KOREAN AND ENGLISH RELATIVE CLAUSES

A thesis submitted in partial satisfaction of the requirement for the degree of Master of Arts in
Linguistics
by
Mun H. Seo

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The Thesis of Mun H. Seo is approved:

__________________________
Paul L. Kirk

__________________________
Iris Shah, Chair

California State University, Northridge
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<tr>
<td>Acc</td>
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<tr>
<td>Adjt-M</td>
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<tr>
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<td>H,R,U,W,Y,Z</td>
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This thesis discusses the similarities and differences between Korean and English relative clauses on the basis of Ross's NP-S analysis of relative clauses.

Korean and English are unrelated languages. Korean is a SOV language whereas English is a SVO language. Thus, the order of English relative clause constituent structure is S-NP in Korean.

Most previous contrastive studies of relative clauses in Korean and English were confined to superficial differences and problem points. This study broadens the scope of investigation and includes an explanation for most syntactic distinctions between Korean and English relative clauses.

Although on the surface, Korean clausal modifiers lack
relative pronouns, their underlying structures share similarities with English relative clauses. Both languages produce relative clauses by embedding the subordinate sentences into head NP's. The language specific transformational rules in relative clause formation for English are Pronominalization, Relative Pronoun Deletion, Modifier Shifting. For Korean the language specific rules are Modality Adjustment and Case Marker Deletion. Relative Clause Reduction in English and Copular and Existential Verb Deletion in Korean are similar rules. Constraints such as the Pied Piping Constraint, the Complex NP Constraint, the Sentential Subject Constraint, and the Coordinate Constraint are applied on relative clause formation in both languages. Although pseudo-relative clauses have similar semantic clues, they are derived from different underlying structures.
CHAPTER 1
Introduction

This study contrasts the syntactic aspects of Korean and English relative clauses. It attempts to specify the underlying structures and the transformational rules of relativization of Korean and English as well as broaden the scope of contrast and constraints to pseudo-relative clauses.

Chapter 2 introduces the constituent structure rules for Korean and English which generate grammatically acceptable sentences in both languages. The differences between structures of non-restrictive relative clauses in Korean and English are examined in Chapter 3. Chapter 4 discusses underlying structures and general relative clause formation in both languages. Pseudo-relative clauses such as Attributive Adjective Clauses, Generic NP Clauses and Fact-S Clauses are described in Chapter 5. In Chapter 6, constraints such as the Case Marker Constraint in Korean and Pied Piping in English are analyzed. The Complex NP Constraint, the Sentential Subject Constraint and the Coordinate Constraint in both languages are described.
CHAPTER 2
Constituent Structure Rules

In this section we will introduce the constituent structure rules which are relevant for the purpose of this study. English constituent structure rules are those identified by Akmajian and Heny (1975), whereas Korean constituent structure rules have been devised by the author based on a transformational generative model.

2.1. English Constituent Structure Rules

Given: \( S \)

1. \( S \) \( \rightarrow \) (Q) (not) NP Aux VP (Adv)
2. \( NP \) \( \rightarrow \) (Det) N \( \{ PP \} \)
3. \( VP \) \( \rightarrow \) V \( \{ NP_{Adj} \} \) \( \{ PP \} \)
4. \( PP \) \( \rightarrow \) Prep NP
5. \( Aux \) \( \rightarrow \) Tense (Modal) (have-en) (be-ing)
6. \( Det \) \( \rightarrow \) this, that, the, a, .......
7. \( Tense \) \( \leftrightarrow \) \{ present \}_\{ past \}
8. \( Modal \) \( \rightarrow \) shall, will, may, can, must

We begin our discussion of English constituent structure rules by attempting to characterize the unit that we call a Noun Phrase (NP). The NP is a major structural component of sentences (an argument) and it would be worthwhile to explain in a little more detail the structure of this category. Words such as determiners, attributive adjectives and quantifiers can precede the head noun with-
in the NP. In other words, they are prenominal elements within the NP. Also NP has postnominal elements which are a prepositional phrase or a sentence. In a clause like "the house in the woods" PP follows the head noun.

The rule NP $\rightarrow$ S implies that we can continue this process indefinitely to generate embedded sentences under the NP node.

VP, Verb Phrase, is another important unit for constructing sentences. A predicate, a VP, consists of a verb, an optional NP, and/or an optional prepositional phrase. A verb may have a NP or an adjective as a complement but not both. However, NP, adjective, PP, or S are not obligatory. We can expand NP into nine separate rules as follows:

3.1. $VP \rightarrow V$
3.2. $VP \rightarrow V \ NP$
3.3. $VP \rightarrow V \ NP \ PP$
3.4. $VP \rightarrow V \ Adj$
3.5. $VP \rightarrow V \ Adj \ PP$
3.6. $VP \rightarrow V \ PP$
3.7. $VP \rightarrow V \ S$
3.8. $VP \rightarrow V \ NP \ S$
3.9. $VP \rightarrow V \ Adj \ S$

This set of rules imposes a categorization of a verb in terms of a certain set of frames in which V occurs. Chomsky (1965:96) introduces strict subcategorization as
rules which analyze a symbol in terms of its catagorial context. Corresponding to each string dominated by VP, there is a strict subcatagorization of verbs. On the other hand, verbs apparently are not strictly catagorized in terms of subject NP's or type of auxiliary. Auxiliaries consist of tense (present or past), and may contain a modal, have-en, be-ing. The English modals are "can, may, shall, will and must." "Be-ing" represents the progressive whereas "have-en" the perfect aspects of verbs.

2.2. Korean Constituent Structure Rules

Given: \# S \#

1. S → (Adv) NP + VP + Aux

2. NP → \{N (PL) K\}

3. VP → \{NP V\}


5. Aux → Tense S-Style Mood S-Marker

6. Tense \{Past, Non-Past, Past Perfect\}

7. SS → \{Authority, Formal, Familiar, Intimate (1), Intimate (2), Plain\}
Now we consider Korean constituent structure rules. Korean CS rule (1) claims that a sentence is composed of three major constituents, NP, Aux, and NP, which are considered to be universals. Korean CS rule (2) introduces case markers which are very important elements in the Korean language. In Korean every noun takes its case. The number of nouns with their cases allowed in a simple sentence depends upon the verb. CS rule (3) means that many different nouns with case markers can precede a verb as long as they produce semantically well formed sentences. Here is an example sentence with five different noun cases.

(1) na ga Mary wa eoje bam e mangchi lo haggyo eseo chaegsang eul bushu eos da.
    I Nom yesterday night T hammer Ins desk Acc break Past St

"Mary and I broke a desk with a hammer at the school yesterday night."

The most common cases in Korean are nominative, accusative, experiencer, instrument, goal, source, locative, time, and comitative. The comitative case in Korean is the case which is associated in a parallel way with another case (Taylor, 1971). The source case, indicating the place from
which something is directed is different from the goal case, indicating the place to which something is directed in Korean.

According to the order of words in Korean NP precedes the verb and auxiliaries within a VP. The auxiliary, on the other hand, is determined by the total combination of such grammatical categories as speech style, mood and sentence marker. CS rule (5) illustrates the agglutinative character of the Korean language. The combination of these elements in an underlying structure sentence is shown in the following chart for convenient reference.

(2)

<table>
<thead>
<tr>
<th></th>
<th>Formal SD</th>
<th>Familiar SS</th>
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<th>Intimate(2) SL MD</th>
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<tr>
<td>ST</td>
<td>sheub ni da</td>
<td>- - ne</td>
<td>- - a</td>
<td>- - ji</td>
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<tr>
<td>Plain</td>
<td>- neun da</td>
<td>- - o</td>
<td></td>
<td></td>
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<tr>
<td>Autho</td>
<td>SL Md SM</td>
<td>SL Md SM</td>
<td></td>
<td></td>
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</tbody>
</table>

Conceptually we can subcatagorize tense into the non-past, past, and past-perfect. On the surface past has the form "as," when "as" is reduplicated, it signifies the past perfect. If a sentence does not contain the past or perfect morphemes, it has the reading either of the present or of the future according to the time adverbial or some other clue.

There are three moods in Korean, stative, retrospec-
tive, and active. The retrospective does not directly translate into English. The best translation is "I saw, perceived, witnessed......" The active mood implies the volition of the subject whereas the stative mood describes a statement. Sentence modifiers in Korean occur finally and mark a sentence as being either a statement, a question, a command or a suggestion.
3.1. Definition of Relative Clauses

Stockwell (1973:421) describes the relative clause in English as follows:

"A sentence embedded as a modifier of an NP, the embedded sentence having within it a WH-pronominal replacement for an NP which is in some sense identical with the head NP, is a relative clause."

Korean relative clause formation, however, is slightly different. In the Korean language, the relative clause is also a sentence embedded as a modifier of an NP, but the embedded sentence deletes the coreferential NP with an adjusted modality of the complimentizer. Relativization in Korean is thus produced as an adjectival or verbal structure which does not use relative pronouns or relative adverbs.

Although on the surface Korean clausal modifiers lack relative pronouns, their underlying structures share similarities with English relative clauses. Differences on the surface level between the two languages are considered to be the result of different transformational processes. Relative clauses in both languages have underlying embedded sentences with head NP's.
3.2. Restrictive vs. Non-restrictive Relative Clauses

In English, relative clauses are subdivided into restrictive relative clauses and non-restrictive clauses (Ross 1967). However, the Korean counterpart of the English non-restrictive relative clause is not a type of relativization but a type of conjunction. The following are examples of English non-restrictive relative clauses, which are translated into Korean: The example sentence was taken from Stockwell (1968:448).

**English**

(1,a) The plane finally crashed, and the plane had never flown well anyway.

(1,b) The plane, which had never flown well anyway, finally crashed.

**Korean**

(2,a) *geu bihaenggi - neum geolgug chulagha-yeos-da.*  
*the airplane Nom finally crash*  
*geuleonde geu bihaenggi - neum weonag jal*  
*and the airplane Nom anyway well*  
*naleuji-mosh-ha-yeos-da.*  
*fly not do*  
Past SM

(2,b) *geu bihaenggi - neun weonag jal naleuji-mosh-ha-yeos-neun - de geolgug chulagha-yeos - da.*  
*the airplane Nom anyway well fly not do*  
*Past Ajust-M and finally crash*  
Past SM

In English (1,b) can be regarded as an example of a relative clause since the embedded sentence contains the
relative pronoun "which". But the Korean counterpart (2,b) is only a contracted form of (2,a) which is a conjoined sentence. The fundamental difference between the structure of Korean non-restrictive relative clauses and those of English can be better studied by looking at the conjoining of an interrogative sentence with an imperative one.

**English non-restrictive relative clauses**

(3) Is even Clarence, who is wearing mauve socks, a swinger?

If the structures underlying the formation of the relative clause is from "Even Clarence is a swinger," and "Clarence is wearing mauve socks," the result is ungrammatical if we transform the clause into a coordinate structure.

(4) * Is even Clarence, and is wearing mauve socks, a swinger?

Now let us consider the Korean counterpart of sentences (3) and (4).

(5) Clarence - neun yeonbora yangmal - leul shingo - is -
    Nom mauve socks Acc wear ing

    neun - de
    Ajust-M and

    Clarence - neun tajashu - i - ni?
    Nom swinger be Ques

Since *neun* is an adjusted modality element which is rele-
vant to conjunction and *de* is the contracted form of the conjunction *geuleonde*, we can conclude that the Korean equivalent to the English non-restrictive relative clauses are derived from conjoined sentences. On the other hand, as we can see in examples (3) and (4), English cannot conjoin a sentence within a matrix question the way Korean can but must form a non-restrictive relative clause. There is, therefore, only one type of relative clause in Korean, that is, the restrictive relative clause. Since Korean does not form non-restrictive clauses, only restrictive relative clauses are discussed in this study.

3.3. Complimentizers

Bresnan (1970) hypothesizes that clauses are introduced by the rule \( \mathcal{S} \rightarrow \text{Comp } S \), where Comp is the category of the clause-introductory particles that she calls complimentizers, which determine important aspects of the semantic interpretation of the main and subordinate clauses. Important among the complimentizers of English are "that, for-to, and 's-ing". There are yet other complimentizers for English, but they will not be discussed here. These complimentizers are generated by the constituent structure rule, and then transformational rules presumably need to incorporate some mechanism for appropriately restricting complementizer distribution. When we consider "that" as a complementizer for English, we are able to construct a relative clause formation rule which
applies to both Korean and English.

Hence, in English expand the noun phrase into (Det) N \((\text{PP}_S)\) but use the symbol "S bar" to represent the embedded sentence. Our rule for NP is as follows:

(1) \[ NP \rightarrow (\text{Det}) \text{ N } (\text{PP}_S) \]

The following rule serves to expand \(\bar{S}\).

(2,a) \[ \bar{S} \rightarrow \text{Comp} \text{ S} \]

(2,b) \[ \text{Comp} \rightarrow \text{that} \]
\[ \text{for} - \text{to} \]
\[ s' - \text{ing} \]

Now let us apply rule (2) to the Korean language.

(3,a) \[ \bar{S} \rightarrow \text{ S Comp} \]

(3,b) \[ \text{Comp} \rightarrow \text{neun} \]
\[ \text{eu}^{-} \]
\[ \text{eun} \]
\[ \text{deon} \]

Now we have a means of generating complimentizers in the underlying structure. Even though both languages have other complimentizers, we will not deal with them in this paper. Here, only the complimentizer "that" type in English and "neun" type in Korean which are used for relativization will be discussed.
CHAPTER 4
Relative Clause Formation

4.1. Underlying Structures in Korean and English

Ross (1967) has assumed that the underlying structure of a relative clause is a sentence embedded into the head NP, or a NP modified by the relative clause, and that the embedded sentence and the head NP are dominated by another NP, as shown in the following tree diagram.

(1) NP → NP (S)

(2) NP
   NP  S

CS rule (1) shows a recursiveness which is considered to be universal.

In order to apply the above rule to the Korean language, there are some specific Korean structures which need to be discussed. Korean is an SOV language with postpositions, and conjunctions that follow their sentences and modifiers including relative clauses that precede what they modify. Grammatical relationships are marked by postpositions that follow the NP. Because the word order of Korean is the reverse of English a NP → S-NP analysis is adopted for Korean relative clauses in this paper.
4.2.1. Korean Relative Clause Formation

In Korean relative clause formation, Equi-NP deletion is involved, and the case marker attached to the NP which is coreferential with the head NP is obligatorily deleted together with the NP, whereas the case marker attached to the head NP remains. Also, in Korean modality adjustment is required. We formulate the following rule.

Korean Relativization

(1) SD: \( H + R + N_j + K + W + N_j + K + Z \)

\[ \begin{array}{lll}
1, & 2, & 3 \\
\end{array} \]

SC: \( 1, 2, 3 \rightarrow 1, \emptyset, 3 \)

Let us take the following sentence in order to illustrate this rule:

(2) Bill ga sha - n shagwa ga sa da.

"The apple which Bill bought is cheap."

(3) (Underlying)

Relativization applies to the object of the identical NP in the embedded sentence. Relativization deletes the object
of the embedded sentence, and modality adjustment for relative clauses changes the modality into neun and adjoins it to the verb under a phonological process. The nominative case marker of the head NP replaces the accusative marker of the coreferential NP in the embedded sentence; i.e. shagwa is deleted in $\bar{S}$, as the $\bar{S}$ raises to $S$. Now we have the following structure.

(4) (Derived Sentence)

\[
\begin{array}{c}
\text{S} \\
\text{NP} \\
\text{VP} \\
\text{Bill ga sha n} \\
\text{shagwa Nom} \\
\text{sa as-da}
\end{array}
\]

The most important factor in describing the modality adjustment of the relative clause in Korean is tense. There are three different modalities in a relative clause according to the tense of a sentence. The modality adjustment for relative clauses changes the tense to eun, neun, eul or deon and adjoins it to the verb. If the tense of a relative clause is a past or past perfect, the modality element is eun; if present, neun; if future, eul; and if retrospective, deon.

(5) eun (Past)

John - ga Mary - ga sha - eun chaeg - leul ilgneun - Nom Nom buy ajst-M book Acc read
"John, Mary will buy the book, is reading." (Direct translation)
"John is reading the book, which Mary bought."

(6)  

\[ \text{John - ga Mary - ga sha - eul chaeg - leul} \]
\[ \text{Nom} \quad \text{Nom buy Ajst-M book Acc} \]
\[ \text{ilgneun - da.} \]
\[ \text{read SM} \]

"John, Mary will buy the book, is reading." (Direct translation)
"John is reading the book which Mary will buy."

(7,a)  

\[ \text{John - ga Mary - ga sha - neun chaeg - leul} \]
\[ \text{Nom} \quad \text{Nom buy Ajst-M book Acc} \]
\[ \text{ilgneun - da.} \]
\[ \text{read SM} \]

"John, Mary buys the book, reads." (Direct translation)
"John is reading the book which Mary buys."

The adjusted modality \textit{neun} has another use: it also occurs if a relative clause expresses truth, habit or duration.

(7,b) (truth)  

\[ \text{nam eui geog - leul humchi - neun shalam - eun} \]
\[ \text{other 's thing Acc steal Adjt-M person Nom} \]
\[ \text{beol - eul bad - as - da.} \]
\[ \text{punish Acc receive Past SM} \]

"The person who steals other's things is punished."
(7,c) (habit)

John - ga geojijmalha - neun shalam - leul shileohan -
Nom lie Adjt-M person Acc hate
da.
SM

"John hates the person who tells lies."

(7,d) (duration)

geu phosu - ga ja - neun John - leul kaeu -
the hunter Nom sleep Adjt-M Acc wake
as - da.
Past SM

"The hunter woke up John, who was sleeping."

(8) deon (retrospective)

Nom love Adjt-M Nom leave Past SM

"The Mary whom John used to love left."

In order to more clearly understand the meaning of deon, we need to clarify the distinctions between deon, eun and as-deon which can be used to express the past time in one way or another. The following are relative clauses with the tenses, eun and as-deon.

(9) eun (Past)

Nom love Adjt-M Nom leave Past SM

"The Mary whom John loved left."
In (10) *deon* occurs with the past tense morpheme *as* to form *as-deon* which expresses the gap between the tense of the main sentence and the relative clause. The following are the feature specifications of adjusted modality elements in relative clauses.

(11) **Feature Specification**

<table>
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<th>eun</th>
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<td>+Retro</td>
<td>-Retro</td>
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<td></td>
<td>-Durative</td>
<td>+Durative</td>
<td>-Durative</td>
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<tr>
<td></td>
<td>+Prior to Matrix</td>
<td>+Prior to Matrix</td>
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<td>d.</td>
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<td>-Retro</td>
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According to the above feature specification, the modality adjustment for the relative clause rule is formed as follows:

(12) **Modality Adjustment**
Before we leave the modalities of the Korean language, there is one more thing to be discussed about the tense marker deon. The modality deon has equi-subjects and non-equivalent functional predications which are ambiguous between the gapped sequence and the immediate sequence depending upon the matrix verb. Here are some examples.

4.2.2. Copula and Existential Verb Deletion in Korean

Korean relative clause reduction has a number of similarities with English relative clause reduction particularly when we consider the deleting elements, namely the deletion of the existential verb is and the copula i in Korean. The following are examples of these deletions in Korean.

(1,a) chaegsang - ui - e is - neun yeonpil neun
desk - on Place exist Adjt-M pencil Nom
joh - da.
good SM

(1,a') chaegsang - ui - e yeonpil neun joh - da.
desk - on Place pencil Nom good SM
"The pencil on the desk is good."

(2,a) Seoul - e is - neun sharam - neun kagjaeng - 
    Place exist Adjt-M people Nom miser 
    i - da. 
    be SM 

(2,a') Seoul - e sharam - neun kagjaeng - i - da. 
    Place people Nom miser be SM 

"The people in Seoul are misers."

Since relativization does not involve pronominalization, 
only the verb is 'exist' may be deleted along with the 
relative clause marker.

(3) (Underlying Structure) (l,a)

(4) (Derived Sentence) (l,a1)
Sentence (4) is derived by applying relative clause re-
duction.

In Korean the copula i is also deleted along with the
adjusted modality neun.

The next case to be investigated is the relative
clause with the copula i that is followed by a noun phrase.
The following represents the surface structure of a rel-
ative clause which contains the copula i followed by a NP.

(S,a) hagsaeng chingu - ga o - as - da.
   student friend Nom come Past SM

"Student's friend has come"

"The friend who is a student has come."
The reading of the sentence (5,a) is ambiguous in Korean,
because it may contain two different underlying structures.

(S,b) hagsaeng eui chingu - ga o - as - da.
   student Poss friend Nom come Past SM

"Student's friend has come."

(S,c) hagsaeng i - neun chingu - ga o - as - da.
   student be Adjt-M friend Nom come Past SM

"The friend who is a student has come."

Sentence (5,b) has a possessive meaning whereas sen-
tence (5,c) has the reading of a relative clause. It is
commonly believed that the Korean possessive marker eui
plus NP mark relative clauses. But the Korean possessive
marker eui has two different analyses in the underlying
level. One is that eui plus NP is derived from an embedded
sentence by way of relativization and the other is that *eui* is a phrasal modifier. The following are diagrams of (5,a) and (5,b) respectively.

(6,a)

(6,b)

Since the Korean adjective can be a predicate by itself, there is no structure such as copula plus adjective. In Korean the copula takes only NP as a predicate. So Korean relative clause reduction is needed to generate only NP plus NP construction.

4.3.1. English Relative Clause Formation

In English relativization, the following processes are involved: movement of the NP which is coreferential to
the head NP, pronominalization of the moved NP, and optional deletion of the relative pronoun or relative pronoun and the verb "be" in certain constructions. The preposition attached to the NP which is coreferential to the head NP is preserved. Also the modality elements are preserved as they are.

(1) English Relativization

SD: $X - NP \left( \frac{NP - S \left(Y + (P) + NP + W\right)}{S} \right) NP - Z$

$1, 2, 3, 4, 5, 6, 7$

SC: $1, 2, 3, 4, 5, 6, 7. \quad \neg \quad 1, 2, 4, 5, 6, 7. (6 \text{ and } 7 - \emptyset)$

English relativization can be illustrated in detail as follows.

(2) (Underlying)

In $S$, the identical NP "the apple," which is coreferential with "the apple" in $\overline{S}$, is deleted and the new lexical item "which" is inserted by pronominalization between the shared NP "the apple" in $S$ and $\overline{S}$. 

The apple Bill buy

Past the apple be Past expensive

The apple be

Past

expensive
Pronominalization of the shared NP, the feature by which the form of the relative pronoun is conditioned, is a very important aspect of English relativization. In other words, when the shared NP has the lexical feature +human, it conditions the form of the relative pronoun. When the lexical feature is +human, the relative pronoun is "who," "whose," "whom" and when the lexical feature is -human, the relative pronoun is "which". Also in English when the relative pronoun is "who" it may change its form according to its case. In formal English, the personal relative pronoun is "who" for subject, "whose" for possessive, and "whom" for object. In Korean relativization the post-position of the NP of the embedded sentence takes the case of the coreferential NP of the embedding sentence. The following are examples of case marking in the English relative pronoun.

(4) I like the girl who is wearing a blue dress. (Subjective.)
(5) I like the girl whose hair is blond. (Possessive)
(6) I like the girl whom I met yesterday at the church. (Objective)

For -human there is no difference in the case. The following are the features of the relative pronoun.


e. that [ +human +subject +object -poss ]

The relative adverbs "where" and "when" are used when the feature +place and +time occur respectively. These relative adverbs, just like the other relative pronouns always move to the front of a relative clause.

(8) I remember the year when you visited Seoul.
(9) I still like the house where I lived for five years.

In Korean there are no relative adverbs such as "where" and "when". Korean generates relative adverbial clauses by way of clausal modifiers like any other relative clause.

4.3.2. Relative Clause Reduction in English

Thus far, we have considered the underlying structure of English and Korean relative clauses and their base rules. In this section, we are going to discuss relative
clause reduction rules which are similar in both languages. Let us consider the following sentences.

(1,a) He is the one (whom) you talked with.
(1,b) His is the one with whom you talked.
(1,c) *He is the one with you talked.

(2,a) Students who ask questions learn quickly.
(2,b) *Students ask questions learn quickly.

This kind of restriction on reduction has been noted by Jacobs and Rosenbaum (1968) who state that when the relative pronoun follows directly after the head noun phrases and precedes the subject noun phrase of the relative clause, the relative pronoun deletion rule can apply. Moreover there are certain cases when even the subjects of the relative clauses can be deleted to generate postnominal adjectivals.

(3,a) The lady (who is) waiting for me is my wife.
(3,b) The lady waiting for me is my wife.

(4,a) The books (which are) written in English are difficult to read.
(4,b) The books written in English are difficult to read.

The above sentences have the same meanings. Sentence (3,b) and sentence (4,b) are derived from sentence (3,a) and sentence (4,a) through the relative clause reduction transformation. Sentence (3,b) is generated by deleting the
pronoun "who" and the verb "be" after the subjective pronoun. Thus we have to adjust the relative clause reduction rule as follows: the relative pronoun may be deleted, even if it is the subject of the relative clause, if it is followed by some form of "be", whether the main verb or the auxiliary verb. Rule (5) states the relative clause reduction rule appropriately.

(5) Relative Clause Reduction

\[
SD: \quad X - NP \quad NP + Rel + tns + be + Y \quad S \quad NP - Z
\]

\[
1 \quad 2 \quad 3 \quad 4 \quad 5
\]

\[
SC: \quad 1, 2, 3, 4, 5. \quad \rightarrow \quad 1, 2, \emptyset, 4, 5.
\]

Another case which should be discussed in relation to the relative clause reduction rule is when the verb is a copula with adjective or adverb complementation.

(6,a) I like the pen which is on the table.
(6,b) I like the pen on the table.

(7,a) I like the baby who is cute.
(7,b) *I like the baby cute.
(7,c) I like the cute baby.

We can explain the ungrammaticality of (7,b) on the basis of the modifier shifting rule which shifts modifiers in the lower sentence to the left of the noun in the matrix sentence.
(8) **Modifier Shifting** (obligatory)

SD: \[ X - \text{NP} \left\{ \text{Det} + \text{N} + \text{Adj} \right\}_{\text{NP}} - Z \]

\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

SC: 1, 2, 3, 4, 5. \[\rightarrow\] 1, 2, 4, 3, \emptyset, 5.

Through the relative clause reduction rule we can generate sentence (7,b) and through modifier shifting the grammatical sentence (7,c). The following diagrams show in detail the transformational process of those rules.

(9) (Underlying)

(10) (Relative Clause Reduction)
However, there are some sentences which have a certain element which makes them ungrammatical when modifier shifting is applied. Let us observe such cases by studying the following sentences to which modifier shifting can not be applied.

(12,a) I will give you something nice.
(12,b) * I will give you nice something.

Now we must reformulate the modifier shifting rule so that it will not generate such ungrammatical sentences as (12,b).

(13) **Modifier Shifting**

\[
SD: \quad X - NP \left\{ Det + N + Y \, Adj \right\}_{NP} - Z
\]

\[
SC: \quad 1, 2, 3, 4, 5, \quad \rightarrow \quad 1, 2, 4, 3, \emptyset, 5.
\]

Condition: 2 and 3 $\neq$ some \{thing\}
5.1. Attributive Adjectives

Attributive adjectives are the adjectives which are not derived from the operation of relative clause reduction and modifier shifting. In other words, they are adjectives which cannot be used as predicates of embedded sentences.

(1,a) This is the main road.

(2,b) * This is the road which is main.

Such attributive adjectives as "chief", "major", and "principle," etc., which mean the highest ranking or most important, function not as predicates but as modifiers.

Now we can restate rule (13) in Chapter 4 as follows.

(2) SD: \[ X \rightarrow_{NP} \left( \text{Det} + N + Y^{Adj} \right)_{NP} \rightarrow_{Z} \]

SC: \[ 1, 2, 3, 4, 5, \rightarrow 1, 2, 4, 3, \emptyset, 5. \]

Condition 2-3 ≠ some\{thing\}

\[ y^{Adj} ≠ \text{attributive adjective} \]

It is obvious that the ungrammaticality of (1,b) is due to the adjective "main" itself. Such an adjective appears very similar to other adjectives on the surface, but its underlying structure must be considered to be different.
Since in the Korean language relative clause reduction generates NP plus NP constructions; it is less difficult to distinguish predicate adjectives from attributive adjectives. However, even in Korean there are a few attributive adjectives which function only as modifiers. For example, "shae, heon and mueosh" cannot serve as predicates.

(3,a)  \[ \text{i osh - neun shae osh i - da.} \]
\[ \text{these clothes Nom new cloth be SM} \]
"These clothes are new clothes."

(3,b)  \[ * \text{i osh - neun shae - da.} \]
\[ \text{these clothes Nom new SM} \]
"These clothes are new."

Here we can observe the similarities between the attributive adjectives in both languages. (3,a) is grammatical since the attributive adjective shae is followed by a noun with a copula, but (3,b) is not grammatical since the attributive shae is used as a predicate.

5.2. Generic NP

As Stockwell (1973:429) states, the requirement of coreferentiality under NP analysis produces many problems. For example:

(4,a) Dogs that are mammals eat more than dogs that are serpents.

(4,b) Dogs are mammals. Dogs are serpents. (Stockwell 1973:429).
From (4) it appears that a general constraint against relativization is needed if the shared NP of the relative clause is generic. That is, while the head NP can be generic, the shared NP of the relative clause cannot be, since a generic paraphrase cannot be entailed by the shared NP of any relative clause. In fact, the only correct paraphrases of relative clauses on generic heads seems to be "if --- then". For example:

(5) If dogs are mammals, then they eat more than dogs that are serpents.

(6) If generic $NP_iVP_m$ then generic $NP_iVP_n$ are the source of relative clauses of the form generic $NP_i$ that $VP_mVP_n$.

The generic quantifiers are such words as "every, all, no, any". If we apply rule (6), we can find the universality of semantics in generic head NP's. In the following case we observe that the generic head NP in a relative clause in Korean is interpreted in the same way.

(7,a) bujireonhan sharam - neun buja - ga doin - da.
    diligent  people   Nom  rich  Nom  become  SM

"Diligent people become rich."

(7,b) sharam - neun  bujireonha - da.  sharam - neun buja -
    people   Nom  diligent  SM  people   Nom  rich
    ga doin - da.
    Nom  become  SM
"People are diligent." "People become rich."

In the above sentence the shared NP is generic, the underlying structure of the sentence should be considered "if ... then" (... i-ramyeon ... da). Our attempt to derive relative clauses on generic heads from conditional sentences demonstrates the possible semantic universality of generic NP's.

(8) bujireonhan sharam i ramyeon, buja - ga doin - da.
    diligent people be if rich Nom become SM

"If people are diligent, then they become rich."

5.3. Fact-$\overline{S}$ Construction

Similar to the generic NP relative clause, fact-$\overline{S}$ clauses are also blocked from relativization, because their underlying structures are considered to be complements. The following sentences are superficially similar constructions.

(9a) John - ga gyeolseog - ha - eun iyu - neun gamgi
    Nom absent do Ajst-M reason Nom cold
    i - eos - da.
    be Past SM

"The reason why John was absent was that he was ill.

(9,b) John - ga geolseog - ha - eun shashil - eun
    Nom absent do Ajst-M fact Nom
    jeongmal i - da.
    true be SM

"The fact that John was absent was true."
If a construction is a relativized structure, the head noun must have the deleted coreferential NP in the underlying structure. Since relativization involves constituent coreferentiality between a NP in the embedded sentence and the head noun, the embedded sentence is fully recoverable. On the other hand, a complementized sentence involves clausal coreferentiality between the whole sentence and the complimentizer. Therefore, the complimentizer cannot be coreferential to any one of the constituents of the underlying sentence. Let us trace the underlying sentences of (9,a) and (9,b).

(10,a) John - ga geu iyu - lo geolseog - ha - eos - da.
Nom the reason Ins absent do Past SM

"John was absent for that reason."

(10,b) * John - ga geu shashil - lo geolseog - ha -
Nom the fact Ins absent do
eos - da.
Past SM

*"John was absent for that fact."

(10,a) which has recovered the deleted constituent from (9,a) is grammatical, while (10,b) which has undergone the same test is ungrammatical. This difference clearly shows that (9,a) is a relativized structure whereas (9,b) is a complementized one. The following diagram will show in detail the underlying structures of (9,a) and (9,b).
(11,a)  (Underlying Structure of Relativized Sentence)

```
NP
  Det N S₁
  NP VP
    N V Md Adj PP Prep NP
    Det N
```

The reason John be Past absent for the reason be John be ill

(11,b)  (Underlying Structure of Complementized Sentence)

```
NP
  Det N N S V Md Adj
  NP VP
    N V Md Adj
```

The fact John be Past absent be Past true

As we can see in the above diagram, in (11,a) $S_1$ is noded under the NP whereas $S$ in (11,b) is noded directly under the $S$. In other words, (11,a) demonstrates coreferentiality between a NP in the embedded sentence and the head NP, whereas (11,b) does not.
CHAPTER 6
CONSTRAINTS ON RELATIVE CLAUSES

6.1. Complex NP Constraint

John Ross (1967:167) states the following in his dissertation:

And since almost all transformations either are most generally stated or can only be stated, with the help of variables, no transformation which contains variables in its structural index will work properly until syntactic theory has provided variables which are neither too powerful nor too weak ..... Without the correct set of constraints, it is impossible to formulate almost all syntactic rules precisely, unless one is willing to so greatly increase the power of the descriptive apparatus that every variable in every rule can be constrained individually.

Ross contends that constraints on variables is universal. Interesting aspects of universal constraints on transformation rules can be studied by looking at relativization in Korean and English. In this chapter we will begin our discussion by illustrating the complex NP constraint. The complex NP constraint is the constraint on the movement of the coreferential NP in the embedded sentence. Stockwell (1973:450) says, "The complex NP constraint says nothing about movement of NP's outside of S's dominated by NP's whose daughters do not include head nouns." Now let us consider Stockwell's diagram.
Stockwell (1973:451) cites the following sentences to explain the complex NP constraint more definitely.

(3,a) I believe the claim that Otto was wearing the hat.

(3,b) * The hat which I believe the claim that Otto was wearing is red.

(3,c) The hat which I believed that Otto was wearing is red.

Since "the hat" is dominated by "the claim", the complex NP (3,b) results in an ungrammatical sentence. But if "the claim" is not included, movement of "the hat" is possible as in (3,c).
Returning to our main subject, a comparison of the underlying structures of Korean and English, we see that both languages have the same relative clause constructions in that the head NP dominates the coreferential NP of $\bar{S}$. The complex NP constraint also applies to Korean relative clause formation at the transformational level.

(4,a) Otto ga geu moja - leul seugo is - eos - da - nuen
Nom the hat Acc wearing be Past SM Ajst-M

geu jujang - eul na - neun mit - neun - da.
the claim Acc I Nom believe St SM

"I believe the claim that Otto was wearing the hat."

(4,b) * Otto ga seugo is - eos - da - neun geu jujang -
Nom wearing be Past SM Ajst-M the claim

eul na - neun mit - neun - da neun geu moja -
Acc I Nom believe St SM Ajst-M the hat

palgang i - da.
red be SM

"The hat which I believe the claim that Otto was wearing is red."

(4,c) Otto ga seugo is - eos da - go na - neun mit -
Nom wearing be Past SM Comp I Nom believe

neun geu moja neun palgang - i - da.
Ajst-M the hat Nom red be SM

"The hat which Otto wore that I believe was red."

When we examine the above example sentences with respect to subcategorization of the verb, we see that the predicate "believe" in (4,a) has to have two arguments as a transitive verb. However in (4,b) "it is overwhelmed," carries
three arguments with it: "the hat", "the claim" and "that-S". If extraposition is applied as in (4,c), "that-S" moves to the position of non-subject in the structure, thus enabling the rule of relativization to apply. "I believe the claim that Otto was wearing the hat" and "I believe that Otto was wearing the hat" are synonymous, but only the presence of "the claim" blocks the relativization of (4,b).

6.2. Sentential Subject Constraint

The sentential subject constraint is another restriction on movement of NP's out of structures like NP-S when the noun clause is a subject. The following definition is stated by Ross (1967:254) for the sentential subject constraint. "No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S."

(1)

(2,a) That she committed the murder was obvious.

(2,b) * The murder which that she committed was obvious was a heinous crime.
Sentence (2,b) is blocked because it violates S-NP-S structure. Now let us consider the corresponding sentences in Korean.

(3,a) geu nyeo ga shalin eul beomha - eos - da
the she Nom murder Acc commit Past SM

neun geosh - eun hoagshilhada.
Ajust-M fact Nom obvious

"The fact that she committed the murder was obvious."

(3,b) *geu nyeo ga beomha - eos - da neun geosh
the she Nom commit Past SM Ajust-M fact

eun hoagshilhada - neun shalin - neun
Nom obvious Ajst-M murder Nom

geugagha - eos - da.
heinous Past SM

"The murder which that she committed was obvious was a heinous crime."

After we test the Korean sentences corresponding to the English sentences (2,a) and (2,b), we can also conclude that when a sentence violates S-NP-S construction, relativization is blocked.

6.3. Coordinate Structure Constraint

"In a coordinate structure, no conjunction may be moved, nor may any element contained in a conjunction be moved out of that conjunct." (Ross 1967:84) Stockwell (1973) explains the coordinate structure constraint by citing the following sentences.
(1,a) Mary plays the piano and sings the song which her Mom likes.

(1,b) *The piano which Mary plays and sings a song.

(1,c) *The song which Mary plays the piano and sings aloud.

In the above examples, (1,b) and (1,c) are blocked since an element contained in a conjunction is moved out of that conjunct when relativization applies.

Now consider the coordinate sentences in Korean. Can we relativize an element out of the conjunction?

(2,a) Mary - neun piano - leul chi myeonseo geu nyeo
     Nom        Acc  play and the girl

     eui     eomma  qa  joaha - neun nolae - leu buleun - da.
     Poss  Mama  Nom  like  Nom  song  Acc  sing  SM

"Mary plays the piano and sings the song which her Mama likes."

(2,b) *Mary - neun chi - neun piano - wa nolae -
     Nom  play  Ajst-M  Com  song

     leul buleun - da.
     Acc  song  SM

   *"The piano which Mary plays and sing a song."

Accordingly we observe that the conjunction blocks relativization in Korean as well.
6.4. Pied Piping

Pied piping is a convention intended to guarantee that certain NP's which dominate a coreferential NP can be moved along with the coreferential NP when it is moved by relativization. Ross has proposed as a condition of relativization what he refers to as the pied piping convention:

Any transformation which is stated in such a way as to effect the reordering of some specified node NP, where this node is preceded and followed by variables in the structural index of the rule, may apply to this NP or to any non-coordinate NP which dominates it, as long as there are no occurrences of any coordinate node, nor of the node S, or the branch connecting the higher node and the specified node."

(1967:167)

In English pied piping on the NP Prep NP constructions are possible except for agent, locative and dative. As an example of pied piping of NP Prep NP constructions, we list the following sentences taken from Stockwell. (1973:460)

(1,a) The answers to the questions were brief.

(1,b) The questions which the answers to were brief.

(1,c) The questions to which the answers were brief were long.

As evidence that agent, locative and dative in construction with an NP cannot pied pipe, consider (2), (3) and (4) respectively.
(2) Agent
   a) The book by the professor was turgid.
   b) *The professor who the book by was turgid was unhappy.
   c) *The professor by whom the book was turgid was unhappy.
   d) *The professor the book by whom was turgid was unhappy.

(3) Locative
   a) The dishes in the sink were dirty.
   b) *The sink which the dishes in were dirty was cracked.
   c) *The sink the dishes in which were dirty was cracked.

(4) Dative
   a) The gift to the chairman was trite.
   b) *The chairman to whom the gift was trite was sad.
   c) *The chairman who the gift to was trite was sad.
   d) *The chairman the gift to whom was trite was sad.

In Korean, there is also something equivalent to pied piped. The deletion of some case markers, like prepositions in English, results in ungrammatical sentences.

(5) Animate Goal Marker
      Nom doctor Goal go Past SM
      "John went to the doctor."
b) *John - ka
gaa - n  euisha
Nom go Ajst-M doctor

"The doctor John went."

(6) **Inanimate Goal Marker**

Nom school So come Past SM

"John came to the school."

b) *John - ga
Nom o - eun haggyo
come Ajst-M school

"The school to which John came."

"The school from which John came."

(7) **Inanimate Goal Marker**

a) John ga shigol eseo doshi - lo olmgi - as - da.
Nom country So city G move Past SM

"John moved from the country to a city."

b) *John - ga shigol - eseo olmgi - eun doshi
Nom country So move Ajst-M city

"The city to which John moved from the country"

(8) **Inanimate Source Marker**

Nom country So move Past SM

"John moved from the country."

b) *John - ga olmgi - eun shigol
Nom move Ajst-M country

"the country from which John moved"

"the country to which John moved"

c) John - ga shigol eseo olmgi - eun shigol
Nom country So move Ajst-M country

"The city to which John moved from the country"
Through observation of the above examples, we can construct the following rule for Korean. When the animate goal or animate source is relativized, the relativized structure results in anomaly. When the inanimate goal or inanimate source is relativized in a sentence in which source or goal does not occur, the relativized structure results in reciprocal ambiguity between the goal reading and the source reading. However, when inanimate goal is relativized, in a sentence in which both goal and source occur, the relativized structure does not result in ambiguity; it has only the goal reading. On the other hand, when source is relativized in the sentence where both goal and source occur, the relativized structure results in anomaly. However, when the sentence contains a unidirectional verb ultimately the head noun does not result in ambiguity, it is relativized, since the unidirectional verb offers sufficient information about direction.

(Source or Goal)

(9) John - ga deul - a - ga - eun bang
Nom enter go Ajst-M room
"the room which John entered"

(10) geomi - ga neli - a - o eun cheonjang
spider Nom down come Adjt-M ceiling
"the ceiling which a spider came down"
We now turn to the commitative marker. Commitatives are relativizable in some constructions, but not in others. Observe the following.

(ll,a) John - ga haggyo - e Mary - hago ga - as - da.
Nom school Place Com go Past SM
"John went to school with Mary."

(ll,b) *John - ga haggyo - e ga - eun Mary
Nom school Place go Ajst-M
"Mary with whom John went to school"

Korean commitative marker hago has the function of conjunct of NP's. Even though the English conjunctor "and" can conjunct two clauses, Korean commitative marker hago only conjoins noun phrases. We conclude from this fact as noted that the case marker hago constraint is a kind of coordinate constraint. But there is a case when hago can be relativized. When the commitative is semantically obligatory for verbs, like "marry, kiss and exchange, etc.," it can be relativized.

(12) John - ga geolhon - ha - eun Mary
Nom marry do Ajst-M
"the Mary whom John married"

The difference between the unrelativizability of comitative marker (ll,b) and the relativizability of comitative marker (12) resides only in the difference in the verb. In English these verbs are the ones that contain coordinate
structures in the deep structure. Thus in both languages a distinction is made between these and other comitative constructions.
CHAPTER 7
Conclusion

Language is a tool for communication. So it has general rules which can produce understandable sentences. In other words, a grammar of a language is a device which delivers meanings for human ideas. Through the previous discussion on relative clauses in Korean and English, we find that their underlying structures for relative clauses share certain features. Both languages produce relative clauses by embedding the subordinate sentences into head NP's. Even though the underlying structures in the two languages are similar, Korean and English surface structure of relative clauses are vastly different because of language specific transformation processes.

Rules such as pronominalization and modifier shifting in English and modality adjustment and case marker deletion in Korean are language specific rules needed for creating grammatical sentences. Constraints, however, are needed to ensure semantically well formed sentences. Such constraints as the complex NP constraint, sentential constraint, coordinate constraint and pied piping (case marker constraint) appears to be semantic universals. Pied piping constraints on English prepositions have functions similar to Korean case marker constraints.
Copula and existential verb deletion in Korean and relative clause reduction in English are similar transformation rules. The copula in Korean takes only NP's as a predicate since the Korean adjective is a predicate by itself. Therefore, there is no structure such as copula plus adjective, but only NP copula NP constructions. Since the copula or existential verb does not have a specific meaning, it is frequently deleted by relativization. For example, in the sentence "I took the main road.", the adjective "main" does not come from an underlying relative clause such as "The road is main." Words like "main," "chief," and "major" cannot function as predicates like other adjectives which may be analyzed as coming from underlying relative clauses but must be considered to be attributive adjectives in the underlying structure.

The generic NP clauses can also be considered pseudo-relative clauses since they look like relative clauses on the surface level. The generic NP clauses are analyzed as "if ... then" in the underlying structures. Similar to the generic NP relative clause, we find that fact-S clauses are also blocked from relativization, because their underlying structures are considered to be complements.
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