

**Semantic relationship between the relative clause and the head noun:
A contrastive analysis of Korean and English**

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Abstract

The construction of relative clauses in Korean is markedly different from English. One of the salient features of the relative clause in Korean is its head-final, left-branching characteristics compared with the head-initial and right-branching construction in English. Consequently the relative clause in Korean presents background information about the head noun before the head noun is identified. It has been claimed that in head-initial languages like in English, the relative clause is syntactically and semantically constrained by the head noun. Therefore the relative clause must provide an appropriate description of the head noun. This argument has also been presented to explain the semantic relationship between the relative clause and the head noun in Korean. The position of the relative clause in relation to the head noun has major implications for language processing because language processing is incremental from left to right and it occurs on-line in real time. Contrary to arguments presented to date, this paper proposes an alternative explanation for the semantic relationship between the relative clause and the head noun in Korean in the light of processing theory.

Introduction

The construction of relative clauses in Korean is markedly different from English. One of the salient features of the relative clause in Korean is its head-final, left-branching characteristics. In Korean, the relative clause is presented with background information first before the identification of the head noun as in (1.1):

- (1) na-nun [Academy sang-ul pat-un] **yenghwa**-lul po-ass-ta.
I-TOP Academy award-ACC receive-REL movie-ACC see-PAST-END
- (2) ‘I saw a **movie** [which received an Academy award].’

By contrast, in English, the head noun ‘movie’ is stated first and then the relative clause [which received an Academy award] provides background information about the ‘movie’ as in (2). Hence, the position of the relative clause in relation to the head noun has major implications for language processing. This is because language processing is incremental, as the structure of the sentence is generated “‘from left to right” as successive fragments of the message become available’ (Levelt, 1989:235).

It has been argued that the order of the Verb-Object position in a sentence is the cause of constraints in the placement of various grammatical features within a sentence (Greenberg, 1963; Vennemann, 1975). Accordingly, the position of the relative clause construction is also constrained by the order of Verb-Object in a sentence as the one below (Slobin, 1971:69):

VO LANGUAGES:

Auxiliary VERB OBJECT relative clause

OV LANGUAGES:

Relative clause OBJECT VERB auxiliary

Slobin explains this word order phenomenon by suggesting a psycholinguistic constraint on grammatical form:

The linguistic universal of modifier placement seems to exist in order to facilitate sentence processing: interposing too much material between the

verb and object would place a burden on short-term memory (1971:69).

Consequently, languages typically employ either head-initial or head-final strategies for the construction of the relative clause. A good example would be the correlation between SOV word order with the head-final relative clause and SVO word order with the head-initial relative clause construction. In order to process the main clause, it is easier to process the relative clause when it occurs either at the beginning of the sentence (SOV) or at the end of the sentence (SVO) (Comrie, 1981).

Then, what are the implications in terms of grammatical and semantic relationships between the relative clause and the head noun when the relative clause precedes the head noun? It has been claimed that in head-initial languages like in English, the relative clause is syntactically and semantically constrained by the head noun (Sag, 1997). Therefore, the relative clause must provide an appropriate description of the head noun. This argument has also been presented to explain the semantic relationship between the relative clause and the head noun in Korean (H.S. Lee, 1990; Han, 1992; J.B. Kim, 1998). However, under processing theory, this explanation does not fit the construction of the relative clause in Korean, due to its head-final characteristics. Greenberg (1963:103) claimed that ‘the order of elements in language parallels that in physical experience or the order of knowledge’. It is the aim of this study to propose an alternative explanation for the relationship between the relative clause and the head noun, in the light of the processing theory.

Processing theory and the relative clause in Korean

Language processing occurs naturally in both comprehension and production activities. Surprisingly, however, it is only relatively recently that processing has been taken into consideration in theories of grammar (J. Hawkins, 1988, 1994; Levelt, 1989; Newmeyer, 1998) and in second language acquisition studies (Clahsen, 1988b; Frazier and De Villiers, 1990; Pienemann 1998; VanPatten 1996).

J. Hawkins (1994) analyzed in depth the linear ordering in performance and grammars using hundreds of examples from typologically different languages. The results led him to claim that ‘grammars are profoundly shaped by processing’; this processing need is ‘motivated by the correspondences between on-line procedures

for recognizing constituent structure and the grammatical devices that make such recognition possible' (p. xi).

In determining the semantic relationship between the relative clause and head noun, J.B. Kim adopted Sag's (1997) Head-driven Phrase Structure Grammar Theory for English relatives, and argued that the head noun's lexical information has a crucial role in putting constraints on the relative clause in Korean. This can be traced by the empty element, which is not realized phonetically. However, he acknowledges that the unacceptability of the following examples is due to semantically constraint-based and context dependent reasons.

(data from Na and Huck 1993 in J.B. Kim 1998:789 (48.a.b.))

(3) a. *[John-i manna-n yenpil]

John-NOM meet-REL pencil

'(lit) the pencil that John met'

b. *[nol-i yeppu-n yenpil]

dawn pretty-ATTR pencil

'(lit) pencil whose sunset is pretty'

In the relative clause [*John-i manna-n*] 'who John met', there are three different types of grammatical information available on-line; the nominative particle *-i* attached to 'John' which indicates that the noun phrase is the subject of the sentence; the transitive verb *manna-* 'to meet' which denotes the lexical value and an argument structure which requires an object; and the clausal ending, the relativizer *-n*, provides tense and aspect information and sets a clausal boundary. The relative clause [*John-i manna-n*] looks to the head noun for agreement features, which will fulfil the grammatical requirements – an object that is semantically agreeable.

In order to understand the relationship between the relative clause and the head noun, let us consider how language processing works. Language production involves a very efficient procedure. Levelt (1989:9) devised a model of language production comprising three stages:

Conceptualization is the first stage when the speaker conceptualizes the information before production by “ ... conceiving an intention, selecting the relevant information ..., ordering this information for expression, keeping track of what has been said before, and so on.”

Formulation is the next stage, which the speaker “... accepts fragments of messages as characteristics of input and produces as output a *phonetic or articulatory plan*. In other words, the Formulator translates conceptual structures into a linguistic structure,”

Articulation is the final stage, when the message is phonetically articulated.

As each lexical and grammatical element is generated on-line from left to right, it goes through the mental register of the producer and the receiver of the message. Langacker (1997:250) describes this as comprising two mental processes:

‘sequential scanning’ is when we follow an event and ‘we track an evolving relationship by scanning through time’

‘summary scanning’ is that ‘through memory, we also have ability to mentally superimpose the successive stages of such an event, progressively building-up a more and more elaborate conception’.

As a result of the mental processing which occurs by the participants, it is possible that even ‘the next processor can start working on the still-incomplete output of the current processor...’ (Levelt, 1989:24).

When the relative clause, [*John-i manna-n*] is processed, the built up conceptions through the lexical and grammatical information enables the processor to predict that the subsequent head noun would be an animate (human) noun phrase such as *chinkwu/sensayng/yeca* ‘friend/teacher/girl’, but not something like *yenpil/kepi* ‘pencil/coffee’. By the same token, if it were in English, the processor would not select a relative pronoun such as ‘who’ ‘whom’ or ‘whose’ for the head noun ‘the pencil’, but select ‘which’ or ‘that’.

The critical point to note here is that processing is essentially incremental in not only lexico-grammatical form but also conceptualization. It has been demonstrated by

Marsen-Wilson and Tyler's (1980) studies that 'in on-line processing, semantic representation is constructed by the comprehension system before grammatical structures have been entirely processed' (cited in Pienemann, 1998:58).

H.S. Lee (1990:93) also argues that the relative clause is within the influence of the head noun syntactically and semantically since the relative clause is a component of a phrase, which the head noun belongs to. Therefore, the relative clause must provide an appropriate description of the head noun. The problem with this argument is that it ignores the processing aspect of relative clause construction whereby the relative clause in Korean always precedes the head noun. Hence, the head noun cannot be encountered before the relative clause is fully formed.

It makes perfect sense in English, as a head-initial language, that the relative clause must be an appropriate description of the head noun. Since the argument is expressed by the head noun first, it is the function of the relative clause to provide background information about the head noun. Therefore, the description must be semantically appropriate to the head noun. The following simple relative clauses illustrate the point.

- (4) a. the house which is two storey/*a detective story/*a trainee/*a fruit cake
- b. the book which is *two storey/a detective story/*a trainee/*a fruit cake
- c. the salesperson who is *two storey/*a detective story/a trainee/*a fruit cake
- d. the cake which is *two storey/*a detective story/*a trainee/a fruit cake

Han (1992) also argues that relativization in Korean involves a syntactic movement of an empty relative operator and is constrained by the subjacency condition. He uses the following examples to highlight the subjacency condition, which accounts for the ungrammaticality of (5).

- (5) a. *John-i mul-un kay-lul chacanay-n namca
 name-NOM bite-REL dog-ACC identified-REL man
 *'the man who, identified the dog which John bit' (Han, 1992:341).

In (5), the relative clause [*John-i mul-un*] ‘which John bit’ has a number of pieces of grammatical information on-line:

- i) the noun phrase *John-i* indicates the subject
- ii) the transitive verb *mul-* ‘to bite’ projects an argument structure that needs an object
- iii) the relativizer *-un* signals that a noun follows as well as the tense and aspect information encoded (which is the past perfect in this case).

The relative clause ‘which John bit’ is characterized as modifying the noun, which is in agreement. The ungrammaticality of (5a) is due to the simple fact that normally humans do not bite dogs. This is the semantic and contextual constraint. If the head noun *kay* ‘dog’ is replaced with *aki* ‘baby’, the syntactic structure remains the same and it is perfectly grammatical as in (5b), since it is possible that a little boy might bite a baby.

- (5) b. *John-i mul-un aki-lul chacanay-n namca*
 name-NOM bite-REL baby-ACC identified-REL man
 ‘the man who identified the baby whom John bit.’

In Han’s other example (6a), the clause is grammatical up to [*John-i chackoiss-nun salam-ul manna-n*] ‘?? met the person John was looking for’. Only the head noun, *pomwul* ‘treasure’, makes the sentence ungrammatical.

- (6) a**John-i chac-koiss-nun salam-ul manna-n pomwul*
 name-NOM look for-PRG-REL person-ACC met-REL treasure
 *‘the treasure[which [John met [the person [who was looking for]]]’

The projected lexical and grammatical information of the subject (agent), verb and object (theme), together with other information such as the relativizer are available in the complex relative clause. When the relative clause, [*John-i chacko iss-nun salam-ul manna-n*] is processed, ‘the lexical information stored with the entry for the verb has to ‘communicate’ with other constituents in the sentence’ (Pienemann, 1998:63). By the time [*John-i chacko iss-nun salam-ul manna-n*] is processed, the

conceptualized message is looking for a noun, most likely referring to a place, a time or a person as in (6b):

- (6) b. John-i chac-koiss-nun salam-ul manna-n hakkyo/achim/chinkwu
name-NOM look for-PRG-REL person-ACC meet-REL school/morning/friend
‘the school where (I) met the man John is looking for’/
‘the morning when (I) met the man John is looking for’/
‘the friend who met the man John was looking for’

Contrary to Han’s argument, Yang (1987:31) had difficulties in explaining the grammaticality of the following examples using Chomsky’s Adjacency Principle and proposed a hypothesis that ‘an inalienable possessor NP is properly governed by its head in an NP’.

- (7) a. son-i khu-n salam
hand-NOM big-ATTR person
‘the person whose hands are big’

- b. ?*ot-i khu-n salam
clothes-NOM big-ATTR person
‘the person whose clothes are big’

- c. *yepil-i khu-n salam
pencil-NOM big-ATTR person
‘the person whose pencil is big’ = ‘the person who has a big pencil’

He explained that (7a) is grammatical because *son* ‘hand’ has an inalienable relationship with *salam* ‘person’ and *ot* ‘clothes’ may be in such a relationship depending on the situation, whereas *yepil* ‘pencil’ has no such relationship with a human, therefore the clause is ungrammatical.

In the context of the processing principles, an alternative explanation can be proposed for the ungrammaticality of the above three examples. For example, when a person encounters the relative clause, [*son-i khun*] ‘(whose) hands are big’, the

processor has conceptualized a message from the lexical and grammatical information. The lexicon is the first information that goes into the conceptualization process and then the grammatical morphemes encode the concept, thus creating a phrase with elaborated concepts. This process occurs autonomously (Levelt, 1989). Levelt (1989:181) argues that "... the lexicon is an essential mediator between conceptualization and grammatical ... encoding ...". From the relative clause, [*son-i khun*], the following lexical and grammatical information is available:

lexicon *son* 'hand' = noun
 functor, particle *i* = subject particle
 lexicon *khu-* 'be big' = descriptive verb
 functor, *-n* = attributive modifying ending

According to Pienemann (1998), the processing procedure in the sentence is first activated by the noun, and then the verb 'knows' the argument structure; subject, direct object and indirect object, which identify thematic roles such as 'agent', 'theme' and 'goal'. In parallel with this process, 'the conceptual arguments fulfil certain thematic roles in the message' (p. 63).

Langacker (1997:250) further explains this processing:

The holistic view afforded by summary scanning also figures in the conceptual reification by virtue of which an event is coded with a noun and can even be characterized by a shape-specifying adjective, as in *straight flight* or *zig-zag trajectory*.

In the processing procedure, a noun which possesses *khun son* 'big hands' is anticipated, as in (8a). It would not be in the processor's conceptual domain to anticipate nouns like *say* 'bird' or *cha* 'car' or *hakkyo* 'school' as in (8b) because they do not possess hands.

- (8) a'. son-i khu-n salam/ai/tongsayng/namca . . .
 hand-NOM big-ATTR person/child/brother/man
 'the person/child/brother/man whose hands are big'

b'. *son-i khu-n say/cha/hakkyo
 hand-NOM big-ATTR bird/car/school
 *‘the bird/car/school which has big hands

As Pienemann explains, the processing starts from the lexical information *son* ‘hand’ and with the subject particle *-i* to form a noun phrase denoting the subject and with the attributive adjective *khun*, they now form a relative clause which looks to a noun that is semantically agreeable to the relative clause. The ungrammaticality of the other two (7b) and (7c) is because when the relative clauses [*os-i khu-n*] ‘(whose) cloth is big’ and [*yenpil-i khu-n*] ‘(whose) pencil is big’ are processed, the head nouns failed to meet matching diacritic features (Pienemann, 1998). As Levelt (1989) argues, language production is essentially driven on the one hand by conceptualization, and on the other by the lexicon.

Conclusion

Based on processing theory, I have shown that, in Korean, the semantic constraint is not set by the head noun on the relative clause but by the relative clause on the head noun. This claim is based on two fundamental facts:

- 1) Processing is incremental from left to right and is on-line in real time.
- 2) The relative clause precedes the head noun in Korean.

Therefore, by the time the relative clause is constructed, the conceptualized message looks for a semantically agreeable head noun. There is no time for backtracking. As lexico-grammatical information is processed, the processor also builds up the conceptualization. In fact, we now know that processors construct semantic frames before grammatical structures. In other words, the head noun cannot affect the relative clause semantically or syntactically in Korean because of its position in the linear ordering of the relative clause construction.

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