THE KOREAN INTERNALLY-HEADED RELATIVE CLAUSE CONSTRUCTION:
ITS MORPHOLOGICAL, SYNTACTIC AND SEMANTIC ASPECTS

by

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ABSTRACT

This dissertation investigates the morpho-syntactic and semantic aspects of the Korean IHRC (internally-headed relative clause) construction, which has its semantic head within the relative clause, the relative clause being followed by the morpheme kes.

As for the status of kes, I argue it is a pronoun, positioned under D or N, depending on whether kes stands alone or is modified by a demonstrative. In either case, the IHRC receives the same semantic interpretation as non-restrictive relative clause.

I argue the relative clause contains a full clause including TP, exhibiting a full range of tense and aspect distinction. I provide a morphological analysis of the IHRC predicate, identifying the contribution of each morpheme, and its status with respect to the root predicate.

I adopt phase theory to explain the fact that the internal head cannot be embedded within more than one phase boundary. An uninterpretable feature on C in the relative clause is checked against a matching interpretable feature on the internal head—DP or the event of vP—, and the index of the internal head thus percolates up to CP. The modified pro has the same index as the CP and the internal head. An interesting syntactic contrast between kes as D and kes as N is that an island effect emerges in the latter case. This is
explained by adopting Johnson (2004)’s account of adjunct islands. When *kes* is a D, the relative clause is the same workspace as the matrix clause, while *kes* is an N, the relative clause is the separate workspace.

For the semantic aspects of the IHRC, I noted when the semantic head is ambiguous between the subject and another element in the embedded clause, the subject is always favored as a semantic head. This phenomenon can be explained by the minimal link condition: the subject is the closest position to check the uninterpretable feature on C, adapting Lin (2006). Also, split-antecedent readings and VP adjunct head readings are coercion effects of event-interruption reading produced in certain circumstances between the matrix event and the embedded event.
CHAPTER 1.

INTRODUCTION

1.1. Basic Properties of the Korean IHRC Construction

IHRC (internally-headed relative clause) constructions occur crosslinguistically, and most studies have focused on the interaction among the semantic, syntactic or pragmatic aspects of them (Basilico 1996; Barss et al. 1990; Broadwell 1985; Williamson 1987 for Lakhota; Cole 1987 for Quechua; Munro 1976 and Gorbet 1973 for Yuman languages; Chung & Kim 2003 and M. Kim 2004 for Korean; Ito 1986, Kitagawa 2005 and Watanabe 1992, 2004 for Japanese). The most classical analysis of IHRCs is that EHRCs (externally-headed relative clauses) and IHRCs have the same structure at LF and their interpretations are identical (See Broadwell 1985, Ito 1986, Cole 1987, Jung 1995), but this analysis has been revised or debated by the evidence showing that EHRCs and IHRCs are subject to different semantic and syntactic restrictions (See Hoshi 1995, Shimoyama 1999, M. Kim 2005, Watanabe 1992, 2004). These days the research on IHRCs has focused on what makes these two constructions dominated by different restrictions. As one of those languages, Korean also has been studied as to the distinction
between two types of relative clause constructions, EHRCs and IHRCs. Like other languages with IHRCs, while the Korean EHRC has a head noun outside the clause and the clause contains a gap which corresponds to the head noun, the Korean IHRC does not have any gap for a head noun inside the clause. That is, the semantic head in the IHRC construction is within the relative clause and the whole clause is followed by a morpheme *kes*. Take a look at the following sentences in (1).

(1) a. The Korean EHRC Construction: the restrictive relative clause interpretation

```
  John-i  [RC Opi Mary-ka e_i kwup-ø-un] kamca_i-lul mekessta.
  John-Nom Mary-Nom bake-prf-RL potato-Acc ate.

  ‘John ate the potato Mary baked.’
```

b. The Korean IHRC Construction: the non-restrictive relative clause interpretation

```
  John-i  [RC Mary-ka kamca_i-lul kwup-ø-un] kes_i-Acc mekessta.
  John-Nom Mary-Nom potato-Acc bake-prf-RL kes-Acc ate.

  ‘John ate the potato, which Mary baked.’
```

As seen in (1), while the EHRC construction has the semantic head *kamca* ‘potato’ outside the relative clause, its IHRC counterpart has the semantic head within the relative clause and has no gap in the relative clause, and also the relative clause is followed by a
morpheme *kes* (*no* in Japanese) whose status is still debatable. (See Chapter 3 for the discussion of *kes*.) Although these two sentences are identical in that they have the same semantic head *kamca* ‘potato’, their interpretations are slightly different, because the EHRC in (1a) is interpreted like a restrictive relative clause, but its IHRC counterpart in (1b) always shows maximality/exhaustivity effects like a non-restrictive relative clause. For instance, (1a) could be used in a situation in which there are potatoes baked by Mary, Tom and Jack, but John only ate potatoes baked by Mary. (1b) can only mean there are potatoes baked only by Mary, and John ate them. The maximality effects of IHRCs have been considered an important issue in discussing the syntactic and semantic difference between IHRCs and EHRCs (See Hoshi 1995, M. Kim 2004, Kitagawa 2005). The maximality effects are clearly shown in (2), too.

(2) a. The EHRC Construction: the restrictive relative clause interpretation

```
John-un  [Op, [e, eunhayng-uro tuleka-nu-un] sey myeng-uy
John-Top bank-toward enter-Present_Imprf-RL three CL-Gen
kangto-lul poassta.
robber-Acc saw.
```

‘John saw three robbers who entered a bank.’
b. The IHRC Construction: the non-restrictive relative clause interpretation

John-un [sey myeng-uy kangto-ka eunhayng-uro tuleka-nu-n]

John-Top three CL-Gen robber-Nom bank-toward enter-present.imprf-RL

kesi-ul poassta.

kes-Acc saw.

‘John saw three robbers, who entered a bank.’

As seen in (2a), the EHRC sentence is interpreted as a restrictive relative clause, meaning that there might have been more than three robbers and John saw three of them. However, the IHRC sentence in (2b) is interpreted like a non-restrictive relative clause, meaning that there were only three robbers and John saw all of them.

The second property of IHRCs is that the semantic head of IHRCs is always definite. In order to explain the definiteness of IHRCs, there have been two analyses; one is that the IHRCs have the syntactic structure like a non-restrictive relative clause (See Jung 1995; Y. Kim 2002; Kitagawa 2005), and its definiteness is from kes, a referential pronoun, under a DP\(^1\) itself; the other is that IHRCs have the structure like restrictive relative clauses, but the definiteness arises from the properties of kes as an E-type pronoun whose

---

\(^1\) In an NP-based Analysis, kes is under an NP.
definiteness is from the content of the embedded clause (Hoshi 1995; Shimoyama 1999; M. Kim 2004). In this paper, I argue for the analysis as a non-restrictive relative clause construction, based on the morphological properties of kes under a D or N.

The third distinctive property of IHRCs, in contrast to EHRCs, is that the embedded clause and the matrix clause should be pragmatically relevant to each other in the IHRC constructions. Consider the following sentences in (3).

(3) a. The EHRC Construction


John-Top eyes-Nom pretty-Present-RL Younghui₁-Acc hit.

‘John hit Younghui whose eyes are pretty.’

b. The IHRC Construction


‘John hit Younghui whose eyes are pretty.’

In (3), the EHRC construction in (3a) is grammatical, but its IHRC counterpart in (3b) is not grammatical. Kuroda (1992) argues that sentences like (3b) are not grammatical, because the embedded clause and the matrix clause should be pragmatically relevant in
the IHRC construction at least in one of three ways: (a) the two clauses share the
temporal background, (b) they share the spatial background or (c) they are connected
purposely or motivationally. In (3b), the embedded clause and the matrix clause do not
satisfy any relevancy conditions, so the sentence is not grammatical. However, EHRCs
need not to be restricted by such pragmatic relationship between two clauses. Kuroda’s
relevancy condition has been used as a reason to explain why some EHRC sentences
cannot have their IHRC counterparts.

The fourth property of the IHRC construction is that the semantic head of IHRCs can be
ambiguous in some cases, while the external head noun of the EHRC is clearly known
from its surface structure. That is, if the embedded relative clause has several arguments
and the predicate of the matrix clause can select any of them as its argument, the sentence
is interpreted ambiguously like (4).
The ambiguity of the semantic head has been discussed by Hoshi (1995) and Shimoyama (1999), who assumed the ambiguity of the semantic head or split-antecedent reading result from the properties of an E-type pronominal, but did not explain the mechanism of the ambiguity systematically. As for this problem, M. Kim (2004) argued that the relation between ‘grammatical/lexical aspects of the relative clause’ and ‘the property of a matrix clause’ can determine the semantic head (See Chapter 5 for details). However, her analysis cannot explain why a subject of the embedded clause is favored as a semantic head, as shown in Kitagawa (2005). Also, as for split-antecedents, E-type
pronoun proponents can explain this phenomenon, but the referential pronominal analysis, like Kitagawa (2005), cannot. In this study, I try to explain how the preference of the interpretation is determined and why split-antecedent phenomena occur.

The last property of the IHRCs is that the semantic head of an IHRC does not show an unbounded dependency, while EHRC constructions do. For example, when the relative clause embeds another clause, the semantic head of the IHRC cannot be any nominal within the more embedded clause, although it can be the whole event of the more embedded clause. As for this phenomenon, Watanabe (2004) argued that an uninterpretable focus feature on QP, an internal head, is checked against an interpretable feature on D, and this AGREE is subject to island effects. However, I argue that uninterpretable feature on C is checked against an internal nominal head DP or an event head vP by phase. As a result, under Watanabe’s analysis, if the relative clause embeds an island clausal boundary, any nominal in the more embedded CP cannot be the semantic head, but if the relative clause embeds a non-island clausal boundary, the semantic head ought to be able to be the nominal in the embedded CP. However, in my analysis, whether the relative clause embeds an island or a non-island clausal boundary, the semantic head cannot be any nominal within the lower CP. In this work, I will show the analysis of
checking uninterpretable feature on C against the internal head by AGREE through phases can be used to explain the data which the previous studies failed to explain, and so I will here re-investigate many data discussed by different analyses, in the framework of phase theory.

The basic properties of the IHRC constructions tell us that the interpretation of the IHRC construction can be decided on by the interaction of morpho-syntactic, semantic and pragmatic mechanisms at work in IHRCs. The main purpose of this research is to show how these three aspects are related to each other.

1.2. The Organization of the Discussion

This research has the main purpose of discussing the properties of the IHRC constructions with respect to their syntactic, morphological and semantic aspects and finding out their structures and interpretation mechanisms which are different from the EHRC constructions. For this purpose, in Chapter 2, I first focus on the syntactic aspects of the IHRC construction, particularly discussing the previous studies on the syntactic aspects of the IHRC constructions. There have been several analyses of the IHRC-

kes and its LF structure including the LF head raising analysis (Ito 1986; Jung 1995; Watanabe
1992; Fuji 1998), the E-type pronoun analysis (Hoshi 1995; Shimoyama 1999, 2002; M. Kim 2004), the referential pronominal analysis (Kitagawa, 2005) and the feature checking analysis (Watanabe 2004), but each analysis has been debated and criticized by the other. In this chapter, I investigate the problems of these syntactic analyses.

In Chapter 3, I discuss the morpho-syntactic aspects of the IHRC construction, focusing on the grammatical status of *kes* and the internal structure of the embedded predicate. Previous morpho-syntactic analyses of *kes* (*no* in Japanese) do not agree, but it has generally been treated as a complementizer (Kuroda 1976; Hoshi 1995; N. Kim 1984; H. Yoon 1991; Watanabe 2004), a nominal (Murasugi 2000), a nominalizer (N. Kim 1984, Shimoyama 1999; Kitagawa 2005) or pronominal (M. Kim 2004). Here, I discuss pros and cons of each analysis and why *kes* should be treated as a pronominal. Also, I will show the grammatical status of *kes* can be changed by depending on whether *kes* is modified by a demonstrative or an adjective or not.

Few studies have investigated the morphological analysis of the embedded predicate, assuming that *-nun/-un/-ten* attached to the root of the embedded verb are adnominal markers, or the combination of an aspect marker and a relative marker. In this chapter, I will show that if *-nun/-un/-ten* are attached to eventive predicates, they can be
decomposed into an aspect marker, tense marker and a relative marker. If –un- is attached to stative predicates, it is decomposed into present tense marker and a relative marker. Also, if –te- is attached to an eventive predicate, it is categorized as a past imperfective marker, but if –te- is attached to a stative predicate, it exhibits the restrictions of an evidential marker. The morphological analysis of this dissertation argues against M. Kim (2004), showing that the tense phrase is needed in the embedded clausal structure; for example, the imperfective aspect markers –nu- and –te- are distinguished by present and past tense, and a null marker attached to eventive predicates implies a past perfective aspect but a null marker attached to stative predicates is a present tense marker. This analysis also argues against H. Lee (1993), because I keep the position that temporal aspects like perfectives or imperfectives should be considered in view of their temporal properties rather than totality dimensions.

In Chapter 4, I propose the syntactic structure of the IHRC construction and show how phase theory can solve problems raised in the previous studies. In particular, the phase theory can explain many problematic IHRC sentences discussed in Chapter 2. For example, the failure of long-distance dependency between an internal head and the pro kes in the sentence with island clausal boundaries and non-island clausal boundaries can
be understood by the failure of the feature checking by phases. Also, the failure of dependency between the *pro kes* and an internal head DP which is positioned in SpecDP also can be explained in the same way.

The syntactic analysis of this chapter is different from Watanabe (2004), in that it suggest feature checking by ‘phases’ and the co-referential relationship between the relative clause CP and the *pro* as a clausal modifier and a modified pronoun. Also, this research argues against M. Kim (2004), in that the embedded clause has a tense node syntactically, and the semantic head can be an event of a vP. In this chapter, I will discuss the basic mechanism of phase theory first and also investigate how the problematic issues of IHRCs can be accounted for within this framework.

In Chapter 5, I will investigate the semantic aspects of the Korean IHRCs, mainly focusing on the formal linking condition, subject preference effects, split antecedents and VP adjunct antecedent. The formal linking problem is not triggered within my analysis, because I argue that the *pro* in IHRCs is a referential pronominal. As for the subject preference effects, I argued that the subject is the closest position to check an uninterpretable feature on Probe. As for split antecedents and VP adjunct antecedents, I introduce some data showing they are coercion effects from the event interruption
reading.
CHAPTER 2.
THE SYNTACTIC ASPECTS OF THE KOREAN RELATIVE
CLAUSE CONSTRUCTION

2.1. The EHRC Construction

Before I discuss the syntactic aspects of the IHRC construction in Section 3, I investigate the syntactic structure of EHRCs in this section to point out the difference of the syntactic mechanism between two relative clause constructions.

There have been many proposals concerning the overt syntactic structure of relative clause constructions (Kuroda 1968, Vergnaud 1974, Heim 1987, Kayne 1994, Sauerland 2000, Adger & Ramchand 2004), but they generally fall into one of two types: base-generation analyses vs. movement analyses. The critical difference between the two approaches is whether the gap of the dependency is occupied by a pro or a trace. Base-generation analyses claim that there is no movement in the relative clause construction, but instead a pronominal variable is base-generated within the relative clause and its binding is constrained by locality. Under this analysis, dependencies between the displaced element and its gap are constructed via AGREE, a relationship linking features
on two distinct elements, so the displaced element does not need to be a copy of its gap and does not show identity-effects. This approach looks like (1) schematically.

(1) the [song [that \text{you were listening to} \text{pro}]]

(from Adger & Ranchand 2004:2)

The complementizer in (1) bearing some uninterpretable feature $F$ enters into AGREE with a matching interpretable feature on a pro, and this dependency is constrained by locality effects, because the features which matches two elements should be close enough to be checked.

On the other hand, movement analyses argue that either an operator or the head noun itself moves from its base position within the relative clause, and the gap within the relative clause is a trace. That is, the displaced element is exactly the same as its trace in selection, agreement and case, and so the gap is a copy of the displaced element\(^2\). Within the broader family of movement analyses, there are two different approaches: the matching hypothesis vs. the raising hypothesis. Consider the following sentences in (2)

\(^2\) Identity effects support Movement analysis, in that a displaced element and its trace are identical. Adger & Ramchand (2004:7-9) discussed about identity effects in several examples. (1) Selection: if $A'$ dependency is done by movement, it should be possible to put back the displaced element into the trace. (2) Case marking: the case marker shown in the base position should be kept in the surface position. (3) Reconstruction: if $A'$ dependency is done by movement, the displaced element should be reconstructed at LF and can bring up Condition C violation. Also, idioms require their component parts to be local at LF, so movement approach should allow reconstruction. They argue that Scottish Gaelic $A'$-dependency can be explained by Base-generation analysis, in that it does not show identity effects, while English $A'$-dependency can be explained by Movement analysis.
and (3).

(2) The friends, that I met, in New York

(3) The friends, that I met, in New York

As seen in (2), the matching analysis claims that an overt or covert operator raises from the relative clause internal position to the initial position of the relative clause, and mediates the semantic relationship between the relative clause internal position and the head (Carlson 1977, Sauerland 1998). The raising analysis, shown in (3), argues that the head NP (or DP) starts out in the relative clause internal position and moves to its surface position.

When it comes to the Korean (and Japanese) relative clause construction, an Op movement analysis, which can be categorized as the matching hypothesis, and an anti-symmetric analysis, which has both a base generation analysis and a movement variation\(^3\), are the main proposals for the analysis of the externally-headed relative clause construction. In this chapter, I will consider each of these in turn: In section 2.1.1, I will discuss the Op movement analysis which follows the classical matching hypothesis, and

\(^3\) Considering the English relative clause construction, Kayne's antisymmetry analysis combines a base-generation analysis and a movement analysis, because the head nominal in an English relative clause is base-generated, but the relative clause is moved to the left of its head noun. However, as for the head-final languages, his analysis is a movement analysis, because both a head nominal and a relative clause move leftward.
in section 2.1.2., the base generation analysis which is similar to the matching hypothesis but without any movement of the operator. In section 2.1.3, I will consider two versions of an anti-symmetric approach, Kayne’s anti-symmetry analysis (1994) and Murasugi’s anti-symmetry analysis (2000).

2.1.1. The Operator Movement Analysis: A Classical Matching Hypothesis

In Korean, a head-final language, a typical Externally-Headed Relative Clause (EHRC) is like (4).

(4) Sumi-ka onul achim-ey [pro_1 ecey e_j mandul-ø-un] keyk_j-ul

Sumi-Nom today morning-in pro yesterday e make-past.prf-RL cake-Acc

hakkyo-ey kacieka-ass-ta.

school-to bring-Past-Decl.

‘This morning Sumi brought cake which she had made yesterday.’

Unlike English, a Korean relative clause has no overt relative pronoun, and it is usually interpreted like a restrictive relative clause. Under the Op movement analysis, the gap inside the relative clause is the trace of a null operator, and the operator semantically connects its trace and the head noun keyk ‘cake’. This analysis is basically the same idea
as the classical matching analysis. Consider the diagram in (5), which is a syntactic tree structure of the sentence (4).
However, Kuno (1973) and Murasugi (2000) have argued against the Op movement analysis, considering that Japanese clauses need not contain a gap like the one in (6) and also do not exhibit subjacency effects as illustrated in (7). That is, they argue that if the EHRC is explained by the Op movement analysis, the relative clause should have a trace of the operator and also the operator cannot move across two bounding nodes, TP and DP.

(6) \[\text{NP} \ [\text{IP} \ syuusyoku-ga \ muzukasii] [\text{NP buturigaku}]\]

Getting job-Nom is-hard physics

‘physics, which is hard to get a job in’

(7) \[\text{NP} \ [\text{IP} \ [\text{NP} \ [\text{IP} \ e_i \ e_j \ kiteru] \ yoohuku_j]-ga \ yogoreteiru] [\text{NP sinsi}_i]\]

[ e e is-wearing suit] –Nom is-dirty gentlemen

‘the gentleman who [the suit that he is wearing] is dirty.’

In addition, Hoji (1985) also argues against the movement analysis in that Japanese relative clauses do not show a reconstruction effect, which is different from English relative clauses. In English, it is well-known that reconstruction effects can emerge with A’ movement like in (8a), but not with a base-generated DP-pronoun relation like in (8b). The English relative clause construction has the same pattern as A’ bar movement, as seen in (8c). However, as seen in (9), Hoji (1985) judged that the Japanese counterpart of (8a)
is ungrammatical. Hoji (1985) takes this to indicate that the English relative clause is created by movement, while the Japanese relative clause is not.

(8) a. [That picture of himself], John liked. (topicalization)

   b.* [That picture of himself], John liked it. (left dislocation)

   c. [The picture of himself] that John liked t. (relativization)

(9) *[NP [John-i-ga e j taipu-sita][zibun-no ronbun],]

    John-Nom typed self-Gen paper

   ‘self’s paper that John typed’ (lit) (relativization)

However, I think the evidence Kuno (1973) and Hoji (1985) suggest have problems.

First of all, the relative clause in (6) does have a gap. Consider the following sentences in (10) where (6) is translated into Korean.

(10) a. [NP [IP kwucik- eriep-o-un] [NP mwulihak]]

    Getting job-Nom hard-present-un physics

   ‘physics, which is hard to get a job in’

b. [NP mwulihak]-ui kwucik-i eriep-ta.

    Physics-Gen getting job-Nom hard-Decl

   ‘Getting a job in physics is hard’
c. \([\text{NP} \text{ mwulihak}] - \text{i} \quad \text{kwucik} - \text{i} \quad \text{eriep} - \text{ta}.\]

physics-Nom     getting job-Nom     hard-Decl

‘Getting a job in physics is hard’

d. \([\text{NP} [\text{IP} e_i \quad \text{kwucik} - \text{i} \quad \text{eriep} - \text{un}] \quad [\text{NP} \text{ mwulihak}_i]]\]

Getting job-Nom     hard-un     physics

‘physics, which is hard to get a job in’

If mwulihak ‘physics’ is not relativized out of the IP in (10a) but base generated, it should not be able to appear within that embedded IP clause. However, as seen in (10b) and (10c), mwulihak ‘physics’ can appear within the NP kwucik ‘getting a job’ and it can appear with Nominative case in the equivalent sentential counterpart of (10a)—a double nominative construction. Thus, (10a) is a relative clause structure where the first subject in a double nominative case construction is relativized, as seen in (10d).

Second, as for the apparent subjacency violation created by so-called double relative clause constructions\(^4\) like (7), Han & Kim (2004) argues that there is no double relative clause construction in Korean (and Japanese) and instead the double relative clause construction is actually also a regular relativization of a double nominative sentence,

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\(^4\) The double relative clause construction is that one relative clause is embedded in another relative clause, because it seems to involve relativization of an element inside another relative clause.
following the characteristics of a double nominative construction; (a) the two nominative NPs show a possessor-possessee relation; (b) the predicate must be stative or adjectival; (c) the two nominative NPs are separable by an adverb; (d) only the first NP can be relativized. Based on these properties, they assume that the second nominative NP in the double nominative construction and the predicate form an IP, and the first nominative NP is adjoined to this IP. They argue that if their assumption for a double nominative construction is right, the apparent double relative clause construction originates from the double nominative case sentence. Therefore, as seen in (11), the second NP is modified by a relative clause containing an empty *pro* that is coindexed with the first nominative NP, and then the first nominative noun is relativized. As a result, there is no subjacency violation in (7), because (7) is not actually a double relative clause. The structure of (7) is like (11), based on Han & Kim (2004).

(11) \[IP \[NP sinsi-i-ga] \quad [IP \[NP [RC pro_i \ e_j \ kiteru] \quad [NP yoohuku_i]-ga] \]

Gentleman-Nom is-wearing suit –Nom

\[VP yogoreteiru]]

is-dirty

‘The suit the gentleman is wearing is dirty.’
Last, noun phrases like (9) sound grammatical in Korean. Also, Hoji (2003) and Ishii (1991) doubt Hoji (1985)’s grammaticality judgment of (9), arguing that (9) is quite acceptable in Japanese.

Considering the discussion above, it seems likely that the movement analysis can account for Korean externally-headed relative clause construction and the arguments for base-generation analyses have some problems.

2.1.2. The Non-movement Analysis: Base-generation Approach

Sohn (1980) and Kang (1986) argue that the gap in the relative clause is a pronominal variable and is bound by an empty operator in situ, like in (12).

\[(12) \left[ \text{DP} \left[ \text{D'} \left[ \text{NP} \left[ \text{CP} \left[ \text{NP}_2 \text{ Op}_1 \right] \text{C'} \left[ \text{IP} \ldots \text{pro} \ldots \right] \text{C} \right] \left[ \text{N'} \text{N}_i \right] \right] \text{D} \right] \right] \]

The only difference between the Op movement analysis and the base-generation approach is that the former argues that the Op is raised and its trace is left within the relative clause, and the latter considers that the Op and pro are base-generated in their surface positions and there is no trace. In that respect, the base-generation approach is like the matching hypothesis but with no movement of an operator. Thus, it predicts that there should be no island effects in relative clauses.
However, as D. Yang (1989) and H. Yang (1990) argue that this base-generation approach poses problems, when an object or a subject has relativized out of a complex NP and when an adjunct has relativized out of an adjunct clause. That is, the base-generation analysis does not predict any island effects, but sentences like (13) and (14) are still ungrammatical and show island effects.


John-Nom thief-Nom steal-Past-Decl-RL news-Acc hear-prf-RL

poseki

jewel

‘the jewel which_i John heard [CNP the news that the thief stole e_i]’

(14)*[[AC John-i ku namca-lul e_i manna-ass-ki ttaymwuney] Sue-ka

John-Nom that man-Acc meet-Past-Nominal because Sue-Nom

hwana-o-n sikan_i

be.angry-present-RL time

‘the time when_i Sue was angry [AC because John met that man e_i]’

Given such island effects, the movement analysis seems to be more strongly supported than the base-generation analysis, especially once the apparent subadjacency violations of
the double relative clauses have been properly understood.

2.1.3 Antisymmetry Analyses

2.1.3.1. Kayne (1994)

Kayne (1994) treats the N-final relative clause construction in his anti-symmetric framework. His approach is similar to a Raising analysis, in that a head noun directly moves to the surface position. In the N-final relative clause, he claims that the head noun moves from the relative clause internal position to SpecCP, its surface position, and then the whole relative clause containing a trace of the head moves to SpecDP, as seen in (15). A Raising analysis without antisymmetric CP movement is also impossible to maintain, in that it would require a rightwards specifier position for the head noun to land in, while specifiers are universally assumed to be on the left in Korean and Japanese.

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According to Mahajan (2003), in (15), the trace of the head noun, $t_i$, does not need to be bound by the head NP at the surface structure, because once a trace has been bound at one point in the derivation, it does not need to be bound again. Kayne (1994) also shows some cases where unbound traces are allowed in German topicalization.

However, Kayne’s anti-symmetry analysis is less economical than an Op movement analysis. As seen in (5) and (15), the Op movement analysis needs only one movement of an empty operator, but in Kayne’s anti-symmetry analysis, two steps of movement are required. This uneconomical amount of movement results from the fact Kayne’s anti-
symmetry analysis requires head-final language like Korean or Japanese to be treated as head-initial languages in the derivation\(^6\), so complements must move leftwards to higher position to appear to the left of their heads. However, his analysis has the virtue that it does not require a headedness parameter—an axiom of the theory that states that a head proceeds a complement or vice versa—and can derive linear order from the c-command relations between a complement and a head. That is, his analysis replaces the headedness parameter with many extra movements, which would have to be language-specifically determined and identified by the learner. In this sense, his anti-symmetry framework has some problems in accounting for relative clauses in the head-final languages, because it expects too many movements.

2.1.3.2. Murasugi’s Anti-symmetry Analysis (2000)

Murasugi (2000) points out problems with the movement analyses like Kayne’s anti-symmetry analysis (Raising hypothesis) and the Op movement analysis (Matching Hypothesis), and suggested an alternative approach which actually incorporates the base-

\(^6\) In head initial languages like English, the movement analysis argues that a head noun moves leftwards up to the surface position. As for the head final languages, it is generally accepted that the head moves rightwards to the surface position within the movement analysis. However, Kayne (1994) assumes that the head in the head-final languages moves leftwards like the head initial languages, so every complement must move within his analysis. Kayne’s analysis is problematic not only for the relative clause construction but also for other head movements in head final languages.

(16) \[ \text{DP} \text{[IP…\text{pro}…\text{.}] \text{[D'} \text{D [CP NP [C' C tj\text{]]}]\text{]}]} \]

Murasugi’s analysis is different from Kayne (1994)’s analysis in several points. One is that a head noun is base-generated in SpecCP and the \text{pro} is also base-generated. Kayne’s anti-symmetry analysis argued that the trace in a relative clause does not need to be bound at the surface, because there are cases where unbound traces are allowed. However, Murasugi argued that the trace in a relative clause, which is an A’-trace, should be bound at S-structure, following Saito (1986) and Mahajan (1990) who argue there is an asymmetry between A and A’ traces with respect to the application of Proper Binding Condition in Japanese like (17).

(17) a. [How likely [t_i \text{ to win}]]_j \text{ is John}_i \text{ tj}

b. * [Which picture of t_i]_j \text{ does John wonder who}_i \text{ Mary likes tj}

(Murasugi, 2000:238)

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7 I think that Murasugi (2000) treated a head-final language as a head-initial language, considering the structure in (16). That is a problem of his analysis.

8 She accepted Saito (1986) arguing that there is asymmetry of A/A’ traces in view of Proper Binding Conditions; A’ trace must be bound in Japanese. Also, she argued the asymmetry in the long-distance scrambling of finite/ non-finite clause, following Mahajan (1990) and Nemoto (1993); because Japanese relatives have finite main verb, the movement to SpecCP must be A’-movement. However, these days those arguments are not generally accepted, but instead Kaynean scholars believe that a trace does not need to be bound in the surface position, once the trace was bound in the derivation.
In (17a), *John* raises to the matrix subject position, and then the Wh-phrase *how likely *ti* to win*] which contains a trace of *John* moves to the SpecCP. In (17b), the wh-phrase *who* moves to the embedded SpecCP, then another wh-phrase *which picture of t* which contains a trace of *who* moves to the matrix SpecCP. Saito (1986) argued that although the trace of *ti* in (17a) is not bound, the sentence is grammatical, because the trace of A-movement is licensed by reconstruction, while the trace of A’-movement *ti* in (17b) has to be bound at S-structure, so (17b) is ungrammatical. Considering the movement to SpecCP, like relative clause constructions, as A’-movement, the trace in a relative clause should be bound at S-structure, which means that the structure in (15) cannot be derived by movement. Consequently, Murasugi suggests an alternative approach—a non-movement analysis—to avoid such binding problems. That is, the gap within a relative clause is not a trace derived by a movement but a base-generated *pro*, and the head noun is also base-generated at SpecCP. As Murasugi assumed that traces need to be bound at S-structure and Japanese relative clauses show non-movement characteristics, the *pro* which does not need to be bound at all levels does not pose a problem in binding theory.

Another distinction from Kayne (1994) is that the fronted relative clause in Japanese is not a CP but an IP, considering Japanese speaking children produce ungrammatical
relative clauses where a complementizer *no* occurs right after the clause, as seen in (18).

She claims that this fact shows that Japanese speaking children initially hypothesize that a Japanese relative clause is a CP, and so produce *no* in its head position. Also, she argues the fact that an overt complementizer is not allowed in Japanese pure complex NPs as seen in (19) can be a positive evidence for IP hypothesis of the relative clause. If the clause in (19) is a CP and the head C is occupied by an empty category, the sentential modifier CP in (19) violates the ECP (Empty category principle). Therefore, the clause in (19) is not a CP but an IP. Murasugi (2000) hypothesizes Japanese speaking children first hypothesize that the sentential modifier is a CP, but as they hear the sentences like (19), they conclude that all sentential modifiers in Japanese are IPs. So, they stop using a complementizer *no* in sentences like (18).

(18) [NP [butasan-ga tataiteru (*no)] taiko]

[NP [piggy-Nom is-hitting no] drum]

‘the drum that the piggy is playing.’

(19) [[sakana-ga yakeru (*no)] nioi]

[[fish-Nom burn Comp] smell]

‘the smell that a fish burns.’ (Lit.)
From these two differences from Kayne (1994), Murasugi claimed that Japanese EHRCs are not relative clause constructions but actually complex NP constructions, in that Japanese EHRC is not distinguishable from sentential modifiers in complex NPs. She argued that a complex NP structure and an EHRC have different structures like (20a) and (20b), respectively, but the C-projections in (20b) just give some redundant information and plays no role. In that sense, if the C projection in (20b) is eliminated, then (20a) and (20b) are structurally identical. Murasugi argued Japanese cannot have a relative clause, because the unbounded trace of a head in Kayne’s analysis can be problematic. The solution Murasugi suggested is that the sentence expressing the meaning of a relative clause is actually a complex NP.

(20) a. Complex NP structure: \[ \text{DP } [\text{IP } ] [D' D \text{ NP}] ] \]

b. EHRC: \[ \text{DP } [\text{IP}…\text{pro}_1,…\text{]} ] [D' D [CP \text{ NP}_1 [C' C \text{ t}_j ] ] ] \]

Murasugi (1991) assumed that pronominal sentential modifiers in Japanese belong to an IP category, as seen in (20a), so the sentential modifier in a complex NP structure is also of the category IP. As a result, the difference between two structures in (20) is whether an IP is base-generated in SpecDP in a complex NP construction or an IP is moved from within the NP.
However, Murasugi’s analysis also has some problems. First of all, within the framework of the anti-symmetry analysis, the argument which says the trace need not be bound once the trace has been previously bound in any point of the derivations is generally accepted by those who argue for Kayne’s analysis, so there is no reason to change the gap from a trace to a pro. Also, Murasugi argued that a trace must be bound at S-structure and a pro has only to be bound at LF, but this is non-Minimalist in that S-structure is not supposed to have any special characteristics. Under Kayne’s analysis, the reason why the relative clause is preposed is the head noun is moved leftward, but under Murasugi’s analysis, the head noun is base-generated, so there is no clear reason why an IP is preposed from the NP in EHRCs.

Although the relative clause itself is fronted, Murasugi’s argument is a base-generation account, because the gap is base-generated. In that sense, Murasugi’s analysis’s problem is the same as other base-generation analyses: while a base-generation analysis predicts that there are no island effects, Korean (and Japanese) relative clause shows such island effects, as seen in (13) and (14).

Last, the evidence she suggested to claim that the relative clause is not a CP but an IP cannot prove her argument is correct. In (19), the sentential modifiers can be a CP
without violation of ECP. The ECP is based on a notion of government, which crucially distinguished between overt and null heads, especially in order to capture the English-specific ‘*that*–trace effect’, and in modern Minimalist approaches to the *that*-trace effect we do not predict that a null C’ above a subject should be universally ungrammatical—that is, the ECP is not held to be a principle of the grammar any more. So, we can say that the sentential modifier is headed by a covert complementizer in (18).

Considering the discussion on the syntax of Korean EHRCs in the above, I think the Op-movement analysis which is based on the Matching hypothesis is most strongly supported for Korean. The Raising hypothesis with an antisymmetric approach is unmotivated, because it requires uneconomical movements which results from arguing for the leftward movement and from treating head-final languages like the head-initial languages. Also, base-generation analyses have problems, in that relative clause sentences in Korean show island effects, although the base-generation analyses do not predict any island effects.

### 2.2. The Syntactic Analyses of the IHRC Constructions

Now we turn to the central purpose of this thesis, the theoretical implications of the IHRC constructions. As for the external structure of IHRC constructions, there have been
debates between LF head-raising analyses and LF head-in-situ analyses. LF head-raising analyses were mainly proposed before the mid 1980s and have three different versions; (1) the head moves up to NP which is adjoined to IHRC and so its LF structure is the same as the EHRC (Ito, 1986; Jung, 1995). (2) The head moves within the IHRC and adjoin to Spec of CP (Watanabe, 1992; Fuji, 1998). (3) The most recent hypothesis is that unlike the overt head movement analyses (1) and (2), the head (Goal) moves ‘covertly’ by checking the uninterpretable focus feature on D (Probe) (Watanabe, 2004). The LF head-in-situ analysis argues that the head is bound by an overt or covert pronominal rather than being moved. This analysis also has two different versions depending on the properties of the pro in the analysis. First, Hoshi (1995) Shimoyama (1999, 2001) and M. Kim (2004) argued that the pro in IHRCs is similar to an E-type pronoun, a pronoun which satisfies the properties of the previous clauses, because the pro in an IHRC satisfies the properties of the embedded relative clause. Alternatively, as Kitagawa (2005) argues, the pro has been treated as a referential pronoun, because it can be co-indexed with a regular noun phrase, different from an E-type pronoun which is generally considered to be co-indexed with quantificational phrases. In this section, I will discuss each analysis more in detail and investigate its potential problems.
2.2.1. LF head movement analysis

The crucial point of the classical LF head movement analyses is that the head moves from the argument position of the embedded clause to a position in which it can be interpreted as an argument of the matrix predicate at LF. However, depending on the landing position of the head, there are two versions of this approach in general. Ito (1986) and Jung (1995)⁹ argue that the head raises from the position receiving a thematic role from the embedded predicate to the position receiving a thematic role from a matrix predicate, so the landing position of the head should be external to the relative clause like (21).

This approach predicts the LF representation of the IHRC is exactly the same as the

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⁹ In addition to Ito (1986) and Jung (1995), other linguists argued for the LF head raising analyses about different languages which have IHRC constructions. For example, Broadwell (1985) for Chaoctaw, Cole (1987) for Ancash and Imbabura Quechua and Lefebvre.
surface structure of the EHRC, so they should share the same interpretation mechanism.

However, there is some evidence showing that both structures do not always have the same semantic account, as Hoshi (1995) and Shimoyama (1999) suggested.

First of all, Shimoyama (1999) argues that if the LF representation of an IHRC is the same as the surface structure of an EHRC, a quantificational modifier of the internal head should interact with other scope bearing elements in the matrix clause and should take the widest scope with respect to other scope bearing elements within the IHRC clause. However, as seen in (22) through (25), she showed that an internal head of the IHRC construction is not interpreted as occupying the same position as the external head noun of an EHRC construction, as predicted in the LF head raising analysis. Compare the EHRC constructions in (22) and (23) with the IHRC construction in (24) and (25).

<The EHRC Constructions: (22) to (23)>

(22) **hotondo-no** gakusek-ga ![Taro-ga e, sikenmae-ni dasita] **dono**  

*most*-Gen student-Nom Taro-Nom before exam-at assigned **every**  

syukudai,-mo] teisyntusita.  

homework-mo turned in

‘Most students turned in every homework that Taro assigned before the exam.’

(Most NP > Every NP)
Every homework that Taro assigned before the exam, most students turned in.

(24) Every homework that Taro assigned before the exam and most students turned them in.

(25) Taro assigned every homework before the exam and most students turned them in.

Considering that the scope order between the quantifiers is decided by the surface order of the quantifiers in Korean and Japanese, ‘Most NP’ has wider scope than ‘Every NP’ in (22), and ‘Every NP’ has wider scope than ‘Most NP’ in (23), where the relative clause...
and head NP of (22) is scrambled. In (24), a IHRC version of (22), ‘Most NP’ also has wider scope than Every NP’. However, the scrambled structure (25) contrasts with (23), in that ‘Most NP’ has the wider scope than ‘Every NP’. This indicates that ‘Every NP’ in (25) does not occupy the same position as ‘Every NP’ in (23) at LF.

What is more, the head raising analysis predicts that the internal head noun will be located higher than any other quantificational element in the embedded clause at LF, and so the head noun should take widest scope in the entire embedded clause. However, Shimoyama(1999) took the Japanese examples like (26) and (27) to argue this is not true.

<The IHRC Constructions>

(26) [Taro-wa [hotondo-no gakusek-ga dono syukudai-mo teisyutusita]-
    Taro-Nom most-Gen student-Nom every homework-mo turned in
    no]-o yatto saitensioeta.
    NM-Acc finally finished

‘Most students turned in every homework and Taro finally finished grading it.’

(Most NP > Every NP; *Every NP > Most NP)

(27) [Taro-wa [dono syukudai-mo hotondo-no gakusek-ga teisyutusita]-
    Taro-Nom every homework-mo most-Gen student-Nom turned in
    no]-o yatto saitensioeta.
    NM-Acc finally finished

‘Every homework, most students turned in and Taro finally finished grading it.’

(Every NP > Most NP; *Most NP > Every NP)

In (26) and (27), the fact the scope order of quantifier phrases within the relative clause
is the same as the surface order of quantifiers phrase indicates that there is no LF head raising, and the interpretation of the quantifier phrase occurs within the relative clause. Also, as seen in (28), the external relative clause counterpart of (26) shows a different scope order.

<The EHRC Constructions>

(28) [Taro-wa [hotondo-no gakusek-ga e teisyutusita] dono syukudai,-mo Taro-Nom most-Gen student-Nom turned in every homework-mo yatto saitensioeta.]

finally finished

‘Most students turned in every homework and Taro finally finished grading them.’

(Every NP> Most NP)

Second, Hoshi (1995)\(^{10}\) and Kitagawa (2005) argue that Korean (or Japanese) IHRC constructions are always interpreted as non-restrictive relative clauses, while their EHRC counterparts are interpreted as restrictive relative clauses.

\(^{10}\) Hoshi (1995) argued that an IHRC is followed by an empty external head [e], as seen in (29).
(29) John-wa [NP [CP [IP Mary-ga san-ko-no ringo-o muitekureta]-no]-o [e]]

John-Top Mary-Nom three-CL-Gen apple-Acc peeled NM Acc
tabeta.

‘John ate three apples, which Mary had peeled.’


John-Top Mary-Nom peeled three-CL-Gen apple-Acc ate.

‘John ate three of the apples which Mary had peeled.’

(Hoshi, 1995:131)

(29), an IHRC version, means Mary peeled only three apples and John ate them all, while (30), an EHRC version, can mean that Mary peeled five apples and John ate three of them. The difference between (29) and (30) shows that the scope of the internal head sankono ringo ‘three apples’ does not extend to the matrix clause.

Also, Hoshi (1995), Chung & Kim (2003) and M. Kim (2004) argued against the LF head-raising approach by noting the existence of so-called headless IHRCs, in which the state or condition of the internal head is changed between the embedded and matrix clauses, which is not possible in an apparently equivalent EHRC (31). In addition, they
note some IHRC sentences have no obvious overt internal head NP (32).

    John-Top Mary-Nom raw fish-Acc cook-Past]-Rel kes-Acc eat-Past-Decl.
    ‘John ate the raw fish that Mary got cooked.’ (Hoshi, 1995)

(32) paci-ka telewe-ci-ø-n kes-ul takkanayessta.
    pants-Nom dirty-become-Past-Rel kes-Acc wiped out.
    ‘The pants became dirty and (I) wiped out the stain from them.’
    (Chung & Kim, 2003: 58)

In (31), nominal that seems to be the internal head-looking nominal is *nal sayngsen* ‘the raw fish’, but what John ate is not the raw fish but the cooked one, which is rather a resultant thing from the event of the embedded clause. In (32), there is no overt head noun ‘stain’, but instead we predict the implicit head is stain or dirt. If the internal head NP raises up to the external position of an IHRC, the IHRC sentences with no overt head NP cannot be explained, because they do not have any NP to be raised.

Another version of LF head raising analysis, argued by Watanabe (1992) and Fuji (1998), is that the head moves up and adjoins to the whole relative clause like (33).
This approach has more benefits than the first approach in that it can explain some of the scope-bearing problems, because the internal head still remains within the relative clause at LF and hence should not interact with any quantificational phrase of the matrix clause. However, this approach cannot still explain (31) and (32), because it still needs an overt head NP. Also, as the QP internal head NP should have higher scope than any other quantificational phrase of the embedded clause within this framework, this approach makes a wrong prediction about the scope bearing relation in the sentences like (26) which is repeated in (34).
(34) Taro-wa hotondo gakusei-ga dono syukudai-mo teisyutusita] no]-o yatto
Taro-Top most-Gen student-Nom every homework turned_in NM Acc finally
saitensioeta.

finished_grading

‘Most students turned in every homework and Taro finally finished grading them.’

(Most NP > Every NP; *Every NP > Most NP)

(Shimoyama 1999; 154)

If the internal head NP raises up to the highest position in the embedded relative clause, the QP dono syukudai ‘every homework’ in (34) should have higher scope than the subject of the embedded clause hotondo gakusei ‘most student’, but this is not true.

The last version of the head movement analysis for Korean (and Japanese) IHRC construction, argued by Watanabe (2004), does not argue that the internal head actually moves at LF, but rather that an uninterpretable focus feature on indeterminate head NP is checked by D, crossing the relative clause. In a sense, it can be considered as a ‘covert’ movement of a semantic head. This analysis is based on a correlation between the WH in-situ construction and the IHRC construction. First, consider his analysis of the WH-in-situ construction in (35).
In (35), ‘Indeterminate’ indicates the WH-words and ‘particle’ is a morpheme attached to WH-words. Op, a covert operator, is selected by particles. That is, Japanese WH-
movement is basically the same as English one, but the difference is that an operator is separable from QP in Japanese, but not in English. According to Watanabe (2004), in a WH in-situ construction, there are two checking relations required. One is the internal relation involving the Q feature which holds between QP and D, and the other is the external relation involving an uninterpretable focus feature between D and C.

\text{(35')} \text{Internal Relation for Wh-in-situ (Watanabe, 2004:74)}

\begin{enumerate}
\item \text{a.} \text{Probe: interpretable Q feature in } D^* \\
\item \text{b.} \text{Goal: uninterpretable Q feature in QP}
\end{enumerate}

\text{External Relation for Wh-in-situ (Watanabe, 2004:80)}

\begin{enumerate}
\item \text{a.} \text{Probe: interpretable Q feature in } C^* \\
\item \text{b.} \text{Goal: interpretable Q feature in } D^* \text{ & uninterpretable focus feature}
\end{enumerate}

He pointed out that the syntax of the WH-in-situ construction is similar to that of IHRCs, in that the island-sensitivity of WH-in-situ in Japanese which he attributes to the feature checking in syntax is also present in IHRCs\textsuperscript{11}. Watanabe argues that these two steps of feature checking occur in a unified way with the same features in the IHRC construction, based on the correlation between the syntax of the WH in-situ construction and that of the

\textsuperscript{11} For the island sensitivity of the Japanese (or Korean) IHRC construction, see the sentences in (37).
relative clause construction. He suggests that the Q features participating in the internal relation of WH-in-situ sentence cannot be invoked for checking in the IHRC construction, because the indeterminate Wh-word is not used in the IHRC, but instead that the D-QP relation needed for IHRC recruits the external checking relation by an uninterpretable focus feature, and this relationship crosses a clausal boundary. That is, the Japanese IHRC recruits the structural configuration from the internal relation and the uninterpretable focus feature on the Goal\textsuperscript{12} from the external relation for the WH-phrase. This analysis assumes that the definiteness of a semantic head in Japanese IHRC is due to a null D*. Consider the tree structure in (36).

\textsuperscript{12} Watanabe (2004) argues that the uninterpretable feature is on the goal, not on the probe; ‘I left open the feature on D that participates in checking in the Japanese-type IHRC. What matters for our purposes is that the goal has an uninterpretable focus feature.’ (cited from Watanabe 2004: 90)
Sources of Checking Relation in IHRC (Watanabe 2004:85)

a. Internal relation: QP-D

b. External relation: uninterpretable focus feature on the goal, without EPP
Also, Watanabe (2004) argues that only WH in-situ languages show the IHRC constructions. He claims that WH-in-situ languages can be classified in three types: Japanese type, Lakhota type and Chinese type. In his view, the reason why only Japanese and Lakhota have IHRCs and Chinese does not is that Japanese and Lakhota have a quantificational particle system and the determiner system respectively, but Chinese does not have either of them. Thus, a determiner or particle system and a WH in-situ structure in combination determine whether the language has IHRC constructions, rather than the SOV sentence structure which has previously been considered to be correlated with IHRCs. He argues that the Japanese IHRCs share the same syntactic structure as the Lakhota IHRCs, but they are different in the nature of their determiners and their indeterminate head NPs. That is, in case of Japanese IHRCs, the uninterpretable focus feature on a head noun (Goal) needs to be checked with the feature on a determiner (Probe) by AGREE, while a head noun in Lakhota IHRCs\textsuperscript{13} does not have any uninterpretable features to be checked, so the head and determiner are in an unselective binding relationship. As evidence, he presented data showing that Japanese IHRCs

\textsuperscript{13} According to Williamson (1987), Lakhota IHRC has the structure like this; [NP, [IP, [NP, ] Det]. In Lakhota IHRC, the semantic head within the relative clause should be always indefinite, but the definiteness of the entire NP is determined by the highest NP determiner. When the head is embedded in stacked RCs, the intermediate NPs must be indefinite. In fact, Watanabe’s analysis of Japanese IHRC has the same structure of that of Lakhota, in that the definiteness of determined by D high up and the head noun in the RC is always indefinite.
exhibit island effects in a long-distance dependency, but Lakhota IHRCs do not. Consider the sentences in (37).

(37) IHRC containing an island clausal boundary

a. Korean\footnote{This sentence is from Watanabe (2004:62). I translated Japanese into Korean.}

* [John-\text{i} \left[ \text{DP}_{\text{CP}} \text{e, hwulywunghan nonmwun, -ul ssu-ø-n} \right] \text{ saram, } \text{-ul}

John-Nom excellent paper-Acc write-Past-Rel person-Acc

chingchanha-n] kes-\text{j-i} chwulpan-toy-ess-ta.

praised-RL kes-Nom publication-Pass-Past-Decl.

‘An excellent paper which John had praised the person who wrote (it) was published.’


*[[Jon-ga \left[ \text{DP}_{\text{CP}} \text{Mearii-ga subrasii ronbun-o kaita to} \right] \text{iu] uwasa}-o

John-Nom [ Mary-Nom excellent article-Acc wrote that] said rumor-Acc

kiita] no]-ga shuppan sareta.

heard no-Nom published is

‘The excellent article that John heard the rumor that Mary wrote was published.’
c. Lakhota (Williamson, 1987:177)

[[Wichota wowapi wą Ø-yawa pi cha] ob wo?uglaka pi ki] he many-people paper a read Pl Ind with we-speak Pl the that

L.A. Times Ø-e

L.A. Times be

‘The newspaper that we talk to many people who read (it) is the L.A. Times.’

The sentences in (37) show Korean, Japanese and Lakhota IHRC sentences with island clausal boundaries. In (37a) and (37b), the semantic head cannot be hwuywunghan nonmwun ‘an excellent paper’, because the feature checking between D and huywunghan nonmwun ‘an excellent paper’ violates island constraints. Meanwhile, (37c) is grammatical because of the unbounded dependency between the internal head and the NP that contains it.

Although Watanabe’s feature checking approach looks attractive, his analysis has several problems in principle. In his analysis of WH in-situ, the uninterpretable feature is on the Goal (D), not on the Probe (C), contrary to the standard Minimalist approach to feature checking which asserts that Probe has an uninterpretable feature and it is checked against the Goal’s interpretable feature. Also, it is not appropriate that the uninterpretable
focus feature on Goal (D) is checked against the interpretable Q feature on the Probe (C), because a focus feature does not match with a Q feature. The same problem applies to his analysis on the IHRC construction. That is, the internal head (NP), which is the Goal, has an uninterpretable feature within his analysis, and also it is not clear what feature is involved under D in IHRCs.

In addition, as Kitagawa (2005) pointed out, Watanabe’s analysis cannot explain the case where the internal head is a proper name or a definite phrase\textsuperscript{15}.

(38) Ken-ga [NP [IP Naomi i-ga nakidasita]no [NP pro,]-o nagusameta.

Ken-Nom Naomi-Nom crying_began Acc comforted

‘Ken comforted Naomi, who had started to cry.’

(39) Naomi-ga [NP [IP sono otoko i-ga nigeru no [NP pro,]-o tukamaeta.

Naomi-Nom [that man-Nom take_off pro]-Acc caught

‘Naomi captured that man, as he attempted to run off.’

Under Watanabe’s analysis, the internal head is indeterminate, which means its interpretation is not complete by itself, so the definiteness of the internal head is not

\textsuperscript{15} Kitagawa (2005) assumed that demonstratives are like definite determiners. In Japanese and Korean, which are head-final languages, the demonstratives can be considered as adjectives ‘syntactically’, because they are positioned leftward of the NP. But, I think demonstratives can produce definiteness or specificity ‘semantically’, and in this sense they are like English.
decided within the relative clause CP. However, as seen in (38) and (39), a proper name as well as a definite phrase can be the internal head of an IHRC, and their interpretation, particularly their definiteness, is fixed by itself without feature checking.

Also, this analysis assumes that Japanese *no* is a complementizer but a null *pro* which can get a Case does not appear in the structure, so it has no way to explain how Japanese *no* can get a Case.

The last problem is that Watanabe’s judgment on the IHRC with non-island clausal boundaries is not accepted unanimously. Although he argued that IHRCs containing non-island clausal boundaries are grammatical but not IHRCs with island clausal boundaries, Chung & Kim (2003) argued that the IHRC sentences with non-island clausal boundaries are ungrammatical. Let’s consider the sentences in (40) first.

(40) IHRC containing a non-island clausal boundary

a. **Korean** (Chung & Kim, 2003:56)

*na-nun [CP1kutul-i [CP2 kangto-ka unhayng-eyse naonta-ko] malha-ø-
I-Top they-Nom robber-Nom bank-from come_out-Comp say-Prf-
-un] kesi-ul capassta.

-Rel kes-Acc arrested.

‘I arrested the robber who they said was coming out of the bank.’
b. **Japanese** (Yoshida, 2001:20)

[*[Taroo-ga [Hanako-ga subarasii ronbun-o kaita] to] kiiteita] no]-ga

Taroo-Nom Hanako-Nom excellent article-Acc wrote that heard no-Nom

syuppan sareta.

published was.

‘The excellent article that Taroo heard that Hanako wrote was published.’

c. **Lakhota** (Williamson, 1987:177)


Edwin women some quilt the make PL Comp you-think say the those

wâwichablake

I-see-them

‘I saw the women that Edwin said that you thought made the quilt.’

(40) shows Korean, Japanese and Lakhota IHRC sentences in which the relative clause contains a non-island clausal boundary. In fact, the judgment of grammaticality about the Korean/Japanese IHRCs with non-island clausal boundaries is very subtle. Yoshida (2001) argues that there are no obvious differences in acceptability between the sentences which contain islands and those which do not, although she otherwise
accepted Watanabe (1992). Watanabe argues that the Japanese IHRCs with non-island clausal boundaries are grammatical\textsuperscript{16}, but Chung & Kim (2003) argue that the Korean IHRCs with non-island clausal boundaries are not acceptable. Kuroda (1999a,b) suggests different judgment about the IHRC with islands; that is, the semantic head of the IHRC is not constrained by wh-islands, adjunct islands or subject islands, although it is constrained by the complex NP islands\textsuperscript{17}. When I do the acceptability test for the sentences used by Kuroda (1999a,b) and Watanabe (2004) with Japanese native speakers\textsuperscript{18}, they judged that neither island sentences nor non-island sentences are acceptable. When those sentences are translated into Korean sentences, native Korean

\textsuperscript{16} The example Watanabe (2004) took is as follows.

Mary-ga [John-ga [zibun-no gakusei-ga juuyouna kasetu-o teianshita to] jimanshite-itano-o]
Mary-Nom John-Nom self-Gen student-Nom important hypothesis-Acc proposed C-Acc boasted-had C-Acc kekan-o shitekshita
defect-Acc pointed out

‘Mary pointed out a defect of the important hypothesis which John had boasted that his student proposed.’
(Watanabe, 2004:82)

\textsuperscript{17}<WH-island>

1)?? Tankenta-wa [[[kaizoku-ga sono kinka-o sizumeta-ka doo-ka wh-island] Taroo-ga
Expeditionary party-Top pirate-Nom that gold_coins-Acc put_under_water-or-not Taroo-Nom
ayasigatteita[no]-ga sono kaitei-ni horiateteta.
‘The expiditer party dug out the gold coins from that point of the bottom of the sea, which Taroo doubted whether the pirates put under the water or not.’

\textsuperscript{18}<Adjunct-island>

2) ?? [[[pooru-ga yoyaku shukudai-no hon-o yomi-owatta ato-de Adjunct-island] mina-ga sapo-ni
Pasul-Nom at_last homework-Gen book-Acc read-finished-after everyone-Nom stroll-Dat
dekaketa[no]-ga sonomam tukue-no ue-ni oite-atta.
go_out no-Nom still table-Gen on-Dat put
‘The book of the homework was still put on the table which everyone go out to walk around after Paul barely finished reading.’

The above examples are from Yoshida (2000) who discussed Kuroda (1992). Kuroda claimed that the above sentences are acceptable and do not exhibit any island effects.

\textsuperscript{18} I thank Yosuke Sato, Naomi Ogasawara and Kumiko Nakamura for their judgment.
speakers show similar results. (However, some native Korean speakers did not show much consistency for the sentences with non-island clausal boundaries: they said that some non-island sentences are grammatical, but other non-island sentences are not grammatical.) In either case, however, the sentence with non-island clausal boundaries can be acceptable, when kes/no indicates the event of the embedded clause, rather than indicating an NP contained within the embedded clause. In addition, not surprisingly, native Japanese speakers and native Korean speakers did judge that sentences with island clausal boundaries are worse than those with non-island clausal boundaries, when they were asked to pick the worse sentence between two types of sentences. The above results prove, as Yoshida (2001) argued, that it is hard to judge the grammaticality or acceptability of those sentences. In this thesis, I adopt the judgment of Chung & Kim (2003) to account for the rest of the analysis.

2.2.2. LF head-in-situ: Referential Pronominal Analyses

LF head in-situ analyses claim that the internal head is bound by a pronominal element which is located outside or inside the IHRC-kes, but those who argue for this analysis have posited two different versions, which differ in the location of the pronoun and the
status of the entire IHRC-kes. One approach, proposed by Kitagawa (2005)\(^{19}\), posits that the IHRC-kes is base-generated as an argument of the matrix clause and a *pro* is base-generated inside the IHRC-kes. The other approach, adopted by Tsubomoto (1991), Murasugi (1994, 2000) and D. Chung (1999), posits that the IHRC-kes is base-generated as an adjunct to the matrix VP and a *pro* is base-generated in an argument position of the matrix clause. The former is generally called an argument approach and the latter, an adjunct approach.

First, the structure of the argument approach is shown in (41)\(^{20}\).

As the argument approach treats the IHRC-kes as an argument of the matrix predicate, it

\(^{19}\) This is just one type of Kitagawa (2005)’s analysis about the IHRC construction. Actually, he categorized three types of IHRCs, depending on the type of the internal head noun.

\(^{20}\) Those who argue for the argument approach have suggested the different versions, depending on the status of the relative clause and a *pro*. So, in (41), the relative clause marked as an IP can be considered as a CP. Also, the IHRC-kes is considered as an NP or a DP, depending on authors. In addition, a *pro* can be realized as null or overtly realized as *kes/no*, depending on authors.
explains why the IHRC-kes gets case from the matrix clause and reflects the thematic role assigned by the matrix predicate. However, this approach is too restricted by the semantic property of the internal head in many ways. For example, as M. Kim (2004) pointed out, quantificational noun phrases cannot be the internal head in this approach, because they do not refer to a specific entity. Also, if the internal head is an R-expression, the sentence cannot avoid a violation of Principle C, because the head noun is c-commanded by a pro.

If the argument approach shows the relative clause and a pro as the argument of the matrix predicate, the adjunct approach shows the IHRC-kes behaving as a secondary predicate of a pro in argument position, where the IHRC is adjoined to matrix VP. The typical structure of the adjunct approach is like (42).

21 When a pro is coindexed with a QP, the quantifier supposedly c-commands the pro, but the relation between a pro and a QP in IHRCs shows the other way around.
The adjunct approach has more benefits than the argument approach, in that it does not violate Principle C. However, as Chung & Kim (2003) argued against the adjunct treatment, this approach cannot explain how the passivization of the IHRC-kes is allowed like (43), because adjunct phrases cannot be passivized in general.

(43) a. Mary-ka [Tom-i talli-nu-n kes]-ul capassta.

Mary-Nom [Tom-Nom run-present.imprf-RL kes]-Acc caught.

‘Mary caught him, while Tom was running.’

b. [Tom-i talli-nu-n kes]-i Mary-eyuyhayse caphiessta.

[Tom-Nom run-present.imprf-RL kes]-Nom Mary-by was_caught.

‘Tom, who was running, was caught by Mary.’

E-type proponents argue against the referential pronominal analyses. For example, they
pointed out that these referential pronominal analyses could not suggest why the headless IHRCs like (31) and (32) are grammatical\textsuperscript{22}. Also, the referential pronominal analyses suppose the internal head should be a nominal entity like (44), but the internal head can in fact indicate the event of the relative clause like (45).


‘John stopped the blood Bill shed by hand.’ (Head = NP)

(45) John-i [Bill-i cwuk-e_ka-nu-n] kes_i-ul inkonghohup-

John-Nom Bill-Nom die-Prog\textsuperscript{23} go-present.imprf-RL kes-Acc artificial_respiration-

uro makassta.

by stop-Past-Decl.

‘John stopped Bill’s death by artificial respiration.’ (Head = Event)

Kitagawa (2005) suggests solutions to some of the problems of the referential pronominal analysis. First, he adopted Kameshima (1989) and Demirdache (1991) to explain the structural difference between restrictives and nonrestrictives, which are based

\textsuperscript{22} In chapter 4, I claimed that the referential pronominal analysis can explain the grammaticality of (31) and (32).

\textsuperscript{23} -e kata is a kind of progressive aspect auxiliary like –ko istta. I think the former expects the terminus or an initiation of the event, but the latter does not.
on an NP-based nominal structure, not a DP-based structure, as seen in (46).

(46) a. Restrictive relatives: \([\text{NP} \ [\text{IP} \ldots X_i \ldots] \ [N' \ldots Y_i]]\)

b. Non-restrictive relatives: \([\text{NP-1} \ [\text{IP} \ldots X_i \ldots] \ [\text{NP-2}\ldots Y_i]]\)

Kitagawa (2005:1254)

He claimed that the IHRC construction has the same structure as a non-restrictive relative clause, because the IHRCs exhibit the maximality/exhaustivity effects like a non-restrictive relative clause. So, the definiteness or specificity of the semantic head in the IHRC construction is from the external head itself\(^{24}\). Also, he argued that the nonrestrictive relative clauses are not subject to Condition C violation in view of the multi-segmented category notion articulated in May (1985)’s adjunction theory.

(47) a. \(X\) c-commands \(Y\) iff \(X\) excludes \(Y\) and every element that dominates \(X\) dominates \(Y\).

b. \(X\) excludes \(Y\) iff no segment of \(X\) dominates \(Y\).

In the non-restrictive relative clause structure in (46), NP1 and NP2 are segments of a double-segmented category and NP1 dominates NP2 and relative clause IP. Considering

\(^{24}\) The structural difference between the restrictives and the nonrestrictives are usually accepted as follows; under the Bare Phrase Structure, the restrictives have a relative clause CP as a sister of an NP (or N), while the nonrestrictives have a relative clause CP as a sister of a DP (or D). That is, the head noun in the restrictives is not definite by itself, but that in the nonrestrictives is definite by itself, so the maximality effects are from this structural difference.
the definition of c-commanding shown in (47), NP2 does not c-command the semantic head in the relative clause, because NP1, a segment of NP2, dominate the relative clause, so NP2 does not “exclude” the relative clause.

Also, he classified the three distinct sub-structures to cover the different kinds of internal head like (48).

(48) a. Internal head = NP (Standard IHRC): \[ [\text{NP} [\text{IP} \ldots \text{NP}_1 \ldots] [\text{NP pro}_i]] \]

b. Internal head = Interrogative-WH nominal: \[ [\text{DP Opi [CP ti [IP... WH_i...]] [D e_i]]} \]

c. Internal head = Quantifier expression: \[ [\text{NP [IP QPi [IP ..ti..]]}[N/\text{NP} E_i]] \]

(Adapted from Kitagawa (2005:1272))

If the internal head is a referential nominal, the external head is occupied by a phonologically null reflexive like (48a)\(^{25}\). When the internal head nominal has a quantifier expression like (48c), the external head is an E, which is a phonologically null E-type pronoun and is irrelevant of c-command relation due to the properties of E-type pronouns as a semantic head.

\(^{25}\) Kitagawa (2005) argued that (48a) has two variations like below, and these variations are dependent on the semantic property of the matrix predicates.

(i) \[ [\text{SP} [\ldots \text{NP}_1 \ldots] \text{no} \ [\text{SP pro}_i]] \]

(ii) \[ [\text{SP} [\ldots \text{NP}_1 \ldots] \text{no} \ [\text{SP pro}_i]] \]

In (i), the pro is coindexed only with an NP (the so-called individual), and in (ii) the pro is coindexed with a hybrid entity orientation of an individual and an event. The latter is similar to an E-type pronoun, in that it refers to an individual who satisfies the properties of the embedded predicates. The following sentence (a) can be an example of (ii)-type, with both an individual ‘John’ and an event ‘making noises’ as a semantic head.

(a) sensaying-nir-kkeye John-i tetul-o-un kes ul yatarachi-si-ess-ta.


‘Teacher scolded John for making noises.’
pronouns. When the internal head is a WH-word like (48b), Kitagawa adopted the quantificational determiner approach which is argued by Basilico (1996), Nichigauchi (1990) and Watanabe (2004); according to Nichigauchi (1990), the external head $e$ is analyzed as a D and a [+Wh] feature on the internal head raises up to the Spec of DP containing the IHRC-$kes$, and this feature is copied on D, the external head, by the government configuration. Because an index on the head of a phrase is assumed to percolate up to the phrase projection, the [+Wh] feature onto D is percolated to the DP and raises to Spec of CP to check the uninterpretable [+Wh] feature in the matrix clause like (49a) and (49b). He argued that Condition C is not violated in this case since there is no relevant referentiality involved.

(49) a. Surface Structure

\[
\text{sensei-wa } \text{[DPWH] } \text{[IP Ken-ga nani-o mottekita] no [D e_i]-o}
\]

\[
\text{teacher-Top what Ken-Nom what-Acc brought Modifier [e]-Acc}
\]

\[
\text{toriagemasita ka?}
\]

\[
\text{confiscated Q}
\]

‘What, brought by Ken, did the teacher confiscate?’
b. LF representation

\[
[\text{CP WH}_1 [\text{IP} [\text{IP Ken-ga} \ nanni-o \ mottekita] [\text{DP e}]_1-o] \ [\text{sensei-wa}]_1]_o \\
\text{Ken-Nom what-Acc brought no [e]}_1\text{-Acc teacher-Top} \\
\text{toriagemasita [cka]}\]

confiscated Q

\text{Kitagawa (2005:1251)}^{26}


[-int] focus feature \ [+int] feature \ [+Wh]

[+Wh]

In Watanabe (2004)’s analysis, if the semantic head is a wh-word, the uninterpretable focus feature on a wh-word head is checked against D, a sister of the embedded CP. Also, the [+Wh] feature on D is percolated up to the DP, and this [+Wh] feature on the DP checks [+Wh] on a matrix C. The difference between Watanabe (2004) and Kitagawa (2005) is that the former argues for this unified feature checking analysis in any type of IHRC, while the latter argues that this analysis applies just to the IHRC structure with a

\footnote{26 This is following Nishigauchi(1990)’s analysis.}
WH-word internal head like (48b). Therefore, while the embedded head noun in Watanabe’s analysis is always indeterminate, Kitagawa argues that the head noun is only indeterminate when the internal head noun is a WH-word.

Also, Kitagawa (2005) claims that the IHRCs whose internal head undergoes some property change are not IHRCs, following Kuno (1973), Fabb (1990) and Tonosaki (1998), because the IHRCs mean the internal head should be overtly included in the relative clause by its definition, but such sentences do not have any overt property-changed NP in the embedded clause. At a glance, this case seems to be categorized as the E-type pronoun IHRC, which is the sub-type (48c), because the semantic head is the resultant thing of the event of the embedded clause. However, it cannot be an E-type pronoun IHRC, because the E-type pronoun requires its antecedent to be overtly represented in the relative clause by the formal linking condition. Kitagawa concludes that sentences like (31) and (32) are not actually IHRCs, although they are represented like a relative clause schematically.

Although Kitagawa’s analysis has many benefits, it also has some nontrivial problems. First, his analysis is not an economical approach, assuming three different external heads, [+WH], a pro and E depending on three types of the internal head. Also, under his
analysis, the IHRC-kes (the IHRC-no in Japanese) is not treated in a consistent way, in that if the semantic head is a wh-word, the IHRC-kes is a DP, but if the semantic head is a QP or a regular nominal, the IHRC-kes is a NP without D.

2.2.3. LF head-in-situ: E-type pronominal analyses

E-type pronoun analyses argue that the external head position of the IHRCs is occupied by an E-type pronoun referring to an object which satisfies the properties of the predicate in the antecedent clause. The concept of an E-type pronoun originates from Evans (1980) who argues for the necessity of a referential pronoun interpreted as a free variable which receives its value from contextual assignment. E-type pronouns are similar to bound variables in that they are co-indexed with a quantifier, but different from them in that E-type pronouns can refer to specific entities which satisfy the content of the antecedent clause and do not need to be bound by a quantifier phrase, so are free from the Principle B.

(50) Every congressman thinks that he is smart. (he = a bound variable)

(51) Few congressmen admire Kennedy and they are very junior. (they = an E-type pronoun) 

(Evans, 1980: 339)
The underlined ‘he’ and ‘they’ in (50) and (51) are anaphorically linked to quantifier phrases, but belong to different categories. In (50), ‘he’ is bound by ‘every congressman’ and quantifier phrases do not refer to specific entities, so ‘he’ bound by quantifier phrase does not refer to any specific entity/ies. That is the way of bound variables. Meanwhile, ‘they’ in (51) is not a bound variable, because the second clause in (51) is not an embedded clause of the first clause, so ‘they’ is not c-commanded by ‘few congressmen’. Also, different from a bound variable he in (50), the referent of ‘they’ in (51) is not the QP ‘few congressmen’, but rather must be ‘few congressmen that admire Kennedy’. It denotes a set of each congressman that could be referred to by the predicate of the antecedent clause.

Following a Cooperian E-type pronoun analysis, Hoshi (1995) posits that the NP dominating the relative clause and the empty category [e] is base-generated, and that the [e] occupying the external head position is an E-type pronoun, as seen in (52). In his diagram, [e] denotes the set of characteristics of the unique entity which stands in the relation $T$ to the proposition $p$ which is denoted by the embedded clause. Also, Japanese -no, which is a complementizer, is an identity functor of truth values to connect the relative clause and [e]. The E-type pronoun [e] is treated as a generalized quantifier, so it
can interact with other QPs within the relative clause. The whole IHRC-[e] string is adjoined to the matrix sentence at LF, so the [e] does not interact with the matrix predicate. That is, the [e] indicates the salient entity which satisfies the property of the embedded clause only. Consider the LF structure of Hoshi’s analysis.

(52)

\[
\begin{array}{c}
\text{John-ga} \\
\text{NP}_1 \\
\text{IP} \\
\text{CP} \\
\text{IP} \\
\text{C} \\
\text{no} \\
\text{IP} \\
\text{NP}_1 \\
\text{IP} \\
\text{N} \\
[e] \\
\text{VP} \\
\text{t}_i \\
\text{V} \\
\text{tabeta} \\
\end{array}
\]

\text{John-ga [NP [CP [IP Mary-ga san-ko-no ringo-o muitekureta]-no]-o [e]] tabeta.}

\text{John-Nom Mary-Nom three-CL-Gen apple-Acc peeled NM Acc ate.}

‘John ate the three apples that Mary had peeled.’

According to him, (52) is interpreted like this; there is some unique entity that bears the relation T to the proposition ‘there is three apples which Mary peeled’, and John ate it. Consequently, the [e] always refers to the specific three apples, which are made salient by
the utterance of the embedded clause. He captured the maximality effects of the IHRC construction, because the scope of the internal head in (52) does not extend to the matrix clause. His analysis covers the relevancy requirement between the IHRC and the matrix clause, since he argues that the empty category is an argument of the embedded clause and also that the IHRC-[e] string which is generated as an argument of the matrix clause raises up and is interpreted again as modifying the matrix clause.

However, Shimoyama (1999) pointed out that his analysis cannot explain the IHRCs where the matrix subject has a QP, like (53).

(53) Dono gakusei-mo[[soitu-ga kongakki peepaa-o 3-bon kaita]-no]-

    Every student (s)he-Nom this semester term paper-Acc 3-CL wrote-no-[e]-o kesa teisyutusita.

    [e]-Acc this morning turned_in.

    ‘Every student wrote three term papers this semester and turned in the term papers he or she wrote this semester this morning.’

As discussed in (52), Hoshi’s E-type pronoun analysis refers to the unique entities which only satisfy the content of the embedded clause. It cannot explain (53) whose semantic head varies with the QP subject of the matrix clause. That is, the [e] refers to the
unique three specific term papers written by someone, but this ‘someone’ in Hoshi’s
analysis is not bound by *dono gakusei* ‘every student’, the subject of the matrix clause, so
three term papers should not be able to vary with each choice of student, when in fact it
may.

Another challenge for Hoshi (1995), raised by Hoshi himself, is that his account cannot
explain the difference between (54) and (55).

(54) Yamada-san-wa otonari-no musukosan-ga wakai oyomesan-o moratta]-ø

Y-Hon-top [[next_door-Gen son-Nom young bride-Acc got]-Rel

no]-o tyoonai-no huzinkai-ni kanyuusiyootosita.

Comp]-Acc neighborhood-Gen women’s club-Dat tried_to_talk_into_joining.

‘The next door neighbor’s son got a young *bride* and Ms. Yamada tried to talk her (= the young bride) into joining the women’s club in the neighborhood.’
(55) *Yamada-san-wa otonari-no musukosan-ga kekkonisita]-ø no]-o

Y-Hon-top [[next_door-Gen son-Nom got_married]-Rel Comp]-Acc

tyoonai-no huzinkai-ni kanyuusiyootosita.

neighborhood-Gen women’s club-Dat tried_to_talk_into_joining.

‘The next door neighbor’s son got married and Ms. Yamada tried to talk her (= his wife) into joining the women’s club in the neighborhood.’

(Hoshi 1995:151)

Under Hoshi’s analysis, (56) should be judged as grammatical as (55), because the unique entity which satisfies the relation ‘being married to’ to the proposition denoted by the embedded clause looks the same as the definite description which satisfies the relation ‘being a wife of’ to the embedded clause. However, the grammaticality of two sentences is different. Hoshi (1995) argues that this problem is due to the formal linking problem of E-type pronoun, a licensing condition that the E-type pronoun is licensed only if its antecedent is linguistically represented in the previous discourse. However, the formal linking condition of E-type pronon has been considered to be a general problem of the E-type pronoun analysis, irrespective of IHRCs, because the E-type pronoun denotes the set of characteristics of the unique entity which stands in a contextually salient
relation to a salient entity, so it should be licensed whenever the contextual saliency is established. Hoshi could not solve this licensing problem of E-type pronoun, regarding the formal linking problem as one of the typical problems of E-type pronouns.

To solve Hoshi (1995)’s problems, Shimoyama proposes an amended E-type pronoun analysis. She claims an IHRC-*no* string indicates a definite description like Hoshi (1995), but the definiteness is from the Japanese *no* under D node, which is identical to English *the*. *No* denotes a function of salient property and maximality effects. Shimoyama assumed two types of free variables in her analysis, *R* and *pro*: The *R* variable indicates a salient two-place relation variable and its first value is saturated by the context of the embedded clause and its second value is determined by *pro*. This *pro* refers to the agent of the embedded event and is bound by a QP matrix subject, as seen in (56). In this sense, Shimoyama’s amended E-type pronoun analysis can produce the right interpretation of the sentence in (53). Consider (56), the LF structure of (53) in view of Shimoyama (1999).
In (56), the free variable R, a two-place variable, indicates the relation ‘term papers written by x’ and the pro refers to the argument x, someone who wrote term papers. The free variable R does not have definiteness here. This pro is bound by a QP, *dono gakusei* ‘every student’, so R under N varies with each choice of student. Also, the definiteness of the semantic head is from *no* under D, which is merged with NP and produces a salient property of the definite description. While Hoshi’s analysis fails to produce the correct
interpretation, the diagram in (56) can catch the correct interpretation, because the *pro*
can be bound by the matrix subject.

Also, if the semantic head does not vary depending on a QP matrix subject, like (52), the
semantic head is marked as the P-variable, which remains as a free variable and receives
its denotation by assignment, like ‘x is three apples Mary peeled’. This P-variable is
similar to R in (56), but is different from R in that the P-variable is the one-place variable.
Like (56), the embedded CP of (52) is adjoined to the matrix IP.

However, Shimoyama’s analysis also has some problems. First, her analysis expects the
internal head is considered to be definite within the relative clause, but it can be usually
definite or indefinite. Second, as Shimoyama (1999) posits herself, her analysis expects
that the free variable R is restricted not only by the embedded clause but also the
discourse context, so the sentences like (57) cannot have the right interpretation
(57) a. Hanako-ga hon-o 3-satu katte kita. Taro-wa [[Hanako-ga mata Hanako-Nom book-Acc 3-CL buy_came. Taro-Top Hanako-Nom also dono shinbun-m katte kita]-no]-o tana-ni narabeta. every newspaper buy_came]-NM]-Acc shelf-on placed

‘Hanako bought (and brought) three books. Hanako also bought (and brought) every newspaper and Taro shelved them (= every newspaper).’

b. Taypwupwun-uy kwukhoyuywon-tul-i Kheri-lul conkyengha-n-ta.

Most-Gen congressman-PL-Nom Kerry-Acc admire-Present-Decl.


vote-Past-Condition feel_happy-Decl.

‘Most congressmen admire Kerry. Tomorrow is the election day. I will be happy if they (=the congressmen who admire Kerry) will vote for him (=Kerry).’

The intended meaning of (57a) indicates that the free variable $P$ in (57a) indicates the relation ‘x being brought by Hanako’, excluding the property of the newspaper, because $P$ is intended to be restricted by an embedded relative clause and a discourse context. It
means (57a) becomes true, only if Hanako shelves the newspapers she bought and the books she bought, but (57a) cannot get such interpretation. This fact shows that the pro in the IHRC construction is dominated by the locality condition, contrary to the E-type pronoun in (57b); that is, in the IHRCs, the pro’s licensing domain is syntactically restricted to the sentence which contains it, while the E-type pronoun is generally not so restricted.

As the latest version of the E-type pronoun approach, M. Kim (2004) proposes a slightly different framework from the previous analyses. As for the internal structure of the IHRC construction, she suggests the string of IHRC-kes is not an NP but a DP which is headed by a [+definite] feature, based on the fact that the string always exhibits the uniqueness or maximality effects, and a pronominal definite description, a pro, is realized as kes plus [+definite] feature. Also, while the previous E-type pronoun analyses assume that the IHRC raises all the way up to the IP level of the matrix clause, M. Kim (2004) suggests that the clausal material preceding the relative marker is Aspect Phrase which is smaller than IP, and that the relative clause CP raises up and adjoins to the Aspect Phrase, so the embedded clause and the matrix clause share the same temporal background. Therefore, the LF structure of the sentence (58) is like (59).
(58) Sumi-ka  onul  achim-e  proi  eje  keykJ-ul  mandul-ø-un

Sumi-Nom  today  morning-in  yesterday  cake-Acc  make-Perf-Rel

kesJ-ul  hakkyo-e  kajieka-ass-ta.

kes-Acc  school-to  bring-Past-Decl.

‘This morning Sumi brought cake which she made yesterday to school.’

(59)

However, M. Kim (2004)’s analysis still is subject to several important problems. First
of all, M. Kim (2004) claims that whether an indicative mood marker –ta can be attached to the embedded predicate or not decides whether the embedded clause has a TP node or not. Consider the sentences in (60).

(60) a. The IHRC construction

\[
\text{John-un } [[[\text{totwuk-i } \text{tomangka-n-}(*\text{ta})-\text{nun}]} \text{ kes]-ul } \text{cap-ass-ta}. \\
\text{John-Top } \text{thief-Nom run}_\text{away-Impf-Ind-RL} ] \text{ kes]-Acc } \text{catch-Past-Decl}.
\]

‘A thief was running away and John caught him.’

b. The factive verb construction

\[
\text{John-un } [[[\text{totwuk-i } \text{tomangka-n-ta-nun}]} \text{ kes]-ul } \text{al-ass-ta}. \\
\text{John-Top } \text{thief-Nom run}_\text{away-Impf-Ind-Rel } \text{kes-Acc } \text{know-Past-Decl}.
\]

‘A thief was running away and John knew it.’

from M. Kim (2004:199-200)

M. Kim (2004) argues that if the matrix predicate is a factive verb or a direct perception predicate, such sentences have a similar structure to the IHRC construction, except that the embedded clause of the IHRC construction is smaller than that of the factive construction. In her framework, the embedded clause of (60a) includes an AspectP, while that of (60b) includes an IP. However, I claim that the difference between two sentences
in (60) is the number of CPs rather than whether the embedded clause has a TP or not, because an indicative mood marker does not guarantee the existence of a TP node. That is, the embedded clause of the factive verb construction like (60b) can permit consecutive CPs in some cases, while that of the IHRC like (60a) cannot. Consequently, the structure of (60) is the same as (61). Also, in (60), the reason why the event reading is acceptable only in (60b) but not in (60a) is that (60b) has a factive verb as a matrix predicate and predicts an event head reading, while *cap-ta* ‘catch’ in (61a) does not predict the event head reading, but rather requires a physical object. Basically the claim that the embedded clause does not have a TP but an AspectP needs to be justified by a discussion about how to distinguish temporal aspect markers and tense markers in Korean, but she did not address this morphological issue.

(61) a. The IHRC construction:

\[
[CP \ [IP \ [AspectP \ldots \text{tomangka} \ldots \text{Aspect nu}][\text{nonpast}^{28}]][c~ n]]\quad \text{kes}
\]

b. The factive verb construction:

\[
[CP \ [CP \ [IP \ldots \text{tomangka} [1 \ n]][c \ \text{ta}]] [c \ \text{nun}]\quad \text{kes}
\]

For the morphological analysis in (61), see chapter 3.

In (61 a, b), *-nun* plays a different role. *-nun* in (61a) is attached to the verb stem and followed by a null relative marker, while *-nun* in (61b) is attached to the verb indicative marker and so has nothing to do with the tense.
Also, I think that if the matrix predicate is a factive verb or a direct perception verb, whether an indicative marker -ta can be attached to the embedded clause or not is related to whether the pro indicates the whole event of the embedded clause or the nominal; if –ta- is attached to the embedded clause, the descriptive property of the pro is always an event, but if –ta- is not attached to the embedded clause, the descriptive property of the pro indicates a nominal expression, as seen in (62) and (63).


John-Top [Mary-Nom CIA-Gen wiretapping tape-Acc steal-prf-RL kes-Acc
tut-ess-ta.

heard

‘John listened to the CIA’s wiretapping tape that Mary had stolen.’

‘John heard the news that Mary stole the CIA’s wiretapping tape.’
In (62), the matrix predicate is a direct perception verb, and the pro can indicate the whole event of the embedded clause or an NP, while the pro in (63) only has the event head reading.

If the embedded clause of the IHRC construction does not have an IP, as M. Kim (2004) claims, it should not be able to exhibit the present/past/future future tense distribution, but it can in fact have the future tense, as shown in (64).
(64) John-un [[Mary-ka chak-ul ilk-\textbf{nu/te/o/}}

John-Top Mary-Nom book-Acc read-present.imprf-RL/past.imprf-RL/Prf-

-\textbf{un/ul}\textsuperscript{29]} kes-Acc Amazon-through buy-Past-Decl.

-realis RL/irrealis RL] kes]-ul Amazon-u\text{-ro} sa-ass-ta.

‘Mary reads the book (now) John bought through Amazon (a week ago).’

‘Mary had read a book (a month ago) and John bought it through internet

(yesterday).’

‘John bought (yesterday) a book for Mary to read (next week).’

Adapted from Chung and Kim\textsuperscript{30} (2003:44)

A further problem is that the event of the embedded relative clause can be relevant to
the matrix clause by virtue of being co-located with the event of the matrix clause or by
being a motivation for the event of the matrix clause as well as by temporal overlap. So,
the tree structure shown in (59) cannot explain IHRC constructions where the co-
locationality condition or the motivation condition override the simultaneity condition, as
seen in (65) and (66).

\textsuperscript{29} About the morphological status of these temporal morphemes, see chapter 3.

\textsuperscript{30} I think that the tense of an embedded clause is shifted by that of a matrix clause. However, it does not mean that the
embedded clause does not have a TP, considering English relative clause sentences.
(65) John-un [[Mary-ka ece sakwa-lul thakca-ey noh-a twu-n] kes]-ul
    John-Top Mary-Nom yesterday apple-Acc table-Loc put-Past-RL kes-Acc
    onul mekessta.
today ate.

‘Mary put an apple on the table yesterday and John ate it today.’

Adapted from Kuroda (1976:271)

(66) John-un [[Bill-i ece ku-lul soki-n]] kes]-ul onul_achim
    John-Top Bill-Nom yesterday he-Acc deceive-Past]] kes-Acc this morning
    yatanchiessta.
solded.

‘This morning John scolded Bill for deceiving him yesterday.’

(65) and (66) satisfy the co-locationality condition and the motivation condition,
respectively, but not the simultaneity condition, due to the different temporal adverbs ece
‘yesterday’ and onul ‘today’.

In general, the E-type pronominal analysis has benefits in explaining Kitagawa’s whole-
scene orientation and the definiteness of the semantic head in the IHRC construction, but
as Kitagawa (2005) pointed out, the original idea of E-type pronoun is always applied to
the case in which the antecedent is a QP, so it is hard to extend the idea to the case where the semantic head of IHRC is a regular noun or a WH-word. Also, Shimoyama (1999) herself agreed that the pro in the IHRCs has different syntactic properties from an E-type pronoun. The locality condition on the pro in the IHRC does not apply to E-type pronouns elsewhere, which can be separated from their antecedents by arbitrary amounts of clause structure and occur in separate non-c-commanding clauses or sentences.

Also, Shimoyama (2002) points out the difference between the typical E-type pronoun and the pro in the IHRC construction; the pro is licensed only if its referent has a thematic role assigned directly from the predicate of the embedded clause. Consider the sentences in (67) and (68).

(67) a. Mary\text{\textsubscript{i}} and Bill\text{\textsubscript{k}} were playing together and John bothered her\text{\textsubscript{i}}/*him\text{\textsubscript{k}}/them\text{\textsubscript{i+k}}.

b. John-un [Mary-wa Bill]-i hamkkey nol-ko_iss-nu-n kes-ul

John-top [Mary-and Bill]-Nom together play-Prog-present.imprf-RL kes-Acc koylophiessta

bothered

‘Mary\text{\textsubscript{i}} and Bill\text{\textsubscript{k}} were playing together and John bothered *her\text{\textsubscript{i}}/*him\text{\textsubscript{k}}/them\text{\textsubscript{i+k}}.’
(68) a. Every man served his wife’s sushi to the guest and the guest praised her immediately.


kes-Acc guest-Nom immediately praise-Past-Decl.

‘Every man served the guest his wife’s sushi and he praised *her/her sushi immediately.’

(Adapted from Shimoyama, 2001:142)

In (67a), a typical E-type pronoun can anaphorically link to either Mary or Bill which is a part of a conjoined NP, but the pro in (67b) may only link to the whole NP Mary-wa Bill ‘Mary and Bill’. Also, the typical E-type pronoun in (68a) can co-refer with his wife, but the pro kes in (68b) cannot refer to caki anay ‘self wife’. That is, in (67b), when the pro refers to either Mary or Bill, the referent of kes receives its thematic role from a conjunction, not from the embedded predicate. In (68b), if the referent of kes is caki anay ‘self wife’, the sentence is ungrammatical because the referent of pro receives its thematic role from the head noun of the NP which embeds it.
2.3. Summary

In Chapter 2, I discussed the previous analyses of the syntactic structure of the IHRC constructions. The previous analyses are largely divided into three ways.

The first is the LF head movement analyses and it has three versions; one proposes that the internal head moves up to the position receiving a thematic role from a matrix predicate, so its LF structure is exactly the same as the overt syntax of the EHRC constructions. Another version proposes that the internal head moves up and adjoins to the whole relative clause. However, these two versions bring up scope-bearing problems between the internal head and any quantificational phrase of the matrix clause or between the internal head and any quantificational phrase of the embedded clause. The third version based on Watanabe’s feature checking analysis claims that there is no overt head movement at LF, but the uninterpretable focus feature of an internal head is checked against D which dominates a relative clause. However, this analysis predicts the wrong judgment for the IHRC sentence with non-island clausal boundaries, and also cannot explain the case where the internal head is a proper noun or a definite nominal.

The second is the LF head in-situ analyses. They argue the internal head does not move, but instead a base-generated *pro* is co-indexed with an internal head. These non-
movement analyses largely have two versions, referential pronominal analyses and E-type pronoun analyses. Referential pronominal analyses argue that the IHRC-kes is based-generated as argument of the matrix clause and a pro is base-generated inside the relative clause, or the IHRC-kes is base-generated as an adjunct to the matrix VP and the pro is base-generated in an argument position of the matrix clause. Referential pronominal analyses, however, are restricted to explain only a few kinds of internal head. E-type pronoun analyses have been proposed by Hoshi (1995), Shimoyama (1999) and M. Kim (2004). E-type pronoun analyses have benefits in explaining the definiteness of the semantic head, because the pro can refer to specific entities which satisfy the predicate of the embedded clause. Also, different from the referential pronominal analysis, the QP internal head head can be easily explained. However, the pro in the IHRC shows some different syntactic mechanisms from a typical E-type pronoun, like a locality condition.
CHAPTER 3.

MORPHOLOGICAL ASPECTS OF THE KOREAN IHRC CONSTRUCTIONS

3.1. Introduction

Most studies of the IHRC construction simply make an assumption about the status of kes (or Japanese no) as a complementizer, a nominalizer or a pronominal, rather than provide any in-depth discussion. Those who treat kes as a complementizer point out that its role is seemingly similar to the English complementizer that, while those who treat kes as a nominalizer or a bound noun point out that the whole phrase ending with kes can get any type of case-marking. In this chapter, I will claim that the IHRC construction has a structure like a non-restrictive relative clauses and kes is a pro under D*, which is a sister of the relative clause. However, the status of kes can be changed by its environment. That is, when adjectives or demonstratives precedes kes, kes is positioned under NP—in such cases, it is simply a regular N*. When kes is under NP, it must always be preceded by a demonstrative which indicates specificity or definiteness, because the semantic head of the IHRC construction always requires definiteness, and definiteness arises from a DP,
which is a sister of a relative clause CP, itself. Thus, if kes is preceded only by adjectives without a demonstrative, the IHRC sentence is ungrammatical, because the semantic head is not interpreted as definite.

In addition to the status of kes, the question of the morpho-syntactic structure of the embedded predicate remains largely untouched. M. Kim (2004) argues that the embedded predicate is decomposed into a stem and an aspect marker, and a relative marker -(u)n is attached to the embedded predicate. In her analysis, there is no tense node in the embedded clause. Y. Kim (2002) and Chung & Kim (2003) treat nun/(u)n/(u)l as a pronominal (or adnominal) marker, not decomposing those morphemes further. In this chapter, I argue that the morphemes attached to the embedded predicate can be decomposed into an aspectual, tense and a relative marker, rather than just an aspect marker and a relative marker: (1) ø, a perfective aspect marker which is naturally used with the past tense, may only be attached to eventive predicates. (2) –nu-, an imperfective aspect marker, which is limited to the present tense, can be attached to eventive predicates. (3) –te-, an imperfective aspect marker, which is limited to the past tense, can be attached to eventive predicates. If the predicate is stative, it is used with the null present tense morpheme or an evidential –te-. These findings argue against M. Kim
(2004)’s conclusions, because they prove that there is a tense node in the embedded clause.

Below, I will discuss the previous morpho-syntactic analyses of the internal structure of the Korean IHRC, focusing on the grammatical status of *kes* and the embedded predicate, and investigate the best way to analyze them.

### 3.2. The morpho-syntactic status of *kes*

In general, there have been three hypotheses about the morpho-syntactic category of *kes*. First of all, Yang (1977), H. Yoon (1991), Jhang (1994), Kuroda (1976), Hoshi (1995) and Watanabe (2004) treat *kes* (*no* in Japanese) as a complementizer. This viewpoint is based on the idea that *kes* is similar to English *that* or, as M. Kim (2004) mentions, the structural similarity between the IHRC and the clausal complement of direct perception matrix verbs and factive matrix verbs. If *kes* is a complementizer, the structure of the IHRC is like (1).

\[ IP \quad CP \quad CP/IP \quad \ldots \quad C \quad kes \quad \ldots \]

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31 Japanese authors discuss only the category of Japanese *no*, not Korean *kes*, but considering the structural similarity between the two languages, I assume the discussion about Japanese *no* is equivalent to that about Korean *kes*.

32 The term ‘factive’ applied to verbs mean their use commits a speaker to the truth of a subordinate proposition. Some examples are *know* or *realize*: To say *She doesn’t know that it has stopped raining* is to commit oneself to the truth of ‘It has stopped raining’. In contrast, *think* is non-factive, because one makes no such commitment if one says ‘She thinks it has stopped raining’. (from *Oxford Dictionary of Linguistics*)
However, this analysis has been rejected by some authors. First, Chung and Kim (2003), M. Kim (2004) and Cha (2005) argue that the biggest problem of this analysis is that *kes* can be marked with any type of case unlike other typical Korean complementizers like *ko*, *ci* or *key* as seen in (2).


Tom-Top Susan-Nom grandmother-house-Loc go-Past-Decl-Comp said.

‘Tom said that Susan went to grandma’s place.’


Tom-Top Susan-Nom package-Acc move-present.imprf-RL kes-Acc helped.

‘Tom helped Susan move a package.’

M. Kim (2004) argues that *kes* cannot be a complementizer, because *kes* is also a free morpheme which literally means a ‘thing’ or a ‘concrete object’, while –*ko* and –*tolok* are bound morphemes with no lexical meanings. Cha (2005) argues that a complementizer always follows a fully conjugated verb form with a tense marker and a sentential ending marker as seen in (2a), but a relative clause preceding *kes* does not end with a sentential ending marker.

However, I think the above evidence against the complementizer hypothesis has
problems. First, as for the case marking, Hoshi (1995) suggests an alternative, claiming that no (kes in Korean) is a complementizer and what gets case is a null pronoun which follows kes/no. Therefore, the structure of (2b) is like (3) in Hoshi’s system.

(3) Tom-un [NP[CP Susan-i cim-ul olmki-nu-n [c kes]]

Tom-Top Susan-Nom package-Acc move-present.imprf-RL Comp

[N e]-ul topassta.

e-Acc helped.

‘Tom helped Susan move a package.’

Also, as for the difference in morphological status which M. Kim (2004) raises, I note that the same grammatical category does not always have the same morphological status. For example, English genitive ’s and the are both categorized as determiners, but the former is a bound morpheme and the latter is free morpheme respectively. Also, English comparative –er and comparative more are allomorphs of the same item, but the former is an affix and the latter is a free morpheme. Last, all Korean complementizers are not attached to a fully conjugated verb form. Typical complementizers like key and tolok are attached to the verb stem, as in (4).
In (4), a complementizer *tolok* is attached to the stem of a verb *toy-ta* ‘become’ and no tense marker or indicative mood marker can be inserted before *tolok*.

I also argue that *kes* is not a complementizer. However, I think the reason why it cannot be a complementizer is that it can be replaced in the IHRC by elements which are clearly pronouns or nouns, indicating a concrete object or an abstract concept, unlike the typical complementizer. Consider the sentence (5) and (6).


    ate.

    ‘John ate that apple Mary put on the table.’


‘Mary shot the scene of a thief running away.’

(6) John-un [Bill-i Mary-lul wihay os-ul sa-o-n] ku yeppun

John-Top Bill-Nom Mary-Acc for clothes-Acc buy-past.prf-RL Dem pretty

kes-ul mangchiessta.

kes-Acc spoiled.

‘John spoiled the pretty clothes Bill bought for Mary.’

In (5a), the position for kes is occupied by a demonstrative kukes ‘that’, and the position for kes in (5b) can be occupied by a lexical noun hyencang ‘a scene of action’. The fact that kes can be replaced by a noun or a pronoun is an argument that kes is categorized as a pronoun. Also, if kes is a complementizer, it cannot be modified by a demonstrative and an adjective, but it can be modified by them like (6).

Cha (2005) treats kes as a bound noun, arguing that kes can be modified by adjectives or the determiner ku and can get any case-marking, as seen in (7a) and (7b). It is true that adjectives can be positioned before the bound noun -kes in a regular NP argument, like

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233 If kes is used in this sentence, this sentence is ambiguous; one is Mary caught a thief who ran away and the other is Mary shot the scene a thief was running away (with his camera).’
yeppun kes ‘a pretty thing’, masissnun kes ‘a yummy thing’. However, unlike in phrases built by the composition of a demonstrative, an adjective and kes as a regular NP like (7b), adjectives cannot be positioned alone before kes in the IHRC construction, as seen in (7c). Therefore, the viewpoint that kes is a noun under NP/N’/N, which can therefore be modified by adjectives, has problems in explaining why (7c) is ungrammatical.

(7) a. John-\text{-}un Mary-\text{-}ka teyibul ui-\text{-}e sakwa-lul tu-\text{-}ø-n \textbf{ku kes-\text{-}ul}

John-Top Mary-Nom table on-Loc apple-Acc put-prf-RL that thing-Acc
mokessta.

ate.

‘John ate that apple Mary put on the table.’

b. John-\text{-}un Mary-\text{-}ka teyibul ui-\text{-}e sakwa hana-lul tu-\text{-}ø-n

John-Top Mary-Nom table on-Loc apple one-Acc put-prf-RL
\textbf{ku masissnun kes-\text{-}ul mek-ess-\text{-}ta}.

that yummy thing-Acc eat-Past-Decl.

‘John ate the yummy apple Mary put on the table.’
As another hypothesis, N. Kim (1984), Horie (1993) and Jo (2003) claim that *kes* is a nominalizer,\(^{34}\) on the basis that *kes* changes the whole relative clause to a noun which can get any kind of case-marking. On this approach, *kes* would be comparable to the English gerundive suffix *-ing* which converts a VP into a noun. However, those who argue against this viewpoint compare the morphological behavior of typical Korean nominalizers and *kes*. For example, Cha (2005) shows that nominalizers are usually attached to a stem of the predicate to form a noun, like *–ki* or *–(u)m* in *mek-ki* ‘eat-nominalizer’ and *yeppu-m* ‘pretty-nominalizer’, while *kes* always follows an adnominal verb form which ends with *–(u)n*, the clause-final element of the adnominal clause, like *mek-ø-un kes* (eat-past.prf-adnominal kes) or *yeppu-ø-n kes* (pretty-present-adnominal kes). Also, M. Kim (2004) points out the typical Korean nominalizers such as *–ki* or *–um* cannot be replaced by a

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34 Shimoyama (1999) and Kitagawa (2005) claim that Japanese *no* is a nominalizer marker.
lexical NP, while *kes in the IHRCs can. Consider the sentence (8).


   ‘Mary helped with Bill’s doing homework.’


   ‘Mary helped with Bill’s doing homework.’

   (M. Kim, 2004:196)

Different from *kes in IHRCs, typical Korean nominalizers in (8) cannot be replaced by a
noun or a pronoun, because the nominalizer, as a functional category, just changes the
grammatical category, rather than indicating the subject, object or events of a fully
expressed syntactic clause. That is, because *kes can head a clause which refers to either
the subject or object nominal or to the event described by the clause, its behavior is
different from that of nominalizers, which are sensitive to the lexical semantic structure
of the verbs to which they attach.

Through the above findings, it is appropriate to see that *kes belongs to the category of
pronouns, rather than complementizers, nouns or nominalizers. I argue that *kes can be
positioned in two different structures, depending on the structural environment; If kes occurs by itself, it is categorized as a D\textsuperscript{35}, as in (9a), with the definiteness arising from kes itself. If adjectives or demonstratives are positioned before kes, kes is treated as a noun heading an NP, as in (9b). However, the structure in (9c) is wrong, because there is nothing to ensure the definiteness of the IHRC-kes.

The IHRC structure in (9a) is predicted to have the same interpretation as a nonrestrictive relative clause, producing the maximality effects, because kes is a definite referential by itself and the relative clause modifies this pronominal kes. Also, although the relative clause is a sister of D in (9a), it cannot be treated as a complement semantically, because the CP is not selected by D. The structure in (9b) also produces the maximality effect, because the sister of the relative clause CP is a DP, which shows a

\textsuperscript{35} I think kes should be under D, not a DP, considering the case where the semantic head is a wh-word which check the [+Wh] feature on the matrix C. (See chapter 4 in detail.)
usual adjunct clause construction. In (9b), the definiteness of the IHRC is from *ku* which is a lexically-represented definite feature\(^{36}\).

It is well known that the IHRCs are always interpreted as definite. M. Kim (2004)\(^ {37}\) argues that the IHRC-kes string has a restrictive relative clause structure and that its definiteness is derived from a null D dominating the IHRC-kes string. However, M. Kim (2004)’s analysis cannot explain the judgment distinction between (9b) and (9c). She argued that *kes* under N\(^ {38}\) and a [+definite] feature under D both work as a pronoun, so the *pro* should always get the definiteness. In her analysis, (9b) and (9c) are both grammatical in her structure.

Also, I claim that the two different statuses of *kes* can account for why *kes* can refer to human being in some cases and why not in other cases. Kuroda (1974) argued that Japanese IHRC head *no* is not a proform, because the pronominal *no* usually has a derogatory connotation when it refers to persons, so cannot refer to a person, but *no* in

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\(^{36}\) The usual approach to DPs in modern linguistic theory, as shown in Elizabeth Ritter (1991) and Li, Y-H. A (1999), is that DPs are composed of many sub-layered phrase like DemP, QuantP and NumP, but the demonstrative cannot be under the head of a DemP, because Korean is a head final language and a Dem should be positioned after a NP under that analysis. So, the demonstrative in Korean is usually assumed to be under an NP, like an adjective. In (9), however, I put *ku* under a SpecDP in order to show the Spec-Head agreement. That is, it can be considered that a Dem *ku* is moved to SpecDP to check [+def] or [+specific] on D. Also, in (9b), there are analyses arguing that adjectives are not adjectives but relative clause, so an adjective and *kes* shows the structure of a reduced relative clause. However, in (9), I treated adjectives as adjective, not a reduced relative clause, and either analysis does not change my syntactic approach of the IHRC construction shown in chapter 4.

\(^ {37}\) See the tree structure in (59) in chapter 2 for M. Kim (2004)’s syntactic structure of the IHRC construction.

\(^{38}\) Adjectives can modify N/N’/NP syntactically, so her analysis assumes that *kes* can be modified by adjectives.
IHRCs can refer to a person. Like Japanese *no*, Korean *kes* as a pronoun also cannot be used to refer to a human being, because it has a derogatory connotation for persons. However, contrary to Kuroda (1974), I argue that proform *kes* in Korean can refer to a human or a non-human when it is under D like (9a), but it cannot refer to a human when it is under N. That is, the grammatical status of *kes* decides on whether *kes* refers to a human or not. Consider the following sentences in (10).

(10) a. Chelswu-nun [[halabeci-i-kkeyse cwumwusi-nu-n]  

        Cheulsoo-Top grandfather-honorific.Dat honorific.sleep-present.Imprf-RL  

        kes]-ul kkaywessta.  

        kes-Acc woke_up.  

        ‘Cheolsoo woke up (his) grandfather.’

b. * Chelswu-nun [[halabeci-i-kkeyse cwumwusi-nu-n]  

        Cheulsoo-Top grandfather-honorific.Dat honorific.sleep-present.imprf-RL  

        cichin kes]-ul kkaywessta.  

        tired kes-Acc woke_up.  

        ‘Cheolsoo woke up a tired grandfather.’
c. * Chelswu-nun [halabeci-i-keyse cwumwusi-nu-n]

Cheulsoo-Top grandfather-honorific.Dat honorific.sleep-present.Imprf-RL

ku cichin kes_i-ul kkaywessta.

Dem tired kes-Acc woke_up.

‘Cheolsoo woke up the tired grandfather.’

As seen above, *kes can refer to Cheolsoo’s grandfather, when it occurs by itself, but (10b) and (10c) are ill-formed, because *kes has a derogatory connotation in these cases. (In addition to the derogatory connotation, (10b) has no definiteness-conferring demonstrative, so it is also ill-formed for that reason.) This shows that *kes as an N-level proform only refers to non-human entities, while *kes as a D-level proform can refer to either a human or a non-human entity.

In conclusion, I argued that the IHRC-*kes has the structure of nonrestrictive relative clauses, like Kitagawa (2005). However, contrary to Kitagawa (2005), I used DP-based nominal structures rather than NP-based ones to explain the definiteness of the IHRC-*kes and capture the structural difference between a nonrestrictive clause structure and a restrictive one more clearly. As seen in (9a), I argue that the IHRC structure is similar to the structure of a non-restrictive relative clause and the definiteness of the IHRC is from
the definiteness of *kes* itself, when *kes* is a D’. As seen in (9b), if *kes* under N is modified by demonstratives implying definiteness, the sentence is grammatical, because the structure shows definiteness of the IHRCs. However, like (9c), if *kes* is modified only by adjectives without demonstratives, the sentence is not grammatical, because (9c) has no way to exhibit the definiteness of the IHRC construction, on the assumption that definiteness is not an inherent property of the null D in that structure.

I propose that the category of *kes* is treated as a *pro* under a D or an NP according to whether there is a modifier of *kes* or not. This is not the first analysis to suggest that the pronoun can be treated as having categories other than DPs. While most linguists assume that pronouns are treated as DP categories, Déchaine & Wiltschiko (2002) posited that there are at least three different types of pronouns, DP, ΦP and NP. The three types meet the following conditions.
Table 3. 1. Three Types of Pronouns: Déchaine & Wiltschiko (2002:410)

<table>
<thead>
<tr>
<th>Syntax</th>
<th>DP</th>
<th>ΦP</th>
<th>NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-syntax,</td>
<td>Neither D nor N syntax</td>
<td>N-syntact</td>
<td></td>
</tr>
<tr>
<td>morphologically complex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>Argument</td>
<td>argument or predicate</td>
<td>Predicate</td>
</tr>
<tr>
<td>Semantics</td>
<td>Definite</td>
<td>___</td>
<td>Constant</td>
</tr>
<tr>
<td>Binding</td>
<td>R-expression</td>
<td>bound variable</td>
<td>___</td>
</tr>
</tbody>
</table>

Kes under D* has the similar properties to pro-DP in (11), except that it is not a phrase but a head, so it is not morphologically complex. Other properties of pro-DP are applied to kes under D* in IHRCs; for example, kes is free from Condition C, because kes is not c-commanded by the internal head structurally. Although kes may associate with a QP as an internal head and hence looks like a bound variable, it is different from a normal bound variable in that kes is not c-commanded by QP structurally. However, kes in IHRC constructions does not encode Φ-features including number and gender and kes is a single morpheme which cannot be decomposed any more. The kes in (9b) is similar to pro-NPs,
although it is not used as a predicate and can not be modified by an adjective by itself.

Also, *kes* in (9b) does not have inherent definiteness; rather, the definiteness is from the demonstrative’s definite feature.

*Kes* in the IHRC constructions does not satisfy all the conditions for *pro*-DPs or *pro*-NPs that Déchaine & Wiltschiko (2002) proposed, and seems to belong to different categories from them. Although *kes* of the IHRC construction does not belong to any single one of their three types, the changeable status of *kes* in the IHRC constructions proves that all pronouns are not DPs.

### 3.3. The Internal Structure of the Embedded Clause

According to M. Kim (2004), the morpheme attached to the embedded predicate, before *kes*, is decomposed into an aspect marker (i.e. a perfective marker –ø-, an imperfective marker –nu- (or –te-)) and a relative marker –(u)n, but it does not have a tense node. The reason why she argues that there is no tense node in the embedded clause is that the tense of the embedded clause depends on the tense of the matrix predicate, so both clauses share the same tense. Consider the following sentences, which show M. Kim’s analysis of the internal structure of the embedded predicate.
(11) John-un [Mary-ka swukcey-lul (ta) ha-ơ –n] kes-ul

John-Top Mary-Nom homework-Acc (all) do-Prf-RL kes-Acc

chingchanhayssta.

praised.

‘John praised Mary for having done all her homework.’

(12) John-un [Mary-ka swukcey-lul ha-nu-n] kes-ul

John-Top Mary-Nom homework-Acc do-Imprf-RL kes-Acc

chingchanhayssta.

praised.

‘John praised Mary for doing her homework.’

Under M. Kim (2004)’s framework, the event of the embedded clause of (11) is completed, while the event of the embedded clause in (12) is not, and the embedded clause does not have any tense node, so the embedded clause and the matrix clause share the same tense. However, her morphological analysis has some problems. First, the motivation for the absence of an embedded TP she suggested is not enough, considering the tense shifting in other languages. For example, although the tense of the embedded finite clauses is dependent on that of the matrix clause in English, the embedded clause
nonetheless definitely has a tense node in the structure.

(13) \[[TP \text{John} [\text{T} \text{past}] [\text{vP} \text{said} [\text{CP} \text{that} [\text{TP} \text{Bob} [\text{T} \text{past}] [\text{vP} \text{loved} \text{Mary}]])]])\].

Also, if M. Kim (2004)’s argument is right, the temporal system of other kinds of noun-modifying clauses in Korean should not contain a tense node; for example, the embedded predicate of the EHRCs and the IHRCs have the same form, as seen in (14) and (15) which are the EHRC versions of (11) and (12), respectively, so EHRCs should not have a tense node, based on M. Kim (2004). Considering that a tense node is believed to exist in the embedded clause of an EHRC in many languages, it is awkward to assert that there is no tense node in the noun-modifying (attributive) clauses.

(14) \text{John-un} [\text{ti} \text{swukcey-lul ta ha-\text{o} -n}] \text{Maryi-lul} \text{chingchanhayssta}.

\text{John-Top} [\text{ti} \text{homework-Acc all do-Prf-RL}] \text{Maryi-Acc} \text{praised}.

‘John praised Mary for having done all her homework.’

(15) \text{John-un} [\text{ti} \text{swukcey-lul ha-nu-n}] \text{Maryi-lul} \text{chingchanhayssta}.

\text{John-Top} [\text{ti} \text{homework-Acc do-Imprf-RL}] \text{Mary-Acc} \text{praised}.

‘John praised Mary for doing her homework.’

Last, she usually treated a null marker as a perfective aspect marker and –\text{nu}- as an imperfective marker, but in the case where the embedded predicate is an adjective, she
treated the null marker as an ‘imperfective’ aspect marker, without explaining why a null marker is not a perfective in this case. When a null marker is attached to an adjective, it does not have a progressive or habitual interpretation. Also, stative predicates cannot usually have perfective or imperfective aspect marker in the temporal viewpoints. So, I conclude the null marker attached an adjective is not an imperfective marker.

Also, she did not discuss other morphemes like ‘te’ or ‘ul’ which can be located between the stem of the embedded predicate and a relative marker. Here, I try to investigate the morphology of the embedded predicate more in detail and suggest a way to resolve the problems of M. Kim’s analysis.

The embedded predicates in the EHRCs or the IHRCs are usually composed of a verb stem and a so-called attributive marker (–un, -nun, -ten- and –ul-). The interpretation of the first three of these morphemes is related with a realis embedded clause, but with -ul, the embedded clause receives an irrealis interpretation, in which the event of the clause has not occurred yet at a given reference point. The three different realis attributive markers can be decomposed into a temporal marker (–ø-, -nu- and -te-) and a relative marker –un. The main question about the embedded predicate is what is the status of

39 As for ‘-te’, M. Kim (2004) assumed it is a retrospective marker or ‘past’ perfective marker, which is contradictory with her argument of a TP deletion. The retrospective marker has been considered as a tense marker or an aspect marker, depending on the linguist.
those temporal markers; are they tense markers or aspect markers, or something else?

3.3.1. Present Imperfectives: –nu-

First of all, here I want to investigate the similarity and the difference between –nu- and –te-. Consider the following sentences in (16) and (17).


‘John praised Mary for doing her homework.’


‘John praised Mary for having been doing her homework.’

The difference between the sentence in (11) and the sentences in (16) and (17) is whether Mary finished the homework or she is in a process of doing the homework. The sentences in (16) and (17) are similar in that their embedded events are on-going events, but (16) is interpreted such that the embedded event occurred simultaneously with the matrix event, while in the sentence in (17), the embedded event occurred prior to the matrix event. In (16) and (17), the fact that both –nu- and –te- indicate on-going events—
so they are aspectually identical—but have different temporal background at least argues against M. Kim’s analysis, because the different interpretation of the embedded clause in (16) and (17) can be explained only if they express different tense information about the embedded clause. (Note that the tense/aspect morphology of the matrix clause does not change between the two sentences.) Therefore, this distinction proves the existence of a tense node in the embedded clause. However, considering the previous analyses of the grammatical status of –nu- and –te-, they are not just progressive/imperfective aspects in different tenses. Here, I discuss the previous analyses of these morphemes and try to discover if they share the same morphological status, and what it is.

As for the –nu- morpheme, for instance, Choe (1977) and C. Lee (1987) argued that –nu- is a present tense marker, because it always gives a non-past time reference and also refers to habitual and generic situations. However, H. Lee (1993)\textsuperscript{40} argues against this present tense hypothesis; if –nu- is a present tense marker, -nu- should not be lexically restricted in its distribution, but the fact that –nu- cannot be attached to descriptive predicates disproves the idea that –nu- is a tense marker. Consider the following sentences.

\textsuperscript{40} H. Lee (1993) did not discuss about the IHRC constructions specifically. Instead, he discussed the temporal system of the noun-modifying clause in general. Descriptive predicates he meant stative adjectives including stage-level and individual-level adjectives.


‘John envied Mary of being pretty.’

(19) John-un [Mary-ka mayil yakun-ttyaymuney pikonha-*nu-n] kes-ul

John-Top [Mary-Nom everyday nightshift-because tired-nu-RL] kes-Acc

masacihaycwuessta.

massaged.

‘John massaged Mary who was tired from the nightshift everyday.’

As seen in (18) and (19), if the embedded predicate is a stative adjective, no matter
whether it is a stage-level or an individual-level predicate, it cannot get a –nu- marker.

Considering that the stative predicates can get a present tense in other languages, the
above sentences show that –nu- is not a present tense marker.

The second hypothesis of –nu-, argued by Sohn (1975; 1999) and Shin (1988), is that it
is an indicative mood marker. However, this analysis cannot explain why the indicative –

nu- is limited to non-past situations (or simultaneous in relative clause) as well as why –

nu- is limited to non-descriptive verbs, as H. Lee (1993:94) pointed out.

Another hypothesis about –nu-, argued by S. Kim (1967) and Na (1971), is that –nu- is a
present progressive aspect marker. As seen in (20), the embedded predicate with –nu- indicates an on-going event, ‘John is eating the rice’, but this analysis is not always right, because the predicate with –nu- can indicate habitual or generic situations in some cases like (21).

(20) Jane-un [Tom-i pap-ul mek-nu-n] kes-ul ppayasa mekessta.

Jane-Top [Tom-Nom rice-Acc eat-nu-RL] kes-Acc take_away ate

‘Jane took away and ate the rice Tom was eating.’


‘John stopped Mary from drinking alcohol everyday.’

Considering H. Lee (1993) and Dahl (1985:78), –nu- is not a present progressive aspect marker. H. Lee (1993) argued that –nu- can be used with –ko iss- which is known as a dynamic durative construction expressing a past or non-past situation in progress, like mandul-ko_ iss-nu-n (make-Prog-nu-RL) or mek-ko_ iss-nu-n (eat-Prog-nu-RL), so –nu- is not a progressive aspect marker. Also, Dahl (1985:78) noted that progressives are almost independent of tense and have a periphrastic form, crosslinguistically, but -nu-
always refers to a present time without any additional suffix to indicate present tense and also \(-nu-\) is a bound form in Korean.

Consequently, the morpheme \(-nu-\) has the following three properties: (a) it is limited to the present situation—in a relative clause, the present situation can be past-shifted by the matrix predicate; (b) it can indicate a present on-going event or a habitual or generic situation; (c) it cannot be attached to stative adjectives. These properties tell us that \(-nu-\) is an imperfective aspect marker which only occurs with a present tense, because an imperfective aspect is a general concept which contains habitual-iterative aspect (habitual or repeated situation) and a progressive aspect (in-progress situation), and it is applicable to past, present or future time depending on languages.

If \(-nu-\) is a non-past imperfective predicate, it is not surprising that the morpheme \(-nu-\) cannot be used with stative adjectives. Stative adjectives, whether they are stage-level adjectives or individual-level adjectives, cannot compose with imperfectives, since imperfectives, as Bybee (1994) noted, are viewed with regard to the internal structure within the whole event frame which has an inception point or an end point, but statives have no such internal stages of a whole event semantically. In such sense, statives cannot be conceived of as an in-progress activity universally. Also, stative adjectives cannot be
used with habitual-iterative aspects, which are another kind of imperfective, because habitual-iterative aspects have lexical restrictions; the iterative requires a well-defined telic predicates and indicates the occurrence of events or states as a characteristics of a bound period of time.

In contrast to the pure stative adjectives such as celm ‘get young’ or phikonha-ta ‘be tired’, the well-known stative verbs such as al-ta ‘know’, sarangha-ta ‘love’ or sal-ta ‘live’ or some adjectives like cichi-ta ‘get tired’, mitch-ta ‘get crazy’, talm-ta ‘become alike’, maru-ta ‘slim’, imsinha-ta ‘get pregnant’, khu-ta ‘get big’ or ‘grow’, nulk-ta ‘get old’ or mwut-ta ‘get stained’ can be used with an imperfective –nu- or a progressive aspect marker –ko iss-, because they are actually treated as inchoative eventives in the Korean lexicon; their nearest English translations do not accurately reflect their event structure, because the corresponding English predicates are often adjectives, as Gim (1985:262-265) and K. Chung (2005:29) argued. Consider the following sentences which show the progressive aspect –ko iss- and imperfective –nu- are used with such inchoative eventive predicates in (22) and (23).
   ‘Jack disturbed Jin’s loving Jun.’

   Ken-Top John-Nom that house-a t live-Prog-Imprf-RL kes-Acc took_over.
   ‘Ken took over the house where John used to live.’

(23) Jack-un Tom-i nulk-ko_iss-nu-n kes-ul mak-ul yak-ul
   Jack-Top Tom-Nom get.old-Prog-nu-RL kes-Acc stop-Acc medicine-Acc
   made.
   ‘Jack made a medicine which stops Tom from getting old.’

   Ken-Top clothes-at dirt-Nom get.stained-nu-RL kes-Acc hated.
   ‘Ken hated clothes getting stained by dirt.’

Considering the above discussion about –nu-, the syntactic structure of the embedded clause is like this; both a [-past] feature under a Tense node and –nu- under an Aspect node are realized as one overt morpheme, -nu-, at the morphological level. It is worth
noting that the periphrastic progressive aspect may be dominated by an imperfective aspect phrase in Korean, as seen below in (24b). If the predicate is stative, I assume that the structure contains neither ImprfP nor ProgP, as seen in (24c).


   b. [CP [TP [ImprfP [ProgP [vP mek] [prog ko iss]] [Imprf nu]] [T nonpast]] [C n]]

   eat        Prog        Impřf   ø     RL

   c. [CP [TP [ImprfP [ProgP [vP yeppu] [prog ko iss]] [Imprf nu]] [T nonpast]] [C n]]

   pretty      Prog        Impřf   ø     RL

I think the status of the temporal morphemes attached to the noun-modifying clause is closely related to the temporal morphemes in the predicative clause. The morphemes –nun-/-n- in the predication construction are changed to –nu- in the noun-modifying clause, so they have the same grammatical status. Consider the following sentences in (25).


   Jack-Nom Cloe-Dat file.Acc give-Imprf-Present-Decl.

   ‘Jack is giving Cloe the file.’

Shawn-Top [Jack-Nom Cloe-Dat file-Acc give-Imprf-Present-RL] kes-Acc

poassta.

saw.

‘Shawn saw Jack giving Cloe the file.’

The morpheme –nun/-n in the predicative clause (25a) is a present imperfective marker. The alternation between –nun and –n in the predicative clause is phonologically conditioned allomorphy determined by the phonology of the stem; –nun- is attached to any verb stem which ends with a consonant, but –n- is attached to any verb stem which ends with a vowel. According to Huh (1975) and Ko (1981), historically it is believed that the morpheme –nun/-n in the predication construction originates from –nu/-n in the 15th century, and –nu- changed into –nun- in order to match the coda of the syllable with -n in the 17th century. The grammatical status of –nun/-n in the predication construction has been discussed in the same way as the discussion of –nu- in the attributive construction, and –nun/-n should also be considered to be imperfective aspect marker used with a present tense for the same reasons which I have discussed above. Therefore,
as predicted, -nun-/-n- in the predication construction cannot be attached to the stem of statives like (26).


    John-Top intelligent-present.imprf-Decl.

    ‘John is intelligent.’

b. Jane-un culkep-*nun-ta.

    Jane-Top happy-present.imprf-Decl.

    ‘Jane is happy.’

In this section, I showed that -nu- attached to noun-modifying clausal construction is an imperfective aspect marker, and that it is realized as –nun/-n- in non-embedded predicative constructions. The idea that –nu- indicates an imperfective aspect is particularly proved by the unavailability of combining stative predicates and –nu-. Also, contrary to M. Kim (2004), the distinction between –nu- and –te- indicates that the tense node is required in the embedded clause, because –nu- indicates a simultaneous tense and –te-, a prior tense to the matrix tense.
3.3.2. Perfective marker –ø–

H. Lee (1993) argued that a null marker is a perfective aspect marker, with no indication of tense. In his view, the null marker attached to non-stative predicates is the same perfective marker as the null marker attached to stative predicates. The reason why he argued that a null marker is not restricted by a tense is that the former gives a prior time reference to the matrix event, while the latter gives a simultaneous time reference to the matrix event. He argued that stative predicates can be considered to be perfective in a type of totality dimension. Consider his diagram of perfectivity in the totality dimension.

**Figure 3.1.** The internal/external view in the totality dimension of perfectivity (H. Lee, 1993:88)

Perfective aspect is an aspect that expresses a temporal view of an event or state as a simple whole, rather than taking into account the internal structure of the time in which it
occurs. It signals that the situation is viewed as bounded temporally outside of the event frame. As seen in Figure 3.1, H. Lee (1993) argued that the event frame of a perfective view can either have an end point or not, because the situation can be activities or states. In such sense, the perfective view in totality dimension is slightly different from that in ‘viewpoint telicity’ by Smith (1991), in that the former views the perfective situation as one unit, while the latter views the perfectivity as a situation with the end point of the event.

However, H. Lee (1993)’s analysis exhibits two problems; He argued that the null perfective marker attached to stative adjectives indicate a present tense, but a perfective aspect crosslinguistically occurs with past tense, because it indicates the total evolution of the event from the inception to the completion of the event. Also, if –ø- is used without indication of the tense, as he claimed, he cannot explain why the null marker attached to the eventive predicate does not imply the simultaneous (or present tense) situation or the null marker attached to the stative adjectives does not imply the prior (or past tense) situation. The restriction of the temporal background depending on the kind of predicates remains unsolved in his framework.
I claim that –ø- is a perfective marker, if it is attached to non-stative predicates, as seen in (27) and (28).


‘John stole the sculpture that Mary made/ had made.’


Mary-Top John-Nom rice-Acc eat-past.prf-RL kes-Acc ate.

‘Mary ate the rice John had eaten.’

If the predicates are achievements or accomplishments like (27), a sentence with a –ø- marker means the embedded event is completely finished, because the predicates inherently require the telic point. The matrix past tense marker –ess/ass- also confirms the event is completed. As in (28), if the embedded predicate is an activity which is eventive and atelic, the sentence also means the embedded event is completed, in the sense of being over. Therefore, (28)\(^{41}\) can be judged unacceptable in two ways; (1) John completely finished the event ‘eating his meal’ and there is nothing left for Mary to eat,

\(^{41}\) The sentence can mean Mary ate the same menu as John ate.
so consequently Mary is not in a situation to get connected with the embedded event. (2)

Mary cannot eat what is already in John's stomach.

Also, the idea that –\(\varnothing\)– is a perfective marker when it is attached to eventive predicates is supported by the fact that –\(\varnothing\)– cannot be attached after a progressive marker; that is, mek-

\(ko_\text{iss-nu-}\varnothing-\text{un}\) (eat-Prog-Imprf-present-RL) is judged grammatical, but *mek-\(ko_\text{iss-}\varnothing-\varnothing-\text{un}\) (eat-Prog-Prf-past-RL) is ungrammatical, because a progressive aspect which is a sort of imperfective aspects clashes with the null perfective aspect.

It is hard to claim that it is a perfective null marker that is attached to the stative predicate in the noun-modifying clause. Many previous studies have argued that the combination between stative predicates and null perfective markers cross-linguistically share this exceptional phenomenon; a morphologically unmarked form gives a past time or perfective interpretation for eventive predicates, and a present time interpretation for stative verbs (See Bybee (1994), H. Lee (1993: 86-87) as cited in Comrie (1976: 82-84, 116-122) for Yoruba, Igbo and Persian; See Bickerton (1981:116-122) for Haitian Creole and Guyanese; See Singler (1984: 88) for Liberain English and Kru; See Sankoff (1979) for Tok Pisin). Also, perfective aspects inherently occur with the past tense, because they
indicate the completion of the event. Therefore, I argue that the null marker attached to statives is a present tense marker rather than a perfective marker.

(29) Stage-level predicates


Chungman-Top Jeongyeon-Nom sick-Present-RL kes-Acc comfort-Past-Decl.

‘Chungman comforted Jeongyeon who was sick.’

(30) Individual-level predicates


Chungman-Top Jeongyeon-Nom nice-Present-RL kes-Acc praise-Past-Decl.

‘Chungman praised Jeongyeon who was nice.’

As seen above, stative predicates, whether they are stage-level or individual-level, have a present tense (simultaneous temporal background with the matrix clause in the relative clause construction), when they are combined with a null marker. I think that this analysis is consistent with (24c) showing that aspect nodes are not present in the structure and only the tense node with nonpast feature is left.
As a result, the status of a null marker is changeable depending on which predicate it is attached to. If the predicate is eventive, the null marker is a past perfective aspect, and if the predicate is stative, the null marker is shown as a present tense marker.

3.3.3. –te- as an imperfective past marker

The morpheme –te- in the matrix clause is widely called as a ‘retrospective marker’, which indicates the speaker’s perception or experience as to the event in the past. This term is equally used with ‘evidentials’, which refers to grammatical elements indicating the source or reliability of the evidence on which a given statement is based, e.g. via speaker’s sensory assessment or inferences. Evidentials are categorized into direct evidentials and indirect evidentials. The former indicates the report of the event is reliable through a speaker’s direct observation or listening, while the latter indicates the reliability is from a speaker’s inference or other secondary sensories.

Suh (1997, 1996) and H. Sohn (1994) argued that the matrix clause with –te- must describe a situation that the speaker witnessed, so –te- is only available as a direct evidential. However, the following examples in (31) show that –te- can also indicate that the speaker knows the matrix event through other sensory channels or inferences.
As seen above, the event of (31d) only depends on speaker’s direct visual observation, but (31a), (31b) and (31c) are based on speaker’s olfactory sense, inference and auditory sense, respectively.
In the relative clause, however, -te- seems to have a considerably different status. K. Chung (2005) argued that –te- in the relative clause is not an evidential, because it does not exhibit the direct observation effect, as seen in (32).


That time Shakespeare-Nom that house-Loc live-te-Decl.

‘[I saw] Shakespeare was living in that house at that time.’

b. ku tangsi Mina-ka ce cip-ey sal-te-la.

That time Mina-Nom that house-Loc live-te-Decl.

‘[I saw] Mina was living in that house at that time.’

(K. Chung, 2005:122)

c. ce cip-i ku tangsi sheykspie-ka sal-te-n cip-i-ta.

That house-Nom that time Shakespeare-Nom live-te-RL house-be-Decl.

‘That is the house where Shakespeare was living at that time.’

(K. Chung, 2005:122)

In (32), –te- occurs with a matrix verb. The speaker in (32b) witnessed Mina’s living at a past time, whereas it is impossible that the speaker in (32a) could have seen Shakespeare living at the house. K. Chung (2005) argued that as seen in (32c), if –te- is
used within a relative clause, a speaker does not need to have witnessed Shakespeare in
the house, so there are no evidential effects.

K. Chung (2005) argued that –te- in the matrix clause is different from that in the
relative clause, in that if –te- is attached to the matrix verb, the subject cannot be the first
person, but if –te- is attached in the embedded predicate, the subject can be any person.
Consider her data shown in (33) and (34).

(33) a. ?? **nay-ka hakkyo-e ka-te-la.**

I-Nom school-to go-te-Decl.

‘I heard that Sunhui had gone to school.’

b. **hakkyo-ey ka-te-n na-nun olaksil-lo cikhaynghayssta.**

School-Loc go-te-RL I-Top arcade-to headed.

‘I, who was going to school, headed straight to the arcade.’

(K. Chung 2005:123)

(33a) is not grammatical, because the subject and the speaker are the same first person
and it is awkward for the speaker to see himself to have gone. (The sentence in (33a) can
be acceptable, if the speaker describes a situation in his last dream.) However, like (33b),
if –te- is used within the relative clause containing a first person subject, the sentence is acceptable. It means the embedded clause with –te- does not show evidential effects.

In the relative clause, I think that if the embedded predicate is eventive, -te- attached to it does not show evidential effects, as K. Chung (2005) argued. However, this is not always true. If the predicate is statives, -te- does show the evidential effects, as seen in the following examples.


   ‘John saw Mary in the picture, who had been pretty in her childhood.’


   ‘John saw me in the picture, who had been pretty in her childhood.’


   Mary-Top John-Nom sad-te-RL kes-Acc comforted.

   ‘Mary comforted John who was sad.’

Mary-Top I-Nom sad-te-RL kes-Acc comforted.

‘Mary comforted me who was sad.’

In (34) and (35), the embedded stative predicates are yeppu-ta ‘pretty’ and sulpu-ta ‘sad’. In (34), the embedded predicate is an adjective which can be seen to be true, based on ‘external perception’, so the embedded predicate with –te- can be used with either the first person or the 2nd/3rd person. That is, whether the subject is the first person or the 2nd/3rd person, the speaker can see his/her appearance in the picture or mirror or see others directly, hence receiving direct visual evidence for the content for the embedded clause. On the other hand, sulpu-ta ‘sad’ in (35) is an adjective which can only be determined to be incontestably true based on ‘the internal perception’—there is no way for the speaker to assess the emotions of a 2nd person or a 3rd person unless the subject has heard a report of their emotion. Therefore, (35a) is ungrammatical, because the embedded predicate sulpu-ta ‘sad’ with the morpheme –te- has a third person, Mary, as a subject. The grammatical form of (35a) is like (36). When the internal perception predicate with the morpheme –te- has a second person or the third person subject, it gets a light verb –(e) ha-, an overt morpheme which licenses the accusative case marking and
an agentive subject and denotes the activity of exhibiting one’s emotion through one’s behavior, like (36). That is, in (36), attaching –(e) ha- indicates that the speaker and the subject ‘Mary’ knows John’s emotion on basis of his behavior of sadness at Jack’s death.

wyrohayssta.

comforted.

‘Mary comforted John who was sad.’

In the relative clause, if the embedded predicate containing –te- is a stative adjective which requires an external perception or inference, it can be used with any person. Such stative predicates are as follows; yeminha-ta ‘sensitive’, kkatarop-ta ‘picky’, yeppu-ta ‘pretty’42, mossayngki-ta ‘ugly’, yumiengha-ta ‘famous’, yengliha-ta ‘clever’, chakha-ta ‘nice’, ttwungttwungha-ta ‘fat’ and ciheylop-ta ‘wise’, ttokttokha-ta ‘intelligent’, celm-ta ‘young’, telep-ta ‘dirty’, kkaykkusha-ta ‘clean’. If the embedded predicate containing –te- is a stative adjective which requires internal perception, it can be used only with the first person subject, which is the speaker of the sentence, because the embedded eventuality

42 –(e) ha- cannot be attached to the external perception predicates, because the external perception predicates implies exhibiting the behavior of one’s internal state. However, yeppu-ta ‘pretty’, which is an external perception predicate, can get –ha-, but the meaning is changed. Yeppu-ha-ta means ‘pet (a dog)’ or ‘love (a baby)’. 
cannot be known to a 2nd or 3rd person speaker directly. Those adjectives are like pikohata ‘be_tired’, sulpu-ta ‘sad’, kippu-ta ‘glad’, oylop-ta ‘lonely’, paykopu-ta ‘hungry’, paypwuru-ta ‘full’ and hayngpokha-ta ‘happy’

Considering the data from (34) to (36), if the morpheme –te- is attached to a stative predicate within a relative clause, the reliability of the embedded events depends on whether the speaker of the sentence knows the embedded events directly or not.

In general, as for –te- in the relative clause with eventive predicates, there have been several different analyses. First of all, Na (1971) and I. Yang (1972) argued that –te- in the relative clause is a progressive aspect marker, which is applicable to the past tense, based on the fact that it indicates in-progress event in the past when it is used with eventive predicate. However, as H. Lee (1993) claimed, -te- can refer not only to past ongoing situations but also to non-progressive durative situation or a habitual activity in noun-modifying attributive clauses. Consider the following sentences.

---

43 When I searched the combination the internal perception stative predicates and –te- via Google, Yahoo or some Korean search engine, it hardly occurred at all, while the external perception stative predicates are used with –te- freely.
(37) i-ke-n [Suni-ka ti sa-te-n] osi-hako ttok kath-ta.

this-thing-Top [Suni-Nom buy-te-RL] clothes-Committal exactly same-Decl.

‘This is exactly the same as the clothes that Suni used to buy.’

‘This is exactly the same as the clothes that Suni was buying.’

(38) Na-nun [Chelswu-ka pap-ul mek-te-n] kes-ul sikiessta.


‘I ordered the meal Cheolsu had been eating.’

‘I ordered the meal Cheolsu usually had eaten.’

For activity verbs like sa-ta, -te- is ambiguous between a habitual activity in the past and a past progressive situation, as seen in (37), an EHRC sentence. Also, in (38), an IHRC, the event of the embedded clause is ambiguous between a habitual activity and a progressive situation in the past. However, his analysis exhibits several problems, because he treated –te- as a past imperfective, whether the predicate which –te- is attached to is eventive or stative. His claim is that statives cannot get an imperfective aspect but may receive a perfective aspect in view of totality dimension, because he considered the eventuality of statives as a whole unit with no internal structure. Therefore,
his analysis predicts that a past imperfective –te- cannot be used with statives, like a present imperfective –nu-. However, he argued that –te- can be attached to stative predicates in the relative clause, although it does not happen frequently. Therefore, his analysis treating –te- as a past imperfective contradicts the case where –te- is attached to a stative embedded predicate.

As for the status of –te- in a relative clause, I claim that it is divided into two ways and each status is restricted by the type of the attached predicate: one is an evidential –te- which is attached to past stative predicates, and the other is a past imperfective aspect marker –te- which is attached to eventive predicates. Therefore, two cases are structurally different like (39) and (40).
In my analysis, I argue that a Mood phrase, which is a kind of a CP, cannot be a phase boundary. Phase boundary CPs are relative clause CPs and sentence-ending CPs. (See Chapter 4)
Above, I have discussed the morphological statuses of the temporal morphemes attached to the embedded predicates, and the overall results are summarized as follows in (41).

First, the null marker is a perfective aspect marker, attached to eventive predicates.

Second, 

\(-nu-\) is an imperfective aspect marker which is limited to the present tense.
Stative predicates cannot get an imperfective aspect semantically, so the tense node is directly attached to the stem of statives, with no interruption of a ProgP, an ImprfP or a PrfP. Third, \(-te-\) is used as an imperfective aspect marker which is limited to the past tense, when the predicate is eventive and shows no evidential effects. However, if \(-te-\) is attached to stative predicates, the sentence shows the evidential effects.

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Morpheme</th>
<th>Status</th>
<th>Restriction of Tense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eventives</td>
<td>Ø</td>
<td>Perfective (with eventives)</td>
<td>Past</td>
</tr>
<tr>
<td></td>
<td>-nu-</td>
<td>Imperfective (with eventives)</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>-te-</td>
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<td>Ø</td>
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<tr>
<td></td>
<td>-te-</td>
<td>Evidential</td>
<td>Past</td>
</tr>
</tbody>
</table>

3.4. Summary

In this chapter, I investigated the status of \(kes\) and morphological analysis of the embedded clause. There have been many debates about the status of \(kes\) until now, but each argument has been believed to have drawbacks. For example, \(kes\) in the IHRC has been considered to be a complementizer or a nominalizer, but both of these analyses have problems because \(kes\) may be replaced by pronouns or nouns and also \(kes\) can be modified by a demonstrative and an adjective. However, I claim the status of \(kes\) is
different, depending on what type of structure *kes* is used in. If *kes* occurs by itself in the IHRC construction, it is a pronoun under D. In this case the definiteness of the IHRC construction is from *kes* itself. In other cases, if *kes* is used with a definite demonstrative, *kes* is a pronoun under N-level, and the definiteness is from the demonstrative, which is lexically represents a definite feature. Because the semantic head of the IHRC construction always must have definiteness and show the maximality effects, the overt demonstrative is required. That is, if *kes* is modified only by an adjective without a demonstrative, the sentence is ungrammatical, because there is no way to predict definiteness of the sentence. In both structures, the relative clause predicts a non-restrictive relative clause interpretation, because the sister of the relative clause, D or DP, is already definite and referential.

As for the morphemes attached to the stem of an embedded predicate, I argue that they are decomposed into an aspect morpheme, a temporal morpheme and a relative marker. Mainly, in this chapter, I discussed three temporal morphemes which can be attached to the embedded predicate; a perfective null marker, a present imperfective –*nu*- marker and a past imperfective –*te*- marker. The perfective null marker and the present or past imperfective markers are only used with the eventive predicates, because stative
predicates contradict perfectivity or imperfectivity, based on the temporal viewpoints they require. If the predicate of the embedded clause is a stative, the imperfective aspects cannot be attached to them, so a null tense marker is attached to them. –Te- attached to statives is an evidential, considering that –te- cannot be attached to an internal perception predicate, when the subject of the embedded clause is a first person.
CHAPTER 4.

A PROPOSAL FOR THE SYNTAXIC STRUCTURE OF THE IHRC CONSTRUCTIONS

4.1. The Gist of the Proposal

In Chapter 2, I compared many analyses about the syntactic mechanisms of the IHRC constructions and in Chapter 3, I argued that 

kes is a pronoun under D or NP-level and the definiteness of the IHRC-kes is determined by a kes under D itself or a lexically represented definite marker in combination with an NP kes, respectively. Based on the discussion about the internal structure of the IHRC construction and its syntactic mechanism, I develop the findings of the previous sections and suggest a different analysis from the previous studies in this chapter.

First, I focus on the difference between the EHRC and the IHRC constructions with respect to the long-distance dependencies. While an operator can move across each phase boundaries in the Korean EHRC construction and create a long-distance unbounded dependency between the trace and the head noun, the equivalent long-distance dependency between the pro kes and the semantic head in the IHRC construction fails. I
try to explain the difference between the two structures in the framework of Phase Theory.

In view of phase theory, the interpretation of an embedded clause in the EHRC construction is not complete until the moved operator finds the external head and matches a trace and the external head noun, but a relative clause in the IHRC construction has no gap, so the interpretation of the embedded relative clause is bounded within the relative clause. In order to explain the IHRC construction within phase theory, I adopt Watanabe (2004)’s feature checking analysis. However, I assume that an uninterpretable feature on C˚ is checked against an interpretable feature on the internal head NP and this feature checking occurs by phase, while Watanabe (2004) argues that uninterpretable focus feature on the internal head (Goal) is checked by the external determiner (Probe), crossing over a relative clause boundary. Watanabe’s analysis predicts the IHRC construction with island clausal boundaries to be ungrammatical and that with non-island clausal boundaries to be grammatical, because non-island clausal boundaries do not violate the island constraint. However, my proposal expects the IHRC constructions with the internal head within non-island clausal boundaries as well as island clausal boundaries to be ungrammatical, agreeing with the judgments of Chung & Kim (2003). This will be attributed to the fact that the checking of the uninterpretable feature is done
by AGREE across phases and the internal head does not move.

In addition to the feature checking by phase, I adopt the referential pronominal analysis like Kitagawa (2005). However, as I discussed in Chapter 2, I propose that *kes* is itself the referential pronoun, rather than a nominalizer, and the whole relative clause CP has the same index as this pronoun, since it is construed as a modifying predicate. Therefore, a head NP/DP, a C, a CP and the *pro* are all co-indexed. Therefore, the syntactic tree structure of the Korean IHRC construction is like (1).

In the tree structure of (1), the main syntactic mechanism operates in two stages; one is an uninterpretable feature checking by Agree through phases and the other is the co-
indexation between the internal head and the *pro kes*. In that sense, this proposal is a complex way combining a covert movement analysis and LF head-in-situ.

Second, I argue that the event of the relative clause (denoted by the vP) as well as the nominal can behave as a semantic head. All previous studies only argue for the availability of nominal head, and particularly M. Kim (2004) argues that if the matrix predicate is a direct perception predicate or a factive verb which produces only the event reading, the embedded clause is a full complement clause with TP, not an IHRC at all. However, I show that when direct perception predicates and factive verbs are used as matrix predicates, the nominal reading and the event reading are both available, which argues that the IHRC construction can both have the event of a vP and a nominal as a semantic head. That is, if the internal head is a nominal, the C shares the same indexation as the internal head NP/DP through the uninterpretable focus feature checking between the head DP and a C. Because the C shares the same index as its projection CP, consequently the internal head NP/DP, a C and a CP share the same indexation. If the internal head is an event, which is a vP, the uninterpretable focus feature checking between vP and C occurs, and C shares the same index as the internal head of vP.

Third, I discuss the IHRC construction with different kinds of semantic head: a WH-
word, coordinate phrases like ‘DP + DP’ or ‘vP + vP’, and a complex DP embedding another DP. If the semantic head is a WH-word, Watanabe (2004) and Kitagawa (2005) assume that uninterpretable focus feature on the internal head is checked against D and the [+WH] feature of the matrix clause is checked against by DP whose [+Wh] feature is percolated from D inherently. However, I assume that if the internal head is a WH-word, a null operator moves to Spec of matrix CP cyclically. When the embedded clause has coordinated nominals or coordinated vPs, the pro always indicates both nominals or both events. This shows that the IHRC sentence satisfies the CSC (Coordinate Structure Constraints), which I argue is explained by a semantic parallelism requirement. Also, when the IHRC contains a complex DP containing another DP, the semantic head can be the embedding DP but not the embedded DP. This is additional evidence for the phasehood of DPs which are generally accepted as phases at present in Minimalist linguistics.

Fourth, I address problems that are especially odd for a strictly syntax-based approach. For example, Hoshi (1995), Chung & Kim (2003), M. Kim (2004) and Kitagawa (2005) discuss the availability of change-of-state referent from embedded to matrix clause, and they argued such sentences have no internal head in the embedded clause, as shown in
sentences of (31) and (32) in Chapter 2. However, I suggest two different analyses as to (31) and (32): (31) has an internal head NP like regular IHRC sentences, and the internal head based on Adger & Ramchand (2004)’s base-generation analysis does not need to show the identity effects. The sentence in (32) is a real null-headed IHRCs, but I claim that an implicit indefinite head noun is structurally present, but is not pronounced.

First of all, I will next describe the basic idea of Phase theory which the syntactic structure of the IHRC construction is based on, and show how phase theory can be applied to the problematic IHRC sentences discussed by previous studies.

4.2. Theoretical Background: Phase Theory

According to the minimalist program framework outlined by Chomsky (1999, 2000, 2001a, 2001b and work thereafter), the derivation of a sentence proceeds by phase, a successive-cyclic application of Merge, Move and Spell-Out operations. Phases, as outlined by Chomsky, are propositional categories like CP (a functional strong phase) and vP (a lexical strong phase), and movement from the Goal (a head) to the Probe (a landing site) is triggered by an EPP feature on the Probe. The uninterpretable feature on the Probe seeks its matching interpretable feature on the Goal, and this operation is called AGREE.
AGREE can be accompanied by movement if Probe has an EPP feature, but it does not need to be, if Probe does not have an EPP feature. In that respect, there is no covert movement in this theory: if the Probe has an EPP feature, checking will be accompanied by overt movement, but if the Probe has no such feature, then the Goal will remain in situ and its feature will be checked without any movement. Spell-Out applies cyclically by phase, and also semantic interpretation and evaluation also occurs at the phase level cyclically. As argued in Chomsky (2001a & b), the structure that is the complement to a phase head is passed to the semantic system (LF) and phonological system (PF) for interpretation, when the head of the next higher phase is merged.

Phases constitute locally-determined computation domains, and thus look-ahead phenomena cannot be expected here. That is, movement is not induced by a higher head in the final phase which has not yet been constructed, but is triggered cyclically by v or C in each intermediate phase. In each phase, as seen in (2), the raised element moves to the edge of the phase to satisfy the EPP feature of the phase head. The Spell-Out domain of phase head H is limited to YP, a sister of H. For example, after the computational operation merges the C, the VP complement of v° is shipped to the phonological and semantic interfaces by Spell-Out. This idea is captured by the Phase Impenetrability
Condition (PIC) in (3).

(2) \([ZP \ldots[H_{\text{H}} \ YP]]\)  \((ZP \text{ and } HP \text{ are strong phases.})\)

(3) In phase \(\alpha\) with Head H, the domain of H is not accessible to operations outside \(\alpha\), only H and its edge are accessible to such operations (Chomsky, 2000:108).

The past derivation is lost within the past phase, so if an operation is finished in one phase, there is no way to return to that phase to conduct further operations. In the schema in (2) above, for example, the domain YP is invisible to further syntactic operations, once Z is merged.

In a sense, the phase theory recalls the Subjacency condition of GB theory (Chomsky, 1973), which held that a movement could cross one cycle node, but not two, and also the Barriers model where not only CP but also VP was a barrier to movement (Chomsky, 1986). However, while Subjacency and Barriers were understood as constraints on movement and government, phase theory—the idea that the computation operates in phases and phases are sent to Spell-out—provides rather a conceptual base for such locality requirements. Chomsky only considered v*P and CP to be strong phase boundaries. This configuration is presented in (4)\(^{45}\).

\(^{45}\) Karimi (2005) suggested for Persian that the CP, a strong functional phase, represents contrastive, topic and WH-operator, and contains
The following illustrations in (5) and (6) show the derivation by phase of a sentence containing cyclic WH-movement and an English restrictive relative clause.

(4) \[ \text{CP} \left[ \text{TP} \left[ T^* \left[ \text{vP} \left[ v' \left[ \text{XP} \left[ X' \right] \right] \right] \right] \right] \right] \]

\[
\begin{array}{c}
\text{EPP} \hspace{1cm} \text{EPP} \hspace{1cm} \text{EPP} \hspace{1cm} \text{EPP} \hspace{1cm} \text{EPP} \hspace{1cm} \text{EPP} \\
\text{Functional Phase} \hspace{1cm} \text{Lexical Phase}
\end{array}
\]

In (5) the WH-phrase moves to satisfy the EPP features on v and C, and in (6) the head noun and the trace of the relative clause get interpreted by phase-by-phase movement of an empty operator\(^{46}\) or the head noun, so they show an unbounded dependency.

Recently, some linguists have argued that DPs should be also considered to be phases, in addition to v*P and CP which are regarded as strong phases by Chomsky, and the phasehood of DPs is examined (Svenonius 2004). For example, if sentences are derived

\[
(5) \quad \text{\([CP \text{ Who \[\text{[\text{did \[\text{t \[\text{you \[\text{say \[\text{[\text{Mary \[\text{[\text{thought \[\text{[\text{John \[\text{[\text{kissed \[\text{t \[\text{[\text{[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[[[[[[[[[[[\text{[[[[[[[[[[[\text{EF} \hspace{1cm} \text{EF} \hspace{1cm} \text{EF} \hspace{1cm} \text{EF} \hspace{1cm} \text{EF}
\end{array}
\]

46 There are different analyses possible about what is moved here. In view of antisymmetry analysis, one case of Raising analysis, what is moved is a head noun NP or a head noun DP with an operator. In view of Op-movement analysis, a case of Matching analysis, what is moved is an overt or covert operator, not a NP/DP. (Sauerland 2000)
by phases, the computational units which are sent to Spell-Out and exist independently at the interfaces, phases can be considered to be divided by some points where our memory resources are exhausted. Since DPs can be iterated and arbitrarily long by recursively adding a DP as an argument of a noun, DPs must be or contain phases (Matushansky, 2003). Also, phases are believed to have escape hatches, so any element cannot move out of a phase, unless it first moves to Spec of the phase. Likewise, DPs have escape hatches; extraction out of a DP is blocked by a filled Spec of DP or overt definite D47 like the sentences in (7) (Cinque 1980, Ritter 1991, Giorgi and Longobardi 1991, Stowell 1989, Campbell 1996, Karimi & Lobeck 1998, Gavruseva 2000). Escape hatches of DPs are not only related to definiteness but specificity, as seen in the sentences in (7).

(7) a. Who did you see [DP a/several picture of t1]? (from Karimi & Lobeck, 1998)

b. *Who did you see [DP the/each picture of t1]? (from Karimi & Lobeck, 1998)

c. *Who did you see [DP Mary’s picture of t1]? (Adapted from Matushansky 2003)

d. *Who did you see a picture/pictures of t that I liked most? (from Fiengo, 1987)

The sentences in (7) show that extraction of nominal out of definite/indefinite specific

---

47 This restriction is not just syntactic. According to Fiengo & Higginbotham 1981, Stowell 1989, Mahajan 1992), specific DPs are islands for extraction, so the sentence, Who did you see a specific/particular picture of t?, is grammatical, because DPs here have specificity. Also, a definite article is not enough to block extraction out of DPs; the overt the in comparative superlatives does not have specificity, so sentences like who did you take the best picture of t? is grammatical (Szabolcsi, 1986).
DPs is not accepted as grammatical, while extraction of nominal out of indefinite non-specific DPs is considered to be grammatical in English. Karimi & Lobeck (1998), as for these phenomena, made three assumptions; first, they argued that a DP has a functional category, NumP, which occurs between D and NP, following Ritter (1991), and that this NumP lacks a specifier. Second, they adopted the notion of nominal head raising to D argued by Longobardi (1994) and extended his analysis to the movement of N or Num to D to check [+specific] feature on D which must be checked. Third, movement into SpecDP cannot violate lexically realized Spec-head agreement, so if [+specific] feature is lexically realized by the or each, movement into SpecDP is blocked. Under their analysis,

(8) Definite specific DP (Karimi & Lobeck 1998: 179)

\[ [\text{DP } +\text{specific } [\text{DET the/each/Mary's } +\text{specific } [\text{NUMP [NP pictures of t]]}] ] \]

‘Who did you see the/Mary's/ each picture of t?’

(9) Indefinite non-specific DP (Karimi & Lobeck 1998: 179)

\[ [\text{DP } +\text{specific } [\text{DET a/ø/several } [\text{NP pictures of t]]}] ] \]

Who did you see a/ø/several pictures of t?’
(10) Indefinite specific DP (Karimi & Lobeck 1998: 179)

a. \[\text{DP} +\text{specific} \ [\text{DET a/several}, +\text{specific}] \ [\text{NUMP t} \ [\text{NP pictures of t that I liked most}]\

b. \[\text{DP} +\text{specific} \ [\text{DET pictures}, +\text{specific}] \ [\text{NUMP t} \ [\text{NP t of t that I liked most}]]\

The main point of their analysis of extraction out of English NP is that the N cannot be moved out of an NP, if [+specific] feature is lexically realized. Therefore, in (8), the lexically-realized definite determiner or quantifier in D checks the [+specific] feature in SpecDP, and movement to SpecDP is blocked because feature checking by agreement is lexically realized. In (9), extraction of DP out of NP is available, because there is no lexically realized Spec-head agreement. In (10), singular or plural markers are moved to D to check [+specific] feature, so [+specific] feature is lexically realized, which is the reason of blocking extraction of a nominal to SpecDP. That is, in English, DPs with specificity do not permit extraction.

However, extraction out of DP is parameterized by languages. For example, in case of Persian which lacks a definite article comparable to English the, extraction is allowed out of determinerless, definite and specific NPs. If the specificity is lexically realized as a demonstrative, however, extraction out of a DP is blocked. As Karimi & Lobeck (1998)
claimed, the extraction out of DPs in Persian is allowed only if [+specific] is not lexically realized\textsuperscript{48}. Consider the following data.

(11) a. Kimea diruz \[NP ye she’r az ki\] xund

Kimea yesterday [a poem by who] read

‘Who did Kimea read a poem by?’

b. Kimea [NP ketab-e kodum nevisanda]-ro dust-dr-e?

Kimea [book-EZ which writer]-râ friend-have-2sg

‘Which writer’s book does Kimea like?’

c. *Kimea [NP in she’r az ki]-ro xund

Kimea [this poem by who]-râ read

The difference between (11a) and (11c) is that the former does not have specificity—the accusative marker \(râ\) is not used—so WH-extraction is allowed, but the latter has specificity with \(râ\), so the sentence is not grammatical. While the DP in (11c) has a demonstrative, the DP in (11b) shows specificity but does not have an overt determiner, so (11b) is grammatical. That is, extraction is blocked out of specific NPs in English,

\textsuperscript{48} When \textit{kes} is under N in the Korean IHRC, it should be modified by a Dem. Without a Dem, the IHRC-\textit{kes} is not appropriately definite, even though bare NPs in Korean can have definite readings without demonstrative in other circumstances. Considering this point, I think Korean is similar to Persian, in that the specificity of Korean IHRC also requires that the [+specific] be lexically realized.
while Persian allows extraction out of definite, specific noun phrases in the event that such noun phrases lack a determiner (See Karimi & Lobeck, 1998: 182).

Korean/Japanese, like Persian, does not have any definite article, but shows the characteristics of a different parameter. That is, the extraction out of DP in Korean/Japanese is permissible, whether specificity is lexically realized as a demonstrative or not.

(12) Younghui-nun nwukwu-lul manna-ko_iss-nu-n ku soneon-ul poass-ni?

Younghui-Top who-Acc meet-Prog-present.imprf-RL that boy-Acc saw-Q?

‘Who did you see the boy meet?’

As seen in (12), a Wh-operator can move out of a definite DP to check the matrix [+wh] in Korean. It means that escape hatch extraction out of a DP is permissible in Korean/Japanese, whenever it is needed.

As seen above, direct and indirect evidence for a DP phase has been found. In this paper, I consider a DP as well as v*P and CP to be phases and try to explain the problematic issues of the IHRC constructions in the framework of phase theory.

4.3. Two Semantic Heads: DP and vP
As seen in section 1, the syntactic construction and interpretation of the IHRC is done by phases. First, the vP phase is constructed, by merging the arguments of the verb into their argument positions—complement of V\* for objects and specifier of vP for subjects. Then the construction of the next phase begins: a T\* is merged with the vP to create a TP. And then, the subject in specifier of vP and object in VP are moved to the Spec-TP and Spec-vP positions\footnote{This hypothesis is not generally applied. In English, for example, the object does not move to Spec of vP overtly. But, I assume this hypothesis is applied to Korean.}, respectively, to check their uninterpretable case features, as well as the EPP features of T\* and v\*. When the head of the next phase, C, is merged, the domain of the vP phase—VP—is sent to PF and LF. However, the nominal arguments of the embedded verb are still visible, because they have moved into the higher phase. At this point, the uninterpretable feature on C is checked by the appropriate argument of the embedded clause, i.e., by the argument which bears an interpretable feature as the head of the IHRC construction. In this case, the uninterpretable feature is checked against the head of the IHRC. Through this feature checking, C gets the same index as the semantic internal head, and this index is percolated up to the CP. As a last step, the CP and kes get the same index, in the relationship of a modifying clause and a modified nominal.

Consider the derivation of the IHRC construction in (13), whose internal head is the
object of an embedded clause.

(13)
What about the case where the IHRC refers to the event of the embedded clause, rather than to one of the nominal arguments, as when the IHRC is the complement to a direct perception verb or a factive verb like (14)?


‘Jane knew the fact that thief stole a jewel.’


Jane-Top [Bill-Nom great paper-Acc publish past.prf-RL] kes-Acc

tut-ess-ta.

hear-Past-Decl.

‘Jane heard the news that Bill published a great paper.’

There are some studies which distinguish direct perception constructions and the IHRC constructions, but most studies minimize the significance of the structural similarities and differences between two constructions (Kuroda, 1976, 1977; Ito, 1986; Murasugi, 1991; Lefebvre & Muyskin 1988; Chung & Kim, 2003; M. Kim, 2004; Kitagawa 2005). M. Kim (2004) discusses this issue more in detail and argues that the direct perception constructions (also the factive verb construction) are syntactically very similar to the
IHRC constructions, but the difference is that the former has a full clause with a TP node in the embedded clause, while the latter has a small clause with no TP. She took the following examples to support her idea.

(15) a. The IHRC construction

\[
\text{John-un } \left[ \text{DP } \left[ \text{CP1 } \left[ \text{CP2 totwuk-i } \text{tomangka-n-(*ta)-nun} \right] \right] \text{kes}-ul \text{ capassta.} \right.
\]

\[
\text{John-Top } \left[ \left[ \text{thief-Nom run_away-Impf-Ind-RL} \right] \text{kes}-\text{Acc} \text{ caught} \right. \]

‘A thief was running away and John caught him.’

b. The factive verb construction

\[
\text{John-un } \left[ \text{DP } \left[ \text{CP1 } \left[ \text{CP2 totwuk-i } \text{tomangka-n-ta}-\text{nun} \right] \right] \text{kes}-ul \text{ alassta.} \right.
\]

\[
\text{John-Top } \left[ \text{thief-Nom run_away-Impf-Ind-RL} \text{kes}-\text{Acc} \text{ knew}. \right. \]

‘A thief was running away and John knew it.’

from M. Kim (2004:199-200)

Within her framework, the semantic head of an IHRC is always an NP, not an event, and (15b) is not properly analyzed as belonging to the IHRC construction. She syntactically distinguishes the direct perception predicate construction and the factive verb construction from the IHRC constructions, but she did not discuss how \textit{kes} in the direct perception predicate construction is structurally different from or similar to the
Kitagawa (2005) proposed two distinct structures in the Standard IHRC type whose semantic head is a nominal. In one, the semantic head is a nominal within a relative clause, and does not need to satisfy the content of a relative clause. In the other, the semantic head is an individual-event hybrid entity; that is, when the matrix predicate is a direct perception predicate, the IHRC has the structure in (16a) which induces a whole-scene orientation effect. This case is similar to a concept of an E-type pronoun, in that the semantic head is the entity which satisfies the content of the embedded clause, but this is different from an E-type pronoun, in that the semantic head is not a QP. (In Kitagawa (2005), he argued that only if the semantic head is a QP, is the pro an E-type pronoun. So, the individual-event hybrid entity belongs to the Standard IHRC subtype.) Within his analysis, the semantic head is not an event but a nominal.


Mary-Top John-Nom block-Acc have-Conn play-present.imprf-RL kes-Acc saw.

a) Mary saw John playing with blocks: [[……ZP,…,] [proi]]

b) Mary saw the scene wherein John played with blocks: [[……ZP,…,] [proj]]

Under Kitagawa’s analysis, the examples in (16) are ambiguous between two
interpretations. He argues that the one interpretation indicates Mary saw the scene of John playing with blocks, and the other interpretation indicates Mary saw a man, *John* who played with blocks. He only considers (16a) to be an IHRC construction, but not (16b), because (16b) does not have an internal head within the relative clause. Contrary to M. Kim (2004), Kitagawa (2005) claims that when the direct perception predicate is used as a matrix predicate, the sentence belongs to the IHRC construction only with the interpretation of (16a), by assuming that the internal head is a nominal which satisfies the contents of the embedded clause.\(^50\)

Chung and Kim (2003) argue that when the matrix predicate is a factive predicate or a direct perception predicate, the sentence has a clausal complement rather than an IHRC. So, they assume that (17a) and (17b) have the same structure.

\[(17) \, a. \, \text{John-un} \, [\text{Mary-ka talli-nu-n}] \, \text{kes-ul alassta.} \]


‘John knew Mary was running.’

---

\(^50\) If the tense of the embedded clause in (16) is changed to the past perfective, a proposition reading is only available; Mary saw the blocks scattered about the room, she deduced by seeing that mess that John had been in there playing with blocks. This implies that the ‘scene’ interpretation is the only one available and a nominal head reading should be impossible.

John-Top Mary-nom run-Present-Decl-Comp knew.

‘John knew Mary was running.’

However, their claim that (17a) has a clausal complement like (17b) cannot explain the difference of the morphological status between those two structures. For example, they treated kəs as a pronoun under N, but there is no corresponding node to kəs in (17b). Considering that a clausal complement cannot get a case marking in Korean, the accusative marker after the embedded clause cannot be explained. Also, a typical Korean complementizer -ko in (17b) is attached to the indicative form of predicate and cannot be replaced by any noun, while kəs in the IHRC is not attached to the indicative form of predicate and can be replaced by a noun.

Contrary to Chung and Kim (2003), I claim that the direct perception predicate construction is different from the clausal complement construction, because kəs has different morphological properties from the typical complementizer in Korean (See 3.2). Also, M. Kim (2004) and Kitagawa (2005) limited the internal head to a nominal, but I propose that a phrase denoting an event as well as a nominal phrase can be an internal head, considering that a pronoun may refer to an antecedent clause in English or Korean.
We can actually find the IHRC constructions are ambiguous between the nominal head reading and the event head reading, while the clausal complement structures are not.

Consider (18) and (19)

(18) a. Mary-nun [John-i ku mwunce-uy tap-ul selmyengha-nu-n]

Mary-Top John-Nom that question-Gen answer-Acc explain-present.imprf-RL

kes-ul a1-ko_iiss-ess-ta.

kes-Acc know-Prog-Past-Decl.

Event reading: ‘Mary knew (the fact) that John explained the answer of that question.’

Nominal reading: ‘Mary already knew the answer of that question John explained.’

b. Mary-nun [John-i ku mwunce-uy tap-ul selmyengha-n-ta-ko]

Mary-Top John-Nom that question-Gen answer-Acc explain-present-Decl-Comp

a1-ko_iiss-ta

know-Prog-Decl.

‘Mary knows that John will explain the answer of that question.’

   Mary-Top John-Nom piano-Acc play-present.imprf-RL kes-Acc

tut-ess-ta.

hear-Past-Decl.

Event reading: ‘Mary heard (the news) that John played the piano.’

Nominal reading: ‘Mary heard the piano, which John played.’

In (18) and (19), the matrix predicates are al-ta ‘know’, a factive predicate, and tut-ta ‘hear’, a direct perception predicate, respectively. The sentences in (18a) and (19a) show the IHRC constructions, but they are ambiguous between two interpretations; in one case, the semantic head is a nominal, and in other case, the semantic head is an event which is referred to by the embedded clause, as seen in the English translation. If (18a) and (19a) have two interpretations, the syntactic structure for the event interpretation is rather the

51 There are two possible analyses about the nominal head meaning in (19a). In one case, as I presented above, music is only implied, because it is the kind of sound that a piano makes. In the other case, the embedded clause in (19a) has a double object construction and umak ‘music’ is a second object, which is not pronounced but still exists syntactically—in this case, umak ‘music’ is an implicit indefinite object. As for the implicit indefinite nominal head, see 4.5.
IHRC construction than the clausal complement construction. Also, (18b) and (19b) have
the same interpretation as the event reading of (18a) and (19a), but their structures show
the typical clausal complement constructions.

If we assume that the vP refers to an event and it may bear an interpretable feature, just
like an DP, then the event head reading of an IHRC is predicted when the embedded vP
checks the uninterpretable feature on C°, the syntactic head of the relative clause. On this
approach, the two readings of the IHRC and the clausal complement constructions have
syntactic structures like (20).

(20) a. The IHRC constructions: A DP internal head

```
(20) a. The IHRC constructions: A DP internal head

DP
  /\ CP,i               D_i
  |   |                   |
C'   kes

     IP
    /\                     |
   /   C_i
  /     |
I'      |

     vP
    /\      F-int
   /   I
  /     |

  DP/NP_i
  \     F'_int
    Feature checking by phases
    Copy of the same index
```
b. The IHRC constructions: A vP internal head

\[
\begin{array}{c}
\text{DP} \\
\text{CP}_i \\
\text{IP} \\
\text{vP} \\
\text{CP} \\
\text{IP} \\
\text{C'} \\
\end{array}
\]

If both sentences in (15) have \(-ta-\) in the embedded clause, they have no problem

c. Clausal complement structure

\[
\begin{array}{c}
v' \\
v \\
\text{Factive/DPP} \\
\text{ko} \\
\end{array}
\]
syntactically, because the event of a TP is accessible when the head of CP1 is merged and *kes* can refer to the event of the TP, as seen in (21). However, the property of the matrix predicate decides the grammaticality of the sentences in (15). That is, the matrix verb *cap-ta* ‘catch’ in (15a) only expects a nominal as an object, while the factive verb *al-ta* ‘know’ in (15b) can expect a nominal or an event as an object. The structures of (15) are as follows.

(21) The structure of (15a) and (15b)

4.4. The Benefits of Phase Theory in IHRC Constructions
In this section, I look at the problematic data discussed in Chapter 2 and propose they can be explained by the Phase theoretic account.

Watanabe (2004) argues that when the IHRC contains a non-island clausal boundary, the semantic head can be an argument in the most embedded clause, because the embedded clause is not an island and the uninterpretable feature on D high up can be checked against by the head NP. However, Chung & Kim (2003) judge the IHRC with non-island clausal boundaries ungrammatical, when the semantic head is an argument of the most embedded clause. I also agree with Chung & Kim (2003). Consider the sentences in (22).

(22) IHRC containing a non-island clausal boundary

a. Korean (Chung & Kim, 2003:56)

*na-nun [CP1 kutul-i [CP2 kangto-i-ka unhayng-eyse naonta-ko] malha-ø-n]
I-Top they-Nom robber-Nom bank-from come out-Comp say-prf-Rel
kesi-ul capassta.
kes-Acc arrested.

‘I arrested the robber who they said was coming out of the bank.’
b. **Japanese** (Yoshida, 2001:20)

*[Taroo-ga  [Hanako-ga subarasii ronbun-o kaita] to]  kiiteita] no]-ga

Taroo-Nom Hanako-Nom excellent article-Acc wrote that heard no-Nom

syuppan sareta.

published was.

‘The excellent article that Taroo heard that Hanako wrote was published.’

I argue that the failure of the unbounded dependency in the IHRC with non-island clausal boundaries proves the LF-in-situ analysis, and that it can be explained by phase theory. In the case of the Korean EHRC construction, a head noun or a covert relative operator moves, via EPP triggers, through the escape hatch at the edge of a phase to the edge of the next phase, and each phase is sent to LF and PF for interpretation and pronunciation. However, because there is a gap within the EHRC, its semantic interpretation is not completed until an operator (or a head noun) arrives in its surface position. This is how an EHRC shows an unbounded dependency between an operator (or a head NP/DP) and its gap position, as seen in (23). However, in the Korean IHRC construction, there is no gap for the head noun; the semantic head noun is in-situ within the relative clause as seen in (24).
(23) The EHRC Construction

\[
\text{na-nun } [\text{DP}_{\text{CP}1} \text{ Op}_{\text{TP}} \text{ kutul-i } [\text{vP}_{\text{CP}2} \text{ e}_i \text{ e}_i \text{ e}_i \text{ unhayng-eyse} ] \text{[v naon]} ] \text{ ta-ko]}
\]

\[
\begin{array}{llll}
\text{I-Top} & \text{they-Nom} & \text{bank-from} & \text{come out-Comp} \\
\end{array}
\]

\[ [\text{v malha]}-\text{o} [\text{c -n}]] & \text{kangto\_lul} & \text{capassta} \\
\text{say-past.prf-Rel} & \text{robber-Acc} & \text{arrested.}
\]

‘I arrested the robber who they said was coming out of the bank.’

(Chung & Kim. 2003: 56)

In the light of derivation by phase, the building-up procedures of the EHRC in (23) is like this; the Op moves from its base position to SpecvP2 to check [EPP] under v2, and then moves to SpecCP2 to check [EPP] under C2. When C2 is merged, vP2 goes to LF, but the interpretation of vP2 is not completed, because there is a gap in vP2. After the Op moves from Spec CP2 to SpecvP1 to check [EPP] under v1, CP2 goes to LF, but the interpretation of CP2 including a gap is not completed. The Op moves from Spec vP1 to SpecCP1 to check [EPP] under C1, and then the vP1 including a gap goes to LF. In the next phase, the interpretation is completed, because the operator need not move any further, and the Op gets the same index as kangto ‘robber’ via the modification relation.
These procedures show why a long-distance dependency is possible in EHRCs—each phase which goes to LF has a gap, which is a trace (copy) of the Op, so the interpretation is not completed, until there is no gap in a phase. On the other hand, (24), an IHRC counterpart of (23), is ungrammatical, because any entity within CP2 is already spelled-out and the interpretation of CP2 which has no gap is already completed at LF, when C1 is merged. Consider (25), the structure of (24).

(25)

In (25), when the vP phase is built up and a TP node is merged, kutul ‘they’ moves to SpecTP to check a nominative case under T and also CP2 moves to SpecvP to check EPP feature under v. Consequently, the uninterpretable feature under C1 is checked against the
event of vP, the event of CP2 or the subject of CP1 *kutul* ‘they’, because they are visible in the domain of CP1’s phase. However, any item within CP2 is already spelled out, so it cannot be accessible. This idea is supported by the following sentences, (26) through (28), whose interpretations show that the uninterpretable feature under C1 may be checked against the event of CP2, the event of vP1 and *kutul*, respectively. These sentences are all grammatical.

(26) na-nun [\[DP\[CP1/\[IP\[vP1/\[v\]cp2kangto-ka unhayng-eyse naonta-ko\]]\]
\[\{,malha\}\]-ø-[\[C n\]] \[D kes_i\]]-ul singohassta.
\[\text{say-past.prf.-RL } \text{kes}\]-Acc reported.

‘I reported (to the police) that the robber was coming out of the bank, which I heard from them.’

(27) na-nun [\[DP\[CP1/\[IP\[vP1/\[v\]cp2kangto-ka unhayng-eyse naonta-ko\]]\]
\[\{v malha\}\]-ø-[\[C n\]]_i \[D kes_i\]]-ul tutessta..
\[\text{say-past.prf-RL } \text{kes}\]-Acc heard.

‘I heard them saying that the robber was coming out from the bank.’

(26) na-nun [\[DP\[CP1/\[IP\[vP1/\[v\]cp2kangto-ka unhayng-eyse naonta-ko\]]\]
\[\{,malha\}\]-ø-[\[C n\]] \[D kes_i\]]-ul singohassta.
\[\text{say-past.prf.-RL } \text{kes}\]-Acc reported.

‘I reported (to the police) that the robber was coming out of the bank, which I heard from them.’

(27) na-nun [\[DP\[CP1/\[IP\[vP1/\[v\]cp2kangto-ka unhayng-eyse naonta-ko\]]\]
\[\{v malha\}\]-ø-[\[C n\]]_i \[D kes_i\]]-ul tutessta..
\[\text{say-past.prf-RL } \text{kes}\]-Acc heard.

‘I heard them saying that the robber was coming out from the bank.’

\[\text{(the semantic head } = \text{ the event of vP1)}\]

\[\text{(the semantic head } = \text{ the event of CP2)}\]

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\[\text{Any item within the dark-shaded part in (26) to (28) is invisible, because it is already Spelled-Out.}\]
(28) na-nun [DP[CP1[IPkutul-i vP1[CP2 kangto-ka unhayng-eyse naonta-ko]}

I-Top they-Nom robber-Nom bank-from come out-Comp

[v malha]-ø-[C n] [D kes]-ul capassta.
say-past.prf-RL kes-Acc arrested.

‘I arrested them, because they said (or lied) the robber came out from the bank.’

(the semantic head = Kutul ‘they’)

The Korean/Japanese IHRCs with island clausal boundaries also do not show the unbounded dependency between the head noun and the morpheme Kes/no, and they can be explained by the analysis of phase theory too, in the same way. Consider the following sentence in (29).

(29) *[CP2 John-i [DP[CP1 Mary-ka hulyunghan nonmun,-ul ssu-ess-ta]-nun]

John-Nom Mary-Nom excellent article-Acc write-Past-Decl-RL

rumor-Acc hear-past.prf.RL kes-Nom was-published.

‘The excellent article that John heard the rumor that Mary wrote was published.’

(Watanabe 2004; 62)

Like the sentence (22a), (29) is not grammatical, because the interpretation of CP1 is already completed before the next phase DP is merged. Therefore, kes cannot indicate any referent in CP1 or CP1 itself, but instead can indicate John, the DP [DP Mary-ka
hulyunghan nonmun-ul ssu-ess-ta-nun somun] ‘a rumor that Mary wrote an excellent article’ and the event of vP2. The three sentences in (30) show that kes can refer to the subject John, the event of the complex DP and the event of vP2, respectively.

(30) a. [CP2 [TP2 John-i [vP2 [DP [CP1Mary-ka hulyunghan nonmun-ul ssu-ess-ta]-

John-Nom Mary-N excellent article-Acc write-Past-Decl-

-nun somun]-ul tut[]-ø]-un kes-i-ul puinhassta.

-RL rumor-Acc hear-past.prf-RL kes-Acc denied.

‘John denied hearing a rumor Mary wrote an excellent article.’

(the semantic head = vP2)

b. [CP2 [TP2 John-un [vP2 [DP [CP1Mary-ka hulyunghan nonmun-ul ssu-

John-Top Mary-Nom excellent article-Acc write-

ess-ta]-nun somun]-ul tut[]-ø]-un kes-i-ul petturiessta.


‘John widespread the rumor Mary wrote an excellent article, which John heard.’

(the semantic head = DP)
In the three sentences in (30), the reason why the event of vP2, the complex DP and the subject of TP2 can be considered to be a semantic head is that they are still accessible in the phase of CP1, so the dependency with $kes$ can be implemented.

The following sentence can also be explained in the framework of the phase theory. Let’s consider (31).

(31) *kyengchal-i [kangto$_i$-ka unhayng-eyse nao-nun] [e$_i$ ton-ul hwumchi-ø-n] kes$_i$-ul cheyphohayssta.

‘The police arrested a thief who was coming out of the bank and stealing money.’

(Adapted from Chung & Kim 2003:46)\(^{53}\)

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\(^{53}\) Chung & Kim (2003:46) mentioned ‘more than one EHRC can be stacked together, but not IHRC’. However, they analyze the structure of (31) like (31a) below. The EHRC counterpart is shown in (31b) and it is grammatical.

(31a) kyengchal-i [kangto$_i$-ka unhayng-eyse nao-nun] [e$_i$ ton-ul hwumchi-in] kes$_i$-ul cheyphohayssta.
Chung & Kim (2003) analyzed (31) as a conjoined structure, but their analysis has a problem. For example, if the two embedded clauses in (31) are connected by a typical conjoining marker –ko, as seen in (32)\(^{54}\), the sentence sounds grammatical.

(32) kyengchal-i [kangto\(i\) ton-ul hwumchi-ko] [\(e_i\) unhayng-eyse

police-Nom robber-Nom money-Acc steal-Conj e bank-from

nao-\(o\)-\(ko\)] kes-i-ul cheyphohayssta.

come_out-past.prf-RL kes-Acc arrested.

‘The police arrested a thief who was coming out of the bank and stealing money.’

In (32), the order of two embedded clauses in (31) is switched, considering that the pragmatic background requires ‘stealing money’ precede ‘coming out of a bank’. However, as seen in (31) and (34), the order of two embedded clauses does not matter to decide the grammaticality. Last, if the embedded clause of (31) shows the conjoining structures, the sentence should be grammatical, because the IHRC sentences with a coordinate structure are subject to Coordinate Structure Constraint and permit the Across-the Board extraction. However, (31) does not show such property as a coordinate

\(^{54}\) The sentence (32) is like coordinate structures, so the semantic heads kangto are from both the first embedded clause and the second embedded clause.
structure.

As for the sentence (31), I claim that the embedded structure in (31) is connected not by conjoining but by embedding; that is, one IHRC includes another IHRC construction as a subject. Therefore, my analysis of (31) is like (33).

(33) The IHRC structure containing another IHRC structure

As seen in the structure of (33), D1 *kes* cannot refer to anything of the circled areas on the basis of the phase theory, because the circled parts are already spelled-out. Also, D2 *kes* can be deleted, if D1 and D2 refer to the same entity, considering that when IHRCs are stacked by conjoining or embedding and two *pros* refer to the same entity, one of
them is usually deleted.

Within the phase theory, D1 kes can structurally refer to DP5 ton ‘money’, the event of vP1 or DP2. Actually, if the matrix verb is changed to ppayas-ta ‘confiscate’ and D2 kes occurs, the sentence is grammatical with the semantic head ton, because the semantic head ton can be still accessible to check the uninterpretable feature on the head of CP1. Also, when the internal head is the event of vP1, the sentence sounds grammatical. Therefore, if kes under D1 has an event reading, the internal head is both the event ‘the robber came out of the bank’ and the event ‘the robber stole money’.

The uninterpretable feature on the head of CP2 is checked against kangto, and kangto and D2 kes gets the same index. However, the interpretable feature of kangto which may check the uninterpretable feature on the head of CP1 is not transferred to DP2, because its feature checking is already completed, so the interpretable feature of kangto is bound in CP2. As a result, the uninterpretable feature on the head of CP1 cannot be checked against DP2 which indicates kangto but does not have the interpretable feature of kangto. If DP2 cannot get an interpretable feature which checks the uninterpretable feature on C, because the interpretable feature of kangto cannot be transferred to DP2, can DP2 get the interpretable feature transferred from D? I think this is also impossible, because kes under D is a pronoun, so it is not contentful by itself enough to get an interpretable feature. Therefore, there is no way for DP2 to have an interpretable feature which checks the uninterpretable feature on C, considering that a DP gets the interpretable feature from an NP or a D within a DP.

In the same sense, D1 cannot only refer to the event of vP within CP2. That is, phase
theory predicts that the uninterpretable feature of the head of CP1 is checked against by DP2, but DP2 does not have the interpretable feature of kangto, so D1 kes cannot refer to kangto.

What is interesting is that the structure of (34a), whose internal head noun kangto is positioned outside CP2, is grammatical. I think the reason why the judgment of (34a) is different from that of (31) is that DP2 in (34b) has an EHRC structure, while DP2 in (31) has an IHRC structure. In (34), D1 kes can refer to kangto ‘robber’, ton ‘money’ or the event of vP1, in the light of the phase theory. Consider (34).

(34) a. kyongchal-i [Opi_ t_i unhayng-eysel_nao-nu-n kangto-ka
police-Nom bank-from come out-present.imprf-RL robber-Nom
ton-ul hwumchi-o-n] kes-ul cheyphohayssta.
money-Acc steal-past.prf-RL kes-Acc arrested

‘The police arrested a thief who was coming out of the bank and stealing money.’

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55 Chung & Kim (2003) did not present (17a) in their paper, but if their analysis as a conjoined structure is right, we expect (18a) to be ungrammatical. The bracketing of (17a) is just following their analysis, which is different from mine. I argue that it is not a conjoined structure but the IHRC structure containing an EHRC structure like (18b).
b. The IHRC structure containing an EHRC structure

D1 kes cannot look into any element in the circled area. Also, because DP2 is an EHRC, the EPP feature on the head of CP2 is checked against the covert operator\(^{56}\). Therefore, the in-situ uninterpretable feature checking which occurs in IHRCs does not occur in CP2. In this case, I argue that the uninterpretable feature on the head of CP1 is checked against DP2, because the interpretable feature of DP2 comes from the interpretable feature of kangto, which is the semantic head of the relative clause CP2. This interpretable feature of kangto is not bound in CP2 because kangto is not moved out of CP2, but is base-generated in the surface position, based on the Matching analysis. (See 2.1).

\(^{56}\) In chapter 2, I argued for the Op movement analysis for the EHRC constructions, and the checking of the EPP feature on the head of CP2 is consistent with that argument.
Consequently, the difference of judgment between (33) and (34) is from whether the interpretable feature of *kangto* is bounded in CP2 or not.

The EHRC counterpart of (31) is grammatical, as seen in (35). The fact that (35) is grammatical is not surprising; when CP1 and CP2 are both relative clauses and have *kangto* as a semantic external head noun, the first *kangto* which is positioned right after CP1 is deleted due to the redundancy.

(35) a. kyongchal-i [CP1 Opi t₁ unhayng-eyse nao-nu-n] [CP2 ton-ul

  police-Nom bank-from come out-present.imprf-RL money-Acc

  hwumchi-ø-n] kangto₁-ul cheyphohayssta.

  steal-past.prf-RL robber-Acc arrested

  ‘The police arrested a thief who was coming out of the bank and stealing money.’

  (Adapted from Chung & Kim 2003:46)

The idea that the phase theory can explain why the unbounded dependency is impossible in the Korean IHRC construction is an argument for LF head in-situ hypothesis rather than LF head raising hypothesis. That is, if the internal head is moved at LF, there is no reason unbounded dependency is blocked in IHRCs. In addition, the phase theory can predict which phrases are available as an internal head, because only the visible phrases can be available as potential semantic heads after Spelled-out.

Shimoyama (2001) points out that the *pro* in the IHRC is different from typical E-type pronouns in that the referent of the *pro* should get its thematic role from the embedded predicate. However, her analysis cannot cover the IHRC construction whose head is an
event vP. Here, I propose that the data she suggests can also be accounted for by the phase theory, if DPs are another kind of phase, as I discussed in Section 4.2. Consider (36) and (37) where (69) and (70) of Chapter 1 are rewritten, respectively.

(36) John-un [DP1 [DP3 Mary]-wa [DP4 Bill]]-i hamkkey nol-ko_iss-nu-n
    John-Top [Mary-and Bill]-Nom together play-Prog-present.imprf-RL
    kes-ul koylophiessta
    kes-Acc bothered

    ‘Maryi and Billk were playing together and John bothered *heri/*himk/themi+k.’

(37)[enu namca-na [DP1 [DP2 caki anay]-uy kimpap]-ul sonnim-kkey taycepha-n
    every man-Q [[self wife]-Gen sushi]-Acc guest-Dat serve-n
    kes]-ul sonnim-i cuksi chingchanhay-ass-ta.
    kes-Acc guest-Nom immediately praise-Past-Decl.

    ‘Every mani served the guestk hisi wife’s sushi and hek praised *her/her sushi
    immediately.’

(Shimoyama 2002:142)

In (36), the pro kes can refer to the DP1, [Mary-wa Bill], but not to just a single element within the DP1. In (37), the pro refers to the DP1, caki anay-uy kimpap, but not to a single element within the DP1. If DPs are phases, the pro of (36) and (37) cannot look
into the embedded DPs of the internal head DP, because the embedded DPs of the internal head DP is already interpreted and becomes invisible. Therefore, in (36), two DPs [Mary] and [Bill] which are embedded in a DP [Mary-wa Bill] are too far to be referred by the pro kes. Also, in (38), a tree structure of (37), the DP caki anay embedded in the DP1 becomes spelled-out and invisible before it is merged with the head of DP1, because a specifier has a different workspace from the matrix clause, so becomes opaque, when it is merged to the matrix clause.
In addition to v*Ps, CPs and DPs, there is another syntactic boundary, which is coordinate structure. Until now, there has been no clear explanation about whether the coordinated structures can be treated as phases or not, but the coordinated structures have been considered as syntactic boundaries at least. Consider the following English sentences in (39).

(39) a. *Who, do you think John saw [Peter and ti] at the party yesterday?
   b. *What, did Bill [cook saphagetti and wash ti]?

(39a) has a coordinate structure of DPs, and (39b), that of vPs. As for the ungrammaticality of those sentences, Ross (1967) claimed that when two phrases are conjoined by a coordinating conjunction, any single element cannot be moved out of a single phrase in WH-movement languages, because coordinating structures are islands; this generalization is called as the CSC (Coordinate Structure Constraint). The Korean IHRC sentence shows the effects of the CSC. Consider the sentences of (40)\(^{57}\) and (41).

\(^{57}\) The sentence in (40) is the same as the sentence in (36). The internal head of the sentence in (40) can be considered to be either a DP or a Coordinated Phrase, depending on the structural hypothesis of a coordinate phrases. The viewpoint of DP/NP phrase, which is a flat structure, is adopted in Sag et. al (1985), Gazdar et. al. (1985) and Johannessen (1999), and its structure looks like \[\text{DP } [\text{DP John}] \text{[conj and]} [\text{DP Mary}].\] However, Ross (1967), Munn (1992) and Huddleston and Pullum (2002) pointed out that this structure cannot explain the fact that Conj-XP combination is well formed outside coordinations, and also this structure cannot explain break asymmetry. The viewpoint of a coordinate phrase, which is a hierarchical structure, is used in Dalrymple and Kaplan (2000) and Sag and Wasow (1999). I considered the internal head of (36) to be a flat structure, which is a DP, but this structure can be considered to be a coordinate phrase like (40).
The internal head of (40) and (41) is a coordinate structure of DPs and TPs, respectively. As seen in two sentences, the IHRC sentences are influenced by CSC, considering the internal head can be a coordinate phrase, but not be one conjunct within the coordinate phrase. When the coordinate phrase is discussed in hierarchical way, one conjunction occurs in Spec of ConjP and the other one, in a complement of Conj. However, these two conjunctions are semantically parallel, so need to be treated in the same way. For example, if Bill is available as an internal head to check the uninterpretable feature on the
C in (41), *John* is also available as an internal head, because *Bill* and *John* are parallel in both conjuncts.

If two elements from each conjunct are semantically in a parallel relation, this relation should be shown in WH-sentence as well as EHRC sentences. Consider the following sentences.

(42) a. *mwues-ul  Bill-i      spaghetti-lul  yoriha-ko  t_i   takk-ass-ni?*
    
    what-Acc  Bill-Nom  spaghetti-Acc  cook-and  t_i  wash-Past-Q?
    
    ‘*What did Bill [cook saphagetti and wash t_i ]?*

b. *John-un  [Mary-ka  cepsi-lul  takk-ko  t_i   chengso-lul  ha-ø-n]  
    
    John-Top  Mary-Nom  dish-Acc  wash-and  t_i  cleaning-Acc  do-prf-RL
    
    Billi-ul   chingchanhayssta.
    
    Billi-Acc   praised.
    
    ‘*John praised Bill_i that Mary washed the dish and t_i did cleaning.’

In (42a), only an element of one conjunct is moved out to the beginning of the sentence in Wh-question, and in (42b) only *Bill* occurs as an external head of the EHRC. The reason why both sentences in (42) are unacceptable is that the parallel relation in two conjoined phrases is ignored, and only one conjunct is considered as a moved element or
a semantic head. However, this claim cannot explain the WH-in-situ case. While EHRC sentences and overt WH-movement sentences show CSC effects, WH-in-situ sentences are not affected by CSC, as seen in (43).

(43) [CP Op_i [C Bill-i spaghetti-lul yoriha-ko [DP [ t_i ] [D' [NP mwues] [D D ]]-ul Bill-Nom spaghetti-Acc cook-and t_i what -Acc takk-ass-ni]? wash-Past-Q?

'* What_t did Bill [cook saphagetti and wash t_i ]?

Ross (1967) claimed that CSC effects are only shown in WH-movement languages. However, considering Watanabe (1992)’s claim that a covert operator is moved to check a matrix [ +wh ] feature in WH in-situ sentences, (43) should also be subject to CSC effects, but (43) is judged grammatical. The fact that CSC effects are shown in IHRCs, EHRCs and overt Wh-movement sentences but not WH in-situ sentences tells us that CSC effects are not simply a problem of IHRCs, because there has been no clear answer yet about how WH-movement sentences and WH in-situ sentences are judged differently, when they have a coordinate structure.
4.5. Different Kinds of the Internal Head Noun in the IHRCs

As I discussed in Chapter 2, authors introduced examples of IHRCs which can have different kinds of internal head to support their own analyses—the E-type pronoun analysis has the most benefit in explaining the QP internal head, while the referential pronoun analysis has the most benefit in explaining a regular head noun or a conjoined NP head. However, in other sense, each analysis has its problems in explaining all available types of internal head.

First, Watanabe (2004) argues that the internal head is an NP and its definiteness is determined by a DP which dominates the relative clause. However, as Kitagawa (2005) points out, his analysis has problems with the IHRC sentences whose internal head already has definiteness. Thus, if the internal head noun is a proper name or if a demonstrative is positioned before the head noun, his analysis has no way to explain them. With respect to this problem, I propose that the internal head is a DP, but it can have a [±definite] feature; if the head noun does not have specificity, the internal head has [-definite] feature, but the whole IHRC will be definite, due to the higher D, kes, itself. Also, although the internal head noun may have definiteness, the definiteness of IHRCs is not from the internal head but from kes itself. This idea is similar to English determiners
like *a/an* and *the*, but the difference is that Korean has covert determiners under D, while English has overt [± definite] markers. Also, like Kitagawa (2005), I adopt May’s adjunct theory to explain Condition C violation in IHRCs. When the internal head is an R-expression, the internal head violates Condition C, in that it is bound by *kes*. However, based on May’s multi-segmented category notion, the internal head is not c-commanded by *kes*, so Condition C violation does not occur58. (See 2.2.2. for May’s adjunct theory.)

Second, many previous studies have discussed so-called headless IHRC constructions, and asserted that sentences like (44a) and (45) cannot be explained by referential pronominal analyses.

(44) John-\(\text{-un}\) [[Mary-\(\text{-ka}\) nal sayngsen-ul ikhi-\(\text{-ø-n}\) kes]-ul mekessta.

John-Top Mary-Nom raw fish-Acc bake-past.prf-Rel kes-Acc ate.

‘John ate the raw fish, which Mary cooked.’ (Hoshi, 1995)

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58 Condition C violation does not seem to occur in two symmetrically-positioned DPs. For example, if we suppose that the first DP is adjoined to the second DP in appositive structure, these two DPs are bound by each other and show Condition C violation. Also, the non-restrictive relative clause is not subject to Condition C violation. Semantically, the IHRCs have the same structure as the appositive structures, in that a referential DP is adjoined to something which itself has independent reference and gets the same index as the referential DP. In these structures, two CPs symmetrically c-command each other, but they are not subject to Condition C, so it looks like the symmetric c-commanding relation has something to do with Condition C violation.
Sentences like (44) have been called as “headless IHRCs” by many authors. They claim that in (44), the internal head is *nal sayngsen* ‘raw fish’ but the *pro* indicates cooked fish, so, the pronoun *kes* does not take its correct referent from the embedded clause. Kitagawa (2005), who proposed a referential pronominal analysis for a standard nominal head, called the IHRCs like (44) *change relatives*, and did not treat them as the IHRC construction, because the IHRC construction defines the relative clause whose head is positioned inside the embedded clause.

There is semantic mismatch between the internal head and the pronoun *kes* in (44), because the embedded predicate *ikhi-ta* ‘cook’ is involved in the change-of-state. However, I think there is no need for the *pro* and its antecedent to show identity effects.

In the analysis of Adger and Ramchand (2004), wh-dependencies can arise from both base-generation derivatoin and movement derivation. The distinction between the two.

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59 If the matrix verb *takkanayssta* ‘wiped out’ in the sentence (45) is changed to *ppalassta* ‘washed’, the internal head can be ambiguous, because it can indicate pants or dirt. But, in such case, the preferred internal head is an overt one. (Chung & Kim, 2003)
types of derivation is made by identity effects rather than locality effects. For example, in Scottish Gaelic relative clauses, the gap in the relative clause and its antecedent do not show identity effects, so they are not subject to the same selectional restriction. In their analysis, this means the head noun in a Scottish Gaelic relative clause is not displaced from the gap position, but the head noun and the gap, which is a pro, are base-generated and enter into the AGREE relationship. Meanwhile, in English relative clauses, the head noun is moved out of the relative clause because the head and a gap, which is a trace, are affected by the same selectional and semantic restrictions.

My analysis of the Korean IHRCs is based on the base-generation strategy, because I argue that the internal head and kes share the same indexation based on a feature checking occurs between the internal head noun and a complementizer. If the IHRCs are explained by base-generation strategy, Adger and Ramchand’s approach predicts that the pro kes and the head noun need not be identical in their syntactic and semantic restriction. That is, in (44), kes has the same index as ‘a raw fish’ which is mentioned in the

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60 (1) Selection: if A’ dependency is done by movement, it should be possible to put back the displaced element into the trace. (2) Case marking: the case marker shown in the base position should be kept in the surface position. (3) Reconstruction: if A’ dependency is done by movement, the displaced element should be reconstructed at LF and can bring up Condition C violation. Also, idioms require their component parts to be local at LF, so movement approach should allow reconstruction.
embedded clause, but what *kes* refers to is ‘the raw fish’ which has been cooked by heat\(^6\). I think (44) actually shows the mismatch of definiteness between *kes* and its antecedent. Also, because *kes* itself has definiteness, the mismatch of definiteness between *kes* and the internal head is always predicted, when the internal head is indefinite.

The IHRC sentence in (45) can be explained in a different way from (44). Here, the *pro* implies a stain or dirt which is not overtly present but implicit in the embedded clause. However, I claim that the implicit indefinite argument ‘*stain*’ is in fact syntactically present and serving as the head of the IHRC, based on Rizzi (1986)’s discussion about an implicit indefinite null object.

When it comes to transitive verbs, every transitive predicate does not require an overt object. For example, in English, the verbs like ‘eat’, ‘drink’, ‘cook’ or ‘owe’ belong to the transitive verb class, but they do not need overt indefinite object to be present, as seen in

*Mary already ate* or *John drank a lot last night*. As for the indefinite implicit objects of

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\(^6\) Adger & Ramchand (2004) argued that English Wh-dependencies can be explained by a Movement analysis, so they should show an identity effect. If this is true, the English relative clause sentence of (44) should show the identity effects, but English native speakers show the different judgment depending on whether the head noun is definite or indefinite.

(a) * John ate a raw fish which Mary cooked.
(b) John ate the raw fish which Mary cooked.

In (a), John ate one of a raw fish Mary cooked, so that it shows an identity effect, but semantically odd. The sentence in (b) means John or the speaker saw one fish before Mary cooked it and John ate the fish, after Mary cooked it. So, (b) does not show an identity effect, but is semantically appropriate. Adger and Ramchand (2004) could not explain the difference between (a) and (b). The Korean EHRC counterparts for (a) and (b) are predicted to have the same effects as English relative clauses, but the effects are not probably as big as English relative clauses, because Korean does not have an overt determiner, so (a) can be understood like (b) in some way.
such verbs, there have been debates about whether they are syntactically present or not, but Rizzi (1986) proposed that the problem cannot be resolved at the level of Universal Grammar, because different grammars can resolve it differently. For example, in English, the theta-role of the implicit direct object can be saturated in the lexicon, so it is a part of the lexical meaning of the predicate. That is, because the subcategorical information of a transitive verb about the implicit direct object is already saturated by assigning a feature [arb], arbitrary entity, in lexicon, the theta-role of the direct object does not need to be syntactically projected. However, in Italian, the theta-role of the direct object of such verbs is not saturated in the lexicon, so it needs to be saturated in syntax. As a result, Italian needs a syntactic node for the implicit object, while English does not.\(^{62}\) I think Korean has the same properties as Italian in this regard, in that it needs a null filler of the object position in the following sentences in (46).


this-Top what_follows-with same conclude-Comp lead-Past-Decl.

‘*This leads _____ [PRO to conclude what follows].’

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\(^{62}\) Rizzi (1986) contrasted English and Italian.
a. This leads (people) to the following conclusion.
b. Questo conduce (la gente) alla seguente conclusione.

As seen in the above two sentences, the indefinite implicit object can be omitted in Italian and English. However, Italian has a null syntactic node for the parenthesized direct object, but English does not.
In (46a), a direct object controller can be omitted in Korean, while it cannot be omitted in the English translation. Considering Bach’s generalization, the object NP must be structurally represented in object control structure, so (46a) should have an implicit object controller to c-command PRO structurally. Also, (46b) shows a small clause selected by causative verbs should take null subjects in Korean, but they cannot in English, as seen in English translation. In (46c), the anaphor should be bound in the domain of Principle A, so it needs a syntactic node c-commanding the anaphora. In (45), the implicit semantic head ‘stain’ is not an object of the embedded predicate, because the embedded predicate does not require an accusative case. However, in order to explain (45), I claim that although the internal head is not pronounced, it must be syntactically present, like (47), in a null oblique clause.
Third, the referential pronominal analysis has been called into question by the IHRCs containing a QP as a head. M. Kim (2004) argued against the referential pronominal analysis, in that a QP cannot refer to any specific entity.

When a pronoun is bound by a QP, the QP usually c-commands the pronoun, but a QP in
the IHRC is c-commanded by the pronoun. So, it is hard to say that there is a binding
relation between the external *pro* and the internal QP head. My proposal suggests that the
binding relation between the head noun and the *pro* works by feature checking rather than
c-commanding and co-reference, so the binding problem raised by E-type proponents
may not be as significant as the previous referential pronominal analyses. However, I
should agree with E-type proponents in that the *pro* does not refer to a specific entity
and receives a dependent interpretation linked to the assignment function which
interpretes the QP.

4.5.1. Is the Relative Clause an Adjunct or a Complement in IHRC?

As discussed in chapter 3, I claim that the relative clause is semantically an adjunct
clause which modifies the DP phrase including *kes* under N or the definite referential
pronoun under D, and this structure predicts that the relative clause produces the same
interpretation as the nonrestrictive relative clause. When a relative clause is a sister of DP,
the relative clause naturally works as an adjunct clause in syntax as well as semantics.
Therefore, as Uriagereka (1999) claimed, it is predicted that an adjunct clause becomes
syntactically opaque, when it is merged into the matrix clause, due the the renumeration
process that is need to bring it into the matrix clause’s workspace. However, if a relative clause is a sister of a nonbranching D, like *kes*, I claim that the relative clause is a semantic adjunct; a modifier but operates like a complement in syntax, based on the different judgment of (48a) and (48b).

(48) a. sensayngnim-i [[CP Ken-i mwues-i-ul kacieo-ø-n] [D kes]-ul teacher-Top [[Ken-Nom what-Acc brought-past.prf-RL kes]-Acc ppayas-ass-ni?

confiscate-Past-Q

‘What, brought by Ken, did the teacher confiscate?’

b. *sensayngnim-i [[CP Ken-i mwues-i-ul kacieo-ø-n] [Dp ku kes]-ul teacher-Top [[Ken-Nom what-Acc brought-past.prf-RL] [Dem kes]-Acc ppayas-ass-ni?

confiscate-Past-Q?

‘What, brought by Ken, did the teacher confiscate?’

In (48), the uninterpretable feature on the head of the embedded CP, as predicted, is checked against a wh-word. As for a [+wh] feature on the matrix C, I follow Watanabe (1992) in assuming that a covert operator moves to check [EPP] feature in the
intermediate phases and finally checks [+wh] feature on the matrix C. The reason why the
[+wh] feature on the matrix C is checked by movement of a null operator, not by AGREE
with [+wh] feature on the internal wh-word is that AGREE relationship should meet the
locality constraints. If it was just an AGREE relation, the phase theory would predict that
wh-words could not be interpreted as extracted from the embedded clause, because the
matrix VP is already spelled-out, when a matrix C is merged. That is, AGREE between a
matrix C and a wh-word fails, because they are not in the same the local boundary. If
(48a) and (48b) are built up in the same way as I discussed, then why are they judged
differently? To explain this, I will first compare the syntactic structures of both sentences
in (49a) and (49b).
(49) a.
(49a) and (49b) are the syntactic structures of (48a) and (48b), respectively. In (49a,b), an uninterpretable feature on C in the embedded clause is checked against a head DP, and as a result, the internal head DP and the DP dominating the relative clause share the same index via feature checking of an uninterpretable feature. Also, under the Op movement analysis, the WH-word mwues stays in-situ and the operator under Spec of internal head DP moves cyclically to check the [+Wh] feature on the matrix C. So, in (49a), the operator moves to Spec of the embedded CP to check an [EPP] feature on C* (an escape-hatch movement), to Spec of DP63, to Spec of a matrix vP to check [EPP] feature on v*, and then finally it moves to Spec of a matrix CP to check the [+Wh] feature on C*. However, in (49b), extraction out of a relative clause CP is blocked. I claim that the different behavior of extraction out of these IHRC CPs can be explained by Johnson (2004)’s account for the adjunct island constraints.

As for the sentence with an adjunct clause, Johnson (2004) claimed that an adjunct clause is first built up by Merge of elements in the Numeration, and then it is renumerated in order to merge into the matrix clause. Considering that elements in the Numeration get their syntax-to-phonology values fixed, the fact that adjuncts are renumerated predicts that

63 In 4.2, I discussed the parametric difference of DP phases in English, Persian and Korean. I argued that although the specificity/definiteness of DPs is lexically realized, extraction out of DPs is allowed.
the terminals within adjunct phrases should be linearized within them, so movement out of an adjunct phrases is prevented. While adjuncts must be renumerated, complements need not be, because complements are constructed in the same workspace as the matrix clause. Also, according to his account, what distinguishes complements and adjuncts is representational. That is, hypothesizing that non-complements cannot be sister of a head, he argued that complements are sisters of heads (X°) and adjuncts are sister of phrases (XP). Consequently, his Adjunct Island Constraint is also representational like (50).

(50) Adjunct Island Constraint (Johnson, 2004: example (36))

A phrase is an island for movement and phonological projection, if it is neither adjoined to an X° nor syntactically project.

(50) can give an idea about the problem of whether IHRCs are island for movement. If (50) is applied to the IHRC construction and also the IHRC is a structural adjunct, then we expect that no extraction should be possible. For example, when the relative clause CP is merged as a sister of a DP like (49b), the relative clause CP becomes opaque, because the CP is merged with a DP, which is an XP-level element.

Then, how about the IHRCs where the relative clause CP is a sister of a D? In chapter 3, I argued that the relative clause CP is semantically a nonrestrictive relative clause,
modifying the definite referential pronoun under D. Although the relative clause CP is the sister of a head D, it does not show the semantics of complements, because the CP is not selected by the head D. However, I claim that although the relative clause is semantically a nonrestrictive clause, it works like a complement in syntax, because it positioned as a sister of a head. Within Johnson’s analysis, a complement and a non-complement was distinguished in purely syntactic way, like whether it is merged with a head or a phrase. That is, I claim that a relative clause, a sister of D, is like a complement clause in the syntactic structure, because it is merged with D, but is like an adjunct semantically, because it is a phrase modifying kes, a definite referential by itself.

Consequently, in (49a), extraction out of a relative clause CP is allowed, because the relative clause, working like a complement clause in syntax, is not renumerated. In (49b), extraction out of relative clause CP is not allowed, because the relative clause, an adjunct clause merged with DP, requires its own workspace and must be renumerated, creating the adjunct island effects of Johnson’s theory.

If the IHRCs with a wh-word head are judged differently depending on whether the relative clause is merged with a simplex D or a complex DP, how about scrambling out of

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64 I think that the EHRC counterpart of (49) can also be explained in Johnson’s analysis. Based on the analysis of this section, the relative clause CP in the EHRC is a sister of N. So, the extraction out of the relative clause can be allowed.
a CP? Let’s consider the following sentences in (51).

(51) a. pang-uro, John-un [kangaci-ka e tuleka-nu-n] kes-ul

room-toward John-Top puppy-Nom enter-Present_Imprf-RL kes-Acc
capassta.
caught.

‘John caught the puppy, which entered a room.’

b. pang-uro, John-un [kangaci-ka e tuleka-nu-n] ku kes-ul

room-toward John-Top puppy-Nom enter-Present_Imprf-RL Dem kes-Acc
capassta.
caught.

‘John caught the puppy, which entered a room.’

In the IHRCs with a wh-word head, if a relative clause CP is a sister of DP, any element cannot be extracted out of the CP, because the CP is a syntactic adjunct clause, as seen in (49b). However, in the scrambled structure like (51), an adverbial pang-uro is scrambled from the embedded clause to the front of the sentence, whether the relative clause is a sister of DP or D. How come (49b) and (51b) are judged differently? I argue that (51b) proves that scrambling is not done by a movement of a relative clause but by base-
generated. The adjunct structure like scrambling has been noted to exhibit differences with the operations like wh-movement or topicalization, and there have been debates between movement analyses and non-movement analyses. Bošković & Takahashi (1998) and Fukui & Saito (1998) claimed that scrambling is not triggered by movement, because it violates the Last Resort principle claimed in Chomsky (1986, 1993), the concept of movement should apply when it is required as a last resort, but there is no feature which forces movement in scrambling. In particular, Bošković and Takahashi (1998) proposed that scrambled phrases are directly base-generated in their surface position from the Numeration and lowered at LF to take their theta roles. Fukui & Saito (1998) also argued that scrambling is not triggered by feature checking through Spec-head agreement, but is optional. For example, in (52), if the sentence-initial phrase should have moved across an A’-Spec, it violates the Minimal Link Condition, so the grammaticality of (52) shows that scrambling does not occur for the purpose of feature checking.


Mary-Dat Bull-Nom self-Acc John-Nom advertised that think fact

‘To Maryj, Bill thinks that himself Johni advertised tj’

In the same way, the grammaticality of (51ab) shows that the sentence-initial phrase is
not moved out of the embedded clause but base-generated at the surface position, so that (49b) and (51b) are structurally distinct.

4.6. Summary

In this chapter, I proposed that the syntactic mechanism of the IHRC constructions can be explained by phase theory. The motivation of this analysis is from the fact that the internal head cannot be embedded across more than two clausal boundaries, whether they are island or non-island clausal boundaries. This implies that the semantic head does not move at LF, and the pro kes is coindexed with the internal head through two operations the feature checking between the internal head and C, and the coindexation between a relative clause CP and the pro kes. This analysis can resolve the problematic issues which have been discussed in previous studies, such as the failure of a long-distance dependency, and the IHRC with an embedded IHRC. Also, in this section, I showed the different status of the relative clause in syntax, depending on whether a relative clause is adjoined to a D or a DP. Whether a relative clause is merged with a D or a DP, the IHRC construction predicts the interpretation of a nonrestrictive adjunct clause, exhibiting the maximality effects. However, based on Johnson’s adjunct island constraint, these two structures work
differently in syntax; if a relative clause is adjoined to a D, it does not become an island, but if a relative clause is adjoined to a DP, it becomes an island. This idea was proved by the IHRC with a wh-word as a head.

I also claimed that the event of a vP as well as a nominal phrase can be the internal head of IHRCs, different from the previous analyses. Consequently, a direct perception predicate or a factive verb can be a matrix verb with an IHRC construction as its argument.

Last but not least, I discussed the so-called change relatives which have been considered to be demerits of the referential pronominal analysis. Kitagawa (2005) tried to solve this problem by assuming that change relatives are not IHRCs, because they do not have internal head. However, I posited that the change relatives are like the regular IHRC construction, and also they are not problematic in my analysis, because my analysis is a base-generation analysis which does not require an identity effect between the *pro* and its antecedent. Also, if the internal semantic head refers to an implicit indefinite thing but is not pronounced, I argue that it should be represented in syntax, although it is phonologically null.
5.1. The Gist of the Proposal

In this chapter, I will discuss the semantic restrictions on the Korean IHRC construction. Many previous studies have found semantic restrictions on the embedded relative clause created by the interaction with the matrix clause. The classical study on this issue is from Kuroda (1976; 1977; 1992), who argues that the pragmatic background of the embedded clause should be relevant to that of the matrix clause temporally, spatially or causally. However, Y. Kim (2002) and M. Kim (2004) argued that Kuroda’s three types of relevancy conditions cannot cover all semantic restrictions of the IHRC constructions, introducing IHRC sentences which do not satisfy any relevancy condition. His analysis is revised by Y. Kim (2002), who follows the basic idea of Kuroda (1976;1977;1992) but emphasizes more the semantic aspects than the pragmatic aspects. Also, he claimed that the lexical aspect of the embedded clause plays a key role in finding the relevancy between an embedded clause and a matrix clause. The most recent analysis is proposed
by M. Kim (2004), who argues that the semantic restrictions of the IHRC construction are
determined by the event structure and the temporal aspects of the embedded clause.
However, Y. Kim’s analysis and M. Kim’s analysis also cannot cover all types of IHRCs,
in that the former cannot explain the IHRCs whose embedded clause has a stage-level
predicate and the latter cannot explain the IHRCs whose embedded clause has a transitive
activity predicate. In section 5.2., I introduce the main idea of the above three analyses
and discuss their problems more in detail.

In section 5.3., I investigate why the subject of the embedded clause is favored as a
semantic head when the antecedent of kes is ambiguous between the subject and the other
argument of the embedded clause. As for the subject preference reading, I adapt the
proposal of Lin (2006)’s IMPM (Incremental Minimalist Processing Model) which claims
that the minimal link condition is a key to explain why the subject-extracted relative
clause is processed faster than the object-extracted relative clause. Also, I propose that
the split-antecedent reading and the VP adjunct head reading are actually a coercion
effect which results from the relation between the event of the embedded clause and the
event of the matrix clause.
5.2. Previous Studies on Semantic Aspects of the IHRC


The classical approach to the semantic restriction of the IHRC construction highlighting the relationship between the matrix clause and the embedded clause is made by Kuroda (1976). Proposing the Relevancy Condition, he argues that the matrix clause and the embedded clause should be semantically related.

(1) Relevancy Condition (Kuroda, 1976; 1977; 1992)

For a pivot-independent relative clause 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 (1976) did not characterize the relevancy between two clauses in an explicit way, but Kuroda (1992) describes the relevancy requirement in three ways. According to Kuroda (1992), all three types of relevancy do not need to be satisfied, but instead at least one relevancy condition should be satisfied for the IHRC construction to be acceptable. First, the event of the matrix clause is considered to be relevant to the event of the embedded clause, if the embedded clause is interpreted as ‘simultaneous’ with the time reference of the matrix clause. Consider the following sentence in (2).
The sentences in (2) have different temporal background in the embedded clause and the
matrix clause, as shown in different temporal adverbials. (2a), an EHRC sentence, does
not require simultaneous interpretation of the constituent and the matrix clause, while
(2b), an IHRC counterpart, does.

Second, the event of the matrix clause is relevant to the event of the embedded clause, if
two events share the same spatial background. Consider the sentence in (3).
(3) Taroo-wa [Hanako-ga kinoo ringo-o sara-no ue-ni oite iota] no-Acc
    Taroo-Top Hanako-Nom yesterday apple-Acc plate-Gen on-Loc put Aux no-Acc
    kesa totte.
    this morning picked_up.

    ‘Taro picked up an apple which Hanako had put on a plate yesterday with some laer
    usefulness in mind which would result from her doing so.’

    Adapted from Kuroda (1992; 149)

Although the temporal background of the embedded clause and the matrix clause are
different according to the temporal adverbials employed, the IHRC sentence in (3) is
grammatical in that the events of each clause occur in the same place.

Last, if the events of two clauses are connected under a cause-and-effect relation, they
can be considered relevant. Take a look at the sentence in (4).

(4) a. Taroo-wa [Hanako-ga osoikakatte kita] no-o nezihuseta.
    Taroo-Top Hanako-Nom approach-to attack no-Acc floor_and_hold_down.

    ‘Taro floored and held down Hanako, who had approached him to attack.’
b. #Taroo-wa [Hanako-ga harubaru tazunete kita] no-o nexihuseta.

Taroo-Top Hanako-Nom a_long_way visit come no-Acc floor_and_hold_down.

‘Taro floored and held down Hanako, who had come a long way to visit him.’

The difference of acceptability between in (4a) and (4b) is from whether the embedded clause is related to the matrix clause purposively or motivationally. That is, in (4a), Hanako’s attack is a reason why Taro floored and held down Hanako, while (4b) is ill-formed, if Hanako’s visit is a motivation of Taro’s behavior.

Although Kuroda suggests the idea that discourse background influences the grammaticality of the IHRC construction, his analysis confronts some challenges as in (5) and (6).


John-Top today Mary-Nom yesterday doll-Acc make-past.prf-RL kes-Acc

nayta peliessta.

took_out threw away.

‘Today John threw away the doll Mary had made yesterday.’
In (5a) and (5b), the event of the matrix clause and the event of the embedded clause do not take place simultaneously. Also, in view of the spatial background, we are not sure if the events of two clauses occur in the same place in two sentences, because they did not give any clear information about the local background of the events. (5a) and (5b) are not different with respect to whether two events are connected purposely or motivationally. Nonetheless, (5a) and (5b) are judged differently. Kuroda’s Relevancy Condition cannot
explain the difference in acceptability between (5a) and (5b). Also, the sentence in (6) should be ungrammatical, based on Kuroda’s Relevancy Condition, because two events in both clauses in (6) do not share any temporal, spatial and purposive backgrounds. (6) can violate the simultaneity condition, because the event of the internal clause happened ‘yesterday’, while that of the matrix clause, ‘this morning’. It can also violate the co-locationality condition, because the event of the internal clause can happen at Mary’s place and that of the matrix clause, at John’s school. It also violates the cause-result condition, because (6) does not mean that John ate the fish in the morning, because Mary cooked it yesterday. Although all three conditions are violated at the same time, I think (6) is grammatical.

Also, some sentences are judged differently, depending on which NP is taken to be the internal head, although the three Relevancy conditions are all violated in all possible interpretations. Consider the following sentence.

  

  Impossible interpretation: ‘Jack took an apple which Tom had sketched.’

  Possible interpretation: ‘Jack took a drawing of an apple which Tom had sketched.’
In (7), based on Kuroda’s Relevancy condition, the semantic head cannot be an apple, because any relevancy condition is not satisfied in such case. However, (7) can have a drawing of an apple as a semantic head, although any Kuroda’s relevancy condition is not satisfied. Kuroda’s analysis cannot explain the judgment difference in (7).

5.2.2. Y. Kim (2002)

Y. Kim (2002) tried to establish a semantic relation between two events in the IHRC construction in a formal way and emphasized the role of event properties and aspectual dimensions of the verbs in the relative clauses. The Relevancy Condition that Y. Kim (2002) proposed is as follows.

(8) Relevancy Condition (Y. Kim, 2002; 558)

An event e is relevant to some other event(s) e’, iff

(i) \(<e, e’> \in R_m\), where \(R_m\) is a set of relations retrievable from the background knowledge of the discourse participants,

(ii) The predicates denoting e and e’ share arguments which are pragmatically conspicuous w.r.t. \(r_m \in R_m\), and

(iii) The speaker is attuned to \(r_m\)
Y. Kim (2002) argues the previous studies such as Kuroda (1976) fail to capture the semantico-pragmatic relations between the main clause and the relative clause in explicit way. Instead, he assumed that the relevancy is decided by a set of meaningful relations between two events in the matrix clause and the embedded clause satisfying the condition in (8). He agrees with Kuroda’s three types of the Relevancy Condition, but instead also shows that the aspectual properties of the embedded predicate are important factors to the grammaticality of the IHRC constructions, in addition to the pragmatic background. His claim is that the different aspectual properties of the embedded verb need different types of pragmatic relations to link them meaningfully with the matrix clause. For example, if the embedded predicate is an activity verb, the pragmatically conspicuous relation is a spatio-temporal simultaneity, so the embedded clause and the matrix clause share a temporal and spatial background. If the embedded verb belongs to the class of achievement or accomplishment verbs, the pragmatically conspicuous argument is the resultant theme, which results from the culmination of the event, and the two clauses do not need to share a temporal and spatial background. Also, he argues that if the embedded predicate belongs to the class of individual-level predicates or some psychological
extensional verbs, the sentence is unacceptable, because the pragmatically conspicuous relation is a location argument. According to him, the reason why the IHRC sentences with individual-level predicate or psychological extensional verbs are always unacceptable is that individual-level predicates have no location argument and also the location argument of the psychological extensional verbs is restricted within mental processes, so it can not match the physical domain of a matrix clause.

The claim that the appropriate pragmatically conspicuous relations noted in (8) can vary depending on the aspectual properties of the embedded verb can be proved by the following examples in (9).

(9) Embedded Predicate = Activity verbs

a. [hayngin-i tali-ko_iss-nu-un kes]-ul mwul-ess-ta.
   pedestrian-Nom run-Prog-present.imprf-RL kes-Acc bite-Past-Decl.
   ‘(A dog) bit a pedestrian who was walking along.’

   pedestrian-Nom run-past.prf-RL kes-Acc bite-Past-Decl.
   ‘(A dog) bit a pedestrian who had already run along.’

---

65 In Y. Kim (2002)’s term, extensional verbs include some psychologically-oriented predicates like know, remember and recognize. Although recognize belongs to achievement verbs, he mentioned that some achievement verbs are exceptionally categorized in psychological extensional verbs.
(10) Embedded Predicate = Accomplishments

   boat-Acc build-Prog-present.imprf-RL kes-Acc destroy-Past-Decl.
   ‘(Someone) destroyed the boat which was being built.’

   boat-Acc build-past.prf-RL kes-Acc destroy-Past-Decl.
   ‘(Someone) destroyed the boat that had been built.’

   boat-Acc build-Future-RL kes-Acc destroy-Past-Decl.
   Literally: *‘(Someone) destroyed the boat which is going to be built.’

(11) Embedded Predicate = Psychological Extension Verbs

*[Minho-ka ku cha-lul caki cha-lo al-ø-n] kes-ul
   Minho-Nom that car-Acc his car-as recognize-past.prf-RL kes-Acc
   wuncenhay po-ass-ta.
   drive try-Past-Decl.
   ‘Minho tried to drive the car that he has recognized as his.’

Following Y. Kim (2002), in (9), the embedded verb tali-麽 ‘run’ is an activity verb and
so the spatial-temporal background of the embedded clause and the matrix clause should be shared. (9b) is ill-formed, because the temporal background of the matrix clause and the embedded clause are different. In (10), the embedded verb *kencoha-ta* ‘build’ is an accomplishment verb, so the matrix clause and the embedded clause do not need to share the spatial-temporal background, but instead their pragmatically conspicuous argument is the result theme of the embedded clause, which is a building/built boat. That is, the reason why (10a) and (10b) are grammatical but not (10c) is that there is no result theme in (10c) in which the embedded event does not occur yet. The sentence in (11) is not grammatical, because recognition is a psychological process happening in our head, but driving involves a physical domain, so the two clauses cannot meet any of the relevancy requirements.

Y. Kim (2002)’s analysis has merits in that the aspectual information of the embedded predicate as well as the relation between the matrix event and the embedded event can contribute to the judgment of the IHRC sentences. For example, his analysis can explain the difference of (5a) and (5b), which was problematic under Kuroda’s analysis. Y. Kim’s analysis predicts that (5a) is grammatical, because the embedded predicate *mantul-ta*...
‘make’ is an accomplishment predicate which has a doll as a pragmatically-conspicuous argument. However, (6b) is not grammatical, because the activity predicate nol-ta ‘play’ requires the embedded event and the matrix event to share a spatial-temporal background, but the two events take place at different times. Similarly, the interpretation of the sentence in (7) can be explained, because the drawing of the apple is the result of the sketching activity, but the apple itself is not.

However, Y. Kim’s analysis also confronts many empirical problems. First, he assumes that if the embedded predicate is an activity verb, it indicates an on-going event which happens simultaneously with the matrix event. As M. Kim (2004) shows, however, it is not necessary that the embedded activity predicate always has a progressive aspect or a present tense. Consider the sentence in (12).

    John-Top Mary-Nom playground-Acc run-past.prf-RL kes-Acc
    yatanchiessta.
    scolded.

‘John had run in the playground and John scolded her for that.’

Adapted from M. Kim (2004:113)
M. Kim (2004) argues that if the matrix verb is either *yatanchita* ‘scold’ or *chingchanha-ta* ‘praise’ type verb, the embedded tense or aspect can be progressive, simple past or perfective. Although the embedded clause does not share the temporal background of the matrix clause, (12) is still acceptable.

Another problem of Y. Kim (2002)’s analysis is that he was apparently confused about the distinction between individual-level predicates and stage-level predicates, so he considered *sarangha-ta* ‘love’, which is a stage-level predicate, to be an individual-level predicate. Also, as noted above, he argued the individual-level predicate cannot be an embedded IHRC predicate, but I have found many countercases.


‘John envied Mary of being pretty.’

Y. Kim (2002) argues that if the embedded predicate is an individual-level predicate, the IHRC is not grammatical, because an individual-level predicate does not have a spatiotemporal location. However, as seen in (13), an individual-level predicate can be used as an embedded predicate, with an appropriate matrix predicate.
5.2.3. M. Kim (2004)

M. Kim (2004) proposes three semantic conditions on the IHRC construction; (a) the embedded clause describes a state; (b) the referent of pro\textsuperscript{67} must bear a thematic role in this state; (c) this state must bear either a temporal or a causal relation to the eventuality described by the matrix clause.

First, she adopted Shimoyama (1999, 2001)’s resolution of the formal linking problem. The formal linking problem for an E-type pronoun refers to the fact that it requires the preceding discourse to have an ‘overt’ potential antecedent. As for this problem, Hoshi (1995) argues that the pro in IHRCs and an E-type pronoun are identical in that both of them require an overt antecedent in the preceding discourse. However, his analysis has been challenged by some counter-examples which were discussed in Chapter 2. For example, if the IHRC has an implicit indefinite nominal as a semantic head, it is grammatical, although the IHRC does not have an ‘overt’ antecedent. Also, although the formal linking problem has been considered to be a property of an E-type pronoun, it has also remained as an unsolved problem of an E-type pronoun, irrespective of the IHRC construction. In that sense, E-type proponents concerning the IHRC construction did not

\textsuperscript{67} In M. Kim’s analysis, the pro is a combination of kes and [+definite] feature.
explain why the formal linking problem occurs.

Shimoyama (2001) argues that the *pro* in the IHRCs is different from an E-type pronoun, in that the former receives a thematic role which is assigned by the embedded predicate, while the latter is not subject to such locality restriction, as discussed in Chapter 2. M. Kim (2004) agreed with Shimoyama’s analysis, but she claimed that the temporal and viewpoint aspect of the embedded clause also affect the interpretability of the *pro*, adopting and revising Parsons (1990)’s taxonomy of a state. Parsons (1990) categorized sentences with two types of temporal aspects, perfective aspect and progressive aspect.

A sentence with perfective aspect can have two types of state; a result state and a target state. A resultant state comes out regardless of telicity of the predicate and so is compatible with both activity verbs and accomplishment/achievement verbs, describing the state of the event having happened forever after. A target state is available only when the predicate is telic, describing the final state of the incremental theme or the direct object of the predicate after the culmination of the event. A sentence with progressive aspect indicates an ‘in-progress state’ which describes that the event of the predicate is in progress.

As for the availability as the referent of the *pro*, M. Kim (2004) adopted Parsons
(1990)’s analysis of temporal states. First, she assumed that when the embedded predicate has perfective aspect, a resultant state holds for the Agent and a target state holds for the Theme. As mentioned above, whether the embedded clause implies a result state or a target state depends on the aktionsart and viewpoint aspect of the predicate. In other words, if the embedded predicate is an activity verb with perfective aspect, the embedded clause only holds a resultant state, so only the Agent is available as a semantic head. If the embedded predicate is telic verbs with perfective aspect, the embedded clause holds a resultant state for the Agent argument and a target state holding for the Theme argument\(^{68}\), so both the Agent and the Theme are available as a semantic heads. If the embedded predicate shows an in-progress state, all the arguments of the embedded predicate are available as semantic heads. The ambiguity which may occur within the constraints of the above procedures can be resolved by the interaction of the IHRC with the selectional properties of the matrix predicate. The following diagram shows M. Kim’s analysis of the referent of the *pro*.

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\(^{68}\) M. Kim (2004) explained the reason why a target state holds the Theme, when the aspect is a perfective, following Parsons (1990). While M. Kim (2004) or Pasons (1990) discussed this issue within semantic aspects, Kratzer (2002) discussed this issue in view of syntax. According to Kratzer (2002), the DP under VP has an uninterpretable [acc], which forces it to enter an agreement relationship with the verbal inflectional feature [acc], which is equal to [telic], and this agreement relationship must be followed by movement of the DP. Kratzer’s analysis expects that a target state can hold a Theme in syntax, while a result state cannot.
Table 5.1. The referents of the pro in M. Kim (2004)

<table>
<thead>
<tr>
<th>Embedded Predicates</th>
<th>Perfective</th>
<th>Imperfective</th>
<th>A relation to the property of a matrix predicate is required.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Agent</td>
<td>All arguments are available as a head</td>
<td></td>
</tr>
<tr>
<td>Achievement/Accomplishment</td>
<td>Agent, Theme</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Take a look at the following sentences to see how her analysis works.69


John-Top today Mary-Nom yesterday doll-Acc make-Prf-RL] kes-Acc

nayta peliessta.

took_out threw_away

‘Mary had made a doll yesterday and John took it out and threw it away today.’

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69 The morphological analysis of the embedded predicate in 5.2.3 is from M. Kim (2004). As I described in Chapter 2, she contended that there was no tense node in the embedded clause.
‘Mary had played with a doll yesterday and John took it out and threw it away today.’

‘Yesterday Mary had played with a doll and today John praised her for that.’

‘Mary was playing with a doll and John took it out and threw it away today.’

The embedded predicate of (14) and (15) has perfective aspect. In (14), the embedded
predicate is an accomplishment verb, which is telic, and holds a resultant state (Mary’s state of having made a doll) as well as a target state (the state of a doll after Mary’s making a doll is done). That is, both states select Mary and inhyeng ‘doll’ as the referents of kes, but because the matrix verb selects for a non-human object, kes refers to the doll, not Mary. As in (15), if the embedded predicate belongs to an activity verb, which is atelic, the embedded clause only indicates a resultant state. So, the Agent of the embedded predicate, Mary, is only available as the referent of kes. However, in (15a), because the matrix clause requires a non-human object, the sentence is ungrammatical. Actually, if the matrix verb in (15a) is changed to a verb selecting a human object like in (15b), the sentence is grammatical with Mary as the semantic head of the IHRC. As in (17), if the embedded predicate takes progressive aspect, all the arguments of the sentential predicate can be available as a referent of the pro. However, the matrix predicate of (17) requires a non-human object, so only inhyeng ‘doll’ can be selected as a referent.

In addition, based on Parsons (1990)’s three types of states, M. Kim (2004) categorized two kinds of states, ‘temporary states’ and ‘permanent states’. Temporary states indicate events holding only for a temporary period and include the cases where the embedded
predicate is a stage-level predicate, an in-progress state or a target state\textsuperscript{70}, while permanent states indicate events holding forever without culmination and include the cases where the embedded predicate is an individual-level predicate or a resultant state. She argued that depending on whether the embedded predicate is a temporary state or a permanent state, the relationship between the matrix clause and the embedded clause of the IHRC construction is affected by different restrictions. For example, a permanent state is permissible in the embedded clause, only when the event of the embedded clause is causally related to that of the matrix clause. Meanwhile, if the embedded clause takes a temporary state, the embedded clause can be causally or temporally related to the matrix eventuality. Let’s take a look at the examples.

\textsuperscript{70} According to M. Kim (2004), target states are counted as temporary states, because they may cease to hold after the culmination of the event described by the clause. Also, in-progress states are also temporary states, because they hold for a while that the event is in progress or development. In M. Kim’s term, resultant states mean the state of agent after the event is over, rather than the event itself.
Intended: ‘Mary ran on the playground ten times and John gave her water when she was done with it.’


Intended: ‘Mary is smart and John bothered her.’

John-Top Mary-Nom smart-Imprf-RL kes-Acc envied.

‘Mary is smart and John envied her for that.’

(Adapted from M. Kim, 2004: 168)

In (18), the embedded predicate tali-ta ‘run’ with perfective aspect describes a resultant state, so the referent of kes becomes the Agent, Mary. Also, because the embedded predicate is a permanent state, the events of the matrix clause and the embedded clause should be causally related. Although Mary is interpreted as the referent of kes in both (18a) and (18b), the reason why only (18b) is considered to be grammatical is that the eventualities of the embedded clause and the matrix clause are related causally, while they are related only temporally in (18a), as seen in the translation. (19) also shows a permanent state, because its embedded predicate is an individual-level predicate. Like the sentences in (18), (19b) is only grammatical because Mary’s brightness results in John’s jealousy of her, while (19a) is ungrammatical, because the embedded clause and the matrix clause are not causally related.

However, as seen in (20), when the embedded predicate holds a temporary state, it does not require a causal interpretation of the matrix eventuality.
(20) a. John-un Mary-ka khal-lo cokak-ul mandul-ko iss-nu-un
    John-Top Mary-Nom knife-with sculpture-Acc make-Conn cop.-Imprf-RL
    kes-ul ppayassa peliessta.
    kes-Acc take-away-Conn threw away.

    Possible interpretation 1: ‘Mary was making a sculpture with a knife and John
took the sculpture from her and threw it away.’

    Possible interpretation 2: ‘Mary was making a sculpture with a knife and John
took the knife from her and threw it away.’

b. John-un Mary-ka khal-lo cokak-ul mandul-ø-un kes-ul
    John-Top Mary-Nom knife-with sculpture-Acc make-Prf-RL kes-Acc
    payassa peliessta.
    take-away-Conn threw away.

    Possible interpretation: ‘Mary was making a sculpture with a knife and John took
    the sculpture from her and threw it away.’

    Impossible interpretation: ‘Mary was making a sculpture with a knife and John took
    the knife from her and threw it away.’

(Adapted from M. Kim 2004:179)
In two sentences in (20), the matrix clause and the embedded clause are temporally related, indicating the temporal order of two events. In (20a), the embedded clause has an in-progress state, which belongs to the class of temporary states, so *kes* can refer to any thematic argument in the embedded predicate. An Agent, a Theme and an Instrument are considered to be available as a semantic head, but the Theme ‘sculpture’ or the Instrument ‘knife’ are selected as the available referents of *kes* by the relation with the matrix verb *ppayasa pelita* ‘take away and throw’, which requires a non-human object. In (20b), the embedded clause has a target state, which M. Kim treated as a temporary state, so *kes* can in principle refer to an Agent or a Theme of the embedded predicate. However, the matrix predicate, because it requires a non-human object, can only take the Theme ‘sculpture’ as an object.

Also, in some cases, if the embedded predicate holds a temporally-related state, the IHRC can be ambiguous between the cause-result interpretation and the temporally-related interpretation. For example, (20a) can be interpreted in different ways, depending on discourse contexts, like ‘When Mary was making a sculpture with a knife, John took it from her’ or ‘Because Mary was making a sculpture with a knife, which looks very dangerous, John was taking a knife from her’.
In the same sense, when the embedded predicate contains a permanent state, the causality of the matrix event must be from the event of the embedded clause. Compare the following sentences.

(21) a. John-un Mary-ka thelepi-lul po-koiss-n-un kes-ul
    John-Top Mary-Nom television-Acc watch-Conn_cop.-Imprf-RL kes-Acc
    yatanchiessta.
    scolded.
    Reading 1: ‘Mary was watching a television and John scolded her for that.’
    Reading 2: ‘When Mary was watching a television, John scolded her for doing something else (e.g. for having fought with her younger brother).’

    Reading: ‘Mary had watched television and John scolded her for that.’
    Impossible reading: ‘When Mary had watched television and John scolded her for something else. (e.g. having fought with her younger brother.)

(Adapted from M. Kim, 2004: 174)

In (21a), Mary can be scolded by John for watching a TV or something else, but in (21b)
Mary was scolded by John for watching a TV in (21b). As for the different interpretations in (21), M. Kim (2004) claimed that the embedded clause of (21a) has a temporary state and so can be causally or temporally interpreted with respect to the matrix clause, while the embedded clause of (21b) has a permanent state and so can only be causally related to the matrix clause. That is, in (21a), when two clauses are related temporally, Mary can be scolded by John for many reasons, but this is impossible in (21b).

As seen above, M. Kim (2004) claimed that the matrix predicate as well as the embedded predicate affects the acceptability of the IHRC sentences, and also the event structure of the embedded clause can also be treated as an important factor for acceptability. However, her argument has difficulty with the following cases.

First, her analysis cannot explain the IHRC where the embedded predicate is a perfective transitive atelic verb and \textit{kes} refers to the Theme of that verb, as seen in the following sentences.


‘Bill moved a cart John had pushed.’

(The semantic head = Theme)
b. Tom-un [ToTo-ka Open_Arms-lul pwuru-ø-n] kes-ul pyenkosstaffa.

Tom-Top [ToTo-Nom Open_Arms-Acc sing-Prf-RL] kes-Acc arranged.

‘Tom arranged the song ‘Open Arms’ sung by ToTo.’

(22a) and (22b), where kes refers to the Theme as its antecedent, are both grammatical, although the atelic perfective aspect of the embedded predicate is predicted to allow only the Agent as an available referent, based on M. Kim’s analysis.

Second, she claimed that perfective and imperfective aspect markers can be attached to any kind of embedded predicate, but in reality, stative predicates can neither get perfective aspect nor imperfective aspect, as I discussed in Chapter 3. Therefore, her analysis only explains the sentences whose embedded predicates are eventive.

Third, she did not give consistent judgments about the sentences with split antecedents; kes in (23) can have split-antecedents, but that in similar sentences like (24) cannot.


John-Top cat-Acc mouse-Acc chase-Conn cop-imprf-RL kes-Acc caught

‘A cat chases a mouse and John caught the cat/ the mouse/ both of them.’

(from Kuroda, 1976; M. Kim, 2004 and Chung & Kim, 2003)
Under her analysis, the embedded clause in (23) has progressive aspect, so *kes* should allow every participant of the embedded event as available referents\(^{71}\). Also, the selectional properties of the matrix predicate *cap-ta* ‘catch’ allow it to take human or non-human objects. Therefore, *kes* in (23) can choose every argument—a cat, a mouse or both of them—in the embedded clause as referents. The embedded clause in (24) also has progressive aspect, and *kes* thus holds every argument as available referents, and the matrix predicate *ppayas-ta* ‘take away’ selects non-human objects. So, the referents of

\(^{71}\) M. Kim (2004:163) discussed ‘every participant’ means ‘every argument’ of the predicate. Also, she assumed that every argument of the predicate includes core arguments (Subject, Direct Object and Indirect Object) as well as VP adjuncts (Oblique cases). However, the term ‘argument’ only refers to the core arguments, Subject, Direct Object, and Indirect Object and does not include VP adjuncts.
kes in (24) should be ambiguous among a knife, a sculpture or both of them. However, she did not mention that kes in (24) may refer to plural entities. If her analysis of in-progress aspect of the internal clause is right, kes should be able to refer to both the knife and the sculpture as referents at the same time. Because she argued that kes is an E-type pronoun, there is no reason the pronoun cannot take plural referents.

In the following section, I will discuss several semantic issues with regards to IHRCs which have not been discussed in the previous studies;

(25) a. How come the split antecedents are available in some IHRC but not in other IHRCs?

b. When the IHRC sentence exhibits an ambiguity, why is the subject of the embedded clause preferred as a semantic head?

c. Why are an oblique case interpreted as a semantic head in some sentences, but not in other sentences?

5.3. The Proposals

5.3.1. The Formal Linking Problem

The semantic problems discussed in previous studies, which argue for pronominal
analyses, are mainly related to formal linking conditions and split-antecedent problems.

As discussed in Chapter 2, the formal linking condition refers to the fact that the definite pronominal requires the preceding discourse to have an ‘overt’ potential antecedent. The sentences in (55) and (56) of chapter 2 are rewritten in (26) and (27).

(26) Yamada-san-wa otonari-no musukosan-ga wakai oyomesan-o moratta]-ø
   Y-Hon-top [[next_door-Gen son-Nom young bride-Acc got]-RL
   no]-o tyoonai-no huzinkai-ni kanyuusiyootosita.
   Comp]-Acc neighborhood-Gen women’s club-Dat tried_to_talk_into_joining.

‘The next door neighbor’s son got a *young* bride and Ms. Yamada tried to talk her (= the young bride) into joining the women’s club in the neighborhood.’

(27) *Yamada-san-wa otonari-no musukosan-ga kekkonisita]-ø no]-o
   Y-Hon-top [[next_door-Gen son-Nom got_married]-RL Comp]-Acc
   tyoonai-no huzinkai-ni kanyuusiyootosita.
   neighborhood-Gen women’s club-Dat tried_to_talk_into_joining.

‘The next door neighbor’s son got *married* and Ms. Yamada tried to talk her (= his wife) into joining the women’s club in the neighborhood.’

(Hoshi, 1995:151)
The syntactic analysis of IHRCs I proposed in chapter 4 can explain in the judgment difference in (26) and (27). Although Hoshi (1995) argues that the difference between (26) and (27) results from the formal linking condition of an E-type pronoun, he could not explain why an E-type pronoun should have a formal linking condition, although the salient entities introduced by the embedded clauses in (26) and (27) are identical. However, the syntactic analysis described in chapter 4 solves this licensing problem; the pro is not an E-type pronoun but a referential pronoun, because a referential pronoun always needs to have a clear discourse antecedent. Also, I proposed that although the semantic head is not overtly pronounced when the semantic head is an indefinite implicit nominal, it is syntactically represented within the embedded clause as a null argument. Therefore, the formal linking condition is not a problem in the referential pronominal analysis.

5.3.2. Antecedent Hierarchy

M. Kim (2004), following Parson’s analysis, argued that the relation between the embedded predicate’s aspecual status and the thematic roles of NPs within the embedded clause is the main factor constraining the selection of the semantic head. Also, her
analysis was affected by Shimoyama (2001) claiming that the semantic heads should get a thematic role from the embedded predicate. Also, Y. Kuroda (1992) and Y. Kim (2002) tried to investigate how the event of the embedded clause is related to that of the matrix clause. Although these previous studies have made progress in understanding the correlation between the embedded clause and the matrix clause and also in describing the way how the available semantic heads are selected, they did not discuss the preferred interpretation of IHRCs. Kitagawa (2005) observed that the interpretation of the IHRC always favors the subject of an embedded clause as the semantic head, when the semantic head of IHRCs is ambiguous between the subject and the object of the embedded clause. However, he could not explain why the subject of the embedded clause is favored as a semantic head among all of the potential readings. In this section, I will show that there is a hierarchical order of semantic heads which is syntactically determined, and also explain why syntactic status should be considered to be an important factor. For this purpose, I will first discuss two IHRC sentences in (28), one with an active embedded clause and the other with a passive embedded clause.
The difference between the two sentences in (28) is that (28a) has an active embedded clause and (28b) has a passive embedded clause. As for those sentences, M. Kim (2004)’s analysis predicts that they can have three readings, based on the relation between the in-progress aspect of an embedded predicate, which selects all of NPs within the embedded clause, and the property of the matrix clause. However, her analysis does not explain why
one reading is more preferred than the other in a neutral discourse background. (Readings
2 and 3, in (28a) and (28b), require some discourse background, which favors the direct
object, an oblique argument or split-antecedents as the semantic head, to license them.)

The preferred interpretation in (28) shows us that the syntactic case marking of NPs is a
more important factor than their thematic role, if the embedded clause has the
imperfective aspect. That is, whether the embedded clause is active or passive, *kes* always
prefers to refer to the subject of the embedded clause.

The reason why the subject of the embedded clause is favored as an antecedent of the
*pro* in sentences like (28a) has to do with processing considerations, and is predicted by
the Incremental Minimalist Parsing Model (IMPM) of Lin (2006). IMPM tries to
incorporate the mechanisms of Minimalist Program, such as Merge, Move and Agree,
into the mechanism of the incremental syntactic parser to avoid the discrepancy between
on-line sentence comprehension, which occurs top-down, and generative syntactic theory,
in which derivations occur bottom-up. This model assumes that during comprehension,
the basic templatic structure of the matrix clause is already prepared, before the input of
the first word of the sentence, and each input word is placed into the structure from the
structurally topmost available position. As to the relative clause construction, the IMPM
claims that the parser of the language, whether it is head-initial or head-final, first constructs a binding relation between an operator (or a relativizer) and the SpecIP position within the relative clause, based on the minimal link condition, because the SpecIP position is the closest position to check the two-place feature, IDENT (x, y), on the operator (or the relativizer). This feature is valued by matching the embedded trace (x) and the head noun (y). IMPM is supported by many previous studies on the EHRC construction (Ford (1983) and Gibson et al. (2005) for English, Miyamoto & Nakamura (2003) for Japanese, Kwon et al. (2004) for Korean, Lin (2006) for Chinese, Gouvea (2003) for Brazilian, Schriefers et al. (1995) for German, Cohen & Mehler (1996) for French). These studies show us that the object-extracted EHRC takes longer to be comprehended than the subject-extracted EHRC. The consistency of this result which occurs across both right-headed and left-headed EHRCs argues for a structural-distance-based analysis like IMPM, as opposed to a linear-distance-based analysis.

If the main idea of IMPM is that the easiest target for AGREE is the structurally (not linearally) closest DP, it can explain why the subject of the embedded clause is preferred as a semantic head in an IHRC construction which is ambiguous. That is, the DP in the subject position of the embedded clause is the closest one available to check the
uninterpretable feature on C (a relativizer), and hence is preferred in the absence of other factors showing that the object is the semantic head. The idea of IMPM predicts that there must be a hierarchical order of preferred antecedents depending on the distance between Probe and Goal. In this sense, IMPM will follow Keenan-Comrie’s Accessibility Hierarchy (1977; 1979), which notes the typological hierarchy as to the order the NPs which can be easily extracted or relativized.

(29) Accessibility Hierarchy (adapted from Lin (2006))

Subject > Direct Object > Indirect Object > Oblique case > Genitive

(29) claims that NPs in the upper hierarchy are more easily relativized/extracted than NPs in the lower hierarchy, and IMPM claims that this hierarchical order is due to the fact that the former is positioned higher than the latter in the syntactic structure. This hierarchy can be proved throughout IHRC sentences whose choice of semantic head is ambiguous. One interesting point of IHRCs is that although the antecedent hierarchy prefers to select an NP in the upper hierarchy in IHRCs, the other possibilities are still available\textsuperscript{72}, depending on the discourse background. This is different from EHRCs where if an NP in the upper hierarchy is selected as the semantic head, the other possibilities are

\textsuperscript{72} The genitive case is completely blocked as a semantic head in IHRCs, in view of phase theory.
completely blocked. EHRCs are not ambiguous in the same way that IHRCs are, because there is a gap at the head position in the relative clause in EHRCs.

5.3.3. The Coercion Effects from the Event Reading

The split-antecedent interpretation can be regarded as one of the big problems for a referential pronominal analysis, because a referential *pro* appears to be bound by two separate nominals at the same time in split-antecedent sentences. As for the so-called split-antecedent sentences, Kitagawa (2005) argued that the antecedent of the *pro* cannot be both nominals. He gives the sentences like (30) as evidence.

(30) a. [zyunsagi-ga dorobooko-kawa no hoo-e oitumeteitta] no-ga
   cop-Nom thief-Acc river’s toward-to tracked_down Modifier-Nom
   ikioi amatte *(hutaritomoi-j) kawa no naka-e tobikonda73.
   power exceeding both river’s in-to jumped_in.
   ‘A cop_i was chasing a thief_j toward the river and going too fast, *(both_j) fell into the river.’

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73 The morphological analysis of these examples is based on Kitagawa (2005).
b. Kimi-wa [dare-ga Ken-o nagutteita] no-o *(otagai-ij no)

You-Top who-Nom Ken-Acc hitting was Modifier-Acc each_other’s

ie-ni kaesita no?

home-to returned Q?

(Lit.) Who_i-and he_i was hitting Ken_j-did you send to each other_ij’s home?

(Kitagawa, 2005:1258)

Kitagawa (2005) argues that neither of sentences can carry the split-antecedent reading without the presence of such expressions as hutaritomo ‘both’ in (30a) or otagai ‘each other’ in (30b). Without it, the semantic head would be the subject NP within the relative clause, unless a discourse context strongly favors the object NP to be the semantic head.

In (30), Kitagawa argued that hutaritomo ‘both’ and otagai ‘each other’ may refer to their antecedents across the clausal boundary, accessing both what occurs as the external head of the IHRC, which are ‘cop’ in (30a) or ‘you’ in (30b), and an NP within the relative clause, ‘thief’ or Ken. (Kitagawa 2005:1258). Although he explained (30a) in such a way, however, he did not explain why ‘each other’ in (30b) can refer to split antecedents. (30b) cannot be explained in the same way as ‘both’ in (30a), because ‘each other’ is usually subject to Condition A, so its antecedents should be in the same clausal domain.
As for split antecedents, I claim that these readings result from the coercion to an ‘event interruption’ reading, considering that the split antecedent phenomenon occurs only if the event of the embedded clause is interrupted by the event of the matrix clause and the embedded clause has an imperfective aspect. The event interruption reading which results in the split-antecedent reading is different from an event head reading, in that the selectional properties of the matrix predicate in ‘event interruption reading’ of a split antecedent IHRCs requires a nominal as its arguments, while the selectional properties of the matrix predicate in the ‘event head reading’ IHRCs expects an event-denoting phrase as its argument. So, the event head reading occurs when the matrix verb is a direct perception predicate or a factive verb, as discussed in chapter 4. Consider the following data.

(31) John-un Mary-ka hakkyo-ey ka-nu-un kes-Acc poassta.
    John-Top Mary-Nom school-to go-present.imprf-RL kes-Acc saw.
    ‘John saw Mary going to school.’

John-Top cat-Acc mouse-Acc chase-Conn Prog-nun kes-Acc caught

Possible interpretations: ‘A cat chases a mouse and John caught the cat/ the mouse/
both of them.’

(33) John-un Mary-ka khal-lo kokak-ul mandul-ko issu-nun

John-Top Mary-Nom knife-with sculpture-Acc make-Prog-present.imprf-RL
kes-ul ppayassa peliessta.

kes-Acc take-away-Conn threw away.

Possible interpretation 1: ‘Mary was making a sculpture with a knife and John
took the sculpture from her and threw it away.’

Possible interpretation 2: ‘Mary was making a sculpture with a knife and John
took the knife from her and threw it away.’

Possible interpretation 3: ‘Mary was making a sculpture with a knife and John took
both of them and threw them away.’

(31) shows an event thread reading, in that the matrix verb po-ta ‘see’ can have an
event-denoting phrase as its object, but (32) and (33) shows the event interruption reading
which brings out the split antecedents—in these cases, the matrix verbs cap-ta ‘catch’ or
ppayas-ta ‘take’ expect a nominal argument as an object. (32) and (33) may be interpreted in three ways, respectively, as seen in the English translations given above. In a neutral discourse background, based on the antecedent hierarchy, (32) is interpreted such that the semantic head is a subject of the embedded clause, but it can have other possible interpretations, if the discourse background really disfavors the subject as a semantic head. Also, in (33), the antecedent of kes is ambiguous between a direct object, an oblique case and split antecedents, but it favors a direct object as a semantic head, based on the antecedent hierarchy.

The claim about the procedures to reach the split-antecedent reading shown in (32) and (33) goes as follows: when the embedded clause is processed, the subject in (32) and the object in (33) of the embedded clause are initially identified as the likely semantic head. After the processing of the embedded clause, the matrix event is processed with the first selected argument being a semantic head. However, when the matrix event is processed, the ambiguity of the sentence becomes apparent and the sentence is reinterpreted, because there are more ways for the matrix event to interrupt or stop the embedded event. Consequently, in (32), if the sentence is interpreted such that the direct object or split antecedents are the semantic head, I think those readings are from the coercion effects of
the event interruption reading. In (33), in the same way, the VP adjuncts or split antecedents can be treated as the semantic head by the coercion effects.

This claim about the split-antecedent reading can confront the problem of the property of the matrix verb. For example, *cap-ta* ‘catch’ in (32) always takes a nominal as a direct object, so there is no way to catch an ‘event’—the event itself is not the semantic head of the IHRC, as it is with perception or factive matrix verbs. However, I think that this problem is resolved by the idea that the split-antecedent reading results from the relationship between the event of the embedded clause and the event of the matrix clause, and also ‘the event’ is not decided by a verb itself but by the whole vP. That is, the event of the embedded clause is interrupted by the whole event of a matrix clause, rather than the matrix verb.

In a nutshell, as for the sentences like (32) and (33), the perceivers first interpret them in accordance with the Accessibility Hierarchy and the selectional restriction of the matrix verb. However, after the perceivers finish the processing of the sentence, they compare the relationship between the event of the embedded clause and the event of the matrix clause, and may then reinterpret the sentences. Because the relationship indicates that the
matrix event interrupts the embedded event, the perceivers can take split-antecedents\textsuperscript{74} as semantic heads, because such a construal is definitely one way to interrupt the event of the embedded clause.

In addition, these coercion effects are found with semantic heads bearing an oblique case as well. M. Kim (2004) argued that VP adjuncts such as Instruments, Locations, etc. can be the semantic head in an appropriate situation only if they get their thematic role from the embedded predicate.\textsuperscript{75} However, the thematic roles of such oblique cases are not usually considered to be assigned by the predicate, so her claim that Location, Instrument or Concomitant get their thematic roles from the predicate (but, e.g. ‘Benefactive gets its thematic role from the postposition \textit{wihay} ‘for’ is unusual. I think that such readings are also coercion effects caused by the event interruption reading, like the split-antecedent cases.

Like the split-antecedent reading, I claim a VP adjunct head reading results from a

\textsuperscript{74} The split antecedents are different from CSC effects of conjoined phrases. When the embedded clause has the conjoined phrases, the antecedents of \textit{k}es should be two entities and each of them is from each conjunct. In the surface, the antecedents in the conjoined structure look like the split antecedents, but they are not, because the conjunction marker, a head of a conjunction phrase, has a special property like combining two nominals (or events) from each conjunct. For example, when \textit{k}es refers to two nominals from each conjunct CP, what \textit{k}es actually refers to is like ‘DP\textit{wa} DP’, which is a single conjunction phrase which dominates two DPs, by the operation of a conjunction marker \textit{wa} ‘and’.

\textsuperscript{75} M. Kim (2004) assumed that Benefactives are assigned not by the embedded predicate but by the preposition, but Locations and Instruments are assigned by the embedded predicates. So, she argued that Benefactives cannot be considered as a semantic head in any case, while Location or Instruments can be considered as a semantic head.
coercion effect which occurs if the matrix event interrupts the event of the embedded clause. In this case, a VP adjunct seems to be interpreted as a semantic head, because a VP adjunct can play a role in interrupting the event of the embedded clause. As I noted in (33), the sentence can be interpreted with its semantic head being the ‘knife’, an Instrument, but if the matrix verb is changed like (34), the knife is no longer a possible semantic head changed, because the matrix event does not interrupt the embedded event.

(34) *John-un [Mary-ka khal₁-lo cokak-ul mandul-ko_iss-nn-un]

John-Top Mary-Nom knife-with sculpture-Acc make-Prog-present.imprf-RL

kes₁-ul sassta.

kes-Acc purchased.

Intended: ‘Mary was making a sculpture with a golden knife, and John bought the golden knife.’

The sentence in (34) has only one available interpretation in which the semantic head is the sculpture, so kes cannot refer to the knife. In (34), the matrix event does not directly interrupt the embedded event, because John’s payment is not intended to stop Mary’s work. Therefore, in (34), the event interruption reading which brings out a coercion effect is not available, so the Instrument ‘knife’ cannot be interpreted as a semantic head.
M. Kim (2004) argued that a Location can be a semantic head but a Benefactive cannot, because, she claimed, the former gets its thematic role from the embedded predicate, while the latter gets their thematic role from postposition *wihay* ‘for’. Consider the following sentences.

(35) Theylepem-i [ku kenmwul-eyse cwunyohan hoyuy-ka yelli-ko_iss-
Terrorist-Nom that building-Loc important meeting-Nom be_held-Prog-
present.imprf-RL kes-Acc blew_up.

‘An important meeting was taking place in a building and the terrorists blew it up.’

(M. Kim, 2004: 153)

(36) a. John-un [[Mary-ka ku alumptawun yepaywu-ekey senmwul-ul ssa-ø
John-Top [[Mary-Nom that beautiful actress-Dat present-Acc wrap-conj
cwu-ko_iss-nu-n kes]-ul kkyeasnassta.
give-Prog-present.imprf-RL kes-Acc hugged.

‘Mary was wrapping a present for the beautiful actress and John approached them and hugged the actress.’
b. *John-un [[Mary-ka ku alumtawun yepaywu-lul wihay senmwul-ul
John-Top [[Mary-Nom that beautiful actress-Acc for present-Acc
ssa-ø cwu-ko_iss-nu-n kes]-ul kkyeasnassta.
wrap-conj give-Prog-present.imprf-RL kes-Acc hugged.

‘Mary was wrapping a present for the beautiful actress and John approached and hugged the actress.’

(Adapted from M. Kim, 2004: 154)

M. Kim (2004) argued that the semantic heads of (35) and (36a) are a ‘building’ and a ‘beautiful actress’, respectively, following Shimoyama (2002)’s locality condition, because ‘building’ and ‘beautiful actress’ bear a Location and a Goal role assigned from the embedded predicate. In comparison with (36a), she explained that the semantic head of (36b) cannot be a ‘beautiful actress’, because a ‘beautiful actress’ does bear any thematic role assigned from the embedded predicate, being a Benefactive.

However, I claim that (35) and (36) are also examples of the coercion effects from the event interruption reading, like the split-antecedent cases. For example, in (35), the terrorist’s behavior interrupts the event of the embedded clause, but (37) which has the same structure as (35) but a different matrix verb cannot have a ‘building’ as a semantic
head.

(37) * Kim hoycang-i [ku kenmwul-eyse cwungyohan hoyuy-ka

Kim president-Nom that building-Loc important meeting-Nom

yelli-ko_iss-nu]-un] kes]-ul payek-e sassta.

be_held-Prog-present.imprf -RL kes-Acc ten billion-at bought.

‘Intended: President Kim bought the building in which the important meeting was held.’

In (37), kes cannot be interpreted as referring to a building, a Location, because a VP adjunct head is a coercion effect which occurs only if the matrix event interrupts the event of the embedded clause. That is, in (37), the matrix event ‘Kim’s purchasing a building’ does not interrupt the embedded event ‘an on-going meeting’. (In fact, kes in (37) is interpreted as referring to a meeting, which cannot be purchased, so the sentence is not acceptable.)

Then, how about the different judgment of (36a) and (36b)? As I argued above, the nominal head reading is available only when the nominal is a core argument. In that sense, (36a) is grammatical, because it has a nominal head reading, with the dative indirect object of the embedded predicate being the semantic head. (36b), in which a beautiful
actress occurs as a VP adjunct, is judged ungrammatical. If ‘a beautiful actress’ is not present in the embedded event, it is impossible for John to hug her, so that is the reason (36b) is ungrammatical. Even if a beautiful actress is present at the event time, the event of the embedded clause, i.e. Mary’s wrapping of a present, is not interrupted by the matrix event ‘John’s hugging a beautiful actress. That is, a beautiful actress cannot be an important factor to interrupt the event of the embedded clause. Consequently, the event interruption reading is not available to license the coercion effect in (36b), so a VP adjunct head reading is not predicted.

5.4. Summary

In this chapter, I discussed the semantic issues of the IHRC construction. Previous studies mainly focused on the pragmatic relation between the matrix clause and the relative clause and the determinants of the semantic head. For example, Kuroda (1976) described three types of relevancy condition, and argued that the IHRC construction should satisfy at least one type of relevancy condition. Y. Kim (2002) extended Kuroda’s’ relevancy condition in view of the semantic-pragmatic background, and investigated the viewpoint aspects of the embedded predicate decide the type of the semantic-pragmatic
backgrounds which the matrix clause and the embedded clause should share. M. Kim (2004), following Parsons (1990), claimed that the potential referent of the pro is decided by the relation between the temporal/viewpoint aspects of the embedded predicate and the selectional property of the matrix predicate.

While the previous studies did not discuss the preference of the IHRC reading, I tried to explain the preference of a subject head reading in view of minimal link condition. That is, because the subject of the embedded clause is the closest position to check the uninterpretable feature on C, the subject is always favored as a semantic head, when kes is is ambiguous between the subject and other arguments of the embedded clause. Also, I argued that the split antecedent reading and a VP adjunct head reading only occurs when the event of the embedded clause is interrupted or stopped by the event of the matrix clause. This is a sort of coercion effect, because the split antecedents or VP adjuncts in the embedded clause play an important factor in interrupting the matrix event, so the sentence is reinterpreted in view of the relation between two clauses.
CHAPTER 6.

CONCLUDING REMARKS: THE MYSTERY OF THE IHRC CONSTRUCTIONS

From chapter 1 through chapter 5, I have investigated the morphological, syntactic and semantic aspects of the IHRC constructions. From this issue, I made some new findings about the property of IHRCs which argue against the previous studies or have never discussed before.

As for the morphological aspects of IHRCs, I argued that the embedded clause in an IHRC is a full CP with a TP, expressing a full range of tense and aspect distinctions, and that the tense and aspect information of the embedded clause varies from the eventive predicate to stative predicate. Also, *kes* is categorized as a D or N, depending on whether *kes* is used by itself or modified by a demonstrative. In either case, a sister of the embedded clause CP should have definiteness, so both structures of IHRCs look like a non-restrictive relative clause semantically. However, the syntactic mechanisms of these two structures are different, because the IHRC is only an adjunct island when the definite item it modifies is complex, supporting Johnson (2003)’s treatment of adjunct islands.
As for the syntactic aspects of the IHRC constructions, the derivation of an IHRC proceeds via AGREE in phases. This idea accounts for the fact that an IHRC does not allow embeddings more than a single phase, which also proves the LF head in-situ analysis. Also, I argued that the internal head can be a DP or a vP, so the event of the embedded clause can be treated as the semantic head.

As for the semantic aspects of the IHRC constructions, I explained why the subject of the embedded clause is preferred as a semantic head, when the antecedent of *kes* is ambiguous between the subject and another argument, following Lin (2006)’s IMPM. Also, I observed that split antecedents and the VP adjunct head reading only occur when the event of the matrix clause stops the event of the embedded clause. In such case, split antecedents or VP adjunct can only be interpreted as the semantic head when they are important factors in interrupting the event of the embedded clause.

However, through my approach, I still leave a lot of puzzles for the future study. For example, I adopted May’s multi-segment category notion of c-command to explain why the IHRCs whose inernal head is an R-expression do not violate Condition C of the binding theory. In fact, this type of Condition C violation is not only a problem in IHRCs but also in appositive structures which also show a symmetric c-commanding relation.
between two DPs. These two structures predict Condition C violation: in IHRCs, *kes* is the sister of a CP whose index is percolated up from the internal head, and *kes* and a CP share the same index. In appositive structures—DPs such as *John, the president of the glee club*—the second DP is adjoined to the first DP and these two DPs share the same index. The symmetric c-commanding relation seems to be involved in the issue of Condition C violation, but there is no way to explain why symmetric c-commanding relation can particularly be an exception of Condition C violation, unless the definition of c-command is changed in an important way.

The CSC effects shown in IHRCs are also problematic. The fact that *kes* in IHRCs cannot refer to only one phrase in a conjoined phrase structure may be explained by semantic parallelism, but semantic parallelism cannot explain WH in-situ questions which allow one covert operator to be extracted out of a conjoined structure.

As I take the referential pronominal approach, I think the most important problem is the IHRC with a QP internal head. A QP does not refer to a specific entity but operates like a variable, so a referential pronoun cannot have a QP as its antecedent.

The way to prove coercion effects is also a problem. I hypothesized that the split-antecedent reading or the VP-adjunct head reading is coercion effects of the event reading
based on some data, but those effects need to be analyzed within some syntactic structure or further justified in an empirical way. Also, the antecedent hierarchy in the IHRC needs to be proved in empirical way to investigate whether the antecedent hierarchy which is applied to EHRCs is applied to IHRCs in the same way.

Also, previous studies about the semantic aspects of the IHRC have it in common that they observed the semantically-relevant relationship between the embedded clause and the matrix clause. One interesting point is whether the non-restrictive relative clause structure which I proposed in Chapter 3 and 4 can imply the relevancy condition? The non-restrictive relative clause structure, generally speaking, does not predict the close correlation between the matrix clause and the relative clause, because the relative clause semantically just plays a role in giving some extra information about the head noun, which is a definite referent by itself in the non-restrictive relative clauses. (In fact, a restrictive relative clause may predict more strongly that the relative clause should be semantically relevant with the matrix clause, because the relative clause is a sister of N, which is not a definite referent by itself.) That is, the fact that two clauses should be relevant in IHRCs contradicts the idea that IHRCs semantically have the same structure as the non-restrictive relative clauses.
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