14)   *S-Structure for the IHRC Construction*

a.   Sue-ga [Tom-ga   sokoni.i-ta   no]-o   turesat-ta.

Sue-Nom [Tom-Nom there.be-Past   Det]-Acc   take.away-Past.

'Sue took Tom away, who was there.'

b.

These structures look different, which seems to support the view that they must be treated

separately. However, as we have already seen, they exhibit almost identical semantic

conditions. I will repeat them below.

(15) *Semantic Conditions on the Sort-Sensitive Pronoun Construction*

    a.   *Predicate Condition (first version)*

        A sort-sensitive pronoun must be an argument of a stage-level predicate, and must also be associated with a complement NP of a stage-level predicate.

    b.   *Temporal Condition (second version)*

        The eventuality of the sentence with the antecedent of a sort-sensitive pronoun must temporally precede and be adjacent to the eventuality of the sentence with the sort-sensitive pronoun.

(16) *Semantic Conditions on the IHRC Construction*

    a.   *Predicate Type Condition (second version)*

        An IHRC must be an argument of a stage-level predicate, and the predicate of the IHRC must also be a stage-level predicate.

    b.   *Precedence and Adjacency Condition (first version)*

        The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

Let us briefly review what these virtually identical sets of conditions mean with the schematic structures in (13) and (14). The conditions in (15a) and (16a) require that the verbs V^1 and V^2 be SLPs. The conditions in (15b) and (16b) stipulate that the eventuality depicted by V^1 must temporally precede and be adjacent to the eventuality depicted by V^2.

It is important to note that these conditions are not only similar but also rarely encountered. Thus if the sort-sensitive pronoun construction and the IHRC construction

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were syntactically unrelated in any significant way, the fact that they must obey these conditions would be a mystery.

In fact, I will show in the next section that these constructions look almost alike at LF.

6.3.2. The IHRC Construction as LF Coordination

Besides the semantic similarities noted above, there is one piece of striking evidence for suggesting a tight relationship between the sort-sensitive pronoun construction and the IHRC construction. That is, the sort-sensitive pronoun *sore* can optionally appear in the IHRC construction, as shown in (17), where the optionality is indicated by parentheses.

(17) a. Sue-wa [Ken-ga   heya-ni   i-ta   ] no-o
         Sue-Top [Ken-Nom   room-Loc   be-Past] Nmn-Acc
         (sore^s-o)   turesat-ta.
         (him^s-Acc)   take.away-Past
         'Ken was in the room, and Sue took him^s away.'

b. [koinu-ga   inugoya-de   ne-tei-ta   ] no-ga

   [puppy-Nom   doghouse-Loc   sleep-Prog-Past] Nmn-Nom

   (sore^s-ga)   turesar-are-ta.

   (it^s-Nom)   take.away-Pass-Past

   'A puppy was sleeping in the doghouse, and it^s was taken away.'

As far as I am aware, this optional appearance of *sore* to the immediate right of the IHRC was first pointed out by Tsubomoto (1995), where he claims that this *sore* is an individual/situation-denoting pronoun (i.e., our sort-free pronoun). However, he does not give independent evidence for the claim that this is actually a sort-free pronoun. Since there seem to be at least four types of *sore* in Japanese, as he himself claims, *sore* in the IHRC construction can be any one of them. Thus we need to check if it is really a sort-free pronoun.

First, *sore* in the IHRC construction can refer to both human and non-human antecedents. As the sentences in (17a) and (17b) show, the pronoun *sore* refers to a human NP such as *Ken* and a non-human NP such as *koinu* 'puppy'.

Second, *sore* in the IHRC construction can denote both males and females.

(18) a. Kim-wa [Sue-ga   heya-ni   i-ta   ] no-o   sore^s-o   turesat-ta.

       Kim-Top [Sue-Nom room-Loc be-Past] Nmn-Acc her^s-Acc take.away-Past

       'Sue was in the room, and Kim took her^s away.'

b. Kim-wa [Ken-ga   heya-ni   i-ta   ] no-o   sore[s]-o   turesat-ta.

Kim-Top [Ken-Nom room-Loc be-Past] Nmn-Acc him[s]-Acc take.away-Past

'Ken was in the room, and Tom took him[s] away.'

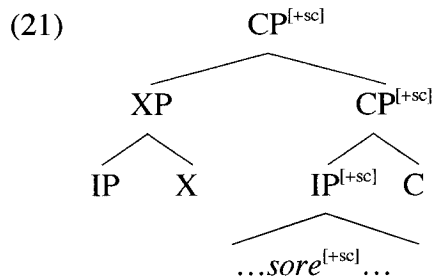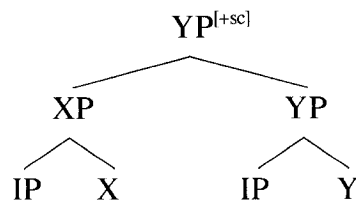Third, *sore* in the IHRC construction can refer to both singular and plural NPs. And moreover, when *sore* in the IHRC construction refers to a plural NP, it is never be followed by the plural marker *–ra*.

(19) a. Tom-wa [Sue-ga   heya-ni   i-ta   ] no-o   sore[s]-o

Tom-Top [Sue-Nom room-Loc be-Past] Nmn-Acc her[s]-Acc

turesat-ta.

take.away-Past

'Sue was in the room, and Tom took her[s] away.'

b. Tom-wa [Sue to Ken-ga   heya-ni   i-ta   ] no-o   sore[s]-o

Tom-Top [Sue and Ken-Nom room-Loc be-Past] Nmn-Acc them[s]-Acc

turesat-ta.

take.away-Past

'Sue and Ken were in the room, and Tom took them[s] away.'

c. * Tom-wa [Sue to Ken-ga   heya-ni   i-ta   ] no-o

* Tom-Top [Sue and Ken-Nom room-Loc be-Past] Nmn-Acc

sore-ra-o   turesat-ta.

sore-ra-Acc take.away-Past

'*Sue and Ken was in the room, and Tom took them (= *sore-ra*) away.'

Given the evidence presented above, we can conclude that the pronoun *sore* in the

IHRC construction is in fact a sort-sensitive pronoun. If our conclusion in chapter 2 is

correct, then this means that *sore* in the IHRC construction bears an additional categorial

feature [+sentential coordinator] ([+sc] for short). In order to satisfy the licensing

condition for the virtual sentential coordination, repeated here as (20), the feature needs

to percolate up to a maximal projection which immediately dominates the two sentential

conjuncts, as schematically represented in (21).

(20)   *Licensing Condition for the Virtual Sentential Coordination*

The following structure is a virtual sentential coordination at LF iff the topmost

YP with the feature [+sc] immediately dominates the two maximal projections

XP and YP, which contain an IP as their complement.

$$YP^{[+sc]}$$

$$XP \qquad YP$$

$$IP \quad X \qquad IP \quad Y$$

(21) $$CP^{[+sc]}$$

$$XP \qquad CP^{[+sc]}$$

$$IP \quad X \qquad IP^{[+sc]} \quad C$$

$$...sore^{[+sc]}...$$

However, as it is, our S-structure for the IHRC construction in (22) does not have the node corresponding to XP in (21).

(22)   *S-Structure for the IHRC Construction*

a.   Sue-ga   [Tom-ga   sokoni.i-ta   no]-o   (sore^s-o)   turesat-ta.

Sue-Nom [Tom-Nom there.be-Past   Det]-Acc   (sore^s-Acc)   take.away-Past.

'Sue took away Tom, who was there.'

b.
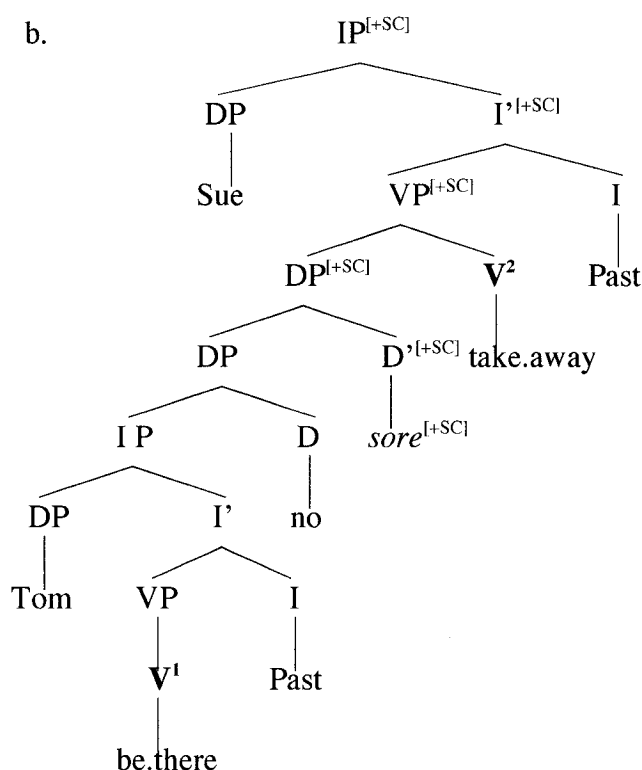
This difficulty can be resolved by adjoining the IHRC (i.e., the first DP dominating V^1) in (22) to the topmost CP at LF. The resulting LF representation of the IHRC construction is given in (23).

(23)   *LF for the IHRC Construction*
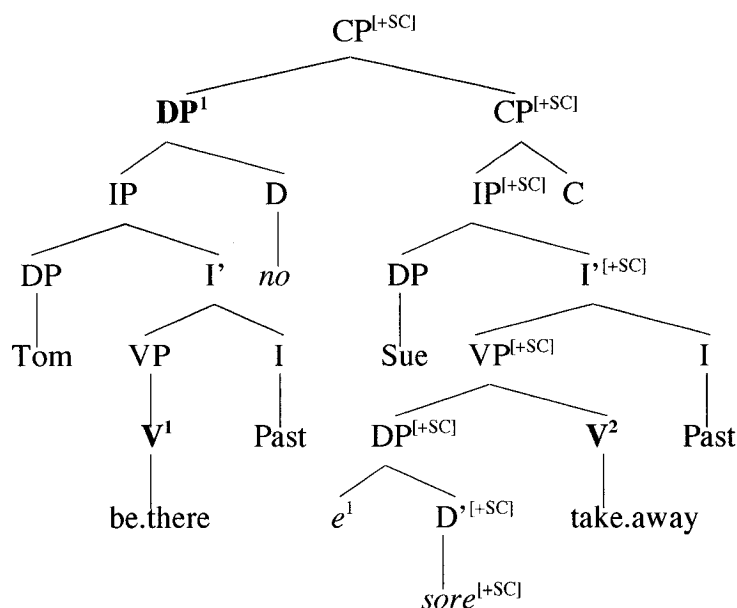
Put differently, the licensing condition forces the IHRC to undergo QR at LF so that the whole structure becomes a virtual sentential coordination.[1]

If the IHRC construction is in fact a coordination, we naturally expect it to have multiple conjuncts, just like a standard coordination. This expectation is actually borne out. Observe the following sentence.

---

[1] In chapter 5 we have examined the double-QR analysis, in which both the internal head and the IHRC undergo QR. Our new analysis proposing here inherits only the idea that the IHRC undergoes QR. It denies the idea that the internal head undergoes QR and the idea that the semantics of *no* is the driving force of the IHRC movement.

(24)   *A Multi-Conjunct IHRC Construction*

[_{CP}[_{DP1}[_{DP2}[_{DP3} <u>kodomo</u>-ga ie-ni   kaer-ootositei-ta   no]_{DP3}-ga

[_{CP}[_{DP1}[_{DP2}[_{DP3} <u>child</u>-Nom home-Loc returen-be.about.to-Past Nmn]_{DP3}-ga

(<u>sore</u>^{s3}-ga)   totyuude   yuukai-sare-ta   no]_{DP2}-o   (<u>sore</u>^{s2}-o)

(<u>him</u>^{s3}-Nom) on.his.way kidnap-Pass-Past Nmn]_{DP}-Acc   (<u>him</u>^{s2}-Acc)

nantokasite tasuke-ta   no]_{DP1}-ga   (<u>sore</u>^{s1}-ga)

manage.to rescure-Past Nmn]_{DP1}-Nom   (<u>him</u>^{s1}-Nom)

mata   yuukai-sare-ta   ]_{CP}
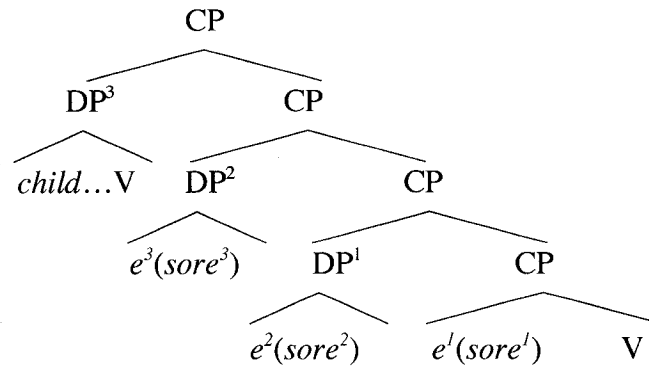
Again kidnap-Pass-Past]_{CP}

'<u>A child</u> was returning home; <u>he</u>^{s3} was kidnapped on the way; (we) managed to

rescue <u>him</u>^{s2}; <u>he</u>^{s1} was kidnapped again.'

The S-structure and the LF of (24) are given in (25) and (26), respectively.

(25)   *The S-structure of the Multi-Conjunct IHRC Construction*
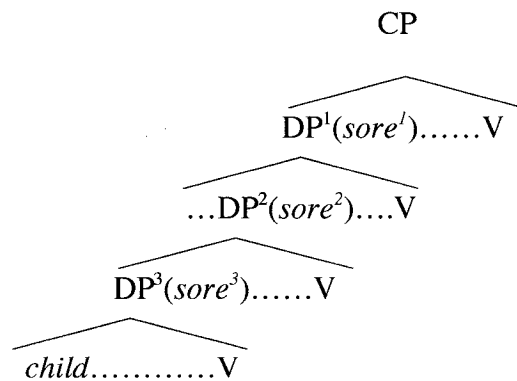
(26)   *The LF of the Multi-Conjunct IHRC Construction*

$$
\begin{array}{c}
\text{CP} \\
\diagdown\diagup \\
\text{DP}^3 \qquad \text{CP} \\
\end{array}
$$

```
                        CP
                 _____/_____
              DP³              CP
            __/\__       _____/\_____
        child...V   DP²              CP
                  __/\__       _____/\_____
              e³(sore³)    DP¹              CP
                        __/\__       ____/\____
                    e²(sore²)   e¹(sore¹)      V
```

6.4. Internal Structure of the Sort-Sensitive Pronoun

6.4.1. Introduction

So far I have assumed that the sort-sensitive pronoun and the sort-free pronoun are simply DPs. But this characterization needs to be reconsidered, given a number of differences already discussed between the sort-sensitive pronoun and the sort-free pronoun. My proposal concerning the syntax of the sort-sensitive pronoun is schematically represented in (27).

(27)

```
                         KP₁
                    ┌─────────────┐
                  DP₁              K₁
              ┌──────────┐      ┌──────┐
           (KP₂)        D'₁    D₁[+aff]  K₁
          ┌──────┐    ┌──────┐        │
        DP₂     K₂   NP    e₁         o/ga
        △        │    │
              o/ga  [sore]
```
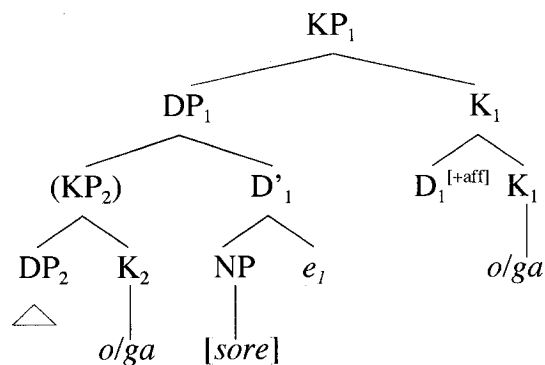
Let me comment on the structure above. First, the sort-sensitive pronoun is a kind of XP-pronoun in the sense of Hestvik (1992), and is immediately dominated by NP. Second, the sort-sensitive pronoun can be either pronounced *sore/soko* or phonologically null. In (27) this optionality is indicated by square brackets. Third, the sort-sensitive pronoun is selected by the D head, which has its own meaning but no phonological content. This makes the D head a kind of affix, so that it incorporates into the nearest functional head. This can be done by assuming that a Japanese Case marker is a functional category and has its own projection (i.e., K-projection) like other functional categories. Fourth, KP_2, the KP dominating the IHRC (i.e., DP_2), can appear optionally in the Spec of the D.

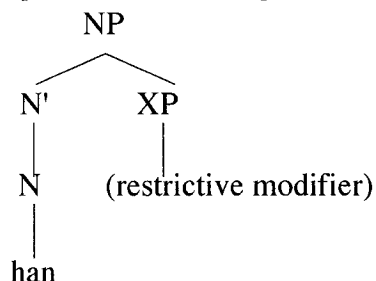In the following, I will give evidence for each of the claims above.

6.4.2. XP-Pronouns and X^0-Pronouns

Hestvik (1992) claims that natural language has two types of pronouns: XP-pronouns and X^0-pronouns. XP-pronouns are the pronouns that are immediately and exhaustively dominated by a maximal projection, and X^0-pronouns are the pronouns that project X-bar structure completely. The former is exemplified by English pronouns such as *he*, *she*, and *it*, and the latter, by Norwegian pronouns such as *han* 'he', and *hun* 'she'. The structures Hestvik (1992) proposes for both types of pronouns are the following.

(28) a. *XP-pronouns* (*English*)   b. *X^0-pronouns* (*Norwegian*)

```
        NP                          NP
        |                          /  \
       him                       N'    XP
                                 |      |
                                 N   (restrictive modifier)
                                 |
                                han
```

The structures in (28) predict that X^0-pronouns can take a restrictive modifier, but XP-pronouns cannot, because in the latter case, all and only material that NPs can dominate is a pronoun, and nothing else. This prediction is confirmed by the following observation by Hestvik (1992: 569):

(29) [I]magine being in the situation of identifying a mugger in a police lineup. The offender is wearing a red hat. You say to the police officer next to you, without nodding or pointing, the Norwegian expression corresponding to "It's him with the red hat," or "He with the red hat is the guilty one," or "It was he who has a red hat that did it." This is ungrammatical in English, but perfect in Norwegian.

(Hestvik 1992: 569, Note 10)

I would like to claim that Japanese has both types of pronouns. More precisely, I would like to show that sort-sensitive pronouns and sort-free pronouns in Japanese are XP-pronouns and X^0-pronouns, respectively. Evidence for this claim comes from the contrast found in (30) and (31).

(30)   kesigomu-ga tukue-no ue   to   teeburu-no ue-ni   at-ta.

eraser-Nom   desk-Gen surface   and   table-Gen   surface-Loc be-Past

'There were erasers on the desk and on the table.'

Sue-wa [[tukue-no   ue-no   ] sore^f]-o   toriage-ta.

Sue-Top [[desk-Gen   surface-Gen] it^f]-Acc   pick.up-Past

'Sue picked up the eraser on the desk.'

(31) a.   * <u>Tom</u>-ga   beddo-de ne-tei-ta;

           * <u>Tom</u>-Nom bed-Loc sleep-Prog-Past;

           * Sue-wa [[ibiki-o   kaitei-ta   ] <u>sore</u>^s]-o   tatakiokosi-ta.

           * Sue-Top [[snore-Acc make-Past] <u>him</u>^s]-Add   wake.up-Past

           '*<u>Tom</u> was sleeping in the bed; Sue woke <u>him</u>^s up, who was snoring.'

      b.   <u>Tom</u>-ga   beddo-de ne-tei-ta;

           <u>Tom</u>-Nom bed-Loc sleep-Prog-Past;

           Sue-wa   <u>sore</u>^s-o   tatakiokosi-ta.

           Sue-Top <u>him</u>^s-Acc wake.up-Past

           '<u>Tom</u> was sleeping in the bed; Sue woke <u>him</u>^s up.'

The discourse in (30) shows that the sort-free pronoun $sore^f$ can be modified by a restrictive modifier. In contrast, the discourse in (31a) shows that the sort-sensitive pronoun $sore$ cannot be so modified. This contrast can be captured if we assume that Japanese sort-sensitive pronouns are XP-pronouns and Japanese sort-free pronouns are X^0-pronouns.

6.4.3. Phonological Content of the Sort-Sensitive Pronoun

I would like to show that the sort-sensitive pronoun can be either pronounced as *sore/soko* or phonologically null in both the IHRC and sort-sensitive pronoun constructions. Observe the following data.

(32)   *IHRC Construction*

Sue-wa [Ken-ga   heya-ni   i-ta   ] no-o

Sue-Top [Ken-Nom   room-Loc be-Past] Nmn-Acc

{a. $sore^s$/$soko^s$-o,   b. ϕ} turesat-ta.

{a. him^s/him^s-Acc,   b. ϕ} take.away-Past

'Sue took away Ken, who was in the room.'

(33)   Sort-Sensitive Pronoun Construction

Ken-ga   heya-ni   i-ta   ; Sue-ga

Ken-Nom room-Loc be-Past; Sue-Nom

{a. $sore^s$/$soko^s$-o, b. ϕ} turesat-ta.

{a. him^s/him^s-Acc, b. ϕ} take.away-Past

'Ken was in the room; Sue took {a. him^s/him^s, b. him^s} away.

We have already examined cases such as (32a), (33b), and (33a) and have shown that

there is a tight syntactic and semantic relationship between the two clauses involved.

Thus in this section I will focus on sentences such as (33b). First, I would like to show

that sentences such as (33b) exhibit the [SLP/SLP] effect. Observe the following

sentences.

of the room; Naomi knew him[s].'

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(34)   [SLP/SLP]

Ken-ga   heya   kara deteki-ta;

Ken-Nom   room from come.out-Past;

Naomi-ga φ tukamae-ta.

Naomi-Nom φ catch-Past.

'Ken came out of the room; Naomi caught him[s].'

(35)   [ILP/SLP]

* Ken-ga   hansamu   dat-ta;

* Ken-Nom   handsome be-Past;

Naomi-ga φ   tukamae-ta.

Naomi-Nom φ take.away-Past

'*Ken was handsome; Naomi took him[s] away.'

(36)   [SLP/ILP]

* Ken-ga   heya   kara   deteki-ta;

* Ken-Nom room   from   come.out-Past;

Naomi-ga   φ sittei-ta.

Naomi-Nom φ know-Past

'*Ken came out of the room; Naomi knew him[s].'

(37)   [ILP/ILP]

* Ken-ga   hansamu   dat-ta;

* Ken-Nom   handsome   be-Past;

Nomi-ga   φ sittei-ta.

Naomi-Nom φ know-Past

'*Ken was handsome; Naomi knew him[s].'

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The contrast above shows that the zero pronoun we are interested in can only occur in the [SLP/SLP] context, which constitutes evidence for the claim that the sort-sensitive pronoun can be overt or covert.

6.4.4. The D Head as an Affix

6.4.4.1. Introduction

I would like to show that the D head of the sort-sensitive pronoun is semantically contentful but phonologically null. Before presenting the evidence for it, we need to examine what lexical items can occur in D^0 in Japanese.

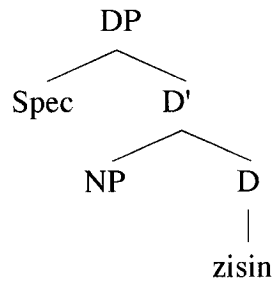#### 6.4.4.2. D-Reflexive and N-Reflexive

I would like to argue that there are two types of reflexives in Japanese: *zisin* and *zibun*. I will call *zisin* a D-reflexive, and *zibun* an N-reflexive. The definition of the two types of reflexives is given in (39).

(39)   *Two Types of Reflexives in Japanese*
        Zisin heads a D-projection, and *zibun* heads an N-projection.

I assume *zisin* takes an NP complement, while *zibun* cannot. Thus the structures in which

the two types of reflexives appear are such as those in (40):

(40) *D-reflexive*   *N-reflexive*

```
              DP                              NP
            /    \                            |
        Spec      D'                          N'
                /    \                         |
              NP      D                        N
                      |                        |
                    zisin                    zibun
```

The structures given in (40) correctly predict that *zisin* can take *zibun*, but not vice

versa, because *zibun* can be exhaustively dominated by an NP and thus can be a

complement to *zisin*. In the following, I will use 'self$_N$' and 'self$_D$' as a gloss for *zibun* and

zisin, respectively:

(41) a.   [$_{DP}$ [$_{D'}$ zibun zisin]]   b. *zisin zibun

       [$_{DP}$ [$_{D'}$ self$_N$ self$_D$]]   self$_D$ self$_N$

They also predict that *zisin*, but not *zibun*, can take various types of NPs.

(42) a.   [sono zyosei] zisin

       [that woman] self$_D$

b.   [tiisana kare]   zisin

      [short   he]   self$_D$

c.   [orokana zibun] zisin

      [foolish   self$_N$] self$_D$

(43) a.   * [sono zyosei]   zibun

      [that woman]   self$_N$

b.   * [tiisana   kare] zibun

      [small   he] self$_N$

c.   * [orokana zibun] zibun

      [foolish   self$_N$] self$_N$

There is another piece of evidence showing the D status of *zisin*, and the N status

of *zibun*. *Zibun* can be modified by an adjective, or a possessive, but *zisin* cannot.

(44) a.   tiisana zibun

      short   self$_N$

b.   kinoo-no   zibun

      yesterday-Gen   self$_N$

      'what self was yesterday'

(45) a.   * tiisana zisin

      * short self$_D$

b.   * kinoo-no zisin

      * yesterday-Gen self$_D$

The contrast above receives a natural explanation if we assume that nouns can be modified, but not determiners.

To sum up, we have shown that *zibun* is an N-reflexive, and *zisin* is a D-reflexive. In the next section we will use this result to check if the sort-sensitive pronoun *sore* is selected by an empty D.

6.4.4.3. The Status of the D Head

Now we are in a position to evaluate the claim that there is an invisible element that occupies the D head selecting the sort-sensitive pronoun. Observe the contrast in (46).

(46) a.　inu-ga hoe-tei-ru.

Dog-Nom bark-Prog-Pres

'A dog is barking.'

$[_{DP} [_{NP} sore^f]$　$zisin_D]$-ga　　okubyoo　dakara-da.

$[_{DP} [_{NP} it^f$　　$]$　$self_D]$-Nom　nervous　because-be.Pres

'Because it^f is nervous itself.'

b.   * <u>Ken</u>-ga   heya kara deteki-ta;

     * <u>Ken</u>-Nom room from come.out-Past;

     [$_{DP}$ [$_{NP}$ <u>sore^s</u>]   zisin$_D$]-ga   tukamae-rare-ta.

     [$_{DP}$ [$_{NP}$ <u>he^s</u>]   self$_D$]-Nom catch-Pass-Pres

     '*<u>Ken</u> came out of the room; <u>he^s</u> himself was caught.'

The ungrammaticality of the second sentence in (46b) indicates that the D head selecting

the sort-sensitive pronoun *sore* is occupied by some invisible element. Otherwise, it

would be possible for the D-pronoun *zisin* to occupy the head position and take the NP

sore as its complement, as in (46a).

The discussion so far leads us to conclude that the invisible D selects the sort-

sensitive pronoun as the complement.

6.4.5. The IHRC in the Spec of D

As shown in (47), the same Case feature has to be assigned to both the IHRC and

the sort-free pronoun after it.

(47) a.   Sue-wa [Ken-ga   heya-ni   i-ta   ] no-o

Sue-Top [Ken-Nom   room-Loc   be-Past] Nmn-Acc

* sore^s-ga   /sore^s-o /*sore^s-ni   turesat-ta.

* him^s-Nom/him^s-Acc/*hims-Dat   take.away-Past

'Ken was in the room, and Sue took him^s away.'

b.   [Koinu-ga   inugoya-de   ne-tei-ta   ] no-ga

[puppy-Nom   doghouse-Loc   sleep-Prog-Past] Nmn-Nom

sore^s-ga/*sore^s-o/*sore^s-ni   turesar-are-ta.

it^s-Nom/*it^s-Acc/*it^s-Dat   take.away-Pass-Past

'A puppy was sleeping in the doghouse, and it^s was taken away.'

This Case-matching phenomenon can receive a natural explanation if we posit a structure

in which the IHRC occupies [Spec, DP] of the affixal D, as in our proposed structure for

the sort-free pronoun. I will repeat it as (48), where the IHRC (i.e., DP$_2$) appears as the

daughter of KP$_2$.

(48)
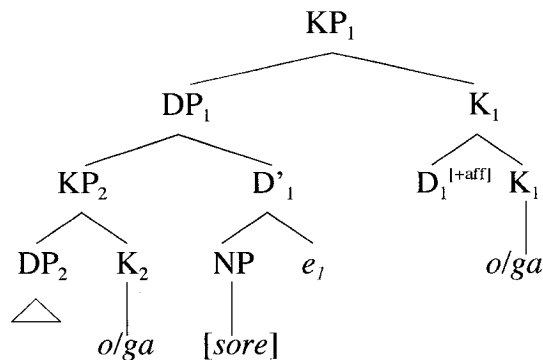
We can account for the Case-matching phenomenon in the following way. First, a Case feature, either Acc or Nom, is assigned to KP_1 by the governing V or I, and the feature percolates down to K_1. By Spec-Head agreement, this feature is assigned to DP_1, and eventually to its empty head. Then, again, by Spec-Head agreement, the feature is assigned to KP_2, and eventually to K_2. Thus, K_1 and K_2 must have the same Case feature.

If something like this story on Case-matching is on the right track, we may assume that the IHRC needs to appear in the daughter of the specifier of the affixal D.

6.5. Constructional Meaning in Cross-Linguistic Semantics

Traditional compositional semantics has been trying to provide a sentence with its truth condition by systematically combining denotations of morphemes it contains by functional application. However, it has also been noticed that there exists a type of meaning that cannot be attributed to any morpheme of a sentence. It is true that existence of such meaning, which we call *constructional meaning*, has been recognized and dealt with in compositional semantics, but its treatment has been descriptive, at best (see Bittner 1999b for relevant discussion).

From this perspective, Bittner's (1994, 1998, 1999a, 1999b) *cross-linguistic semantics* (XLS) can be thought of as an attempt to partially remedy this weakness of compositional semantics. Thus, XLS contains, among other things, a tightly constrained

theory of type-lifting operators, one of whose functions is to introduce elements of

constructional meaning just in case they are needed.

In this thesis, I will use dynamic XLS, a version of XLS that is compatible with

Event Logic with Anaphora (ELA), and will show that the sort-sensitive pronoun

construction and the IHRC construction exhibit the constructional meaning that is

precisely what dynamic XLS predicts.[2]

6.6. The English Resultative Secondary Predicate Construction as Concealed Causative

Let us first look at the resultative secondary predicate (RSP) construction in

English and identify the element of constructional meaning that will be focused on in this

thesis. The argumentation in this section is heavily based on Bittner's (1999b).

Bittner (1999b) observes that direct causation is an element of constructional

meaning, an element of meaning that cannot be attributed to any morpheme in a sentence.

She compares the resultative secondary predicate construction as in (49a) and its

periphrastic counterpart as in (49b).

---

[2] See Bittner (1999b) for the details of dynamic XLS and ELA.

(49) a.   John [shot |the robber dead]].

   b.   John caused the robber to die by shooting her.

In (49a), John's shooting must be the direct cause of the robber's becoming dead, whereas in (49b), John's shooting can be an indirect cause of the robber's death.

According to Bittner (1999b), this contrast becomes salient when we consider the scenario in which "John's bullet only grazed the robber's ear but this trivial wound brings on a heart attack that causes instant death." Under this scenario, (49a) is judged false, but (49b) is judged true. This contrast indicates that (49a) does not tolerate the intermediate cause, but (49b) does. Since no overt morpheme in (49a) indicates the cause must be direct, we must recognize the direct causation observed there as an element of constructional meaning.

To sum up, we have observed that the English RSP construction requires that the eventuality of the main clause be the direct cause of the *inception* of the eventuality of the resultative clause.

In XLS, constructional meaning in general comes from type-lifting operators, which are independently needed to resolve various kinds of type-mismatch. In XLS, if functional application is not initially possible due to type-mismatch between two sister nodes, then type-lifting operators can be used to lift the types of one or both of the sister nodes to make functional application possible (see Rooth and Partee 1982). For example,

the RSP construction requires the application of the causative type-lifting operator, given in (50).

(50)   *Causative Type Lifting Operators (simplified version)*

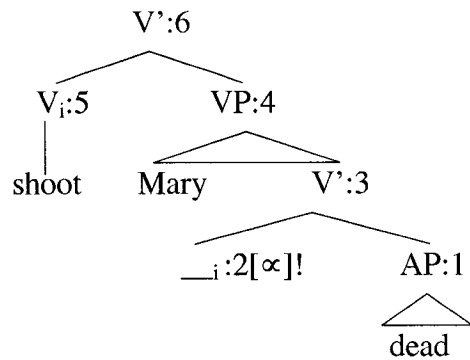|		*From*	*To*	*Definition*
a.	$[\propto]_e$	*et*	*tet*	$\lambda P_{et}\lambda q_t\lambda v_e(.P(v)\&\Delta q.\cap it_1 \propto it_0)$
b.	$[\propto]!_e$	*eet*	*(et)eet*	$\lambda A_{eet}\lambda Q_{et}\lambda v_e\lambda u_e(.A(u,v)\&\Delta Q(v).\cap it_1 \propto it_0)$

In XLS, there are six families of type-lifting operators: *intersective, identity, existential, causative, universal,* and *functional* families. Each family consists of two type-lifting operators, a low variant such as the one in (50a) and a high variant such as the one in (50b).

In the case of the causative family, the low type applies to an expression of type *et* to change it into an expression of type *tet*. The high variant applies to an expression of type *eet* and changes it into an expression of type *(et)eet*. As a by-product of the application of these operators, the constructional meaning of direct cause is introduced. As can be seen from the definitions given in (50), both low and high variants contain almost the same ingredients, some of which are responsible for the constructional meaning we are interested in.

The best way to understand how those ingredients contribute to the constructional meaning of the direct cause is to consider some concrete examples where the operators in

question are actually applied. Take, for example, the resultative in (49a). According to

Bittner (1999b), the crucial part of the LF representation of the resultative in (49a) and its

translation are those in (51).

(51)

```
            V':6
          /      \
       Vᵢ:5       VP:4
        |        /    \
      shoot   Mary    V':3
                     /    \
                __ᵢ:2[∝]!   AP:1
                            /\
                          dead
```

	EXPRESSION	*TYPE*
1.	$\lambda y dd(y)$	*et*
2.	R	*eet* ←type-mismatch
	$\lambda P\lambda y\lambda x(.R(x, y) \wedge \Delta P(y).\cap it_1 \propto it_0)$	*(et)eet*
3.	$\lambda y\lambda x(.R(x, y) \wedge \Delta dd(y).\cap it_1 \propto it_0)$	*eet*
4.	$\lambda R\lambda x(.R(x, m) \wedge \Delta dd(m).\cap it_1 \propto it_0)$	*(eet)et*
6.	$\lambda y\lambda xsht(x, y)$	*eet*
5.	$\lambda x(.sht(x, m) \wedge \Delta dd(m).\cap it_1 \propto it_0)$	*et*

As the above LF representation suggests, resultative constructions are assumed to involve

a Larsonian shell structure. Thus, the main verb *shoot* originates in the lower verbal head

position and raises to the higher head position.

Now, let us see how we obtain the proper translation of the entire structure in a compositional manner. The trace left behind by the head movement just mentioned is translated into a variable R of type eet, and its sister AP is translated into $\lambda y dd(y)$ of type et.[3] Here, a problem arises. It is not possible to combine these two expressions by functional application, since neither can act as a functor or an argument.. This situation is known as type-mismatch. If no further action is taken to resolve this mismatch, no proper translation is assigned to this LF tree. This is because in order for a syntactically well-formed LF tree to have a translation, it has to satisfy four semantic filters: FINAL, INITIAL, STORE, and TYPE (see Bittner 1999b for details). Unless this type-mismatch is somehow resolved, the entire tree would violate, among other things, INITIAL, which says that if a node B dominates a node A and A has an initial translation, B has to also have an initial translation. In (51), the node $V':3$ dominates the trace and the trace has an initial translation. Hence, $V:3$ needs to receive an initial translation, according to INITIAL. However, this would not happen if we leave the translations of the trace and its sister AP as they are: their types are simply mismatched for functional application. It is precisely under these sorts of circumstances that a type-lifting operator is allowed to, and

---

[3] In XLS, empty categories are translated by the principle EMPTY, one of the UG principles for translations. In simplified terms, types of empty categories are calculated by EMPTY as follows. Suppose a given empty category A is not an argument. Then, EMPTY looks for a node B that is a sister to the highest projection of A. Then EMPTY assigns the type of the node B to the empty category.

in fact, obliged to, intervene in the translation process as a last resort operation. In the present case, the high variant of causative type-lifting operator fixes the type of the trace, changing it from *eet* to *(et)eet*. Thanks to this operation, the node *V':3* now has an initial translation, thereby satisfying INITIAL. This is because after this adjustment, the type of the trace, *(et)eet*, can be taken to be a functor and that of the AP, *et*, to be an argument for the purpose of functional application.

In order to derive the translation of the whole sentence *John shot Mary dead*, the resulting translation of the LF tree in (51) is to be combined with the translation of the subject NP *John*. Thus, the final translation of the resultative in (49a) is the expression in (52).

(52) $.\text{sht}(j, m) \wedge \Delta\text{dd}(m). \cap \text{it}_1 \propto \text{it}_0$

The expression in (52) says that John shot Mary and Mary became dead and the former event is the direct cause of the latter event.

The symbol Δ is a change-of-state operator that takes a stative eventuality and turns it into an eventive one.

The intersective symbol $\cap$ is used basically as an ordinary conjunction, except that it imposes a restriction on how the following donkey pronouns such as it_n (n is a natural number greater than or equal to 0) are allowed to take their antecedents: they must get their antecedent within the left conjunct.

The number accompanying each donkey pronoun indicates which antecedent the donkey pronoun refers to: it_0 refers to the most recently introduced discourse referent of an event sort; it_1 refers to an event discourse referent introduced prior to that one.

Bittner (1999b) assumes that a dynamic predicate such as *shoot* introduces an event as a discourse referent, whereas a stative predicate such as *sick* introduces a temporal period as a discourse referent. Since both *sht(j, m)* and *Δdd(m)* are eventive, they introduce discourse referents of an event kind. Thus in (52) it_1 refers to the discourse referent introduced by *sht(j, m)* and it_0 refers to the discourse referent introduced by *Δdd(m)*.

Finally, the concealed causal relation is introduced by $\propto$. The expression $it_1 \propto it_0$ means, given the discussion above, that the event of John's shooting Mary is the direct cause of the event of Mary's becoming dead.

6.7. An Analysis of the Japanese Concealed Causative Constructions in Dynamic Cross-Linguistic Semantics

6.7.1. Final Semantic Unification of the Sort-Sensitive Pronoun Construction and the IHRC Construction

Let us first review the semantic conditions on the sort-sensitive pronoun construction and the IHRC construction that we have arrived at so far.

(53)   *Semantic Conditions on the Sort-Sensitive Pronoun Construction*

    a.   *Predicate Condition (first version)*

        A sort-sensitive pronoun must be an argument of a stage-level predicate, and must also be associated with a complement NP of a stage-level predicate.

    b.   *Temporal Condition (second version)*

        The eventuality of the sentence with the antecedent of a sort-sensitive pronoun must temporally precede and be adjacent to the eventuality of the sentence with the sort-sensitive pronoun.

(54)   *Semantic Conditions on the IHRC Construction*

    a.   *Predicate Type Condition (second version)*

        An IHRC must be an argument of a stage-level predicate, and the predicate of the IHRC must also be a stage-level predicate.

    b.   *Precedence and Adjacency Condition (first version)*

        The eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

As we have already suggested, the sets of the semantic conditions in (53) and (54) can be

made into one, given the LF representations of the constructions, shown in (56) and (57).

(55) a. *Unified Predicate Condition (first version)*

V^1 and V^2 must be stage-level predicates.

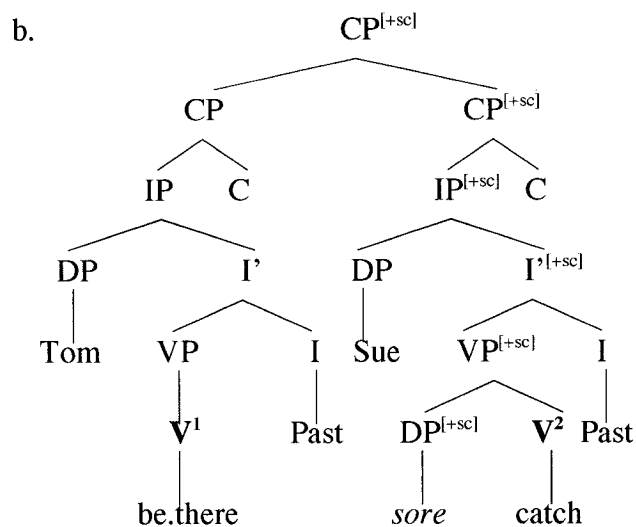b. *Unified Precedence and Adjacency Condition*

The eventuality of V^1 must precede and be adjacent to the eventuality of V^2.

(56) *LF for the Sort-Sensitive Pronoun Construction (simplified version without KP)*

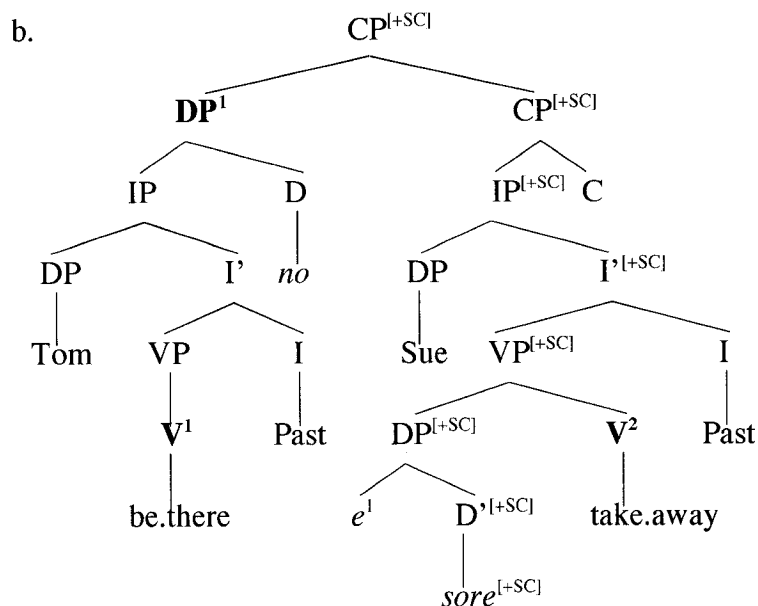a. Tom-ga   sokoni.i-ta ; Sue-ga   sore^s-o   tukamae-ta.

Tom-Nom there.be-Past; Sue-Nom sore^s-Acc catch-Past

'Tom was there; Sue caught him^s.'

b.

(57)　　*LF for the IHRC Construction (simplified version without KP)*

a.　Sue-ga　[Tom-ga　sokoni.i-ta　no]-o　(sore^s-o)　turesat-ta.

　　Sue-Nom [Tom-Nom there.be-Past　Det]-Acc　(sore^s-Acc)　take.away-Past.

　　'Sue took away Tom, who was there.'

b.

```
                            CP[+SC]
                   _____/      _____
                DP¹                        CP[+SC]
              /     \                      /      \
           IP        D              IP[+SC]        C
         /    \      |            /        \
       DP      I'    no         DP          I'[+SC]
       |      /  \               |         /       \
      Tom   VP    I            Sue       VP[+SC]     I
            |     |                     /      \     |
            V¹    Past              DP[+SC]     V²   Past
            |                      /     \      |
         be.there               e¹    D'[+SC]  take.away
                                        |
                                     sore[+SC]
```

We now have two unified semantic conditions in (55), but this is still to be revised. The unified predicate condition stipulates that V^1 and V^2 must be stage-level predicates. But this generalization breaks down when the eventuality of the stage-level predicate V^1 overlaps the eventuality of the stage-level predicate V^2, or when the eventuality of the individual predicate V^1 is directly terminated by the eventuality of the stage-level predicate V^2.

Let us consider the first case. Observe the following sets of data.

(58)   *Sort-Sensitive Pronoun Construction*

<u>Ken</u>-ga   [$_{V1}$ heya-ni   i]-ta;

<u>Ken</u>-Nom   [$_{V1}$ room-Loc   be]-Past;

<u>sore</u>-ga   {a. *[$_{V2}$ kibungawarukat]-ta /b.   [$_{V2}$ turesarare]-ta   }.

<u>he^s</u>-Nom   {a. *[$_{V2}$ be.sick]-Past   /b.   [$_{V2}$ be.taken.away]-Past}

'<u>Ken</u> [$_{V1}$ was in the room]; <u>he</u>^{s} {a. *[$_{V2}$ was sick] /b. [$_{V2}$ was taken away]}.'

(59)   *IHRC Construction*

[Ken-ga   [$_{V1}$ hey-ni i   ]-ta]no-ga

[Ken-Nom [$_{V1}$ room-Loc be]-Past]Nmn-Nom

{a. *[$_{V2}$ kibungawarukat]-ta   / b. [$_{V2}$ turesarare   ]-ta }.

{a. *[$_{V2}$ be.sick   ]-Past /b. [$_{V2}$ be.taken.away]-Past}.

'Ken, who [$_{V1}$ was in the room], {a. *[$_{V2}$ was sick] / b. [$_{V2}$ was taken away]}.'

In the above examples, both *kibungawarukat* 'be.sick' and *turesarare* 'be.taken.away' are stage-level predicates, but the a-sentences with *kibungawarukat* 'be.sick' as V^2 are unacceptable. This at least shows that the predicate condition as it is cannot explain the contrast in (58) and (59). We could elaborate the condition by allowing distinction between stative SLPs and dynamic SLPs. This is possible because the unacceptable a-sentences contain a stative predicate in V^2, whereas the acceptable b-sentences contain a dynamic predicate in V^2. Thus we will revise the condition utilizing this distinction.

(60)   *Unified Predicate Condition (second version)*

V^1 must be a stage-level predicate and V^2 must be a dynamic stage-level predicate.

This can at least describe the contrast noted above, but even this elaboration faces a problem in the next set of examples.

Let us now move on to the second case. Observe the contrast in (61) and (62).

(61)   *Sort-Sensitive Pronoun Construction*

<u>Alice</u>-wa   totemo   [$_{V1}$ segatakakat]-ta;

<u>Alice</u>-Top   very   [$_{V1}$ tall.be   ]-Past;

mazyo-ga   <u>sore^s</u>-o   {a. *[$_{V2}$ turesat]-ta   /b.   [$_{V2}$ tiisakusi]-ta}.

witch-Nom   <u>her^S</u>-Acc   {a. *[$_{V2}$ take.away]-Past /b.   [$_{V2}$ shrink]-Past}

'<u>Alice</u> [$_{V1}$ was very tall]; the witch {a. *[$_{V2}$ took <u>her^S</u> away] /b. [$_{V2}$ shrank]<u>her^S</u>}.'

(62)   *IHRC Construction*

mazyo-wa [Alice-ga   totemo   [$_{V1}$ segatakakat]-ta]no-o

witch-Top [Alice-Nom   very   [$_{V1}$ tall.be]-Past   ]Nmn-Acc

{a. *[$_{V2}$ turesat]-ta   / b. [$_{V2}$ tiisakusi]-ta}.

{a. *[$_{V2}$ take.away]-Past / b. [$_{V2}$ shrink]-Past}.

'The witch {a. *[$_{V2}$ took away]/ b. [$_{V2}$ shrank]} Alice, who [$_{V1}$ was very tall].'

This time, the contrast cannot be accounted for even by the newly introduced distinction, for both *turesat* 'take away' and *tiisakusi* 'shrink' are dynamic stage-level predicates. To

make matters worse, although the predicate V^1 is an individual-level predicate, the construction becomes acceptable when the predicate V^2 is *turesat* 'take away'. We can describe this exception by introducing the distinction between terminable eventualities and non-terminable eventualities. That is to say, when the eventuality of V^1 is terminable, then the construction becomes acceptable. In the a-sentences, the eventuality of Alice's being very tall cannot be naturally construed to be terminable, because under the pragmatically plausible reading, Alice's height will not change when she is taken away. This explains the unacceptability of the a-sentences. On the other hand, in the worlds where witches' spells are real, Alice's height can be altered when the witch's spell with that effect is cast on her. Hence, under this scenario, the eventuality of Alice's being very tall does become a terminable eventuality. This is why the b-sentences are acceptable. Now let us incorporate this exception to the condition. The revised condition is given in (63).

(63)   *Unified Predicate Condition* (*third version*)
         V^1 must be a predicate denoting a terminable eventuality and V^2 is a dynamic stage-level predicate.

To sum up, we have shown that in order to explain the semantics of the sort-sensitive pronoun construction and the IHRC construction, we need the two semantic

conditions, the unified precedence and adjacency condition and the unified predicate condition (third version), as shown in (64).

(64) a.   *Unified Predicate Condition (third version)*

V^1 must be a predicate denoting a terminable eventuality and V^2 is a dynamic stage-level predicate.

   b.   *Unified Precedence and Adjacency Condition*

The eventuality of V^1 must precede and be adjacent to the eventuality of V^2.

Now, we are in a position to make a final reduction. I will propose that the two conditions in (64) can be derived from *direct cause condition*, given in (65), where SSPNC and IHRCC stand for sort-sensitive pronoun construction and internally headed relative clause construction, respectively.

(65)   *Direct Cause Condition*

The eventuality of V^2 must be the direct cause of the termination of the eventuality of V^1.

SSPNC: [[[DP V^1 $]_{IP}$ $]_{CP}$ [[(sore) $]_{KP}$ V^2 $]_{CP}$ $]_{CP}$

IHRCC: [[[DP V^1 $]_{IP}$ $]_{DP1}$ [[e_1 (sore) $]_{KP}$ V^2 $]_{CP}$ $]_{CP}$

Let us now see how the conditions in (64) follow from the direct cause condition.

The unified predicate condition (third version) follows because any eventuality that can be terminated must be a terminable eventuality, and only the eventuality of a dynamic predicate, but not of a stative predicate, can terminate an eventuality.

The unified precedence and adjacency condition also follows. If the eventuality of V^2 directly terminates the eventuality of V^1, these eventualities cannot be separated temporally. This is because if two eventualities are temporally separated, the later eventuality cannot cause the termination of the prior eventuality that has already come to an end. Also, it is impossible for the "terminator" eventuality to precede the "terminatee" eventuality, because that would contradict the definition of termination.

Thus, we can conclude that the direct cause condition is the true semantic generalization on the proper use of the sort-sensitive pronoun construction and the IHRC construction.

In the next section I will show that the direct cause condition can be derived from independently motivated syntax and semantics. But before going on to the next section, let me compare my proposal with a similar proposal made by Odani (1998).

As we have seen in chapter 4, it appears that Odani's generalization is intuitively on the right track and seems to capture the essential semantic constraint on the IHRC construction.

(66)   *Odani's Generalization*

The eventuality of the IHRC is affected and changed in a critical way by the eventuality of the main predicate.

However, there are at least two problems with this generalization. First, it can only account for the semantics of the IHRC construction. We have already seen that exactly the same semantic constraint is observed in the sort-sensitive pronoun construction. Thus Odani's generalization needs to be extended to cover both the IHRC and the sort-sensitive pronoun construction.

Second, the terms employed in the formulation are not precise enough. For example, the part "affected and changed in a critical way" needs to be revised as "directly terminated." This is because the semantic condition on the IHRC and the sort-sensitive pronoun constructions, i.e., the precedence and adjacency condition, can only follow from the condition with the notion "direct termination." Consider, for example, the contrast in (67).

(67)   *IHRC Construction*

mazyo-wa [Alice-ga   totemo [$_{V1}$ segatakakat]-ta]no-o

witch-Top [Alice-Nom very   [$_{V1}$ tall.be]-Past   ]Nmn-Acc

{a. *ie-kara   [$_{V2}$ turesat]-ta   / b. [$_{V2}$ tiisakusi]-ta}.

{a. *house-from [$_{V2}$ take.away]-Past / b. [$_{V2}$ shrink]-Past}.

'The witch {a. *[$_{V2}$ took] Alice, who was very tall, out of the house. /

b. [$_{V2}$ shrank] Alice, who [$_{V1}$ was very tall].}'

It is quite possible that the eventuality of the witch's taking away Alice *indirectly*

affects and changes in a critical way the eventuality of Alice's being very tall. Suppose,

in this fantasy world, due to a bad witch's spell, simply going outside makes one's height

shortened. Thus taking Alice out of the house makes her shrunk. Under this scenario, we

can say that the witch's taking Alice out of the house *indirectly* causes Alice to become

shrunk. Or we can say that the eventuality of Alice's being ver tall is affected and

changed in a critical way by the eventuality of the witch's taking her out of the house. It

is crucial to notice that even under this scenario, (67a) is still completely unacceptable.

This clearly shows that we need the *direct* termination of the eventuality of the IHRC to

account for why *indirect* change is not good enough. Thus we can conclude that although

Odani's generalization is basically on the right track, we cannot accept it as it is.

6.7.2. The Sort-Sensitive Pronoun Construction and the IHRC Construction as Concealed Causatives

6.7.2.1. Introduction

The generalization we have arrived at in the previous section refers to the meaning "direct cause."

(68)   *Direct Cause Condition*

The eventuality of V^2 must be the direct cause of the termination of the eventuality of V^1.

SSPNC: [[[DP V^1]$_{IP}$]$_{CP}$ [[(sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

IHRCC: [[[DP V^1]$_{IP}$ no]$_{DPI}$ [[e_I (sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

As Bittner (1999b) points out, "direct cause" is an element of constructional meaning. That is to say, the meaning "direct cause" cannot be attributed to any morpheme of a sentence, but rather it is derived from type-lifting, a component of UG. More precisely, I would like to claim that the direct cause condition is due to causative type-lifting. Given the origin of the direct cause that characterizes both the sort-sensitive and the IHRC constructions, we will call these two constructions *concealed causative constructions*.

I have shown that the Japanese sort-sensitive pronoun is a DP consisting of the complement NP and the head D, as shown in (69).

(69)　　　　　　　　DP

NP　　　　D

｜

sores/soko/ϕ
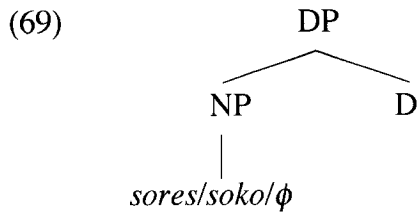
A few words are in order on the meaning of *sore/soko/ϕ* and D in (69). I assume that

sore/soko/ϕ translates into he_0, which is a donkey pronoun of an individual sort denoting

the most recently introduced discourse referent compatible with the semantic condition

on donkey pronouns. I also assume that the head D is translated as $\lambda z \exists t [dn_0 \propto t \wedge z=z]$,

where dn_0 is a donkey pronoun of a temporal sort denoting the most recently introduced

discourse referent of that sort. The meaning of the head D requires that there be a

temporal period t such that it exists immediately after the contextually salient time dn_0

($dn_0 \propto t$), and that the individual z is identical to itself ($z=z$).

I assume also that at PF, the sort-sensitive pronoun is either pronounced as

sore/soko or phonetically null. (see Heim and Kratzer 1998). In addition, as I have shown

in 6.4.4., that D is a kind of affix and is thus incorporated to the nearest K, as indicated in

(70).

(70) *LF representation of a sort-sensitive pronoun (with KP)*

$$KP_j$$

DP K_j:3

NP e_i **D_i:1**   **K_j:2[$\propto$]!**

sore/soko/ϕ
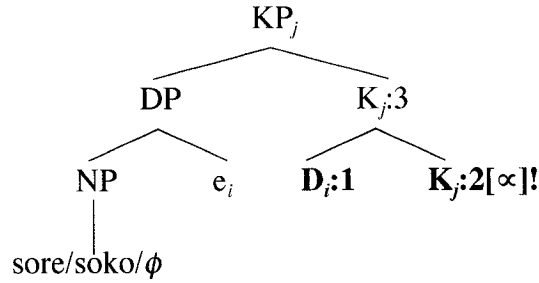
	Expession	*Type*
1.	$\lambda z \exists t[dn_0 \propto t \wedge z=z]$	et $\leftarrow$
2a.	R	eet $\leftarrow$ type-mismatch
2b.	$\lambda Q \lambda x \lambda y[R(y, x) \wedge \Delta Q(x) \cap it_1 \propto it_0]$	$(et)eet$
3.	$\lambda x \lambda y[R(y, x) \wedge \Delta \exists t[dn_0 \propto t \wedge z=z] \cap it_1 \propto it_0]$	eet

The initial types of D and K are *et* and *eet*, respectively. This causes an instance of type-mismatch, which needs to be resolved by type-lifting. Here, we are allowed to, and in fact obliged to, apply causative type-lifting to the translation whose type is *eet* (*K* node) and raise its type to *(et)eet*. As a by-product, we get the meaning we need, i.e., direct causation.

Now let us discuss how this analysis can explain some of our earlier examples. In the rest of this chapter I will primarily use sort-sensitive pronoun constructions to illustrate my proposal. The reason for this is that at LF the IHRC construction becomes virtual coordination, and can be treated in the same way as the sort-free pronoun construction, which is structurally a type of coordination throughout the derivation.

First, consider the discourse in (71).

(71)   <u>Ken</u>-ga   heya-ni   i-ta;

    <u>Ken</u>-Nom   room-Loc   be-Past;

    Sue-wa   <u>sore</u>^s-o   turesat-ta.

    Sue-Top   <u>him</u>^s-Acc   take.away-Past

    '<u>Ken</u> was in the room; Sue took <u>him</u>^s away.'

Under the dynamic XLS analysis, the discourse in (71) translates into the formula in (72).

(72) $\exists x[x=\text{ken'} \wedge \text{be.in.room'}(x) \wedge dn_0 \bigcirc [\text{-},n]]$

    $\cap \exists x[x=\text{sue'} \wedge \text{take.away'}(x, he_0) \wedge \Delta \exists t[dn_0 \propto t] \wedge it_1 \propto it_0 \wedge {}^T it_0 \subseteq [\text{-},n]]$

Let us consider what each conjunct in (72) indicates. First, the formula in the first conjunct contains three conditions. The first condition stipulates that the value of a variable x is Ken. The second condition says that Ken is in the room. The final condition ensures that the contextually most salient temporal location (i.e. the temporal location of Ken's being in the room) overlaps the past period (*[-,n]*). Hence the formula in the first conjunct says that there is an entity x such that x is Ken and he was in the room.

Next, the formula in the second conjunct contains five conditions. The first condition says that the value of a variable x is Sue. The second condition ensures that Sue

takes away Ken. The third condition stipulates that an instant (t) comes into existence immediately after Ken's being in the room (dn_0).[4] The fourth condition says that Sue's taking Ken away (it_1) is the direct cause of the appearance of the instant made salient by the second condition (it_0).[5] The final condition says that the time of the appearance of the instant just mentioned ($^T it_0$) is included in the past period ($[-,n]$). This can be understood as a roundabout way of saying that there is an entity x such that x is Sue and x's taking Ken away was the direct cause of the termination of Ken's being in the room. This state of affairs can be represented as in (73).

(73)
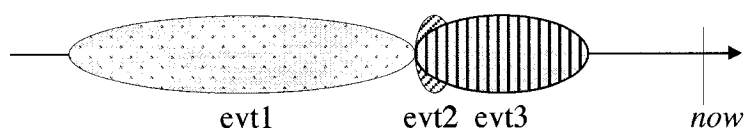
evt1: Ken was in the room

evt2: An instant t came into existence immediately after Ken was in the room

evt3: Sue took away Ken

---

[4] dn_0 is also a donkey pronoun, but it refers to a contextually salient time. In this case, it refers to the maximal temporal period of Ken's being in the room.

[5] it_1 and it_0 are donkey pronouns that refer to contextually salient events. it_0 refers to the most recently introduced event, and it_1 refers to the second most recently introduced event.

Thus, the translation in (72) of the discourse in (71) can capture the generalization (68), repeated here as (74), on the semantics of the concealed causative constructions.

(74)   *Direct Cause Condition*

The eventuality of V^2 must be the direct cause of the termination of the eventuality of V^1.

SLPNC: [[[DP V^1 $]_{IP}$ $]_{CP}$ [[(sore) $]_{KP}$ V^2 $]_{CP}$ $]_{CP}$

IHRCC: [[[DP V^1 $]_{IP}$ no $]_{DP1}$ [[e_1 (sore) $]_{KP}$ V^2 $]_{CP}$ $]_{CP}$

6.7.2.2. Deriving Properties of the Sort-Sensitive Pronouns

Now, let us show that our analysis within dynamic XLS can explain the properties we have observed in the previous chapters.

First, some of the restrictions on the sort-sensitive pronouns in chapter 2 can be accounted for by our analysis. We have noticed that the sort-sensitive pronoun cannot be used as a deictic pronoun.

(75)   sumimasen,   {a. *sore^s/ b. *soko^s}-o   isu-ni   suwarasete-kudasai.

         excuse.me   {a. him^s/ b. him^s}-Acc   chair-Loc   make.sit-please

         'Excuse me, but please make {a. *him^s/ b. *him^s} sit in the chair.'

This follows from our analysis because the eventuality of the predicate that takes the sort-sensitive pronoun (V^2) must directly terminate the eventuality made salient by the immediately preceding predicate (V^1). If used deictically, the sort-sensitive pronoun fails to have the "terminatee" eventuality, which makes the sentence with a sort-sensitive pronoun unacceptable.

Second, we have observed in chapter 2 that the sort-sensitive pronoun cannot refer back to its antecedent over an intervening sentence.

(76)   Ken-ga   heya-kara   deteik-ootositei-ta;

Ken-Nom room-from   leave-be.about.to-Past;

soto-de-wa   ame-ga   hagesiku   hut-tei-ta;

outside-Loc-Top   rain-Nom   heavily   rain-be-Past;

Mary-ga   {a. *sore^s/ b. *soko^s}-o   yobi-tome-ta.

Mary-Nom   {a. *him^s/ b. *him^s}-Acc   call.out-stop-Past.

'Ken was about to leave the room; outside, it was raining heavily;

Mary stopped {a. *him^s/ b. *him^s} by calling out'

This fact also follows from our analysis. The sort-sensitive pronoun requires the contextually most salient eventuality to be directly terminable by the eventuality of the predicate that takes the sort-sensitive pronoun. In (76), for example, the contextually most salient eventuality before the final sentence is the eventuality of the rain being

heavy. This eventuality cannot be directly terminated by the eventuality of Mary's calling

out something to the rain.

Third, we have observed that the sort-sensitive pronoun cannot refer to part of a

conjoined NP.

(77)   [Ken to Sue]-ga   heya kara   deteik-oyootositei-ta;

              [Ken and Sue]-Nom   room from   come.out-be.about.to-Past;

              Mary-ga   {a. *sore^S/ b. *soko^S}-o,.

              Mary-Nom {a. *him^S/ b. *him^S}-Acc,

              'Ken, tyotto   matte' to   it-te,   yobi-tome-ta.

              'Ken, a.minute wait' Comp by.saying,   call.out-stop-Past.

              'Ken and Sue were about to come out of the room; Mary stopped

              {a. *him^S/ b. *him^S} by saying, "Ken, wait a minute."'

This follows because what is the most salient eventuality before the second sentence is

the eventuality of both Ken and Sue coming out of the room, not a part of that

eventuality. Hence, the sort-sensitive pronoun, which is supposed to directly terminate

the contextually most salient eventuality, cannot directly terminate any part of it.

Fourth, we have learned that the sort-sensitive pronoun in a complement clause

cannot refer to the matrix subject.

(78)　　*Tom-wa　Sue-ni　[Mary-ga sore^s/soko^s-o tukamae-ta]

　　　　*Tom-Top Sue-Dat [Mary he^s/he^s-Acc　catch-Past]

　　　　to　]　it-ta.

　　　　Comp]　tell-Past

　　　　'*Tom told Sue that Mary had caught him^s.'

The ungrammaticality of (78) is also a consequence of our analysis. The "terminator" eventuality, i.e., the eventuality of Mary's catching Tom, cannot directly terminate the eventuality made salient by the main clause, which includes the "terminator" eventuality.

Fifth, we have observed that when presented a discourse such as (79), native speakers of Japanese feel as if the sort-sensitive pronoun refers to not the "individual" Taro, but rather a specific-temporal slice of the "individual" Taro that was about to leave the room.

(79)　　Taro-ga　　heya　kara　deteik-ootosi-ta;

　　　　Taro-Nom　room from　leave-be.about.to-Past;

　　　　Yoko-ga　{a. sore^s/b. soko^s}-o　yobi-tome-ta.

　　　　Yoko-Nom {a. him^s/ b. him^s}-Acc　call.out-stop-Past.

　　　　'Taro was about to leave the room; Yoko stopped {a. him^s/ b. him^s} by calling out.'

This specific spatio-temporal reading is expected under our analysis. What the sort-sensitive pronoun refers to is an individual who takes part in the "terminatee" eventuality made salient by the immediately preceding sentence. In this case, the sort-sensitive pronoun refers to not just Taro, but Taro, who takes part in the "terminatee" eventuality of his being about to leave. This, I believe, is the source of the specific spatio-temporal reading.

6.7.2.3. Deriving Properties of Concealed Causative Constructions

6.7.2.3.1. Deriving the Unified Predicate Condition

First, let us consider how we can derive the unified predicate condition.

(80)   *Unified Predicate Condition (third version)*

V^1 must be a predicate denoting a terminable eventuality and V^2 is a dynamic stage-level predicate.

SSPNC: [[[DP V^1]$_{IP}$]$_{CP}$ [[(sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

IHRCC: [[[· DP V^1]$_{IP}$ no]$_{DP1}$ [[e_i (sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

Let us take the translation of the second sentence of (71) for example. I will repeat the translation as (81).

(81) $\exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[dn_0 \propto t] \wedge it_1 \propto it_0 \wedge {}^T it_0 \subseteq [-,n]]$

What must be terminated here is the contextually most salient temporal location denoted by dn_0. This means that the eventuality of the predicate that contributes this temporal location must also be terminated, because the life span of an eventuality must coincide with its temporal location. It is the predicate referred to as V^1 in (80) that contributes the temporal location that must be terminated. Hence it follows that V^1 must denote a terminable eventuality, as the unified predicate condition predicts.

Also, we can derive the second half of the unified predicate condition. The eventuality that directly causes the termination is denoted by it_1 in (81). This type of donkey pronoun must refer to a discourse referent of event sort, which can only be introduced by the dynamic stage-level predicate. The discourse referent of event sort denoted by it_1 is introduced by the predicate *take.away'* in (81). It is the predicate referred to as V^2 in (80) that corresponds to the predicate *take.away'*. Hence the predicate V^2 must be a dynamic stage-level predicate. Otherwise, it would not contribute a discourse referent of event sort, which is supposed to be picked out by it_1. This explains the second half of the unified predicate condition.

6.7.2.3.2. Deriving the Unified Precedence and Adjacency Condition

Next I would like to show how we derive the unified precedence and adjacency condition (unified PAC).

(82)   *Unified Precedence and Adjacency Condition*

The eventuality of V^1 must precede and be adjacent to the eventuality of V^2.

SSPNC: $[\ [[\quad \underline{DP}\quad V^1\ ]_{IP}\quad]_{CP}\ [\ [\quad\quad \underline{(sore)}\ ]_{KP}\ V^2\ ]_{CP}\ ]_{CP}$

IHRCC: $[\ [[\quad \underline{DP}\quad V^1\ ]_{IP}\ no\ ]_{DP1}\ [\ [\ e_j\quad \underline{(sore)}\ ]_{KP}\ V^2\ ]_{CP}\ ]_{CP}$

Let us take once again the translation of the second sentence of (71), repeated here as (83).

(83) $\exists x[x=sue'\wedge take.away'(x, he_0)\wedge\Delta\exists t[dn_0\propto t]\wedge it_1\propto it_0 \wedge^T it_0\subseteq[-,n]]$

According to the formula in (83), the eventuality of Sue's taking away Ken is the direct cause of the termination of the eventuality of Ken's being in the room. This is only possible when the "terminatee" eventuality (Ken's being in the room) precedes the "terminator" eventuality (Sue's taking away Ken). Further, since the eventuality of Sue's taking away Ken directly terminates the eventuality of Ken's being in the room, no instant whatsoever can intervene between the two eventualities. This explains the adjacency part of the condition.

Now we will see how our XLS account explains examples that are supposed to violate the unified PAC. First let us examine the case in which the first sentence is eventive, as in (84).

(84)　　* kinoo　　　Ken-ga　　heya-de　　zyanpusi-ta;

　　　　 * yesterday　Ken-Nom　room-Loc　jump-Past;

　　　　 kyoo　Sue-wa　$sore^s$-o　　turesat-ta.

　　　　 today　Sue-Top　him^S-Acc　take.away-Past.

　　　　 '*Yesterday, Ken jumped in the room; today, Sue took him^S away.'

The statement in (84) translates into the formula in (85), where the translation of the first sentence and the translation of the second sentence are dynamically conjoined..[6]

(85)　　$\exists x[x=ken' \wedge jump'(x) \wedge {}^T it_0 \subseteq [-,n] \cap da_{-1}]$

　　　　$\cap \exists x[x=sue' \wedge take.away'(x,he_0) \wedge \triangle \exists t[dn_0 \propto t] \wedge it_1 \propto it_0 \wedge {}^T it_0 \subseteq [-,n] \cap da_0]$

It is easy to see why the formula in (85) induces the ungrammaticality of the discourse in (84). The third condition of the second conjunct in (85) says that an instant (t) comes into existence immediately after the contextually most salient temporal location (dn_0), which

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[6] In the following discussion we will use semantics of time denoting adverbials of Bittner (1999a), which is based on Abusch (1997). In Bittner (1999a) *today* and *yesterday* translate into da_{-1} and da_0, respectively.

is supposed to be contributed by the first conjunct. But this is impossible in (85) under

ELA. In ELA an eventive predicate is supposed to make salient an event rather than a

temporal location of the event. A temporal location is made salient only by a stative

predicate in ELA. Thus dn_0, a donkey pronoun of temporal sort, does not have a possible

antecedent in (85), because the first conjunct only contains an eventive predicate (*jump'*),

but not a stative predicate.

The account just presented predicts that the discourse in (84) continues to be

unacceptable even after removing the temporal adverbials. This prediction is borne out.

(86)　　* Ken-ga　　heya-de　　zyanpusi-ta;

　　　　* Ken-Nom　room-Loc　jump-Past;

　　　　Sue-wa　sore^s-o　　turesat-ta.

　　　　Sue-Top　him^S-Acc　take.away-Past.

　　　　'*Ken jumped in the room; Sue took him^S away.'

The second example that violates the unified PAC is harder to explain. Consider

the following discourse, where the predicated of the first sentence is stative.

(87)   * kinoo   <u>Ken</u>-ga   heya-ni   i-ta;

         * yesterday <u>Ken</u>-Nom room-Loc   be-Past;

         kyoo   Sue-wa   <u>sore</u>^{s}-o   turesat-ta

         today   Sue-Top <u>him</u>^{s}-Acc take.away-Past

         '*Yesterday, <u>Ken</u> was in the room; today, Sue took <u>him</u>^{s} away.'

The discourse in (87) translates into (88).

(88) $\exists x[x=\text{ken'} \wedge \text{be.in.room'}(x) \wedge dn_0 \bigcirc [\text{-},n] \cap da_{\text{-}1}]$

         $\cap \exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[dn_0 \propto t] \wedge it_1 \propto it_0 \wedge {}^T it_0 \subseteq [\text{-},n] \cap da_0]$

The formula in the first conjunct says that there is an entity x such that (i) x is Ken, (ii) x was in the room, and (iii) the temporal location of x's being in the room overlaps the temporal location of yesterday.

The formula in the second conjunct says that there is an entity x such that (i) x is Sue, (ii) x took away Ken, (iii) an instant came into existence immediately after Ken's being in the room, (iv) x's taking away Ken is the direct cause of an instant coming into existence immediately after Ken's being in the room, and (v) the temporal location of an instant coming into existence after Ken's being in the room is included in the temporal location of today.

In fact, the conjoined formulas in (88) indicates that our XLS analysis cannot account for the unacceptability of (87). Let us focus on the formula in the first conjunct. According to ELA, a stative predicate makes salient its temporal location that overlaps the temporal period specified by the tense or temporal adverbials in the sentence. Thus it is possible for the eventuality of Ken's being in the room continues beyond yesterday until Sue terminates it today by taking him away from the room. This predicts that the discourse in (87) can have a reading that satisfies the unified precedence and adjacency condition and is acceptable under this reading. As the unacceptability of (87) shows, this is not the case.

One possibility to overcome this difficulty is to stipulate that Japanese stative predicates can sometimes behave like an eventive predicate, making salient the temporal location of the predicate that is contained in, rather than overlaps, the temporal location made salient by the tense or adverbial predicates of the sentence. This solution does not seem right. Japanese stative sentences behave just like English stative sentences with respect to temporal interpretation.

(89) a.   Ken was in the room yesterday. He is still in the room.

b.   Ken jumped in the room yesterday. #He is still jumping.

c.   kinoo   Ken-ga   heya-ni   i-ta.

yesterday Ken-Nom room-Loc be-Past

'Yesterday , Ken was in the room.'

kare-wa imanao heya-ni   i-ru.

he-Top   still   room-Loc be-Pres

'He is still in the room.'

d.   kinoo   Ken-ga   heya-de   zyampusi-ta.

yesterday Ken-Nom room-Loc jump-Past

'Yesterday, Ken jumped in the room.'

#kare-wa imanao zyampusi-tuzuketei-ru.

#he-Top   still   jump-continue-Pres

'He is still jumping.'

The contrast between (89a) and (89b) and the contrast between (89c) and (89d) indicate that in English as well as in Japanese, the temporal location contributed by stative predicates such as *heya-ni i-* 'be in the room' simply overlap the temporal location contributed by the Past tense, whereas the temporal location contributed by dynamic predicates such as *zyampus-* 'jump' is included in the temporal location contributed by the Past tense.[7] Thus we have to look for a different solution to our problem.

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[7] This contrast between the stative and dynamic predicates is observed in Kamp and Reyle (1993).

I would like to argue that unacceptability of sentences such as (87) is due to pragmatics. More precisely, sentences such as (87) violate Grice's conversational maxim or its equivalent. Before presenting my account for (87), I would like to point out one piece of evidence for the claim that pragmatics is involved here.

In some IHRC constructions with an eventive predicate, the acceptability of the sentence depends on where each temporal adverbial is placed.

(90) a. * John-wa *kesa* [Mike-ga *kinoo* ringo-o sara-no

John-Top *this.morning* [Mike-Nom *yesterday* apple-Acc plate-Gen

ue-ni oi-ta] no-o tot-ta.

top-Loc put-Past] Nmn-Acc pick.up-Past

'John picked up this morning the apple that Mike had put on a plate yesterday.'

b. John-wa [Mike-ga *kinoo* ringo-o sara-no

John-Top [Mike-Nom *yesterday* apple-Acc plate-Gen

ue-ni oi-ta] no-o *kesa* tot-ta.

top-Loc put-Past] Nmn-Acc *this.morning* pick.up-Past

'John picked up this morning the apple that Mike had put on a plate yesterday.'

c. * *kesa* [Mike-ga *kinoo* ringo-o sara-no ue-ni

this.morning [Mike-Nom *yesterday* apple-Acc plate-Gen top-Loc

oi-ta] no-o John-wa tot-ta.

put-Past] Nmn-Acc John-Top pick.up-Past

'The apple that Mike had put on a plate yesterday, John picked up this morning.'

d. [Mike-ga *kinoo* ringo-o sara-no ue-ni

[Mike-Nom *yesterday* apple-Acc plate-Gen top-Loc

oi-ta] no-o John-wa *kesa* tot-ta.

put-Past] Nmn-Acc John-Top *this.morning* pick.up-Past

'The apple that Mike had put on a plate yesterday, John picked up this

morning.'

The sentences in (90a) and (90b) do not contain topicalized materials, while those in

(90c) and (90d) involve topicalization of the IHRC. However, the factor that determines

the acceptability of each sentence is which adverbial comes first: the sentence becomes

acceptable only when *kinoo* 'yesterday' precedes *kesa* 'this morning'. It is reasonable to

assume that all the sentences are equivalent truth-conditionally. Thus the difference in

acceptability reported in (90) must be due to some pragmatic factors.

Now let us go back to (87). Note first that the discourse in (87) becomes

acceptable if we replace *kinoo* 'yesterday' with *kinoo-kara* 'yesterday-from (since

yesterday)'.

(91)   kinoo-kara   <u>Ken</u>-ga   heya-ni   i-ta;

yesterday-since <u>Ken</u>-Nom room-Loc be-Past;

kyoo   Sue-wa   <u>sore</u>^S-o   turesat-ta.

today   Sue-Top   <u>him</u>^S-Acc   take.away-Past.

'Since yesterday, <u>Ken</u> was in the room; today, Sue took <u>him</u>^S away.'

What is the difference between the first sentences in (87) and (91)? The first sentence in

(91) with *kinoo-kara* 'yesterday-from (since yesterday)' entails the first sentence in (87)

with *kinoo* 'yesterday', but not vice versa.

Then the next question is why this difference results in the acceptability

difference? In order to answer this question, let us introduce Gamut's (1991)

reformulation of Grice's conversational maxims.

Grice's conversational maxims are given in (92) to (94).

(92)   *Maxim of Quantity*

   (i)   Make your contribution to the conversation as informative as is required.

   (ii)   Do not make your contribution any more informative than necessary.

(93)   *Maxim of Quality*

   (i)   Do not say what you believe is false.

   (ii)   Do not say that for which you lack adequate evidence.

(94)   *Maxim of Relation*

       Be relevant.

Gamut's reformulation is given in (95), in which the maxims are restated as

conditions under which a speaker can make a statement correctly.

(95)   *Gamut's Reformulation of Grice's Conversational Maxims*

A speaker S makes correct use of a sentence A in order to make a statement before a listener L just in case:

(i) S believes that A is true;

(ii) S believes that L does not believe that A is true;

(iii) S believes that A is relevant to the subject of the conversation;

(iv) For all sentences B of which A is a logical consequence (and which are not equivalent to A), (i)-(iii) do not all hold with respect to B.

(Gamut 1991: 205)

In (95), the condition (i) corresponds to the Maxim of Quality; the condition (ii) to the second submaxim of the Maxim of Quantity; the condition (iii) to the Maxim of Relation; and the condition (iv) to the first submaxim of the Maxim of Quantity.

What is particularly important here is condition (iv). It says that in order to utter a sentence A in a correct way, no alternative sentences B, which entail and are not equivalent to A, are available such that B satisfy all of the conditions in (i) through (iii). Applied to our problem, I would like to claim that the first sentence in (87), repeated here as (96a), can be taken as A and the first sentence in (91), repeated here as (96b), can be taken as B. The argument thus runs as follows: if we can show that there really exists a sentence B, then using A, instead of B, is considered to be infelicitous, thus making the entire statement unacceptable.

(96) a. *kinoo*   Ken-ga   heya-ni   i-ta

      yesterday Ken-Nom room-Loc   be-Past

      'Yesterday, Ken was in the room.'

  b. *kinoo-kara*   Ken-ga   heya-ni   i-ta

      yesterday-from Ken-Nom room-Loc   be-Past

      'Since yesterday, Ken was in the room.'

I will now show that our application of Gamut's reformulation to the present case is justified. First, as I have pointed out, (96b) entails (96a). Put differently, (96a) is a logical consequence of (96b).

Second, (96b) is not equivalent to (96a). This point can be seen by evaluating both sentences in a context in which Ken was in the room yesterday's morning but left the room in the afternoon never to come back. Under this scenario, (96a) is judged true but (96b) false. Put differently, (96b) is more informative than (96a), because (96b) entails (96a), but (96a) does not entail (96b).

Third, (96b) satisfies the conditions from (i) to (iii). I assume without argument that conditions (ii) and (iii) are satisfied by (96b). As for condition (i), I will show that S believes that sentence (96b) is true when he utters statement (87). We know that he has this belief, because he utters the first sentence in (87), which shows that he believes that Ken was in the room yesterday, and because he also utters the second sentence in (87),

repeated here as (97a), which shows that Ken continued to be in the room today. Let us see how we can derive this latter half of his belief from sentence (97a).

(97) a.   kyoo   Sue-wa   sore^s-o   turesat-ta

          today   Sue-Top   him^S-Acc   take.away-Past

          'Today, Sue took him^S away.'

    b. $\exists x[x=\text{sue}' \wedge \text{take.away}'(x, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t] \wedge \text{it}_1 \propto \text{it}_0 \wedge {}^T\text{it}_0 \subseteq [-,n] \cap da_0]$

Note first that our translation of (97a), given in (97b), contains a donkey pronoun dn_0 of temporal sort, which must take as its antecedent the temporal period made salient by the preceding sentence, i.e., the temporal period of the eventuality depicted by sentence (96a). Note also that this eventuality is required to have persisted until the eventuality of Sue's taking away Ken happened today. This is because our translation says that Sue's action must be the direct cause of the termination of the eventuality of Ken's being in the room, and further, Sue's action took place today. If the eventuality of Ken's being in the room had not persisted until today, how could Sue have successfully terminated the eventuality directly today by taking away Ken from the room? Thus we can conclude that when S utters statement (87), repeated below, he believes that Ken was in the room yesterday and continued to be there until today. Put differently, S believes that (96b) is true when he utters statement (87).

(87) * kinoo   <u>Ken</u>-ga   heya-ni   i-ta;

     * yesterday <u>Ken</u>-Nom room-Loc be-Past;

     kyoo   Sue-wa   <u>sore</u>^{s}-o   turesat-ta

     today   Sue-Top   <u>him</u>^{s}-Acc   take.away-Past

     '*Yesterday, <u>Ken</u> was in the room; today, Sue took <u>him</u>^{s} away.'

Given the discussion so far, we can conclude that S cannot use the first sentence in (87) felicitously, because there is an alternative way of expressing his belief in a more informative way. In other words, uttering statement (87) violates the first submaxim of Grice's Maxim of Quantity, which is reformulated by Gamut (1991) as condition (iv) in (95). This explains why statement (87) is unacceptable, while statement (91), repeated below, is acceptable.

(91) kinoo-kara   <u>Ken</u>-ga   heya-ni   i-ta;

     yesterday-since <u>Ken</u>-Nom room-Loc be-Past;

     kyoo   Sue-wa   <u>sore</u>^{s}-o   turesat-ta.

     today   Sue-Top   <u>him</u>^{s}-Acc   take.away-Past.

     'Since yesterday, <u>Ken</u> was in the room; today, Sue took <u>him</u>^{s} away.'

Additionally, the same kind of Gricean account can be given to the unacceptable sentence in (98a), which was pointed out as a piece of evidence against the DRT analysis

in chapter 5. This is possible because replacing *kinoo* 'yesterday' with *kinoo-kara*

'yesterday-from, since yesterday' makes the sentence acceptable, as shown in (98b).

(98) a. * John-wa   *kesa*   [ringo-ga   *kinoo*   sara-no

      * John-Top *this.morning* [apple-Nom *yesterday*   plate-Gen

      ue-ni   at-ta   ] no-o   tot-ta.

      top-Loc be-Past] Nmn-Acc pick.up-Past

      'John picked up this morning the apple that was on a plate yesterday.'

   b.   John-wa   *kesa*   [ringo-ga   *kinoo-kara*   sara-no

      John-Top *this.morning* [apple-Nom *yesterday-from*   plate-Gen

      ue-ni   at-ta   ] no-o   tot-ta.

      top-Loc be-Past] Nmn-Acc pick.up-Past

      'John picked up this morning the apple that was on a plate since yesterday.'

Finally, we cannot overemphasize the importance of the above discussion if we are to evaluate how successful our XLS analysis is. I believe the Gricean explanation would never be possible if we did not analyze the sort-sensitive pronoun construction and the IHRC construction as constrained by the direct cause condition. Recall that when we computed *S*'s belief, we relied crucially on the notion "direct termination." This notion can only be supplied by our XLS analysis, in which the eventuality of the second sentence is required to directly terminate the eventuality of the first sentence in the

concealed causative constructions. Thus we may say that the fact that we have achieved the Gricean explanation in turn justifies our XLS analysis based on direct causation.

6.7.3. Compositional Derivation

In this section I would like to show how to obtain translations of sort-sensitive pronoun and IHRC constructions compositionally in XLS. Since at LF both of the constructions take forms of coordination, I assume their computation processes are virtually the same.

(99) a. *Sort-sensitive pronoun Construction*

$[_{CP\alpha}[_{IP}\underline{Ken}$-ga   heya-ni   i-ta$]]$;

$[_{CP\alpha}[_{IP}\underline{Ken}$-Nom   room-Loc   be-Past$]]$;

Sue-wa   <u>sore</u>^{s}-o   turesat-ta.

Sue-Top   <u>him</u>^{S}-Acc   take.away-Past

'<u>Ken</u> was in the room; Sue took <u>him</u>^{S} away.'

b. *IHRC Construction*

Sue-wa $[_{DP\alpha}[_{IP}\underline{Ken}$-ga   heya-ni   i-ta $]$ $]$no-o

Sue-Top $[_{DP\alpha}[_{IP}\underline{Ken}$-Nom   room-Loc   be-Past$]$ $]$Nmn-Acc

(<u>sore</u>-o)   turesat-ta.

(<u>him</u>^{S}-Acc)   take.away-Past

'Sue took away Ken, who was in the room.'/

'<u>Ken</u> was in the room; Sue took <u>him</u>^{S} away.'

First, the first sentence in (99a) and the IHRC in (99b) are translated as follows.

(100)a. $[_{CP\alpha}[_{IP}$ Ken-ga   heya-ni   i-ta   ]];

$[_{CP\alpha}[_{IP}$ Ken-Nom room-Loc   be-Past]];

'Ken was in the room;'

$$CP_\alpha{:}5$$
$$|$$
$$IP{:}5$$

KP$_j{:}4[\exists]$ I'${:}3$

Ken   VP${:}1[x_j]$ I

t_j be.in.room   Past$_i{:}2{<}[{=}],[\cap]{>}$
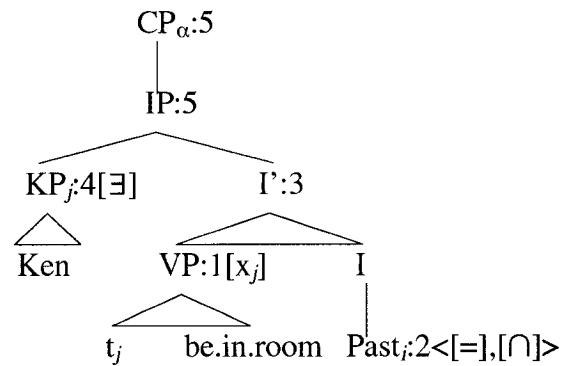
b. $[_{DP\alpha}[_{IP}\underline{Ken}$-ga heya-ni i-ta $]]$ no

$[_{DP\alpha}[_{IP}\underline{Ken}$-Nom room-Loc be-Past$]]$ Nmn

'<u>Ken</u> was in the room'

DP$_{m\mathring{a}}$:5
IP:5   D
KP$_j$:4[∃]   I':3
Ken   VP:1[x$_j$]   I
t$_j$ be.in.room   Past$_i$:2<[=],[∩]>

c.
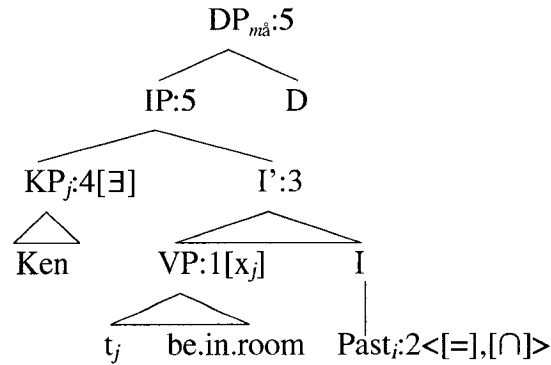
EXPRESSION	TYPE	STORE
1. $\lambda x_j[be.in.room'(x_j)]$	*et*	ϕ
2a. $[-,n]$	*e*	ϕ
2b. $\lambda u[u=[-,n]]$	*et*	ϕ
2c. $\lambda Q[Q\cap\lambda u[u=[-,n]]]$	*(et)et*	ϕ
3. $\lambda x_j[be.in.room'(x_j)]\cap\lambda u[u=[-,n]]$ $=\lambda x[be.in.room(x)\wedge dn_0\circ[-,n]]$	*et*	ϕ
4a. $x=ken'$	*et*	ϕ
4b. $\lambda Q\exists x[x=ken'\wedge Q(x)]$	*(et)t*	ϕ
5. $\exists x[x=ken'\wedge be.in.room'(x)\wedge dn_0\circ[-,n]]$	*t*	ϕ

Second, the second sentence in (99a) and the main clause in (99b) are translated

in the following way.

(101)a.   [$_{CP\beta}$ [$_{IP}$ Sue-wa   [$_{DP}$ <u>sore^S</u>]-o   turesat-ta]].

          [$_{CP\beta}$ [$_{IP}$ Sue-Top   [$_{DP}$ <u>him^S</u>]-Acc   take.away-Past]]

          'Sue took <u>him^S</u> away.'

$$
\begin{array}{c}
CP_\beta:12 \\
| \\
IP:12
\end{array}
$$

Tree structure:

- CP$_\beta$:12
  - IP:12
    - KP$_k$:11[∃]
      - Sue
    - I':10
      - VP:8[y$_k$]
        - t$_k$
        - VP:7
          - KP$_j$:5[R$_j$]
            - DP:1
              - NP
                - sore:1
              - e$_i$
            - K$_j$:4
              - D$_i$:2
              - K$_j$:3[∝]!
          - V:6
            - take.away$_j$:6
      - I:9
        - Past$_i$:9<[=],[∩]>
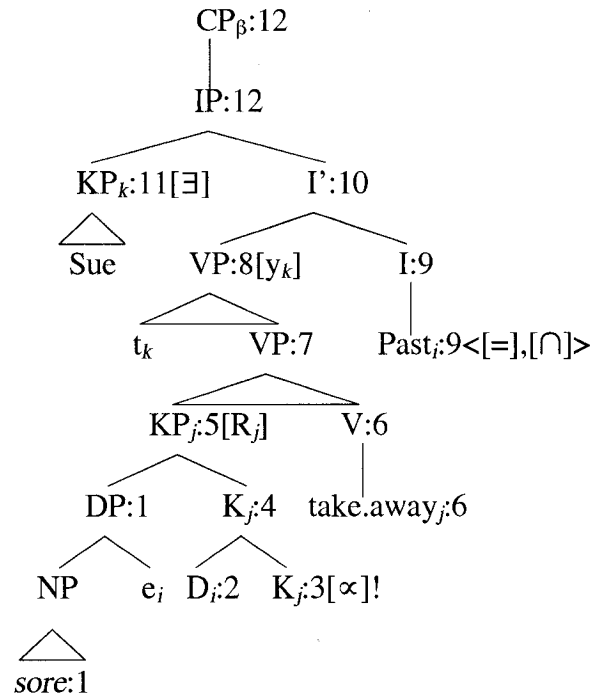
b.   [$_{CP}$[$_{IP}$ Sue-wa   [$_{DP}$ <u>sore</u>]-o turesat-ta   ]].

[$_{CP}$[$_{IP}$ Sue-Top [$_{DP}$ <u>him^S</u>]-o take.away-Past]].

'Sue took <u>him^S</u> away.'

$$\text{CP}_\beta\text{:}12$$

$$\text{IP:}12$$

KP$_k$:11[∃]   I':10

Sue   VP:8[y$_k$]   I:9

t$_k$ VP:7   Past$_i$:9<[=],[∩]>

KP$_j$:5[R$_j$]   V:6

DP:1   K$_j$:4   take.away$_j$:6

e$_m$ D'   D$_i$:2   K$_j$:3[∝]!

DP   e$_i$

sore:1

c.

	EXPRESSION	TYPE	STORE
1.	he$_0$	e	ϕ
2.	$\lambda z\exists t[dn_0\propto t \wedge z=z]$	et	ϕ
3a.	R$_j$	eet	{R$_j$}
3b.	$\lambda Q\lambda x\lambda y[R_j(y,x)\wedge\Delta Q(x)\cap it_1\propto it_0]$	*(et)eet*	{R$_j$}
4.	$\lambda x\lambda y[R_j(y,x)\wedge\Delta\exists t[dn_0\propto t\wedge x=x]\cap it_1\propto it_0]$	eet	{R$_j$}
5a.	$\lambda y[R_j(y, he_0)\wedge\Delta\exists t[dn_0\propto t\wedge he_0=he_0]\cap it_1\propto it_0]$		
5b.	$\lambda R_j\lambda y[R_j(y, he_0)\wedge\Delta\exists t[dn_0\propto t\wedge he_0=he_0]\cap it_1\propto it_0]$*(eet)et*		{R$_j$}
6.	take.away'	eet	ϕ

7. $\lambda y[\text{take.away'}(y, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t \wedge \text{he}_0 \sim \text{he}_0] \cap \text{it}_1 \propto \text{it}_0]$

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *et* $\qquad\qquad$ ϕ

8. $\lambda y_k[\text{take.away'}(y_k, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t \wedge \text{he}_0 \sim \text{he}_0] \cap \text{it}_1 \propto \text{it}_0]$

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *et* $\qquad\qquad$ ϕ

9a. $[-,n]$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\;\;$ *e* $\qquad\qquad$ ϕ

9b. $\lambda Q[Q \cap \lambda u[u=[-,n]]]$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *(et)et* $\qquad\;$ ϕ

10. $\lambda y_k[\text{take.away'}(y_k, \text{he}_0) \wedge \Delta \exists t[\text{dn}_{0\_} t \wedge \text{he}_0 = \text{he}_0] \cap \text{it}_{1\_} \text{it}_0 \cap^T \text{it}_0 \subseteq [-,n]]$

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *et* $\qquad\qquad$ ϕ

11a. $x=\text{sue'}$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *et* $\qquad\qquad$ ϕ

11b. $\lambda Q \exists x[x=\text{sue'} \wedge Q(x)]$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *(et)t* $\qquad\;$ ϕ

12. $\exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t \wedge \text{he}_0 \sim \text{he}_0] \cap \text{it}_1 \propto \text{it}_0 \cap^T \text{it}_0 \subseteq [-,n]]$

= $\exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t] \cap \text{it}_1 \propto \text{it}_0 \cap^T \text{it}_0 \subseteq [-,n]]$

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *t* $\qquad\qquad$ ϕ

Finally, the translations of the two sentences are combined.

(102) $\qquad\qquad$ CP/T:3

$\qquad$ CP$_\alpha$/DP$_\alpha$:1 $\qquad\qquad$ CP$_\beta$:2[$\cap$]

$\qquad$ <u>Ken</u> was in the room; $\qquad$ Sue took <u>him</u>^{s} away
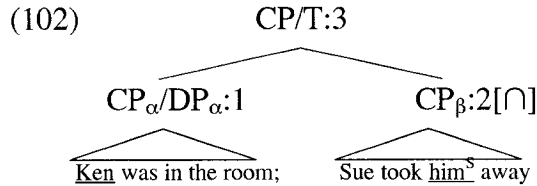
1. $\exists x[x=\text{ken'} \wedge \text{be.in.room'}(x) \wedge \text{dn}_0 \bigcirc [-,n]]$

2a. $\exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t] \wedge \text{it}_1 \propto \text{it}_0 \wedge^T \text{it}_0 \subseteq [-,n]]$

2b. $\lambda q[q \cap [x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0) \wedge \Delta \exists t[\text{dn}_0 \propto t] \wedge \text{it}_1 \propto \text{it}_0 \wedge^T \text{it}_0 \subseteq [-,n]]]$

3. $\exists x[x=\text{ken'} \wedge \text{be.in.room'}(x) \wedge \text{dn}_0 \bigcirc [-,n]] \cap \exists x[x=\text{sue'} \wedge \text{take.away'}(x, \text{he}_0)$
$\wedge \Delta \exists t[\text{dn}_0 \propto t] \wedge \text{it}_1 \propto \text{it}_0 \wedge^T \text{it}_0 \subseteq [-,n]]]$

6.7.4. Other Consequences

In this section I will consider two consequences of our XLS analysis that have not been considered so far. First, in our analysis, the internal head does not undergo QR. Thus the XLS analysis is free from the problems charged against analyses such as Watanabe's (1992).

Second, as discussed in chapter 5, the relevancy condition consists of, at least, the precedence and adjacency condition and the co-locationality condition. We have offered a detailed discussion of the precedence and adjacency condition, and have sharpened and extended it to the unified precedence and adjacency condition. In this section I will focus on the co-locationality condition, given in (103), and will derive it from our XLS analysis.

(103)   *Co-Locationality Condition*

The two events represented by the IHRC and the matrix clause involve the same physical location.   (cf. Kuroda 1975/76, 1992)

First, just like the precedence and adjacency condition, the co-locationality condition does not merely restrict the IHRC construction. It also restricts the sort-sensitive pronoun construction. Compare the following sentences.

(104)a. Ken-ga   heya-ni   i-ta;

Ken-Nom *room-Loc* be-Past;

Sue-wa   sore^S-o   turesat-ta.

Sue-Top   him^S-Acc   take.away-Past.

'Ken was in the room; Sue took him^S away.'

b. * Ken-ga   *heya-ni*   i-ta;

* Ken-Nom *room-Loc* be-Past;

Sue-wa   sore^S-o   *kuruma-kara*   turesat-ta.

Sue-Top   him^S-Acc   *car-from*   take.away-Past.

'*Ken was *in the room*; Sue took him^S *out of the car.*'

In (104a), the eventuality of Sue's taking away Ken must be construed to occur in the same room that Ken was in. The same constraint accounts for the unacceptability of (104b), where the eventuality of Ken's being in the room and the eventuality of Sue's taking him away did not happen in the same place. This shows that the sort-sensitive pronoun construction, as well as the IHRC construction, obeys the same kind of co-locationality condition. Thus we can generalize Kuroda's co-locationality condition as follows.

(105)   *Unified Co-Locationality Condition*

The eventuality of V^1 and the eventuality of V^2 must occur in the same place.

SSPNC: [[[<u>DP</u> V^1]$_{IP}$]$_{CP}$ [[(sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

IHRCC: [[[<u>DP</u> V^1]$_{IP}$ no]$_{DPi}$ [[e_i (sore)   ]$_{KP}$ V^2]$_{CP}$]$_{CP}$

It is not difficult to derive this condition from our analysis. We have seen that in the XLS analysis, the direct cause condition is the true generalization over the semantics of the concealed causative constructions.

(106)   *Direct Cause Condition*

The eventuality of V^2 must be the direct cause of the termination of the eventuality of V^1.

SSPNC: [[[<u>DP</u> V^1]$_{IP}$]$_{CP}$ [[(<u>sore</u>)]$_{KP}$ V^2]$_{CP}$]$_{CP}$

IHRCC: [[[<u>DP</u> V^1]$_{IP}$ no]$_{DP1}$ [[e_1 (<u>sore</u>)]$_{KP}$ V^2]$_{CP}$]$_{CP}$

From the direct cause condition it follows that the eventuality of V^1 (the "terminatee" eventuality) must strictly precede and be adjacent to the eventuality of V^2 (the "terminator" eventuality). This is what we call precedence and adjacency condition. From this it automatically follows that the regional location of the "terminatee" eventuality must be the same as the regional location of the "terminator" eventuality. Thus our last generalization, i.e., the direct cause condition, can predict that the concealed causative constructions must satisfy the co-locationality condition, as well as the precedence and adjacency condition.

6.8. Remaining Problems

First, contrary to what we have assumed, there are grammatical IHRCs whose predicate is not stative or progressive. The predicates in the IHRCs in the following sentences denote some dynamic activities.

(107)a.　Sue-wa　[Tom-ga　　ringo-o　　tukue-ni　*oi-ta*　　] no-o

　　　　　Sue-Top [Tom-Nom apple-Acc　table-Loc　*put-Past*] Nmn-Acc

　　　　　toriage-ta.

　　　　　pick.up-Past

　　　　　'Sue picked up an apple which Tom put on the table.'

　　b.　Sue-wa　[Ken-ga　　heya-kara　*deteki-ta*　　]no-o

　　　　　Sue-Top [Ken-Nom　room-from　*come.out-Past*]Nmn-Acc

　　　　　tukamae-ta.

　　　　　caught-Past

　　　　　'Sue caught Ken, who came out of the room.'

This may seem to pose a serious problem with our analysis, because our XLS analysis requires a stative predicate in the main clause of IHRCs. I believe we can solve this problem if we make the following assumptions:

(108)a. There is an additional level of grammar where we can have access to implications of sentences. Let us call such a level the level of implications. (see Moltmann 1995 and Fuji 2003 for details.)

b. The Japanese sentence with the past tense morpheme –*ta* can imply the state that is the result of the event depicted by the sentence. (see Machida 1989: 85)

If we assume (108), then sentence (107a), for example, has an alternative representation (109a) at the level of implications.

(109)a. Sue-wa [ringo-ga   tukue-ni   *at-ta*   ] no-o

Sue-Top [apple-Nom   table-Loc   *be-Past*] Nmn-Acc

toriage-ta.

pick.up-Past

'Sue picked up an apple that was on the table.'

b. Tom-ga   ringo-o   tukue-ni   oi-ta.

Tom-Nom   apple-Acc   tabel-Loc   put-Past

'Tom put an apple on the table.'

c. ringo-ga tukue-ni at-ta.

apple-Nom   table-Loc   be-Past

'The apple was on the table.'

This is because sentence (109b) implies sentence (109c). This way, we can obtain the IHRC with a stative predicate at the level of implications.

Second, there are IHRC constructions that has no corresponding sort-sensitive constructions as we have defined them so far.

(110)a.   Sue-wa [*dare*-ga   heya-ni   i-ta   ]no-o

Sue-Top [*who*-Nom   room-Dat   be-Past] Nmn-Acc

(*sore^s*-o)   turesat-ta   *no.*

(*him^s*-Acc)   take.away-Past   *Q*

'Who was in the room and took away by Sue?'

b.   **dare*-ga   heya-ni   i-ta;

*who-Nom room-Dat be-Past;

Sue-ga   sore^s-o   turesat-ta   *no.*

Sue-Nom   him^s-Acc   take.away-Past   *Q*

The sentence in (110b) is the sort-sensitive pronoun construction that corresponds to the IHRC construction in (110a). The problem with (110b) is obvious. In Japanese a wh-word needs to be licensed by the question particle *–no* in the same clause, but in (110b) the wh-word is in the first sentence and the question particle in the next sentence, which causes the problem. To remove this problem from (110b), the past tense morpheme *–ta* must be replaced by *–te*, the form used to connect two sentences.

(111)   *dare*-ga   heya-ni   i-te;

who-Nom room-Dat be-TE;

Sue-ga   sore^s-o   turesat-ta   *no*.

Sue-Nom him^s-Acc   take.away-Past *Q*

This may indicate that we must reconsider what type of sort-sensitive pronoun construction actually corresponds to the IHRC construction.

Third, remember that we have restricted ourselves to the cases in which the IHRC or the sort-sensitive pronoun receives Accusative Case. Thus we have no explanation for why it is sometimes possible for the IHRC to receive Dative Case.

(112)a.   Sue-wa |Kim-ga   sotode   tat-tei-ta |no-*ni*

Sue-Top [Kim-Nom outside   stand-Prog-Past] Nmn-*Dat*

(sore^s-*ni*)   dekuwasi-ta.

(her^s-*Dat*)   come.across-Pase

'Sue came across Kim, who were standing outside.'

b.   Sue-wa [Kim-ga   sotode   tat-tei-ta |no-*ni*

Sue-Top [Kim-Nom outside   stand-Prog-Past] Nmn-*Dat*

(sore^s-*ni*)   onigiri-o   tewatasi-ta.

(her^s-*Dat*)   rice.ball-Acc hand-Past

'Sue handed out a rice ball to Kim, who was standing outside.'

The observation that some IHRCs are acceptable with Dative Case is particularly important because they exhibit apparently the same semantic restrictions as the ones we have observed with respect to the IHRCs with Accusative Case.

(113)a.　　*Sue-wa [Kim-ga　　noppo dat-ta　|no-*ni*　　dekuwasi-ta.

　　　　　　*Sue-Top [Kim-Nom tall　　be-Past]Nmn-*Det* come.across-Past

　　　　　　'Sue came across Kim, who were tall.'

　　b.　　*Sue-wa |Kim-ga　　*kinoo*　　sotode tat-tei-ta　　　|no-*ni*

　　　　　　*Sue-Top |Kim-Nom *yesterday* outside stand-Prog-Past| Nmn-*Dat*

　　　　　　kesa　　　　dekuwasi-ta

　　　　　　this.morning come.across-Past

　　　　　　'*This morning*, Sue came across Kim, who was standing outside *yesterday*.'

Sentence (113a) shows that the IHRC with Dative Case obeys the predicate condition that says that the main predicate of the IHRC must be a stage-level stative. Sentence (113b) indicates that the IHRC with Dative Case obeys the adjacency condition which says that the eventuality of the IHRC must precede and be adjacent to the eventuality of the main clause.

My tentative and partial answer to the problem at hand is the following: maybe we have to assume that the internal structure of a sort-sensitive pronoun is more complicated than we have assumed so far. We have only dealt with the internal structure of the Acc-marked sort-sensitive pronoun, which induces an application of a causative

type-lifting operator. But probably, the internal structure of the Dat-marked sort-sensitive pronoun is quite different and causes an application of a different kind of type-lifting operator which guarantees that the eventuality of the IHRC happens "simultaneously" with the eventuality of the main clause.

Finally, there is an interesting IHRC that appears to violate the direct cause condition. At first glance one may think that the main predicate that is supposed to terminate the eventuality of the IHRC is *moofu-o kake-ta* 'put over the blanket', as in the sentential translation in (114b). But in fact the predicate that actually terminates the eventuality of the IHRC is *okosa* 'wake.up', as the sentential translation in (114c) indicates. So this sentence does not pose a problem to our analysis.

(114)a.   boku-wa [beddo-de kodomo-ga suyasuya netei-ta   ] no-o
　　　　　　I-Top   [bde-Loc   child-Nom soundly sleeping-Past] Nmn-Acc

　　　　　　okosa-nai   yooni   sotto   moofu-o   kake-ta.
　　　　　　wake.up-Neg in.odrder.to gently blanket-Acc put.over-Past

　　b.   'I put the blanket over the child who was sleeping soundly in bed, and I did it gently so that I would not wake him up.'

　　c.   'In order not to wake up the child who was sleeping soundly in bed, I put the blanket gently over the child.'

6.9. Conclusion

In this chapter we have shown that the Japanese concealed causative constructions behave exactly as our causative type-lifting analysis predicts. Our investigation has finally revealed that the concealed causative constructions must satisfy the unified direct cause condition, from which follow both the unified precedence and adjacency condition and the unified co-locationality condition. Further, we have shown that the unified direct cause condition need not be stipulated. It follows mainly from the fact that the causative type-lifting operator must apply to resolve the type-mismatch that inevitably occurs inside the KP dominating a sort-sensitive pronoun.

CHAPTER 7. CONCLUDING REMARKS

Since Kuroda's (1975/76, 1992) seminal work, it has been recognized that though extremely vague, the relevancy condition, given in (1), is the key semantic factor that controls acceptability of IHRC constructions.

(1)   The Relevancy Condition

For [an IHRC] to be acceptable, it is necessary that it be interpreted pragmatically in such a way as to be directly relevant to the pragmatic content of its matrix clause.   (Kuroda 1975/76, 1992)

However, as far as I know, no researchers have succeeded in providing explanation for why the relevancy condition exists in the first place. What we have done in this thesis can be thought of as trying to provide one such explanation.

What we have done in this thesis is essentially threefold. First, we have sharpened the relevancy condition. From the relevancy condition, we have extracted the simultaneity condition and the co-locationality condition. Then we have tried to make precise the simultaneity condition, and in consequence it has been replaced by the precedence and adjacency condition. And finally, the precedence and adjacency condition and the co-locationality condition have been argued to derive from the direct cause condition.

Second, we have extended the data that the relevancy condition applies to. Originally, Kuroda's relevancy condition was designed to restrict only the semantics of the IHRC construction. But as we have shown in chapter 2, the same condition restricts the semantics of the sort-sensitive pronoun construction as well. To accommodate this additional data, we have proposed the unified direct cause condition.

Finally, we have proposed that the unified direct cause condition follows from independently motivated syntax and semantics. The key notion to this reduction is the meaning "direct termination." This element of meaning is introduced by a causative type-lifting operator as a by-product of resolving a type-mismatch.

If our reasoning in this thesis is correct, we may say that we can finally begin cracking the mystery of the relevancy condition. One of the most mysterious aspects of the relevancy condition has been that it cannot be attributed to any morpheme of the IHRC construction. We now know why this is so. The condition is introduced into the semantic computation of the construction by a type-lifting operator from the concealed causative family. Thus it is not surprising that we have failed to find the source of the condition among the morphemes of the construction.

There remain problems with our analysis, as shown in the last section of chapter 6, but hopefully our dynamic XLS approach has shed a new light on the syntax and semantics of Japanese IHRC and sort-sensitive constructions, and ultimately on concealed causative constructions in general.

APPENDIX

In this appendix I will show that in addition to the sort-sensitive pronoun construction and the IHRC construction, Japanese has at least one more construction, i.e., the resultative VV-compound construction, that exhibits the constructional meaning of direct cause. The resultative VV-compound construction is illustrated in (1), where V1 and V2 form a compound verb.

(1) a.   Taro-ga   mado-o $[_V [_{V1} \text{tataki}]-[_V \text{wat}]]$-ta.

       Taro-Nom window-Acc $[_V [_{V1} \text{hit}]-[_{V2} \text{break}]]$-Past

       'Taro broke the window by hitting it.'

    b.   Sue-ga   kuma-o $[_V [_{V1} \text{keri}]-[_{V2} \text{korosi}]]$-ta.

       Sue-Nom bear-Acc $[_V [_{V1} \text{kick}]-[_{V2} \text{kill}]]$-Past

       'Sue killed a bear by kicking it.'

I will claim that in Japanese resultative VV-compound constructions, the eventuality depicted by V1 must be the direct cause of the appearance of V2's resulting state. For example, the sentences in (1a) and (1b) can be paraphrased as (2a) and (2b), respectively.

(2) a.　Taro's hitting the window is the direct cause of the appearance of the resulting state brought about by its having been broken.

　　b.　Sue's kicking a bear is the direct cause of the appearance of the resulting state brought about by her having killed it.

Now, let us compare the resultative VV-compound construction and its phrasal counterpart to see if the former must be characterized as a concealed causative construction.

Consider a scenario in which a tree was tied up with ropes to the surrounding trees, and in order to make it fall down, Sue first cut the tree, then cut the ropes, and finally pushed the tree down to the ground. Under this scenario, (3a) is false, but (3b) is true. In the following examples, portions of the verbal combinations are capitalized if they are pronounced with high tone.

(3) a.　Sue-wa　ki-o　　　[$_V$ [$_{V1}$ kiRI]-[$_{V2}$ TAOsi]]-ta.

　　　　Sue-Top tree-Acc [$_V$ [$_{V1}$ cut]-[$_{V2}$ make.fall]]-Past

　　　　'Sue cut a tree down.'

　　b.　Sue-wa　[$_{VP}$ [$_{VP1}$ ki$_i$-o　　　KIri],　[$_{VP2}$___$_i$ taOsi]]-ta.

　　　　Sue-Top [$_{VP}$ [$_{VP1}$ tree$_i$-Acc　cut]　[$_{VP2}$ pro$_i$　make.fall]]-Past

　　　　'Sue cut a tree, and made it fall.'

As a preliminary to our investigation into the semantics of the resultative VV-compound, I present evidence that *kiRI-TAOsi* 'cut-make.fall' in (3a) is a compound, whereas *KIri, taOsi* 'cut, make.fall' in (3b) is part of a syntactic phrase.

In the first place, there is a clear difference in the pitch pattern between the two: the verbal combination in (3a) shows a word-like pitch pattern (LHHHL), where there is at most one stretch of high pitch, while the counterpart in (3b) shows a phrasal pitch pattern (HLLHL).

Second, it is impossible to insert an overt sort-free pronoun, say *sore* 'it', between the two verbs in (3a), as shown in (4a), but such a pronoun is available between the two verbal expressions in (3b), as shown in (4b).

(4) a. * Sue-wa   ki-o   [$_V$ kiRI   *SORE(-O)*   TAOsi   ]-ta.

        Sue-Top tree-Acc [$_V$ cut   *it(-Acc)*   make.fall]-Past

   b. Sue-wa   [$_{VP}$ [$_{VP1}$ KI-o KIri   ], [$_{VP2}$ *soRE-O* taOsi   ]]-ta.

        Sue-Top [$_{VP}$ [$_{VP1}$ tree-Acc cut], [$_{VP2}$ *it*-Acc   make.fall]]-Past

        'Sue cut a tree, and made it fall.'

This contrast falls under the anaphoric island condition (see Postal 1969), according to which part of a word cannot contain an anaphor, if we assume that the verbal combination in (3a) constitutes a compound, while that in (3b) is part of a syntactic phrase.

Now, the question arises as to why only the resultative VV-compounds are

restricted to the direct cause interpretation. I assume that they are concealed causatives

derived by syntactic incorporation (see Bittner 1999b, Baker 1988), while their phrasal

counterparts are coordinated VP's with a temporal ordering. More concretely, I adopt

Bittner's (1999b) dynamic cross-linguistic semantics and propose that the resultative V-V

compound *kiRI-TAOsu* 'cut-make.fall' in (3a) can be translated compositionally as in (5).

(5) $\lambda x \lambda y[\text{cut}(x,y) \wedge \Delta \exists t[\text{make.fall}(x,y) \wedge [\text{it}_0]^T \propto t] \wedge \text{it}_1 \propto \text{it}_0]$

In (5), Δ is an operator approximating "become," which turns a state into an event;

cut(x,y), $\Delta_{\iota} t[...]$ and *make.fall(x,y)* each introduce a discourse referent of an eventive

kind; it_n is a donkey pronoun referring to a contextually salient event (*n* can be any

natural number and the donkey pronoun *it* with a smaller number refers back to a more

recently introduced discourse referent); $[\ ]^T$ is an operator that turns an event into a time

period in which that event happens (e.g. $[it_0]^T$ denotes the time period in which *x*'s

making *y* fall); *t* is a variable over time; and $\propto$ denotes either an immediate precedence

relation if combining two times (e.g. $[it_0]^T \propto t$), or an immediate cause relation if

combining two events (e.g. $it_1 \propto it_0$).

The expression in (5) denotes a relation between two individuals *x* and *y* such that

the following three conditions hold:(i) *x* cuts *y*, (ii) a time *t* comes into existence such that

t is a time period that immediately follows the time of *x*'s making *y* fall, and (iii) the former event is the direct cause of the latter event. I will assume that the time period *t* that immediately follows the eventuality of V2 represents the temporal period of the resulting state brought about by the eventuality of V2. Given this, the truth condition of (3a) is roughly as follows: Sue's cutting a tree is the direct cause of the appearance of the resulting state brought about by her making the tree fall. Evidence for this analysis includes the following:

First, the direct cause condition $it_1 \propto it_0$ requires that in (3a) the cutting event *abut* the falling event. Thus, the resultative compound in (3a) does not support more than one temporal adverbs, unlike the phrasal coordination case in (3b), as the following contrast shows.

(6) a. * Sue-ga   *kinoo*   *to*   *kyoo*   *sorezore*   ki-o   [$_V$ kiRI-TAOsi]-ta.

       * Sue-Nom   *yesterday and today each*   tree-Acc   [$_V$ cut-make.fall]-Past

       'Yesterday, today, Sue made a tree fall by cutting it.'

cf. b.   Sue-ga   *kinoo*   *to*   *kyoo*   *sorezore*   [$_{VP}$ ki-o   KIri, taOsi   ]-ta.

          Sue-Nom   *yesterday and today each*   [$_{VP}$ tree-Acc   cut,   make.fall]-Past

          'Yesterday Sue cut a tree, and today she made it fall.'

Second, the second element of the resultative compound is predicted to denote an event since the antecedent of it_0 in $[it_0]^T$ must be of an eventive kind. Hence, it cannot express a stative eventuality.

(5) a. *boku-wa syatu-o [$_V$ nuGI-SAMUi].

I-Top   shirt-Acc [$_V$ take.off-feel.cold]

'I have taken off a shirt, and I am cold.'

cf. b. boku-wa [$_{VP}$ syatu-o NUgi,   saMUi].

I-Top   [$_{VP}$ shirt-Acc take.off, feel.cold]

'I have taken off a shirt, and I am cold.'

Third, the event expressed by the second verbal element must be the direct consequence of the event expressed by the first one due to the requirement imposed by it_1 $\propto it_0$. This explains why we cannot say *naGURI-HOMEru* 'hit-praise' since you do not normally praise someone by hitting him.

(6) a. *Sue-ga   Jim-o   [$_V$ naGURI-HOme]-ta.

*Sue-Nom Jim-Acc [$_V$ hit-praise]-past

'Sue praised Jim by hitting him.'

cf. b. Sue-ga   [$_{VP}$ Jim-o   naGUri, Home]-ta.

Sue-Nom [$_{VP}$ Jim-Acc hit,   praise]-Past

'Sue hit Jim, and praised him.'

Our concealed causative analysis of the Japanese resultative compounds overcomes a difficulty of the analysis by Kageyama (1993). His semantic representation cannot differentiate the direct causation found in (1a) and the indirect causation found in (8),

(7)   *x* CAUSE [*y* FALL] by *x* CUTTING *y*

(8)   Sue-ga   ki-o kiru koto-niyori sore-ga taoreru-youni-sase-ta

        Sue-Nom tree-Acc Nmn-by   it-Acc   fall-to-cause-Past

        'Sue caused a tree to fall by cutting it.'

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