
Korean *Tough* Constructions and Double Nominative Constructions

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10.1 Introduction

In English a certain class of predicates that includes adjectives like *easy*, *hard*, and *impossible* occurs in a syntactic construction that is traditionally referred to as the *tough* construction.

- (1) This book_{*i*} is tough to read ____{*i*}

In (1), the subject NP is coindexed with the missing object of the embedded predicate. This connectivity is unbounded because there is in principle no bound on the depth of embedding of the missing object. In Korean, a group of adjectives that is semantically similar to English *tough* predicates shows the same dependency. This group includes *himtulta* ‘tough’, *swipta* ‘easy’, *elyepta* ‘hard’, *pulkanunghata* ‘impossible’, etc., and examples are given in (/refexa).

- (2) a. *i chayk_j-i [____j ilk - ki]-ey himtulta*
 this book- NOM read-NML -for tough
 ‘This book is tough in terms of reading.’
 b. *i chayk_j-i [____j ilk - ki]-ka himtulta*
 this book-NOM read- NML -NOM tough
 ‘This book is tough to read’

In (2), the nominative NP is conindexed with the missing object of the embedded predicate. Given that an object NP of the embedded clause cannot be assigned nominative case *in situ*, we know that the first NP occurs outside of the embedded clause. Syntactic properties of Korean *tough* constructions (TCs) have been discussed in Lee (2002) and can be briefly summarized as follows: First, the formation of TCs in Korean is

The Proceedings of the 9th International Conference on HPSG.
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less restricted as compared to English; the subject NP can be linked not only to an accusative NP but also to a locative, dative, instrumental, or goal NP.¹ Second, the embedded phrases with nominative case are nominalized gerund phrases (NGPs) taking the affix *ki*. The *ki* NGP can take two kinds of case markers: *ey* as in (2a) and the nominative *ka* (or its phonological variant *i*) as in (2b). We refer to these two kinds as *ki-ey* TCs and *ki-ka* TCs. Although the two types show different properties, an unbounded dependency holds in both TCs. Interestingly, the same kind of dependency can be found in double nominative constructions (DNCs) that have similar syntactic and semantic properties as *ki-ka* TCs.

In this paper, we focus on *ki-ka* TCs. We argue that these TCs form a subclass of DNCs and that the unbounded dependency analysis of *ki-ka* TCs can be extended to DNCs. Section 2 is devoted to proving that the dependencies in TCs can be captured by non-local SLASH feature percolation and binding in the lexical entries of *tough* predicates as suggested in Pollard & Sag (1994). Section 3 discusses similarities between TCs and DNCs. Relevant DNC classification will be presented as part of a background discussion. Lexical constraints will be also provided to handle the relationship between single nominative constructions and DNCs.

10.2 Unbounded dependencies and formation of *tough* constructions

Long-distance dependency between a subject NP and a missing element in a gerund NP can be found in the following example.

- (3) Kim_j-i [VP salamtul-eykey [VP _j hwecang-ulo ppopulako]
 Kim-NOM people-to president-as elect
 seltukha-ki]-ka himtulta.
 persuade-NML-NOM tough
 ‘Kim_j is tough to persuade people to elect him_j president.’

Whether a missing element is a trace or a phonologically null pronominal (or *pro* in GB terms) has been controversial because a missing

¹Some examples of non-object TCs are given as follows.

- i Lazarus_j-ka [_j shyophingha-ki]-ka/ey swipta (Locative)
 Lazarus-NOM do shopping-NML -NOM/for easy
 ‘Lazarus is easy to do shopping (in)’
- ii yenphil_j-i [_j kulssi-lul sseu-ki]-ka/ey himtulta (Instrumental)
 a pencil-NOM letters- ACC write-NML -NOM/for tough
 ‘A pencil is tough to write letters (with).’

element in (3) can be replaced by an overt pronoun *ku-lul* ‘him’. We argue that the pronoun appearing in the gap position is a resumptive pronoun, which is as another form of trace following Vaillette (2001) and Georgopoulos (1991). Otherwise, obligatory binding between the subject NP and a missing element in a sentence is hard to explain. Our gap analysis of TCs is cross-linguistically consistent with strong crossover phenomena. The ungrammaticality of (4) can be explained as a strong crossover violation; the trace cannot be bound by the intervening pronoun.

- (4) a. **Kim_j-i* [*ku papo_j-eykey* [*___j hoycang-ulo ppopulako*]
 Kim that idiot-to president-as elect
seltukha-ki]-ka himtulta
seltukha-NML-NOM hard
 (lit.) ‘*Kim_j is tough to persuade that idiot_j to elect him_j to be the president*’
- b. **Kim_j -i* [*ku papo_j-eykey* [*ku_j-lul hoycang-ulo*
 Kim that idiot-to he- ACC president-to
ppopulako] *seltukhaki]-ka himtulta*.
 elect persuade-NOM hard
 (lit.) ‘*Kim_j is hard to persuade that idiot_j to elect him_j to be the president*.’

We use the epithet *ku papo* ‘that idiot’, which has the same index value as the preceding subject *Kim*, instead of a pronoun in (4). That is because a pronoun in those positions can be interpreted as a resumptive pronoun in Korean. An epithet eliminates the ambiguity and guarantees that the pronoun in the deepest clause is another form of a trace. In (4), a gap and a trace show the same behavior in the same position. The strong crossover violation can also be found in other unbounded dependency constructions including topic constructions and relative clauses.

Additional supporting evidence for the gap analysis of TCs comes from coordination phenomenon. In general, the Coordinate Structure Constraint (CSC) is observed in Korean coordinate structures as argued in Cho (1995) and Yoon (1997).² The examples (5b) and (5c)

²Cho (1995) and Yoon (1997) argue that constructions with the conjunction ending ‘ko’ (and) are divided into true conjunction and adjunction by providing various grammatical differences between them. In general, two conjuncts can change their positions only in true conjunction. In contrast, adjunct conjuncts can be replaced by attaching a temporal or causal ending to the conjunction as in *V-ko-se* and *V-ko-nun*. They confirm that true coordination but not adjunction follows the Coordinate Structure Constraint which disallow asymmetric extraction out of one conjunct.

are ungrammatical because the topicalized element is extracted out of one conjunct. However, the example (5a) is grammatical because the topicalized element refers to the missing element in both conjuncts.

- (5) a. Kim_j-un aitul-i e_j cohaha-ko elun-i e_j silehay.
 Kim-TOP kids-NOM like-CONJ adults-NOM dislike
 ‘As for John_j, kids like (him_j) and adults dislike (him_j).’
- b. *Kim_j-un aitul-i e_j cohaha-ko elun-i Jay-ul silehay.
 Kim-TOP kids-NOM like-CONJ adults-NOM Jay-ACC dislike
 (lit.) ‘As for Kim_j, kids like (him_j) and adults dislikes Jay.’
- c. *Kim_j-un aitul-i Jay-ul cohaha-ko elun-i e_j silehay.
 Kim-TOP kids-NOM Jay-ACC like-CONJ adults-NOM dislike
 (lit.) ‘As for Kim_j, kids like Jay and adults dislike (him_j).’

In addition, the first conjunct alone does not license a so-called *pro* as in (6c), while the second conjunct does.

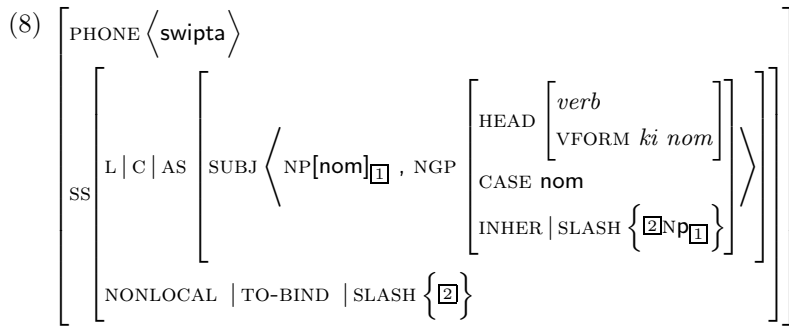
- (6) a. John_i-i Min_j-eykey [*pro*_{i/k} salangha-ko *pro*_{i/k}
 John-NOM Min-DAT like-CONJ
 tolpoa talla-ko] haysse.
 care-COMP told
 ‘John_i told Min_j to love (him_{i/k}) and take care of (him_{i/k}).’
- b. John_i-i Min_j-eykey [ku_{i/k}-lul salangha-ko *pro*_{i/k}
 John-NOM Min-DAT him-ACC love-CONJ
 tolpoa talla-ko] haysse
 care-COMP told
 ‘John_i told Min_j to love him_{i/k} and take care of (him_{i/k}).’
- c. *John-i Min-eykey [*pro*_{i/k} salangha-ko ku_{i/k}-lul
 John-NOM Min-DAT love-CONJ him-ACC
 tolpoa talla-ko] haysse.
 care-COMP told
 ‘John_i told Min_j to love (him_{i/k}) and take care of him_{i/k}.’

Based on the fact that the CSC is observed and the *pros* do not appear only within the first conjunct, we can conclude that the pronominal element in the following example has the status of a gap.

- (7) a. i chayk-i_j-i [ai-ka e_j ilk-ko elun-i
 this book-NOM child-NOM read-CONJ adult-NOM
 e_j ihayhaki]-ka swipta
 understand-NOM easy
 ‘This book_j is easy for a child to read e_j and for an adult
 to understand e_j’
- b. i chayk_j-i [ai-ka kukes_j-ul ilk-ko elun-i
 this book-NOM child-NOM it-ACC read-CONJ adult-NOM
 e_j ihayhaki]-ka swipta
 understand-NOM easy
 (lit.) ‘This book_j is easy for a child to read it_j and for an adult
 to understand e_j’
- c. i chayk_j-i [ai-ka e_j ilk-ko elun-i
 this book-NOM child-NOM read-CONJ adult-NOM
 kukes_j-ul ihayhaki]-ka swipta
 it-ACC understand-NOM easy
 (lit.) ‘This book_j is easy for a child to read e_j and for an adult
 to understand it_j’

As we see in (7b) and (7c), the pronominal *kukes* in a conjunct does not cause a violation of the coordinate structure constraint like (7a). In particular, the pronoun appears within the first conjunct where a *pro* cannot appear. Thus, we can conclude that the pronominal element does not correspond to *pro* but replaces a gap in TCs.

Now, on the basis of long-distance connectivity and the trace status of the missing element, we analyze Korean TCs as weak unbounded dependency constructions, following Pollard & Sag (1994); there is no overt filler in the nonargument position and connectivity holds between the subject NP and the trace. In (8), we provide a lexical entry for *swipta* ‘easy’, which has two elements in the SUBJ list.



The predicate *swipta* subcategorizes for a *ki* nominalized gerund phrase (NGP), which contains a gap coindexed with the first subject NP. This is represented by the SLASH feature in the lexical entry of *swipta*. Based on Lee (2002), we assume that the NGP has the HEAD value of *verb* and that *ki* is a complementizing suffix that adds the VFORM value *ki nominal* to the verb. We also argue that the CASE feature is not a HEAD feature of a noun and can appear in a phrase with a certain complementizers such as *ki, um, ci, nya, kka* in Korean. For a detailed discussion, refer to Lee (2002).³

10.3 A new analysis of double nominative constructions

In this section, we argue that *ki-ka* TCs form a subclass of DNCs and that their unbounded dependency account can be applied to some other DNCs. Before we get into that, however, one notable point is that the structures of *ki-ka* TCs are hard to analyze when the first nominative NP corresponds to the subject of the embedded clause as in the following examples.⁴

- (9) aitul-i yenge-lul paywu-ki-ka swipta
 children-Nom English-Acc learn-NML-Nom easy
 ‘It is easy for children to learn English.’

Note that Korean *tough* predicates can take a whole S as their single argument. Chae (1988) actually argues that the subject of the embedded clause does not appear in the subject position of a *tough* predicate. However, adverb insertion and proform substitution support the idea that the first nominative NP in (9) appears outside of the embedded clause.

[Adverb Insertion]

In Korean, an adverb modifying the matrix clause or the matrix verb does not intervene among the elements of the embedded clause as in

³In Lee (2002), the MARK(ING) feature has been used instead of using the VFORM feature to deal with ‘ki’ nominalization. Without introducing a new feature MARK, we think that NGPs can be handled by *ki nom(inal)* value as the VFORM feature of a predicate.

⁴Sentence (9) is actually ambiguous. It can also be interpreted as ‘it is likely that children learn English’. Song (1988) distinguished *swipta* into two lexical entries: *swipta1* corresponds to ‘easy’ and *swipta2* to ‘likely’. He points out that the meaning of ‘swipta’ shifts from *swipta1* ‘easy’ to *swipta2* ‘likely’ when a tense marker is added onto the embedded predicate. In addition, *swipta2* is allowed to occur when the embedded predicate consists of a descriptive adjective, the copula, or an existential verb like ‘exist’. This paper deals with *swipta1* ‘easy’ but not *swipta2*.

(10).

- (10) a. tahaynghito [Mary-ka yenge-lul paywess-um] -i
 fortunately Mary-Nom English-Acc studied-Nml -Nom
 pwunmyenghata.
 obvious
 ‘*Fortunately, it is obvious that Mary learned English.*’
- b. *[Mary-ka tahyanghito yenge-lul paywess-um] -i
 Mary-Nom fortunately English-Acc studied-Nml -Nom
 pwunmyenghata.
 obvious
 ‘*Fortunately, it is obvious that Mary learned English.*’
- c. *[Mary-ka yenge-lul tahaynghito paywess-um] -i
 Mary-Nom English-Acc fortunately studied-Nml -Nom
 pwunmyenghata.
 obvious
 ‘*Fortunately, it is obvious that Mary learned English.*’

An adverb modifying the matrix predicate can follow the subject NP as in (11b), while it cannot intervene between the embedded predicate and its argument as in (11c). This shows that the first NP of (9) does not appear in the embedded clause.

- (11) a. tahayngghi aitul-i yenge-lul paywu-ki-ka swipta.
 fortunately children-Nom English-Acc learn-NML-Nom easy
 ‘*Fortunately, it is easy for children to learn English.*’
- b. aitul-i tahayngghi yenge-lul paywu-ki-ka swipta
 children-Nom fortunately English-Acc learn-NML-Nom easy
 ‘*Fortunately, it is easy for children to learn English.*’
- c. *aitul-i yenge-lul tahayngghi paywu-ki-ka swipta
 children-Nom English-Acc fortunately learn-NML-Nom easy
 ‘*Fortunately, it is easy for children to learn English.*’

[Proform Substitution]

- (12) a. aitul-i yenge-lul paywu-ki-ka swiwe
 children-Nom English-Acc study-NML-Nom easy
 ‘*It is easy for children to learn English.*’
- b. aniya, elun-to kulay.
 no adults-also is so
 ‘*No, itt is so for adults .*’

Sentence (12b) can be uttered in response to the statement of (12a); the proform *kulay* (is so) replaces *yeune-lul paywuki-ka swiwe* (be easy to

learn English). This suggests that the first NP does not appear inside of the embedded clause. Thus, there are two separate phrases with nominative case.

10.3.1 Classification of DNCs

In Korean, DNCs are very common and show interesting semantic and syntactic relationships. DNCs are divided into three major types based on the grammatical relationship between the subject and the predicate. Then, each type is classified into several subtypes according to various relations between two subjects. Type I contains DNCs where the first nominative NP is not required by the main predicate. In Type II, the two nominative NPs are required by the predicate as arguments. Type III includes DNCs where one NP provides some sort of semantic specification to the other.

1. TYPE I

In Type I DNCs, the first nominative NP corresponds to the genitive NP of the second nominative NP. However, there is no direct argument-predicate relation between the first NP and the main predicate. This type can be divided into four subtypes according to different syntactic and semantic relation holding between two NPs.

1) Whole-part Constructions

The second NP refers to a part of the first NP. This kind of relation has been referred to as inalienable possession.

- (13) a. John-uy son-i cakta
 John-Gen hands-Nom small
 ‘*John’s hands are small*’
 b. John-i son-i cakta
 John-Nom hands-Nom small
 ‘*John has small hands*’

2) Relation Constructions

A kinship term related to the first NP appears as the second NP.

- (14) a. John-uy atul-i cakta
 John-Gen son-Nom short
 ‘*John’s son is short*’
 b. John-i atul-i cakta
 John-Nom son-Nom short
 ‘*John has a short son*’

3) Possessor-possessed Constructions

The first NP is a possessor and the second NP is a possession.

- (15) a. John-uy cip-i cakta
 John-Gen house-Nom small
 'John's house is small'
 b. John-i cip-i cakta
 John-Nom house-Nom small
 'John has a small house.'

4) Verbal-noun Constructions

The first NP is an argument of the second NP, which is a verbal noun. A verbal noun, generally borrowed from a verb form of Chinese or a foreign language, subcategorizes for arguments like other predicates.

- (16) a.i mwunce-uy haykyel-i swipta.
 this problem-Gen solution-Nom easy
 'The solution of this problem is easy.'
 b.i mwunce-ka haykeyl-i swipta.
 this problem-Nom solution-Nom easy
 'This problem has an easy solution.'

2. TYPE II

In Type II DNCs, two NPs are separately required by a predicate.

This type is divided into two classes; the first includes locative subject constructions and the second includes nominative NP constructions.

1) Locative Subject Constructions

The first nominative NP corresponds to a Locative or Experiencer NP that can take *ey* (at) and *eykey* (to) instead of nominative case.

- (17) a.i san-ey namwu-ka manhta
 this mountain-at trees-Nom abundant
 'There are many trees at this mountain.'
 b.i san-i namwu-ka manhta
 this mountain-Nom trees-Nom abundant
 'This mountain has many trees.'
- (18) a. John-eykey komin-i saynggi-ess-ta
 John-To worry-Nom become-to-exist
 (lit.) 'To John, there happen to be some worries.'
 b. John-i komin-i saynggi-ess-ta
 John-Nom worry-Nom become-to-exist
 (lit.) 'John has gotten some worries.'

2) Nominative Object Constructions

These predicates require two nominative NPs, but those NPs cannot take any other case marker. In this type, the second NP works like an object. This type includes so-called psych-adjectives as in (19) and two place predicates like *anita* (be-not) and *toyta* (become).

(19) a. John-i Mary-ka cohta
 John-Nom Mary-Nom be fond of
 'John is fond of Mary'

b. nay-ka tongsaying-i mipta
 I-Nom brother-Nom hate
 'I hate my brother.'

(20) a. John-i kasu-ka anita
 John-Nom singer-Nom be-not
 'John is not a singer.'

b. Mary-ka uysa-ka toyessta
 Mary-Nom doctor-Nom became
 'Mary became a doctor.'

3. TYPE III

There are two subclasses in Type III DNCs; namely, specification constructions and classifier constructions.

1) Specification Constructions

The first NP includes the second NP in its category. In other words, the second NP is a hyponym of the first NP. In general, the first NP can also take the topic marker *un/nun*, which has been called a based-generated topic. The second NP provides semantic specification to the preceding NP.

(21) a. kwail-i sakwa-ka masissta.
 fruit-Nom apples-Nom tasty
 (lit.) 'As for fruit, apples are tasty.'

b. *kwail-uy sakwa-ka masissta.
 fruit-Gen apples-Nom tasty
 (lit.) 'As for fruit, apples are tasty.'

2) Classifier(Cl) Constructions

A classifier phrase which is composed of a number and a classifier appears in the position of the second NP and modifies the first NP. A classifier phrase can precede the first NP by taking the genitive case marker. However, it cannot precede the first NP when it has the nominative case marker.

- (22) a. *twu-kay-uy sakwa-ka ssekessta.*
 two-Clf-nom apples-Nom rotten
 (lit.) ‘*Two apples are rotten.*’
 b. *sakwa-ka twu-kay-ka ssekessta.*
 apples-Nom two-Cl-Nom rotten
 (lit.) ‘*Two of the apples are rotten.*’

10.3.2 Similarities of *ki-ka* TCs and certain DNCs

Even though the previous discussion of DNCs focused on constructions containing simple nouns as opposed to constructions with nominalized VP or S, *ki-ka* TCs are classified here as a subclass of DNCs. We will provide evidence showing that *ki-ka* TCs exhibit the same structural features as other DNCs; namely, connectivity between the subject and a missing element, scrambling facts, relativization, and long-distance dependency.

[Connectivity of Arguments]

As in TCs, there is connectivity between the first NP and a missing element of the second phrase in DNCs. Consider the following examples.

- (23) a. [*i sacen-ul sayongha-ki-ka*] *swipta.*
 this dictionary-Acc use-NML-Nom easy
 ‘*It is easy to use the dictionary.*’
 b. *i sacen_j-i [____j sayongha-ki]-ka swipta.*
 this dictionary-Nom use-NML-Nom easy
 ‘*This dictionary is easy to use.*’
- (24) a. [*i sacen-uy sayongpep-i*] *swipta.*
 this dictionary-Gen usage-Nom easy
 (lit.) ‘*The usage of the dictionary is easy.*’
 b. *i sacen_j-i [____j sayongpep]-i swipta.*
 this dictionary-Nom usage-Nom easy
 (lit.) ‘*The usage of this dictionary is easy.*’

Comparing (23b) and (24b), we can see that the first nominative NPs are coindexed with the missing elements of the second NPs. The only difference is that a noun *sayongpep* ‘usage’ appears in (24) instead of a verb, *sayongha-* ‘use’.⁵

⁵The verb *sayongha-* is composed of a verbal noun *sayong* and a supporting verb *hata* ‘do’. In Korean, a verbal noun combines with *hata* ‘do’ to form a verb.

- (25) a. *sayongha-ki-ka swipta.
 use-Nml-Nom easy
 ‘It is easy to use.’
 b. *sayongpep-i swipta.
 usage-Nom easy
 ‘The usage is easy’

The noun *sayongpep* (usage) is a relational noun whose meaning cannot be understood without reference to another entity in a sentence or at least in the context. For example, unlike common nouns such as ‘desk’ and ‘chair’, the meaning of a relational noun like ‘father’ cannot be construed without reference to another entity, in this case a child or children. We can capture general properties of Type I DNCs in terms of a relational noun.⁶

[Scrambling]

Even though Korean has relatively free word order, the sentence becomes ungrammatical in both TCs and DNCs if the second NP precedes the first NP. This seems to be caused by the syntactic and semantic relationship between the nominative NPs in these constructions. In general, whole NP precedes part NP and possessor precedes possessed. An NP having an argument-predicate relationship with the first nominative NP follows its arguments as we see in the following examples.

- (26) a. sacen-i sayongha-ki-ka swipta.
 dictionary-Nom use-NML-Nom easy
 ‘A dictionary is easy to use.’
 b. *sayongha-ki-ka sacen-i swipta
 use-NML-Nom dictionary-Nom easy
- (27) a. sacen-i sayongpep-i swipta.
 dictionary-Nom usage-Nom easy
 (lit.) ‘The usage of a dictionary is easy.’
 b. *sayongpep-i sacen-i swipta
 usage-Nom dictionary-Nom easy

This combination can be analyzed as a complex predicate when the accusative case marker intervenes between a verbal noun and *hata*. For further discussion, refer to Lee (2000).

⁶J.-M. Yoon (1997) discusses multiple nominative and accusative constructions having relational nouns. The discussion of relational nouns is intimately related to these constructions, which are divided into different subclasses. In this paper, we limit ourselves to pointing out that the second NP is possibly classified as a relational noun, but postpone detailed analysis to a future study of multiple nominative and accusative constructions.

[**Relativization**]

The second NP cannot be the head noun of a relativized construction while the first NP can. We can verify this in the following examples.

- (28) a. *sacen-i swiwu-n sayongha-ki
 dictionary-Nom easy-REL use-NML
 (lit.) ‘*the usage that the dictionary is easy*’
- b. sayongha-ki-ka swiwu-n sacen
 use-NML-Nom easy-REL dictionary
 ‘*The dictionary that is easy to use*’
- (29) a. *sacen-i swiwu-n sayongpep
 dictionary-Nom easy-REL usage
 (lit.) ‘*the usage that a dictionary is easy*’
- b. sayongpep-i swiwu-n sacen
 usage-Nom easy-REL dictionary
 ‘*the dictionary that is easy to use*’

[**Long-distance Dependency**]

There is a long-distance dependency between the two NPs. Consider the following examples.

- (30) a. Kim_j-i [NP[S salamtul-i e_j hyocang-ulo senchulha-nun]
 Kim-Nom people-Nom president-as elect-REL
 kwaceng-i] himtul-ess-ta.
 process-Nom tough-Past-Ending
 ‘*The process of electing Kim as president was tough for people.*’
- b. yenge_j-ka [NP[NP[REL e_j hyokwacekulo kyoyukha-nun]
 English-Nom effectively educate-REL
 kyocay-uy] kyepal-i] elyepa
 materials-Gen development-Nom hard
 (lit.) ‘*English is hard to develop the materials for educating*
 (it) effectively.’

In (30a), the first NP, *Kim*, is connected to a missing element in the appositive clause of the head noun ‘*kwaceng*’ (process). In (30b), *yenge* (English) is connected to an element located in the object position of the relative clause. The relative clause modifies the genitive NP of the head noun *kyepal* (development). Even though a long-distance dependency in DNCs has not been the focus of previous studies, the relation between the first NP and a missing element is unbounded, as in TCs.

Discussing relativization, Kim (1999) argues that there are some relative constructions that originate from double nominative constructions. Consider the following examples.

- (31) a. *chinkwu_i-ka* [*e_i salko iss-nun*] *aphatu-ka* *acwu khuta*.
 friend-Nom live is-Rel apartment-Nom very big
 (lit.) ‘As for the friend, the apartment where he lives is very big.’
- b. [*chinkwu_i-ka e_j salko iss-nun*] *aphatu_j-ka* *acwu khuta*.
 friend-Nom live is-Rel apartment-Nom very big
 ‘The apartment_j where the friend lives e_j is very big.’
- c. [*e_i e_j salko iss-nun*] *aphatu_j-ka* *acwu khu-un chinkwu_i*
 live is-Rel apartment-Nom very big-Rel friend
 (lit.) ‘The friend_i whose apartment_j where_j e_i lives e_j is very big.’

According to Kim, the head noun *chingwu* (friend) in (31c) is not related to the embedded subject of the relative clause as in (31b) but to the subject of a DNC as in (31a). He points the fact that relativization is only possible when the head appears as the first subject of a DNC.⁷ This indirectly shows that there is a long-distance dependency in DNCs; the first nominative NP in a DNC is connected to an element in the relative clause but not to the head noun.⁸ This connectivity is required because the empty subject in the relative clause in (31a) cannot be replaced by an element having a different index value from that of the first nominative phrase *chinkwu* (friend).

In addition, Gunji (1987) treated Japanese DNCs, which have similar properties to Korean DNCs, as unbounded dependency constructions.

⁷He provides the following examples to show the connection between so-called double relative constructions and the DNCs.

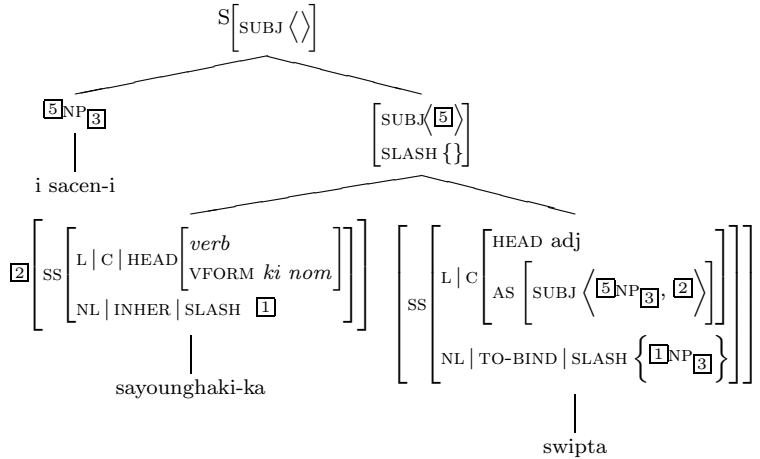
- ia.*[*e_i e_j tulkoiss-nun ai_i]-ka* *pappu-n wusan_j*
 holding-Rel child-Nom busy-Rel umbrella
 (lit.) ‘the umbrella that the child who is busy is holding’
- ib.**wosan-i ai-ka* *papputa*
 umbrella child-Nom busy
- ii.a.[*e_i e_j ipkoiss-nun os_j]-i* *mesci-n sinsa_i*
 wearing-Rel clothes-Nom stylish-Rel gentleman
 (lit.) ‘the man_i whose clothes_j that e_i is wearing e_j are stylish’
- ii.b.*ku sinsa-ka os-i* *mescita*
 that man-Nom clothes-Nom stylish
 ‘The man’s clothes is stylish.’

As we see in the above examples, relativization is only possible when the head can appear as the first subject of a DNC. He also notes that the semantic relationship of the two head nouns in (iia) is similar to that of the two subject NPs in (iib).

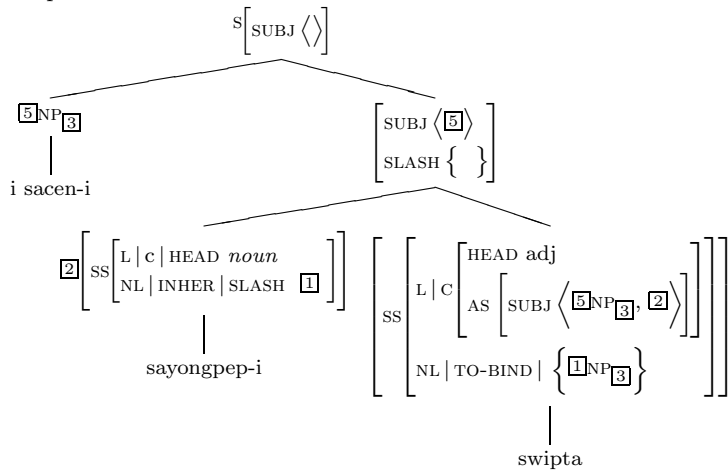
⁸Even though Kim analyzed the embedded subject in (31a) as *pro*, the missing element can be analyzed as a gap, as we already discussed in 2.

We can use the SLASH value to capture the semantic connectivity in DNCs, just as we did for TCs. This accords with the semantic and syntactic similarities between TCs and DNCs. Furthermore, we argue that *ki-ka* TCs and Type I DNCs share the same kind of structure; namely, one that licenses a constituent formed by the second NP and a predicate. The structure of *ki-ka* TCs and related DNCs can be presented as follows.

(32) a. *swipta* in TCs



b. *swipta* in DNCs



10.3.3 A lexical analysis of TCs as DNCs

As we have seen in the previous section, Korean TCs belong to Type I DNCs, where the first subject is related to a missing element of the second NP or GNP. Moreover, there exists a correspondence between predicates with a single nominative NP and those with double nominative NPs. We can provide a descriptive-level lexical rule to capture the relationship between predicates that have different argument realizations in spite of having lexical similarities in the PHON value and semantic interpretation. The Subject Insertion Lexical Rule (35) captures the relationship between single nominative constructions and double nominative constructions as in the following examples.

- (33) a. [i sacen-ul sayongha-ki] -ka swipta.
 this dictionary-Acc use-NML -Nom easy
'It is easy to use this dictionary.'
- b. i sacen_j-i [____j sayongha-ki] -ka swipta.
 this dictionary-Nom use-NML -Nom easy
'This dictionary is easy to use.'
- (34) a. [i sacen-uy sayongpep] -i swipta.
 this dictionary-Gen usage -Nom easy
'The usage of the dictionary is easy.'
- b. i sacen_j-i [____j sayongpep] -i swipta.
 this dictionary-Nom usage -Nom easy
 (lit.) *'The usage of this dictionary is easy.'*

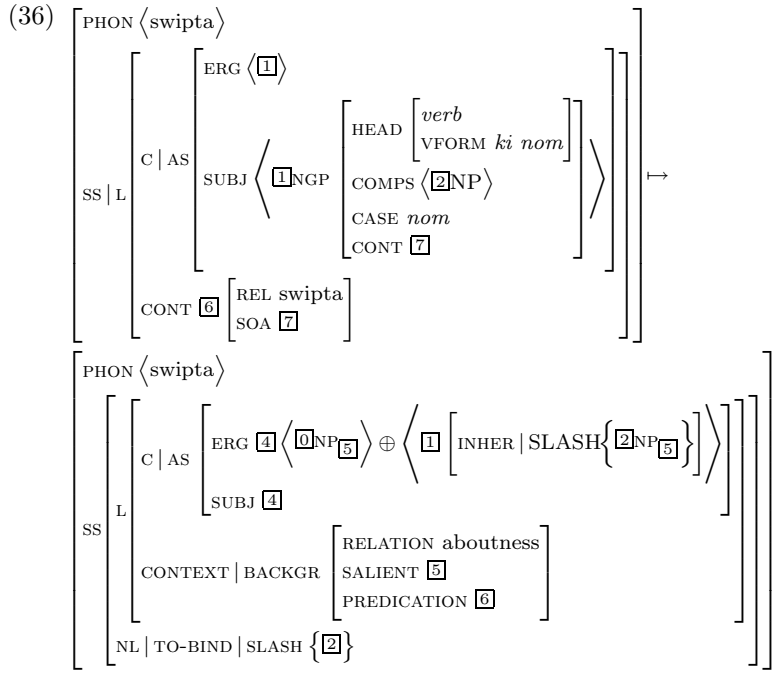
(35) Subject Insertion Lexical Rule

$$\left[\begin{array}{l} \text{SS} | \text{L} \\ \left[\begin{array}{l} \text{C} | \text{AS} \\ \left[\begin{array}{l} \text{ERG } \boxed{3} \langle \boxed{1} \text{NP} \rangle \\ \text{SUBJ } \boxed{3} \end{array} \right] \\ \text{CONT } \boxed{6} \end{array} \right] \end{array} \right] \mapsto \\
 \left[\begin{array}{l} \text{SS} \\ \left[\begin{array}{l} \left[\begin{array}{l} \text{C} | \text{AS} \\ \left[\begin{array}{l} \text{ERG } \boxed{4} \langle \boxed{0} \text{NP} \boxed{5} \rangle \\ \text{SUBJ } \boxed{4} \end{array} \right] \oplus \left\langle \left[\text{INHER} | \text{SLASH} \{ \boxed{2} \text{NP} \boxed{5} \} \right] \right\rangle \end{array} \right] \\ \text{CONTEXT} | \text{BACKGR} \left[\begin{array}{l} \text{RELATION } \textit{aboutness} \\ \text{SALIENT } \boxed{5} \\ \text{PREDICATION } \boxed{6} \end{array} \right] \\ \text{nl} | \text{TO-BIND} | \text{SLASH } \{ \boxed{2} \} \end{array} \right] \end{array} \right]$$

The Subject Insertion Lexical Rule (SILR) introduces a subject NP that has the same index value of the SLASH NP of an NP or GNP that is in the ARG-ST of a predicate. In Korean, the SUBJ list can take more than one element. The lexical rule works for unaccusative predicates in Korean because DNCs are possible only for those predicates.⁹ We use the ergative feature (ERG) to show that the rule works only for unaccusative predicates. ERG encodes that the predicate takes an element which behaves like a primary object in subject position, as suggested by Pollard (1994). We can capture the relationship of single subject and double subject constructions by applying the lexical rule (35). As an example, the application of the SILR to the lexical entry of *swipta* is presented in (36).

⁹The formation of DNCs is a characteristic of unaccusative predicates in Korean. The definition of unaccusative predicates is based on the semantic properties of a predicate. Unaccusative predicates in Korean includes predicates which take an involuntary element having a thematic role of Patient, Theme, or Proto-Patient in the subject position while not taking any object argument. Dowty (1990) discussed thematic Proto-roles and the notion of unaccusativity based on various entailments that a predicate provides. We classify Korean unaccusatives as predicates licensing a non-Agent-like element or a Proto-Patient in the subject position following Lee (2000). Some stative verbs, including *cwukta* 'die', *nokta* 'melt', and *elta* 'freeze', and most adjectives can be classified as the semantic category of unaccusative predicates. Unaccusative predicates are different from any intransitive verbs taking an Agent element in the subject position, which do not license DNCs as in the following example.

- (i)* John-i aika ttyukoissta
 John-Nom child-Nom running
 'John's child is running.'



In lexical rule (35), we include the BACKGROUND value of the ‘aboutness’ relation that has used in Kang (1988) and O’Grady (1991). In general, the combination of the second subject and a predicate works as a sort of predicate and describes the event or state that is directly related to the first subject. This kind of semantic and pragmatic relation can be referred to as ‘aboutness’. DNCs are licensed when the speakers get the relevant ‘aboutness’ relation between the first subject and a pseudo-predicate composed of the second NP and the predicate. Otherwise, the sentence becomes awkward. Consider the following examples.

- (37) a. John-i nun-i khuta
 John-Nom eyes-Nom big
 ‘John has big eyes.’
- b. John-i atul-i khuta
 John-Nom son-Nom big
 ‘John has a big son.’
- c. John-i cip-i khuta
 John-Nom house-Nom big
 ‘John has a big house.’

- d. ?#John-i kay-ka khuta
 John-Nom dog-Nom big
 ‘*John has a big dog.*’
- e. # John-i haksayng-i khuta
 John-Nom student-Nom big
 ‘*John has a big student.*’

In the given examples, we can find a similar kind of possessive relation between the first subject and the second subject. However, acceptability of these examples is not uniform. When the second NP and a predicate describe properties which are more permanent and pertinent to, John, as in (37a)-(37c), a DNC is easily licensed. However, when the predication provided by the second NP and a predicate is hard to interpret as something about the first subject, the sentence becomes unacceptable as in (37d) and (37e). A similar characterization of ‘exhaustivization’ has been provided in Gunji (1987) to explain Japanese DNCs. This has been called exhaustive listing in Kuno (1973). Exhaustivization refers to the semantic interpretation that if some property is predicated about a subject marked by nominative case, then the default assumption is that it is the only the subject that possesses the property. Consider the following example.

- (38) John-i apeci-ka kyoswu-ita
 John-Nom father-Nom professor-Copula
 ‘*John’s father is a professor.*’

According to the ‘exhaustivization’ analysis, the sentence is interpreted to exclude other people in the context and to provide a description only about the first subject. Thus, in (38) the default assumption is that John is the only one whose father is a professor and nobody else is. The notion of ‘exhaustivization’ is more restricted than the ‘aboutness’ relation because it is hard to accept that the speaker assumes that the first subject is a unique entity. We admit, however, that the first NP is a salient entity that is predicated by the combination of the second NP and the predicate. This is quite similar to the Topic-Comment relation. Hong (1997) actually analyzes DNCs as Topic-Comment Constructions. Since a separate Topic marker exists, we do not assume a Topic-Comment relation for DNCs, but instead consider the first NP as referring to a salient object in the context. This sort of saliency can be connected to the pragmatic notion of foreground, which contrasts with background, as suggested in Fillmore (1968). In general, the subject NP refers to the most salient object in the context. Thus, we introduce into the BACKGROUND feature a *psoa* that provides some predication about a salient element, and the given lexical rule will be used when

the pragmatic relationship is easily captured. Even the bad example in (37d) can be licensed in the context where some people go for walk with a dog and compare whose dog is bigger.

The lexical rule provides the prediction that if there were an unaccusative predicate like *swipta* (easy) that took a single NP, there could be another *swipta* (easy) that would take two nominative NPs that would be semantically related to each other. In the latter case, the first NP could be coindexed with a SLASH NP in the second NP. The first NP would refer to the salient element that would be described by the combination of the second NP and a predicate.

10.4 Conclusion

Long-distance dependencies in Korean *tough* constructions can be captured by nonlocal SLASH feature percolation. Some *tough* constructions have two nominative case marked elements, which suggest that they belong to the DNC. Empirically, similar syntactic and semantic behaviors between these TCs and Type I DNCs support categorization of them into one syntactic construction. Furthermore, noting similar long-distance dependencies in DNCs, we argue that an unbounded dependency analysis can be applied to DNCs in Korean, as has been already proposed for Japanese by Gunji (1987). The Subject Insertion Lexical Rule has been proposed to capture the correspondence between single subject and double subject constructions of phonologically identical predicates in some TCs and DNCs both. Although we classified DNCs into three types and provided their subclassification in this paper, the detailed discussion on DNCs is not complete and will be postponed for future study.

Acknowledgements

Thanks to Hee-Rahk Chae, Danièle Godard, Jong-Bok Kim, Bob Levine, Derman Meurers, and Carl Pollard, and participants in HPSG'02 for valuable discussions. Any shortcomings are mine, of course.

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