

On the Structure of Korean Comparative Constructions: A Constraint-based Approach

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Jong-Bok Kim and Peter Sells. 2009. On the Structure of Korean Comparative Constructions: A Constraint-based Approach. *Language and Information* 13.2, 29–45. Every language employs its own morphological and syntactic ways of expressing gradable concepts and making comparison between properties of two objects. Korean uses the adverb *te* ‘more’ and the post-position *pota* ‘than’ to express such relations objects, but displays quite different grammatical properties from a language like English. This paper shows how a constraint-based grammar, HPSG, can provide a robust basis for the grammatical analysis of Korean comparative constructions. (**Kyung-Hee University and SOAS**)

Key words: Korean, phrasal, clausal, comparative, HPSG, constraint-based

1. Basic Properties

1.1 Phrasal and Clausal Comparatives

In expressing comparatives, many languages employ special morphology and syntax. For example, English employs the comparative morpheme *more/er* and the morpheme *than* to identify the ‘standard’ in comparative ordering relations between two objects. However, Korean comparatives are somewhat different from those found in English.

Korean has at least two main types of comparatives: phrasal and clausal. Phrasal comparatives involve two nominals whereas clausal ones have core clausal properties, as exemplified in (1):¹

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¹ The abbreviations used in this paper are ACC (accusative), ARG (argument), COMP (complementizer), COP (copula), DAT (dative), DECL (declarative), DEL (delimiter) HON (honorific),

- (1) a. [pihayngki-pota] yelcha-ka (te) phyenliha-ta
 airplane-than train-NOM more convenient-DECL
 ‘The train is more convenient than the airplane.’
- b. tongsayng-i [[hyeng-i __ ilk-un] kes-pota] (te)
 younger.brother-NOM brother-NOM read-MOD KES-than more
 manhi ilk-ess-ta
 many read-PAST-DECL
 ‘The younger brother read more than his older brother did.’

In the phrasal comparative (1a), the ‘standard’ of comparison expression *pihayngki* ‘airplane’ combines with the standard marker *pota* ‘than’. The target of comparison *yelcha* ‘train’ functions as the subject and the comparative morpheme is realized as an optional adverb *te* ‘more’, modifying the gradable predicate *phyenliha* ‘convenient’. Unlike this phrasal comparative, the standard of comparison in (1b) is clausal in the sense that it has a gapped clause. The gapped element in the clause functions as the object of *read* and is followed by the noun *KES* which can be replaced by a canonical noun like *chayk* ‘book’.

The standard marker *pota* ‘than’ in both cases is postpositional, attached to an NP or a clause headed by the bound noun *kes*. The attachment to a clause-like property can also be observed with a standard clause nominalized with *-ki* or with a gapless clause with *KES*:

- (2) a. ku-nun [yoksim-i manh-ta-ki]-pota pwucilenha-ta
 he-TOP greed-NOM many-DECL-NMLZ-than diligent-DECL
 ‘He is diligent rather than greedy.’
- b. [wuli-ka ka-nun kes]-i [haksayng-tul-i o-nun kes-pota]
 we-NOM go-MOD KES-NOM student-PL-NOM come-MOD KES-than
 phyenha-ta
 convenient-DECL
 ‘For us to go is more convenient than for students to come.’

Unlike the clausal comparative in (1b) in which the object is gapped, the clause with the pure nominalizer *ki* has no syntactic gap.

The standard *-pota* phrase can semantically modify various syntactic categories:

- (3) a. emma-ka apeci-pota [pappu-ta] (AP)
 mom-NOM dad-than busy-DECL
 ‘Mom is busier than dad.’
- b. tongsayng-i hyeng-pota [pwuca]-i-ta (NP)
 younger.brother-NOM elder.brother-than rich-COP-DECL
 ‘The younger brother is richer than the elder.’

LBL (label), L-INDEX (left index), LTOP (local top), NOM (nominative), NMLZ (nominalizer), MOD (modifier), PRED (predicate), PL (plural), PST (past), RELS (relations), TOP (topic), etc.

- c. pyongkyun-pota [manhi] nop-ass-ta (AdvP)
 average-than many high-PAST-DECL
 ‘(It) is much higher than the average.’

Even though the category type of host XP in the XP-*pota* can be only nominal (unlike English), Korean can express complex comparisons:

- (4) a. i os-un paykhwacem-eyse-pota sicang-eyse te cal
 the clothes-TOP dept. store-LOC-than market-LOC more well
 phali-n-ta
 sell-PRES-DECL
 ‘The clothes sell better in the market than in the department store.’
- b. inthepwu-nun [[wuli-ka sayngkakha-n] kes-pota] cekkey keli-ess-ta
 interview-TOP we-NOM think-MOD KES-than less take-PAST-DECL
 ‘The interview took less hours than we thought.’

The example (4a) expresses a comparison between the degrees to which the same object (the clothes) possesses different properties whereas (4b) relates the actual degree that an event (the interview) possesses a property to an expected degree. However, Korean does not allow a subcomparative which can compare the degrees to which different objects possess different properties:²

- (5) a. *i chaykcang-un ce mwun-i nelp-un kes-pota noph-ta
 this self-TOP that door-NOM wide-MOD KES-than tall-DECL
 ‘This shelf is taller than that door is wide.’
- b. ?i chaykcang-uy nopi-nun ce mwun-uy nelpi-pota khu-ta
 this self-GEN height-TOP that door-GEN width-than tall-DECL
 ‘This shelf’s height is greater than that door’s width.’

As seen in the English translation, the subcomparative is possible in English, but Korean has to adopt a different structure, involving nominal scale terms as given in (5b). The lack of subcomparatives in Korean is thus another difference from English.

As hinted earlier, the comparative expression *te* ‘more’ is optional in both phrasal and clausal comparatives, but there are cases where its presence is obligatory:

- (6) a. pyongso-pota samsip pwun-i *(te) keli-ess-ta
 normal-than 30 minutes-NOM *(more) take-PAST-DECL
 ‘It took 30 more minutes than usual.’
- b. nam-pota *(te) mek-ess-ta
 others-than *(more) eat-PAST-DECL
 ‘(He) ate more than others.’

² Japanese also does not allow subcomparatives. See Beck et al. (2004) for Japanese.

This necessity is related to the lexical properties of the predicate modified by the comparative expression. Consider copular examples with predicate nominals:

- (7) a. *tongsayng-pota te pwuca-i-ta*
 younger.brother-than more rich.person-COP-DECL
 ‘(He) is richer than the young brother.’
- b. *tongsayng-pota *(te) haksayng-i-ta*
 younger.brother-than more student-COP-DECL
 ‘*(He) is more a student than the younger brother.’

The main difference between *pwuca* ‘rich.person’ and *haksayng* ‘student’ is that the former, not the latter, is inherently gradable, making it possible for it to occur in comparatives. The semantic constraint thus requires the inherently non-gradable predicate to have the comparative marker *te* ‘more’ as an obligatory element for it to be gradable.

1.2 Standard Marker as a Comparative Expression

Another intriguing property of Korean’s comparative constructions, quite frequent in real corpus data, is that the standard marker *pota* can also be used as a comparative expression, meaning *more*:

- (8) a. **pota** *manhun haksayng-tul-i ku swuep-ul tul-ess-ta*
 more many student-PL-NOM the class-ACC listen-PAST-DECL
 ‘More students took the class.’
- b. *salamtul-un pota ancenha-n kos-ulo ka-ass-ta*
 person-PL-TOP more safe-MOD place-to go-PAST-DECL
 ‘People went to a safer place.’

The multi-function property of *pota* allows it to have different uses in the same sentence:

- (9) a. *calinkopi-pota pota hyenmyengha-key sopihan-ta*
 miser-than more wise-COMP consume-DECL
 ‘(He) consumes more wisely than a miser.’
- b. *wuli-ka sayngkakha-yess-ten kes-pota pota caymi-iss-ta*
 we-NOM think-PAST-MOD KES-than more interesting-be-DECL
 ‘It was more interesting than we thought.’

These uses of *pota* are obviously different. The use of the first *pota* in (9a) is a postpositional marker of a standard of comparison whereas the second one in (9b), used as a comparative marker, functions as an adverb. One clear piece of evidence of the difference lies in optionality: as seen in the next examples, the postpositional use of the standard marker *pota* cannot be deleted whereas the comparative adverb *pota* is optional:

- (10) a. *calinkopi-*(pota) (pota) hyenmyengha-key sopihan-ta*

- b. wuli-ka sayngkakha-yess-ten kes-*(**pota**) (**pota**) caymi-iss-ta

The free comparative marker *pota*, functioning as an adverb, can also modify various syntactic categories as long as they are gradable, and even can be replaced the comparative adverb *te* ‘more’:³

- (11) a. pang-ul [pota alumtap-key] pakkwuessta (AdvP)
 room-ACC more pretty-COMP change-PAST-DECL
 ‘(We) changed the room more beautifully.’
- b. [pota nelp-un] uymi-lo sayongtoy-n-ta (AP)
 more wider-MOD meaning-with use-PRES-DECL
 ‘(It) is used with a wider meaning.’
- c. ku il-ey-nun [pota cenmwunka]-ka philyo-hata (NP)
 the work-LOC-TOP more expert-NOM need-do-DECL
 ‘(We) need a more skilled expert for this work.’

2. Syntax of the Comparative Constructions

As observed in the previous section, there are at least three main types of comparatives in Korean: phrasal, clausal comparatives with a syntactic gap, and clausal comparatives without a syntactic gap. We consider the syntactic structure and semantic composition of these three types of comparatives in more detail here.

2.1 Phrasal comparatives

As in English, Korean’s phrasal comparative sets up a nominal coordination construction.⁴ XP-*pota* displays the same distributional properties as nominal conjunction. In (12) we compare the two:

- (12) a. sose-pota swuphil-i caymi-iss-ta
 novel-than essay-NOM interesting-be-DECL
 ‘Essays are more interesting than novels.’
- b. sose-kwa swuphil-i caymi-iss-ta
 novel-and essay-NOM interesting-be-DECL
 ‘Novels and essays are interesting.’

As with the XP-*wa* nominal conjunct, the XP-*pota* and its compared XP needs to be nominal. Non-nominal elements cannot function as the XP in either coordination or comparative:

- (13) a.*John-i yeppukey-pota sinnakey nolayha-yess-ta
 John-NOM beautifully-than joyfully sing-PAST-DECL
 ‘(intended) John sang joyfully rather than beautifully.’

³ As observed in (7), the standard marker *pota* can modify a gradable nominal such as *cenmwunka* ‘expert’ or *pwuca* ‘rich person’, but not a nongradable nominal like *haksayng* ‘student’.

⁴ See Napoli (1983) for various arguments to treat *than* as ambiguous between conjunction and clause-introducing complementizer.

- b. *John-i yeppukey-wa sinnakey nolayha-yess-ta
John-NOM beautifully-and joyfully sing-PAST-DECL

The like category property can also be observed in the ‘postpositional’ use:⁵

- (14) a. tosekwan(-eyse)-pota chaykpang-eyse kongpwuha-n-ta
library-at-than bookstore-at study-PRES-DECL
‘(He) studies at a bookstore rather than at a library.’
b. tosekwan(-*ulo)-pota chaykpang-eyse kongpwhanta

Although the locative postposition is optional in the *than* XP, when it is present, it must be identical with the one in the standard phrase. An intriguing property is that when the standard phrase is locative, the possibility of scrambling disappears:⁶

- (15)*chaykpang-eyse tosekwan(-eyse)-pota kongpwhanta

This can be seen in other examples:

- (16) a. i os-un paykhwacem-pota sicang-eyse cal pali-n-ta.
the clothes-TOP dept. store-than market-at well sell-PRES-DECL
‘The clothes sell well at the department store rather than at the market.’
b. ??/* i os-un sicang-eyse paykhwacem-pota cal palinta.

This suggests that the locative standard XP *paykwahcem-pota* and the following compared XP form a coordination structure. No modificational or adverbial structure seems plausible, in light of the restrictions on scrambling.

The classification of *-pota* as a conjunction marker can be further supported by examples like the following:

- (17) John-un America-pota Canada-ey ka-kilo kyelcengha-yess-ta
John-TOP America-than Canada-to go-COMP decide-PAST-DECL
‘John decided to go Canada rather than to America.’

The phrase *America-pota* is directly linked to Canada, rather than to the whole sentence.⁷ In addition, when there is more than one XP-*pota* phrase, as in (19a), the phrases must be adjacent.

- (18)*yenge-pota hankwuke-ka cwungkwuke-pota elyep-ta
English-than Korean-NOM Chinese-than difficult-DECL

⁵ Following Kim (2004), we take canonical postpositions to be just nominal suffixes, implying that there is no category of PP distinct from NP.

⁶ The same is true with the true conjunction XP-*wa*.

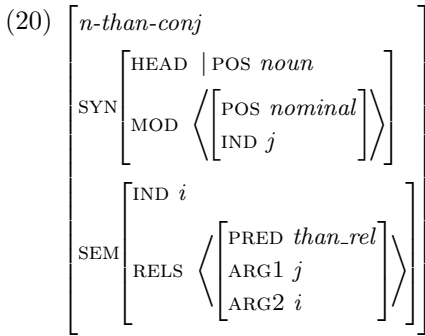
⁷ The reduction/predicate copying analysis treating phrasal comparatives as clausal ones (e.g., *Novels are more interesting than essays are interesting*.) appears to not be viable for such a case. See Choe (2008) and Park (2009) for reduction approaches for Korean comparative constructions.

This again indicates that *XP-pota* forms a constituent with the NP that follows it.

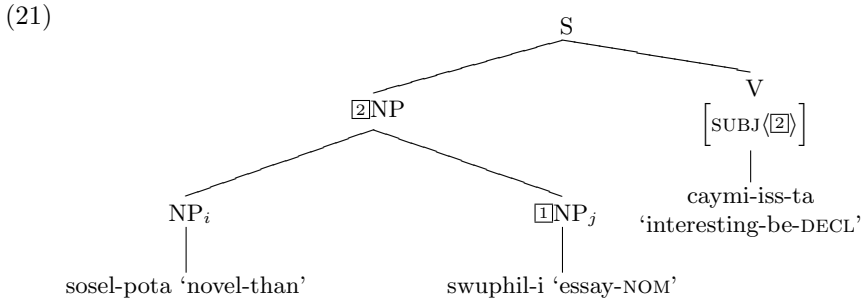
The possibility of having more than one *XP-pota* phrase, just like the nominal coordination of *XP-wa* conjuncts, also indicates that the *XP-pota* functions like a coordinate conjunct:⁸

- (19) a. yenge-pota cwungkwuke-pota hankwuke-ka elyep-ta
 English-than Chinese-than Korean-NOM difficult-DECL
 ‘(lit.) Korean is more difficult than English and Chinese.’
- b. yenge-wa cwungkwuke-wa hankwuke-ka elyep-ta
 English-and Chinese-and Korean-NOM difficult-DECL
 ‘English, Chinese, and Korean are difficult.’

Reflecting these properties, we take the standard marker *-pota* to be a nominal affix with a simple coordination-like meaning. We can represent this in the HPSG feature structure system for the *XP-pota* in (12a):⁹



The simple lexical information states that the *XP-pota* phrase, functioning as a conjunction, combines with another *nominal* element and in terms of meaning selects two semantic arguments (ARG1 and ARG2), one from itself and the other from the following conjunction head. Taking the NP-*pota* preceding the standard phrase to be a conjunction, we would then generate the following structure:¹⁰



⁸ English does not allow more than one *than* standard clause. See Bresnan (1973, 1975) and Corver (2005).

⁹ The nonfinal conjunct is taken to be a modifier in the assumed coordination structure. See Kim and Yang (2006) for the analysis of Korean coordination structures.

¹⁰ See Pinkham (1984, 1996) and Napoli (1983) for the same base-generation treatment for English phrasal comparatives.

This analysis, assuming the existence of base-generated phrasal comparatives, thus treats the ‘standard’ and compared phrase as a closed constituent with a semantic interpretation which is in the first instance independent of the rest of the sentence.

Let us consider the meaning of (12a) in terms of shorthand MRS (Minimal Recursion Semantics) representation of this NP.¹¹ The value of the attribute SEM(ANTICS) represents a simplified MRS. Its INDEX value represents the ‘situation’, and the REL value contains the values of ‘elementary predicates’ (EPs) that each expression in the sentence evokes. (12a) will have the following simplified MRS representation:

$$(22) \left[\begin{array}{l} \text{SEM} \\ \text{RELS} \end{array} \left[\begin{array}{l} \text{IND } e1 \\ \left\langle \begin{array}{l} \left[\begin{array}{l} \text{PRED } \textit{than_rel} \\ \text{ARG1 } x5 \\ \text{ARG2 } x4 \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{essay_rel} \\ \text{ARG1 } x4 \end{array} \right], \\ \left[\begin{array}{l} \text{PRED } \textit{novel_rel} \\ \text{ARG2 } x5 \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{interesting_rel} \\ \text{ARG0 } e1 \\ \text{ARG1 } x4 \end{array} \right] \end{array} \right\rangle \end{array} \right] \right]$$

This represents an event *e1* in which the degree of the novel’s being interesting and the one of the essay’s interestingness are compared. The list value of the REL feature represents the meaning of each EP involved in this sentence. The meaning of the comparative marker *than* is represented as *than_rel*. This relation takes two arguments ARG1 and ARG2 whose values are linked to *essay* and *novel*, respectively. The EP *interesting_rel* takes ‘essay’ as its subject argument. The composition of the meaning of each EP element will thus give us the correct, enriched meaning representation.¹²

However, the XP-*pota* has a different syntactic use: it can be a verbal modifier, as seen from its flexible distributional position.

- (23) a. hankwuke-ka cengmal yenge-pota elyep-ta
 Korean-NOM really English-than difficult-DECL
 ‘Korean is really more difficult than English.’
- b. yelcha-ka pihayngki-pota (te) phyenliha-ta
 train-NOM airplane-than (more) convenient-DECL
 ‘The train is more convenient than the airplane.’

There is no strong positional constraint on the distributional possibilities for the standard of comparison XP-*pota* expression: it can appear in almost any position.

¹¹ Minimal Recursion Semantics, developed by Copestake et al. (2005), is a framework of computational semantics designed to enable semantic composition using only the unification of typed feature structures. See Bender et al. (2002) and Kim (2006) for its implementation in English and Korean, respectively.

¹² As in Copestake et al. (2005) and Kim (2006), a principle of the semantics specifies that the value for RELS on the mother of a phrase is the result of appending the RELS values of all its daughters.

In the analysis, we state that *-pota* is a nominal affix, generating a word that can syntactically modify a verbal element:

$$(24) \left[\begin{array}{l} n\text{-}than\text{-}mod \\ \text{SYN} \left[\begin{array}{l} \text{HEAD} \mid \text{POS } noun \\ \text{MOD} \left\langle \begin{array}{l} \text{DEG } + \\ \text{POS } verbal \\ \text{IND } e2 \end{array} \right\rangle \end{array} \right] \\ \text{SEM} \mid \text{RELS} \left\langle \begin{array}{l} \text{PRED } than_rel \\ \text{ARG1 } e2 \\ \text{ARG2 } i \end{array} \right\rangle \end{array} \right]$$

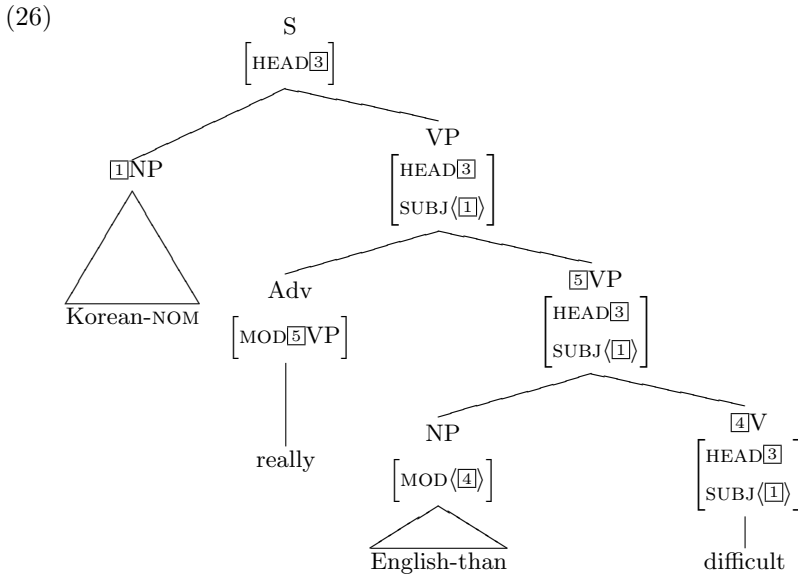
This lexical entry means that the XP-*pota* syntactically functions as a modifier to a verbal element (*e2*) and semantically serves as an argument (*i*) to the given comparative relation with the host noun, whose index value is *i*. The feature DEG ensures that the standard phrase modifies only a gradable predicate. As we have seen in (6), repeated here, there are cases where the comparative marker *te* ‘more’ is obligatory.

- (25) a. [pyongso-pota [samsip pwun-i *(te) keli-ess-ta]]
 normal-than 30 minutes-NOM *(more) take-PAST-DECL
 ‘It took 30 more minutes than usual.’
- b. [nam-pota [*(te) mek-ess-ta]]
 others-than *(more) eat-PAST-DECL
 ‘(He) ate more than others.’

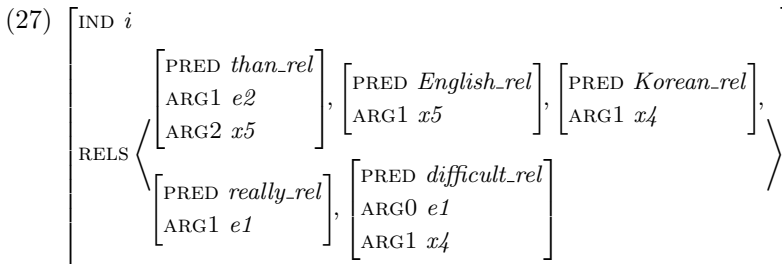
Our assumption is that the comparative marker *te* changes the nongradable predicates *keli-ess-ta* ‘take’ and *mek-ess-ta* ‘eat’ into gradable ones so that the standard can be semantically interpreted. If a given predicate is itself gradable, the comparative marker *te* is therefore optional in comparative constructions.

The lexical entry here in (24) will then eventually generate the following structure for (23a):¹³

¹³ An anonymous reviewer observed that it might be possible to assume just one type of phrasal comparative: the standard XP-*pota* phrase always modifies a verbal element. From a theoretical perspective, this may be simpler, but there is evidence that the standard phrase combines with the associate NP first, forming a coordination-like structure, different from the adverbial uses.



In this structure, the XP-*pota* modifies the verbal element *difficult* which serves as semantic argument of the *than* relation. Clearly the comparative phrase ‘English-than’ can function only as a modifier to the predicate ‘difficult’. The semantic arguments of *than-rel* are also slightly different from the one in (22) as seen from the following:¹⁴



The first argument of *that-rel* is linked to the predicate ‘difficult’ (*e1*) whereas its second argument is identical with that of ‘English’ (*x5*).¹⁵ This roughly means that ‘Compared to English, Korean is really difficult’. This reading is similar to that of clausal comparatives which we introduced in the next section.¹⁶

¹⁴ As an anonymous reviewer suggested, the MRS representation needs to be developed further to represent the subtle semantic features of the comparative constructions. For example, we need a fuller system that can associate ‘English’ (*x5*) with ‘Korean’ (*x4*) embedded in the event of ‘difficult’ relation. Such a direction is developed in Kennedy’s (1997) ‘direct analysis’ (contra the ‘reduction’ analysis) where the degree head in English combines with two individual arguments and a predicate of individuals and degrees. We leave it open for now, how such a direct analysis can be accommodated in our MRS system.

¹⁵ The ARG0 value indicates its own event index.

¹⁶ In a fuller account, we need a finer-grained definition for the *than-rel*. For example, as given in Heim (2000), the comparative denotes a relation between two sets of degrees such that the

One welcome consequence of our analysis of two different *pota* morphemes is that it can capture differences in interpretation with respect to the position of XP-*pota*. Observe the following examples and interpretations also observed by Jhang (2001):¹⁷

- (28) a. John-pota Tom-i Mary-lul te cohaha-n-ta [only one reading]
 John-than Tom-NOM Mary-ACC more like-PRES-DECL
 ‘John likes Mary more than Tom does.’
- b. John-pota Mary-lul Tom-i te cohaha-n-ta [only one reading]
 ‘Tom likes Mary more than he likes John.’
- c. Mary-lul Tom-i John-pota te cohaha-n-ta [ambiguous]

The XP-*pota* phrase preferably forms a constituent with the following NP, forming a coordination-like structure, and hence is associated with the subject in (28a) and the object in (28b); each example is unambiguous. If there is no NP following the ‘standard’ phrase, the XP-*pota* must be a verbal modifier, leading to a clausal comparative. Hence in (28c) the XP-*pota* can function only as a VP modifier since no relevant NP follows. The interpretation of this XP-*pota* is determined in context. In this example, it can either be associated with the subject or object.

2.2 Clausal Comparatives

The canonical clausal comparative with a syntactic gap has the structure of a relative clause. The clausal comparative clause consists of the standard of comparison clause with a gap, modifying the nominal *kes*, as in (29a). The gap cannot be replaced by a canonical NP as in (29b):

- (29) a. i chayksang-un [[nay-ka __ mantu-n] kes-pota] (te) khu-ta
 this desk-TOP I-NOM make-MOD KES-than (more) big-DECL
 ‘This desk is bigger than the one I made.’
- b. *i chayksang-un [[nay-ka chayksang-ul mantu-n] kes-pota] khu-ta

In addition, both the comparative and canonical relative clause allow the head noun *kes* to be replaced by a content noun like *book*:

- (30) a. [hyeng-i __ ilk-un kes-pota/chayk-pota]
 brother-NOM read-MOD KES-than/book-than

maximal element of the first (main clause) is ordered above the maximal element of the second (comparative clause), as represented in the following:

- (i) a. Korean is *d* difficult more than English is *d'* difficult
 b. $\max\{d \mid \text{difficult}(k) \succeq d\} \succ \max\{d' \mid \text{difficult}(e) \succeq d'\}$

The *than-rel* given in the MRS representation (27) does not include the notion of degree and the way of extending the second individual argument to an appropriate proposition. We leave this for future research.

¹⁷ The restricted interpretations given here also imply that scrambling for the standard expression is not possible. We leave open further discussion of this issue.

chayk-ul te manhi ilk-ess-ta
 book-ACC more many read-PAST-DECL
 ‘(He) read more books than his older brother did.’

- b. [hyeng-i __ ilk-un kes-ul/chayk-ul] tto ilk-ess-ta
 brother-NOM read-MOD KES-ACC/book-ACC again read-PAST-DECL
 ‘(He) again read the books that his older brother read.’

The clausal comparative clause also allows long-distance binding, like a relative clause:¹⁸

- (31) [[hyeng-i __ ilk-ess-ta-ko] sayngkakha-n kes-pota]
 brother-NOM read-PAST-DECL-COMP think-MOD KES-than
 chayk-ul te manhi ilk-ess-ta
 book-ACC more many read-PAST-DECL
 ‘(He) read more books than we thought his older brother did.’

In the external syntax, the clause modifying *kes* has the standard marker *pota* attached.

The expression *kes* itself appears at least in three different environments:

- (32) a. [nay] kes-i [ne] kes-mankhum khu-ta
 my thing-NOM your thing-as big-DECL
 ‘(Lit.) My thing is as big as yours.’
- b. [[John-i __ mek-un] kes]-ul mek-ess-ta
 John-NOM eat-MOD KES-ACC eat-PAST-DECL
 ‘(We) ate the thing that John ate.’
- c. [[John-i talli-nun] kes]-ul moll-ass-ta
 John-NOM run-MOD KES-ACC not.know-PAST-DECL
 ‘(We) didn’t know that John was running.’

The noun *kes* in (32a) combines with a determiner (a specifier) whereas in (32b) it combines with a relative clause. In both examples, *kes* has a meaning like ‘thing’. In (32c) it combines with a complete clause, referring to the event denoted by that clause.¹⁹ So the grammar needs to assume at least the following two types of *kes*, one as a common noun referring to a non-human entity and one as a ‘bound noun’, referring to an event denoted by its sentential complement, represented as follows:

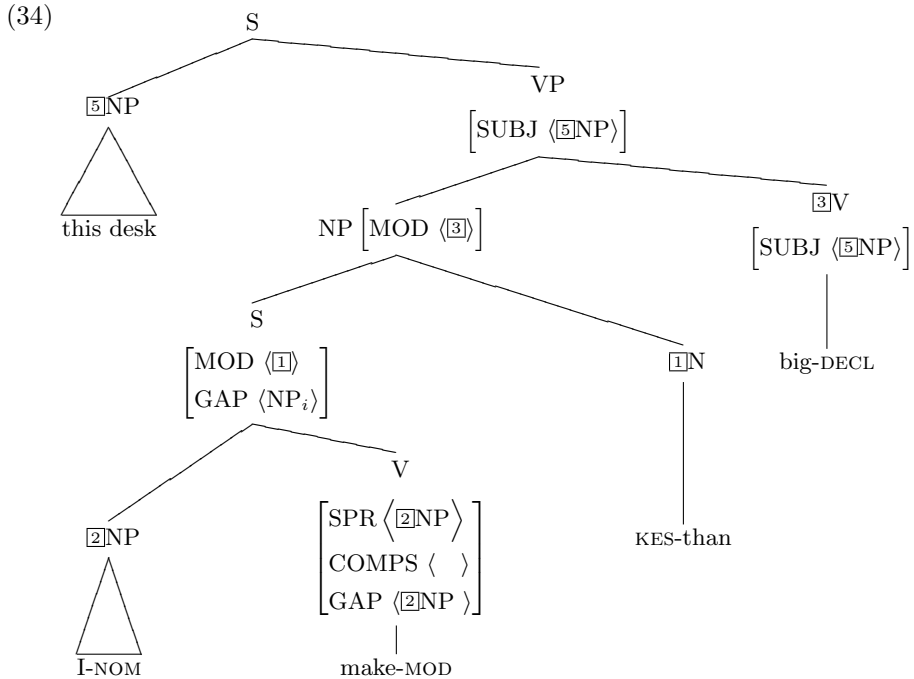
¹⁸ Just like relative clauses, comparative clauses also observe island constraints.

¹⁹ See Kim (2008) and Kim and Sells (2007) for an account of *kes* and comparison with traditional analyses.

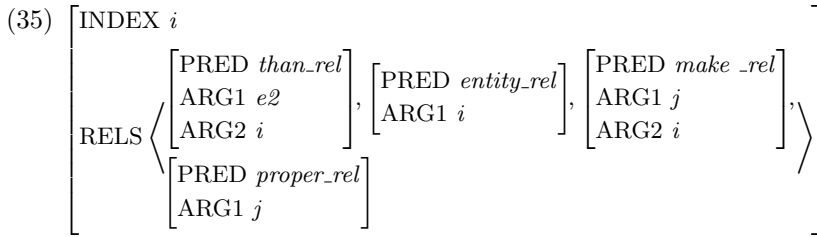
- (33)
- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a.</p> $\left[\begin{array}{l} cn \\ \langle kes \rangle \\ \text{SYN} \left[\begin{array}{l} \text{HEAD} \mid \text{POS } noun \\ \text{VAL} \mid \text{SPR } \langle \text{DetP} \rangle \end{array} \right] \\ \text{SEM} \left[\begin{array}{l} \text{IND } i \\ \text{RELS} \left\langle \left[\begin{array}{l} \text{PRED } entity_rel \\ \text{ARG0 } i \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$ | <p>b.</p> $\left[\begin{array}{l} bn \\ \langle kes \rangle \\ \text{SYN} \left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} \text{POS } noun \\ \text{NFORM } kes \end{array} \right] \\ \text{VAL} \mid \text{COMPS} \left\langle \text{S} \left[\begin{array}{l} \text{GAP } \langle \rangle \rangle \\ \text{IND } e1 \end{array} \right] \right\rangle \end{array} \right] \\ \text{SEM} \mid \text{IND } e1 \end{array} \right]$ |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The lexical entry (33a) specifies that *kes*, requiring a specifier, refers to an individual of some unspecified type *entity* and generates examples like (32a) and (32b). Different from the common noun use, the lexical entry in (33b) specifies that *kes* is a bound noun, selecting a saturated clause. In this case, its IND value is identified with that of the complement, ensuring that *kes* denotes an event as in (32c). Here the argument of the predicate ‘not know’ is the sentence introduced by *kes*, which functions something like the English complementizer *that*.

Given these lexical entries, let us look at the structure of (29a):



The comparative marker *pota* is attached to the noun *kes*, heading the complex NP, and combining with the clause with a gapped object. Like a relative clause, the head noun is coindexed with the gapped object of *mantu-n* ‘make-MOD’. The meaning of the VP-internal NP in (34) is as follows:

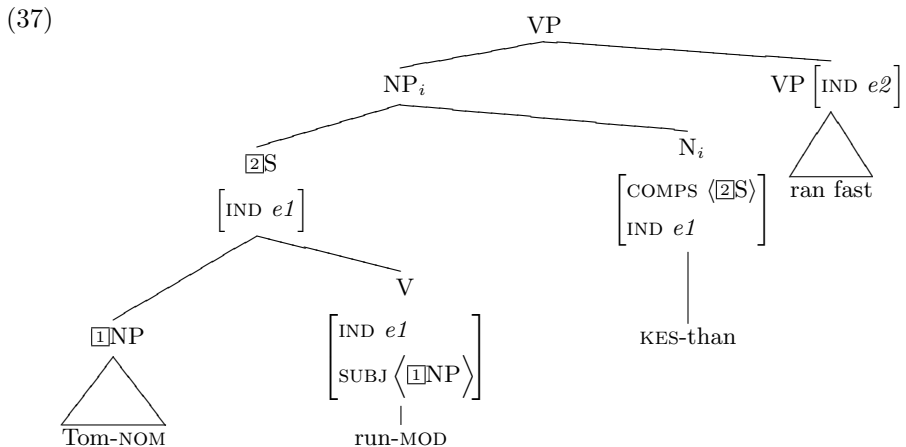


This semantic representation simply means that there is an individual ‘j’ which refers to the speaker. This index value is linked to the ARG1 value of ‘entity’ coming from *kes*. The suffix *pota* also adds the *than_rel* semantic relation whose arguments are linked to the semantics of the noun *kes* (*i*) and the main predicate *big* (*e2*), respectively.

There are also cases where the standard comparative clause does not contain any gap even though it is nominalized with the noun *kes* or *ki*, as in (36):

- (36) a. John-un [Tom-i talli-n kes]-pota ppalli talli-ess-ta
 John-TOP Tom-NOM run-MOD KES-than fast run-PAST-DECL
 ‘John ran faster than Tom did.’
- b. [wuli-ka ka-nun kes]-i [haksayng-tul-i o-nun kes-pota]
 we-NOM go-MOD KES-NOM student-PL-NOM come-MOD KES-than
 phyenha-ta
 convenient-DECL
 ‘For us to go is more convenient than for students to come.’

kes can be linked to either an individual or an event, and its lexical specification allows examples like (36a) with no syntactic gap, which have this structure:



kes here is a bound noun selecting a sentence and is linked to its event variable (*e1*). As can be seen from the *than_rel* in the higher NP’s RELS value, we can observe that the sentence compares the degree of these two events: the event ‘Tom runs *d*-fast’ and the one ‘John runs *d*’-fast’:

$$(38) \left[\begin{array}{l} \text{INDEX } i \\ \text{RELS } \left\langle \left[\begin{array}{l} \text{PRED } \textit{than_rel} \\ \text{ARG1 } e2 \\ \text{ARG2 } e1 \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{one_rel} \\ \text{ARG1 } e1 \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{ran_rel} \\ \text{ARG0 } e1 \\ \text{ARG1 } \textit{tom} \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{ran_rel} \\ \text{ARG0 } e2 \\ \text{ARG1 } \textit{john} \end{array} \right] \right\rangle \end{array} \right]$$

As represented in the MRS representation here, the *one_rel* is identified with the event of Tom’s running (e1), which is possible because *kes* can be linked to the event of its sentential complement. This event relation is in a comparative *that_rel* with the event of John’s running (e2).

2.3 Standard Marker as a Comparative Marker

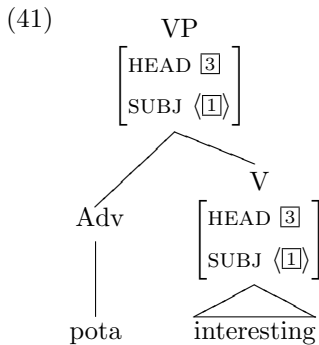
We observed earlier that the standard marker *pota* can also be used as an independent word functioning as a comparative marker, the examples reproduced here:

- (39) a. *pota manh-un haksayng-tul-i ku swuep-ul tul-ess-ta*
 more many student-PL-NOM the class-ACC listen-PAST-DECL
 ‘More students took the class.’
- b. *wuli-ka sayngkakha-yess-ten kes-pota pota caymi-iss-ta*
 we-NOM think-PAST-MOD KES-than more interesting-be-DECL
 ‘It was more interesting than we thought.’

In the cases discussed above, *XP-pota* is a standard marker, whereas here the adverb *pota* is a comparative marker meaning ‘more’. We propose a simple lexical entry for this adverb:

$$(40) \left[\begin{array}{l} \textit{adv} \\ \langle \textit{pota} \rangle \\ \text{SYN } \left[\begin{array}{l} \text{HEAD | POS } \textit{adv} \\ \text{VAL | MOD } \langle \left[\text{IND } \boxed{1} \right] \rangle \end{array} \right] \\ \text{SEM } \left[\begin{array}{l} \text{IND } e4 \\ \text{RELS } \left\langle \left[\begin{array}{l} \text{PRED } \textit{more_rel} \\ \text{ARG0 } e4 \\ \text{ARG1 } \boxed{1} \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$$

As shown above in (11), the comparative marker *pota* can modify an AP, a VP, or even an NP. Having a MOD value allows *pota* to combine with any phrase. This adverbial treatment assigns a simple structure like the following:



With different lexical entries for *pota*, our analysis can extend to examples like (39b) where two different *pota* expressions occur.

3. Conclusion

We have seen that there are two main types of comparatives: phrasal and clausal comparatives. In analyzing phrasal comparatives, we assume that the NP-*pota* can function both as a coordination-like phrase and a VP-modifier. Clausal comparatives also have two subtypes: gapped and gapless; they are NPs headed by the noun *kes*, and *kes* takes its referent either as an individual (gapped comparative) or an event (gapless comparative).

Given these basic assumptions, we have built a constraint-based grammar for Korean comparative constructions. The grammar we have developed here is in a typed-feature structure system with well-defined constraints, and eventually aims to work with real-world data. This analysis allows us to build proper syntactic and enriched semantic representations for Korean phrasal and clausal comparatives.

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