

# A Phrasal Analysis of Korean Comparatives\*

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Comparatives in many languages are canonically classified into phrasal and clausal types, but each language employs its own morphological and syntactic ways to express these. Even though Korean also appears to have both phrasal and clausal types, there are empirical reasons to doubt this dual classification, for this language. This paper raises two basic questions. First, should we treat phrasal comparatives and clausal comparatives in a uniform way as suggested for English in previous literature? And second, does the language have 'clausal comparatives' syntactically or semantically at all? In answering these two questions, the paper shows that Korean phrasal comparatives are not derived from clausal sources, and even its clausal comparatives are nominals headed by the formal pronoun *kes*. Using Kennedy's (2007) distinction between individual and degree comparison for typological variation in comparatives, we suggest that Korean comparatives involve only individual comparison in which orderings between two objects are expressed only by individuals. This is different from English, which has both individual and degree standards.

*Keywords:* phrasal comparative, clausal comparative, free-relative, reduction, direct, comparative deletion, comparative ellipsis

## 1. Introduction

Every language has a mode of establishing orderings among objects but its own way of expressing comparison between two objects or events on a single scale. The prototypical comparative construction has at least five parameters, as

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\* We thank four anonymous reviewers of this journal for critical comments and suggestions. Our thanks also go to Hyon-Sook Choe, Toshiko Oda, and So-young Park for comments and suggestions. This work was supported by the Korea Research Foundation (Grant No. KRF-2009-32A-A00065).

represented in the following English example:

(1) Parameters in comparative constructions:

This book is more interesting than that one.  
 COMPAREE INDEX PARAMETER MARKER STANDARD

As shown here, the main elements in the comparative construction are the two entities being compared and the property in terms of which they are compared. The two entities are first the target of comparison, *this book*, which is being compared against the second, the 'standard of comparison', *that one*, which the target is being compared against. The property is the parameter of comparison represented as a gradable predicate such as *interesting* here. The canonical comparative also includes the index of comparison and the standard marker, expressed as *-er/more* and *than* in English.

In this paper, we first sketch the basic properties of the English phrasal and clausal types. In so doing, we evaluate what we call the 'reduction' and 'direct' analyses which have been proposed to capture the systematic relationships between the two types. Following that, we discuss whether Korean comparatives behave like the English ones, and review differences from English. In particular, we examine if Korean phrasal comparatives can be derived from clausal sources and whether there really are clausal comparatives in Korean. Based on our observations, we try to address what underlies the variation between the two languages and what this variation implies for each grammar.

## 2. Main Differences between English and Korean Comparatives

English comparatives can be descriptively classified into clausal and phrasal types (Bresnan 1973, 1974, Huddleston and Pullum 2002, Corver 2005, Kennedy 2007, Bhatt and Takahashi 2008, among others):

- (2) a. John bought a more expensive car than Bill did \_\_\_\_.  
 b. John runs faster than Bill runs \_\_\_\_.  
 c. Mary plays the guitar better than John plays the guitar \_\_\_\_.  
 d. More people live in Russia than \_\_\_\_ live in the US.
- (3) a. John bought a more expensive car than Bill.  
 b. John runs faster than Bill.  
 c. Mary plays the guitar better than John.  
 d. More people live in Russia than in the US.

The clausal comparatives in (2) are comparatives in which the complement of the standard marker *than* displays clausal syntax. The standard clause here consists of all the usual elements found in a clause except for the gap corresponding to the comparative operator (Corver 2005). Phrasal comparatives in (3), on the other hand, contain only a single phrase following the standard marker.

Korean also appears to have two main types of comparatives: phrasal and clausal (Park 2009, Kim and Sells 2009). Phrasal comparatives involve two nominals whereas clausal ones have core clausal properties, as exemplified in (4):

- (4) 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-PST-DECL  
 'The younger brother read more than his older brother did.'

In the phrasal comparative (4a), 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 *phyenlihata* 'convenient'. Unlike this phrasal comparative, the standard of comparison in (4b) is clausal, actually a gapped clause.<sup>1</sup> The gapped element in the clause functions as the object of *read* and the clause precedes the noun *kes*. This noun can be replaced by a canonical noun like *chayk* 'book'. All of this indicates that the *kes* functions as the head of a free relative clause.<sup>2</sup>

<sup>1</sup> As a reviewer points out, within our free-relative clause analysis, a better interpretation of this sentence would be 'The younger brother read more than what his brother read.'

<sup>2</sup> In a language like Greek, the standard markers for phrasal and clausal comparative are different (Merchant 2009):

- (i) a. I Maria pezi kiθara kalitera apo ton Gianni.  
 the Maria.NOM plays guitar better than the Giannis.ACC  
 'Maria plays the guitar better than Giannis.'
- b. I Maria pezi kiθara kalitera ap'oti pezi kiθara o Gianni.  
 the Maria.NOM plays guitar better than plays guitar the Giannis.NOM  
 'Maria plays the guitar better than Giannis plays the guitar.'

As illustrated here, the phrasal comparative marker is *apo* whereas the clausal comparative is

Japanese is similar in this respect but displays one clear difference from Korean. As noted in Shimoyama (2008) and others, the nominalizer *no* in Japanese is optional, thus allowing both plain clausal-complements and *no*-NP complements (cf. Beck et al. 2004, Oda 2008, Sudo 2009):

- (5) a. Hanako-wa [Taroo-ga katta]-yori takai hon-o katta  
 Hanako-TPC Taro-NOM bought-than expensive book-ACC bought  
 'Hanako bought a more expensive book than Taro did.'
- b. Hanako-wa [[Taroo-ga katta]-no]-yori takai hon-o  
 Hanako-TPC Taro-NOM bought-NMLZ-than expensive book-ACC  
 katta  
 bought  
 'Hanako bought a more expensive book than what Taro bought.'

Korean does not allow a plain clausal complement as the complement of *pota*:

- (6) \*John-un [Mary-ka sa-ss-ta]-pota pissa-n chayk-ul  
 John-TPC Mary-NOM buy-PST-DECL-than expensive-MOD book-ACC  
 sa-ss-ta  
 buy-PST-DECL  
 '(Int.) John bought a more expensive book than Mary did.'

This difference between the two languages seems to be related to the grammatical properties of the standard marker *pota*, which is strictly postpositional, attached only to an NP (cf. Chae 1998, Kim and Sells 2009), and not to adjectives or clauses:

- (7) a. \*John-i yeppukey-pota sinnakey nolayha-yess-ta  
 John-NOM beautifully-than joyfully sing-PST-DECL  
 '(Int.)~John sang joyfully rather than beautifully.'
- b. \*John-i [wuli-ka sayngkakha-yess-ta]-pota ttokttokha-ta  
 John-NOM we-NOM think-PST-DECL-than smart-DECL  
 '(Int.) John is smarter than we thought'.

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*ap-oti* derived from the marker *apo* and the free relative head *ti*. Korean is similar in that the phrasal marker is *pota* while the clausal one is *kes* plus the postposition. This *kes* also heads a free relative clause in other contexts.

Hence, with the standard marker *pota*, the bound noun *kes* is obligatory in the Korean clause-like comparative.<sup>3</sup>

Another obvious difference between English and Korean comes from the relative status of the comparative and standard marker. In English, the standard expression ‘*than* + XP’ need not be explicitly stated, given a proper context.

- (8) a. John is more intelligent (than Bill).  
 b. John is happier now (than before).

In Korean too, the standard can be optional with a proper context:

- (9) a. John-i (Bill-pota) te ttoktokha-ta  
 John-NOM Bill-than more smart-DECL  
 ‘John is smarter than Bill.  
 b. John-i cikum (yeysnal-pota) te hayngpokha-ta.  
 John-NOM now past-than more happy-DECL  
 ‘John is happier now than before.’

Now unlike the standard expression, the comparative marker *more/er* is obligatory in English whereas the Korean counterpart *te* ‘more’ is optional, in both phrasal and clausal comparatives:

- (10) a. John is \*(more) intelligent than Bill.  
 b. John-i Bill-pota (te) ttoktokha-ta  
 John-NOM Bill-than more smart-DECL

Even if the comparative marker in Korean is in principle optional, there are cases where its presence is obligatory:

- (11) a. pyongso-pota samsip pwun-i \*(te) kelli-ess-ta

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<sup>3</sup> Even in meta-linguistic comparatives, the complement of *pota* must be nominal (here with the nominalizer *ki*):

- (i) a. ku-nun [yoksim-i manh-ta-ki]-pota pwucilenha-ta  
 he-TPC greed-NOM many-DECL-NMLZ-than diligent-DECL  
 ‘He is more diligent than greedy.’  
 b. \*ku-nun [chechenhi-pota] yelsimhi talli-ess-ta  
 he-TPC slowly-than diligently run-PAST-DECL  
 ‘(Int.)~He ran diligently rather than slowly.’

- normal-than 30 minutes-NOM \*(more) take-PST-DECL  
 'It took 30 more minutes than usual.'  
 b. nam-pota \*(te) mek-ess-ta  
 others-than \*(more) eat-PST-DECL  
 '(He) ate more than others.'

This necessity is related to the lexical properties of the predicate modified by the comparative expression, as we can see from examples with a copula and a predicate nominal:

- (12) 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 Korean-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 an inherently non-gradable predicate to have the comparative marker *te* 'more' as an obligatory element, in order for it to be interpreted correctly. We believe that this semantic constraint explains when *te* is obligatory or not, rather than any strict syntactic conditions (cf. Choe 2008, 737-740).

Another difference can be observed in the sub-comparative construction, which can compare the degrees to which different objects possess different properties. English allows predicative comparatives but not attributive ones (Kennedy and Merchant 2000, Corver 2005, Kennedy 2007):

- (13) a. John is taller than the bed is long.  
 b. \*John wrote a more interesting novel than Mary wrote a comic.

In Korean (just like Japanese), neither predicative nor attributive sub-comparatives are licensed (Park 2009, Kim and Sells 2009):

- (14) a. i chaykcang-un ce mwun-i nelp-un kes-pota noph-ta  
 this shelf-TPC that door-NOM wide-MOD KES-than tall-DECL  
 '(Int.) This shelf is taller than that door is wide.'

b\*John-un [Mary-ka sosel-ul ssu-n kes]-pota  
 John-TPC Mary-NOM novel-ACC write-MOD KES-than  
 caymiiss-nun swuphil-ul ssu-ass-ta  
 interesting-MOD essay-ACC write-PST-DECL  
 '(Int.) John wrote a more interesting essay than Mary wrote a novel.'

As seen in the English translation, the sub-comparative is possible in English, but Korean has to adopt a different structure, involving nominal scale terms as in (15):<sup>4</sup>

(15) ?i chaykcang-uy nophi-nun ce mwun-uy nepi-pota khu-ta  
 this shelf-GEN height-TPC that door-GEN width-than big-DECL  
 'This shelf's height is greater than that door's width.'

The lack of sub-comparatives in Korean is another difference from English.<sup>5</sup>

### 3. Reduction vs. Direct Analyses

Ever since Bresnan's (1973) pioneering work, clausal comparatives have been taken to undergo Comparative Deletion (CD), a rule which removes the gradable property from inside the standard expression:

(16) a. John is taller than Bill is  $\Delta$ . ( $\Delta$  = *d*-tall)  
 b. John read more books than Mary read  $\Delta$ . ( $\Delta$  = *d*-many books)

CD ensures that the compared element undergoes deletion in the comparative clause under 'identity' with the element in the main clause.

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<sup>4</sup> Even this example is less than perfect since the scale of height is different from that of width.

<sup>5</sup> Another intriguing property of Korean comparative constructions, quite frequent in real corpus data, is that the standard marker *pota* can also be used as a comparative expression, meaning *more*:

(i) a. pota manhun haksayng-tul-i ku swuep-ul tul-ess-ta  
 more many student-PL-NOM the class-ACC listen-PST-DECL  
 'More students took the class.'  
 b. salamtul-un pota ancenhan kos-ulo ka-ass-ta  
 person-PL-TPC more safe-MOD place-to go-PST-DECL  
 'People went to a safer place.'

See Kim and Sells (2009) for further discussion.

Issues arise in dealing with clausal comparatives which are semantically equivalent to phrasal ones:

- (17) a. Clausal: John is taller than Bill is.  
 b. Phrasal: John is taller than Bill.

These two examples have a truth-conditional equivalence, and to capture this, two main approaches have been developed: ‘reduction’ analyses and ‘direct’ analyses. The reduction analysis maintains that all phrasal comparatives underlyingly have a full clausal structure and undergo a rule like Comparative Ellipsis (CE) indicated by the strikeout lines here (Heim 1985, Hazout 1995, Lechner 2001, Merchant 2009, Pancheva 2006, among others):

- (18) a. John is taller than Bill is  $\Delta$ . ( $\Delta = d$ -tall)  
 b. John read more books than Mary ~~read~~  $\Delta$ . ( $\Delta = d$ -many books)

Within the reduction analysis, the standard expression of *than* is derived from a clause and the comparative marker selects two degree predicates as its arguments (cf. Bhatt and Takahashi 2007):

- (19) a.  $\text{more}(P)(Q) \leftrightarrow \exists d[Q(d) \wedge \neg P(d)]$  ( $P$  and  $Q$  are degree predicates)  
 b.  $\text{more}[\lambda d.\text{Bill is } d\text{-tall}][\lambda d.\text{John is } d\text{-tall}]$  (for (18a))

An alternative view is that phrasal comparatives do not involve ellipsis or deletion at all, but are base-generated (Napoli 1983, Hankamer 1973, Pinkham 1997, Kennedy 1997, 2007, etc). In this ‘direct analysis’, the complement of *than* denotes an individual, and the degree head combines directly with the individual DP argument:<sup>6</sup>

- (20) a.  $\text{-er}(x)(P)(Y) \leftrightarrow \exists d[P(y,d) \wedge \neg P(x,d)]$   
 b.  $\text{more}[\text{Bill}][\lambda d.\lambda x.[x \text{ is } d\text{-tall}]][\text{John}]$  (for (18a))

The same issue arises in Korean:

- (21) a. *yenge-pota hankwuke-ka elyep-ta*

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<sup>6</sup> Bhatt and Takahashi (2007), reflecting the difference in the number of arguments selected by the comparative marker, call the reduced analysis ‘2-place’ *-er* and the direct analysis ‘3-place’ *-er’*.

- English-than Korean-NOM difficult-DECL  
 ‘Korean is more difficult than English.’
- b. Bill-pota John-un chayk-ul te cohaha-n-ta  
 Bill-than John-TPC book-ACC more like-PROC-DECL  
 ‘John likes books more than Bill does.’

The semantics of these two will be roughly the following, on the reduction analysis, with ellipses included:

- (22) a. more[ $\lambda d$  Korean is  $d$ -difficult][ $\lambda d$  English is  ~~$d$ -difficult~~]  
 b. more[ $\lambda d$  John likes books  $d$ -much][ $\lambda d$  Bill ~~likes books  $d$ -much~~]

Within the reduction analysis, the complement of *pota* is thus derived from a clause and it selects two degree predicates as its arguments: the extent of the difficulty of Korean and the extent of the difficulty of English, for example (cf. Lee 2002, Park 2009). Within the direct analysis, there would be no such deletion or ellipsis process (cf. Kim and Sells 2009). The comparative *more* will select three arguments: English, Korean, and the extent of difficulty.

- (23) Korean [[than English] more[ $\lambda d$ .  $\lambda x$ . [ $x$  is  $d$ -difficult]]]

In broad summary, semantic arguments and uniformity considerations tend to support reduction or clausal analyses of phrasal comparatives, while syntactic facts tend to favor direct analyses. In what follows, we will examine these two types of analysis for English and Korean comparatives.

## 4. English Comparatives

### 4.1. Arguments for Reduction Analyses

As noted above, the reduction analysis basically holds that phrasal comparatives are underlyingly clausal ones, with a strong motivation from the semantics (Heim 1985, Hackl 2000, Lechner 2001, among others). This one-to-one mapping between syntax and semantics can easily account for the ambiguity in examples like the following:

- (24) John phoned Bill more often than Tom.

- a. John phoned Bill more often than Tom ~~phoned Bill~~ [~~y much often~~].  
 b. John phoned Bill more often than ~~John phoned~~ Tom [~~y much often~~].

As indicated here, the meaning difference hinges on what kind of expressions are reduced through Comparative Deletion (CD) and Comparative Ellipsis (CE).

The clausal properties of phrasal comparatives can be also found in the nominative case marking on the standard expression:

- (25) a. Bob is more generous than she is [~~d-generous~~].  
 b. Bob did it more quickly than he did it [~~d-quickly~~].

In addition, as noted in Huddleston and Pullum (2002), the range of possible phrases acting as the standard also supports the clausal analysis:

- (26) a. I'm more confident that Kim will support us than I'm [~~d-confident~~  
 [that Pat will] support us.  
 b. It is more important to do it well than it is [~~d-important~~] [to do it quickly].

Considering that the CP or infinitival VP here cannot function as a complement of a preposition, it is more reasonable to assume that they are licensed by the main clause elements *confident* or *important*.

Possible remnant expressions in the standard expression also can support a reduced analysis. Consider the following (cf. Bhatt and Takahashi 2007):

- (27) a. John spoke more vehemently against Mary than Tom spoke  
 [~~d-vehemently~~] against Jane.  
 b. John met Mary more often in the classroom than Bill met ~~Mary~~  
 [~~d-often~~] in the library.

The expressions left out in the standard do not form a constituent. The direct analysis in which *than* is required to select one constituent does not predict such remnant expressions as the standard. A natural way to account for these seems to assume a clausal source as illustrated here.

As pointed out by Bhatt and Takahashi (2008b), binding facts also support reduced analyses. For example, consider the following contrast:

- (28) a. \*More people talked to him<sub>i</sub> about Sally than to Peter's sister.

b. More people talked to Sally about him<sub>i</sub> than to Peter<sub>i</sub>'s sister.

Under the reduction analysis, the sources for each of these two would include sub-expressions something like the following:

- (29) a. \*than  $\lambda d$  *d*-many people talked to him<sub>i</sub> about Peter<sub>i</sub>'s sister.  
 b. than  $\lambda d$  *d*-many people talked to Peter<sub>i</sub>'s sister's about him<sub>i</sub>.

The source (29a) is ruled out since the pronoun *him* c-commands *Peter*, violating Condition C of the Binding Theory. The reduction analysis captures the contrast in the examples.

#### 4.2. Arguments for Direct Analyses

The reduction analysis maintains that phrasal comparatives are systematically related to a clausal source via CD and CE. However, some empirical data goes in the other direction and supports the direct analysis in which the standard-expression is base-generated, whose supporting arguments we will review here (Hankamer 1973, Napoli 1983, Hoeksema 1984, Heim 1985, Kennedy 1999, 2007, among others).

For example, there are many cases which lack a well-formed underlying clausal source for phrasal comparatives. Consider the following:

- (30) a. John is older than me/her.  
 b. \*John is older than me is.

Accusative case appears in the phrasal standard but nominative case in the clausal, implying that we need to distinguish the two different types of comparatives.

It is not difficult to find cases which lack a clausal source:

- (31) a. Mary ran faster than the world record.  
 b. \*Mary ran faster than the world record ran.  
 (32) a. To be taller than John would be quite amazing.  
 b. To be taller than John to be would be quite amazing.

For such examples, it is difficult to posit the possible source structures. In addition, we can observe that there are putative underlying sources that cannot

be reduced to well-formed phrasal comparatives, either:

- (33) a. \*There couldn't have been any more people than there.  
 b. There couldn't have been any more people than there were.

Even if we adopt a reduction analysis, we would need to posit additional constraints on what can be reduced.

It is also possible to form a *wh*-question on the NP complement of *than*, but not from within the clausal structure:

- (34) a. Who is John taller than?  
 b. Who is John taller than is?

We can neither construct a source sentence nor assume that the *wh*-phrase is in a different clause from the matrix one. Similar to this kind of *wh*-question, the standard expression as a whole or the complement alone can be fronted (Huddleston and Pullum 2002):

- (35) a. It was decided by Judge Darwin, [than whom] no one could be more impartial \_\_\_\_.  
 b. [How many of them] do you regard yourself as better than \_\_\_\_.  
 c. Lee doesn't know [who] Kim is older [than \_\_\_\_].

Considering that fronted elements are canonically phrases rather than clauses, such examples appear to undermine reduction analyses.

Reflexives as well as negative polarity items (NPIs) in the standard expression also make it difficult to posit clausal sources for phrasal comparatives:

- (36) a. Kim is older than himself.  
 b. \*Kim is older than [<sub>CP?</sub> himself is].  
 (37) a. John is taller than no one.  
 c. \*John is taller than no one is.

Once again, it is impossible to add a verb after or before the reflexive or an NPI. This implies that no underlying clause exists for such phrasal comparatives, and the NP complement of the standard marker *than* is a direct dependent in the matrix clause (Hankamer 1973).

In sum, various pieces of evidence from English comparatives seem to

support both reduction and phrasal analyses. For example, the range of possible categories and nonconstituent elements in the standard expression indicate that it is linked to a clause either at a syntactic or semantic level. Meanwhile, the disparities between phrasal and clausal sources we have seen immediately above seem to support direct analyses in which there is no elliptical element in phrasal comparatives.<sup>7</sup>

## 5. Korean Comparatives

### 5.1. Are Phrasal Comparatives Reduced Clauses?

Just like English, the semantics of Korean phrasal comparatives may also support the reduction analysis at first glance (cf. Lee 2002, Choe 2008, Park 2009):

- (38) John-pota Tom-i khu-ta  
 John-than Tom-NOM tall-DECL  
 'Tom is taller than John.'

Even though the standard phrase here is just an NP *John*, the natural semantics is of the form 'Tom is x-much tall, John is y-much tall, and x is on the higher scale than y'. Considering this meaning, it appears to be rather intuitive to assume that (38) is derived from a clausal source like (39):

- (39) [John-NOM ~~t-much tall~~=DECL-than] Tom-NOM tall-DECL

Note that if we apply English-like CD in Korean, we need an additional rule that deletes the nominative or accusative case, since no structural case is allowed as the complement of *pota*. However, the standard NP expression can bear an optional oblique case marker (cf. Jhang 2001, Kim and Sells 2009):

- (40) a. John-un Mary-(eykey)-pota Jane-eykey te manhun  
 John-TPC Mary-DAT-than Jane-DAT more many  
 senmwul-ul ponay-ss-ta  
 present-ACC send-PAST-DECL  
 'John sent more presents to Jane than to Mary.'

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<sup>7</sup> As noted by a reviewer, the arguments for the direct analysis have been counter-argued by a 'small clause' analysis of the phrasal comparatives (Lechner 2004 and Pancheva 2006). However, we believe that this still does not account for their non-clausal properties.

- b. cip-eyse-pota tosekwan-eyse kongpwu-ka te cal  
 home-LOC-than library-LOC study-NOM more well  
 toy-n-ta  
 become-PROC-DECL  
 '(I) can study better at the library than at home.'

Locative or dative are possible cases in the complement of *pota*, unlike nominative or accusative structural case. The oblique (semantic) case on the standard expression may support a reduction analysis. However, note that when the standard phrase is locative, the possibility of scrambling within the clause disappears (Kim and Sells 2009):<sup>8</sup>

- (41) a. I os-un paykhwacem-eyse-pota sicang-eyse  
 the clothes-TPC dept.store-LOC-than market-LOC  
 cal pali-n-ta.  
 well sell-PROC-DECL  
 'The clothes sell well at the department store rather than at the market.'  
 b. ??/\*i os-un sicang-eyse paykhwacem-eyse-pota cal palinta.  
 c. ??/\*i os-un sicang-eyse paykhwacem-pota cal palinta.

This means that the locative standard phrase *paykhwacem-eyse-pota* 'department.store-at -than' and the following compared phrase need to be in a specific linear order (at least for some speakers). As suggested by Bhatt and Takahasi (2008b), constituent ordering or precedence constraints can provide support for the direct analysis since these constraints mean that there is a configuration in which the comparative marker combines with two individual arguments and a predicate of individuals and degrees.

As observed for Hindi by Bhatt and Takahasi (2008b), there is a precedence constraint between the standard and compared expression. One clear constraint in Korean is that the *pota*-phrase must precede the element compared with:<sup>9</sup>

<sup>8</sup> When there is an intervening element between the associate and the scrambled expression, these sentences become grammatical. As pointed by a reviewer, to some speakers the ordering in (41b) and (41c) is acceptable.

<sup>9</sup> As a reviewer correctly pointed out, (42b) is better if we have the comparative marker *te manhi* 'more many' as in (i):

- (i) John-un caymiiss-nun chayk-ul Tom-pota te manhi ilk-ess-ta  
 John-TPC interesting-MOD book-ACC Tom-than more many read-PAST-DECL  
 'John read more interesting books than Tom did.'

- (42) a. John-un Tom-potacaymiiss-nun chayk-ul ilk-ess-ta  
 John-TPC Tom-thaninteresting-MOD book-ACC read-PAST-DECL  
 'John read more interesting books than Tom did.'
- b. \*John-un caymiiss-nun chayk-ul Tom-pota ilk-ess-ta  
 John-TPC interesting-MOD book-ACC Tom-than read-PAST-DECL

This contrast indicates that the *pota*-phrase cannot be scrambled freely. Also consider further examples:<sup>10</sup>

- (43) a. te manhun salamtul-i [sosel-pota] swuphil-ul ilk-ess-ta  
 more many people-NOM novel-than essay-ACC read-PAST-DECL  
 'More people read essays than novels.'
- b. [sosel-pota] swuphil-ul te manhun salamtul-ii lk-ess-ta  
 novel-than essay-ACC more many people-NOM read-PAST-DECL
- c. \*swuphil-ul [sosel-pota] te manhun salamtul-ii lk-ess-ta  
 essay-ACC novel-than more many people-NOM read-PAST-DECL
- d. \*swuphil-ul te manhun salamtul-i [sosel-pota] ilk-ess-ta  
 essay-ACC more many people-NOM novel-than read-PAST-DECL

This ordering restriction suggests that there should be a configuration where 'more' combines with two individuals. The most natural position is the standard and the compared parameter in adjacent positions.<sup>11</sup>

In addition, note that like English phrasal comparatives (cf. Napoli 1987), Korean phrasal comparatives also display coordination-like properties. But unlike English, Korean allows multiple standard phrases as long as they are syntactically identical and are adjacent (Kim and Sells 2009):

- (44) 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 than Chinese.'
- b. \*yenge-pota hankwuke-ka cwungkwuke-pota elyep-ta  
 English-than Korean-NOM Chinese-than difficult-DECL

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The point we are trying to make is that the NP-*pota* expression cannot be freely scrambled. A corpus search also reveals that it is hard to find examples with the ordering in which this standard expression immediately follows the associate NP. See Kim et al. (2010).

<sup>10</sup> As noted earlier, examples like (43c) again become much better when there is an intervening element.

<sup>11</sup> See Jhang (1994) for further discussion, and the observation of a similar ordering constraint.

Just like coordination conjuncts, we can notice here that multiple standard expressions are possible. In terms of semantics, as represented in the English translations, the two standards behave like a coordinate structure. Within the direct analysis in which two compared arguments can be combined directly, such a contrast can be easily predicted. However, if each standard expression is a clause, there might be difficulty to capture such a constraint.<sup>12</sup>

When there is more than one XP-*pota* phrase, the phrases must be adjacent, just like a coordination phrase with NP-*wa*:

- (45) a. \*yenge-pota hankwuke-ka cwungkwuke-pota elyep-ta  
           English-than Korean-NOM Chinese-than       difficult-DECL  
       b. yenge-wa hankwuke-ka cwungkwuke-wa elyep-ta  
           English-and Korean-NOM Chinese-and       difficult-DECL

This again indicates that XP-*pota* forms a constituent with the NP that follows it. The reduction analysis would not predict such a contrast, if each *pota*-phrase is reduced from a full clause, each identical to the others in the relevant respects, there would be no expected constraint on the ordering of the remnant phrases after reduction.

Facts of semantic ambiguity also seem at first glance to support the reduction analysis:

- (46) a. Tom-i John-pota Mary-lul te cacwu manna-ss-ta  
           Tom-NOM John-than Mary-ACC more often meet-PAST-DECL  
       b. Tom met Mary more often than he met John.  
       c. Tom met Mary more often than John did.

In such examples, the standard expression can be associated either with the subject or the object. A reduction analysis will easily predict such differences by deleting different elements within the source structures.

However, note that ambiguities do not always arise:<sup>13</sup>

<sup>12</sup> As a reviewer points out, for examples like (44a) one may assume a Right Node Raising analysis in which the subject *hankwuke-ka* 'Korean-NOM' and the predicate *elyepta* 'difficult' undergo rightward movement. This analysis, however, still does not explain the adjacency constraint shown in (45).

<sup>13</sup> This is also another difference from Japanese, where examples like (47a) are ambiguous. See Shimoyama (2008).

- (47) a. John-i Bill-pota te ttoktokha-n salam-ul chac-ass-ta  
 John-NOM Bill-than more smart-MOD person-ACC find-PAST-DECL  
 'John found a smarter person (who is smarter) than Bill.'  
 b. Bill-pota John-i te ttoktokha-n salam-ul chac-ass-ta  
 Bill-than John-NOM more smart-MOD person-ACC find-PAST-DECL  
 'John found a smarter person than Bill did.'

In (47a), 'Bill' can be associated only with the smarter person. To have the reading in which 'Bill' is associated with the subject, the *pota*-phrase must precede the subject.<sup>14</sup>

As we showed earlier, English comparatives allow multiple remnants, supporting the reduction analysis. However, remnants are in general not possible in Korean comparatives; most native speakers would find the following examples unacceptable:

- (48) a. John-un onul Bill-i ecey-pota te manhun  
 John-TPC today Bill-NOM yesterday-than more many  
 chayk-ul ilk-ess-ta  
 book-ACC read-PAST-DECL  
 'John read more books today than Bill yesterday.'  
 b. Mary-ka cip-eyse-pota John-i hakkyo-eyse te hayngpokha-ta  
 Mary-NOM home-LOC-than John-NOM school-LOC more happy-DECL  
 'John was happier at school than Mary was at home.'

The reduction analysis with the flexibility of eliding constituents would predict such examples are possible.<sup>15</sup>

There are also cases where it is hard to posit any possible clausal source, as noted in Kim et al. (2010):

<sup>14</sup> As pointed out by a reviewer, there are of course many cases where we have ambiguities when the standard expression follows the associate.

<sup>15</sup> As noted by Park (2009), Korean seems to allow remnants in some comparatives:

- (i) ?/??John-i Bill-eykey-pota Tom-i Mary-eykey te manhun senmwul-ul  
 John-NOM Bill-DAT-than Tom-NOM Mary-DAT more many present-ACC  
 ponay-ss-ta  
 send-PAST-DECL  
 'Tom sent more presents to Mary than John to Bill.'

Such examples are better than those in (48), but not acceptable to many speakers. The reasons for these different judgements are not clear to us at present.

- (49) a. *sensayngnim-uy aphima-ka Chelswu-pota pichna-ss-ta*  
 teacher-GEN forehead-NOM Chelswu-than shiny-PAST-DECL  
 'The teacher's forehead was more shiny than Chelswu's.'
- b. *tongsaying-uy khi-nun hyeng-pota khu-ta*  
 younger.brother-GEN height older.brother tall-DECL  
 'The younger brother is taller than the older brother.'

Examples like (49) are peculiar since the teacher's forehead is syntactically compared with not Chelswu's forehead, but just with Chelswu. This kind of comparison is not allowed in English:

- (50) a. \*The teacher's forehead is more shiny than Chelswu.  
 b. \*The younger brother's height is taller than the older brother.

Within a reduction analysis, this would mean deleting the head noun of the standard expression, as represented in the following rough LF form:

- (51) a. [the teacher's forehead-NOM [Chelswu's forehead-NOM shiny]-than shiny]

An ellipsis analysis necessarily involves a syntactic constituent, so such an example appears to undermine any reduction analysis based on ellipsis. As for deletion, it would depend on whether deletion of contiguous substrings which correspond to non-constituents is allowed.

There are more examples where no clausal sources can be posited, as in English:

- (52) a. *John-un seykyey kkilok-pota ppalli talli-ess-ta*  
 John-TPC world.record-than fast run-PAST-DECL  
 'John ran faster than the world record.'
- b. *John-i 170cm-pota khu-ta*  
 John-NOM 170cm-than tall-DECL  
 'John is taller than 170cm.'
- c. *John-un Mary-ka kwutwu-lul sin-ess-ul ttay-pota*  
 John-TPC Mary-NOM shoes-ACC wear-PAST-MOD time-than
- khe poi-n-ta*  
 tall look-PROC-DECL  
 'John looks taller than Mary when she wore high heels.'

For example, within a reduction analysis, the source sentence for the standard expression in (52a) would be something like the following, which is semantically anomalous:

- (53) seykey kkilok-i ppalli talli-ess-ta  
 world.record-NOM fast run-PAST-DECL  
 'The world record ran fast.'

In addition, also note that the phrasal comparative can have a different reading from its putative clausal source:

- (54) a. etten salam-un [ttwi-e ka-nun kes-pota] ppalli  
 Some people-TPC run-COMP go-MOD KES-than fast  
 kel-ess-ta  
 walk-PST-DECL  
 'Some people walked faster than they ran.'
- b. etten salam-un [etten salam-i ttwi-e ka-nun kes-pota]  
 some people-TPC some people-NOM run-COMP go-MOD KES-than  
 ppalli kel-ess-ta  
 fast walk-PST-DECL  
 '(Int.)~Some people walked faster than some people ran.'

If the phrasal comparative is derived from a clause, (54a) would have (54b) as its source, but the meanings are different. This indicates that we cannot assume phrasal comparatives are always derived from clausal sources.

In sum, there is no strong evidence indicating that phrasal comparatives must be derived from clausal sources. Even though semantic interpretations may motivate a clausal analyses in English, syntactic and even semantic factors undermine any reduction analysis for Korean phrasal comparatives.

## 5.2. Clausal Comparatives as Free Relatives

There is clear evidence that even the clause-like complement of the standard marker *pota* is a free relative NP headed by the 'formal noun' KES. Previous literature (e.g., Lee 2002, Jhang 2004, Park 2009) has assumed that *kes* is a complementizer introducing a CP. However, there is evidence that the outer structure is clearly nominal. First of all, the complement of *pota* patterns with other nominals and not with clauses:<sup>16</sup>

- (55) a. [Tom-i sa-n kes]-ul mek-ess-ta}  
 Tom-NOM buy-MOD KES-ACC eat-PAST-DECL  
 '(He) ate what Tom bought.'
- b. \*[Tom-i sa-n kes]-ko sayngkakhay-ss-ta  
 Tom-NOM buy-MOD KES-COMP think-PAST-DECL  
 '(He) thought what Tom bought.'
- c. John-un [Tom-i sa-n kes]-pota pissa-n  
 John-TPC Tom-NOM buy-MOD KES-than expensive-MOD  
 chayk-ul sa-ss-ta  
 book-ACC buy-PAST-DECL  
 'John bought a more expensive book than what Tom bought.'

As seen here the expression *Tom-i sa-n kes* 'the thing Tom bought' can be the object of the verb *eat* requiring an NP, but not the complement of the complementizer *ko* requiring a clause.

In addition, *kes* in clause-like comparatives can be replaced by a common noun as in (56a), and further be preceded by a determiner as in(56b):

- (56) a. John-un [Tom-i sa-n sakwa]-pota pissan kes-ul  
 John-TPC Tom-NOM buy-MOD apple-than expensive thing-ACC  
 sa-ss-ta  
 buy-PAST-DECL  
 'John bought a more expensive book than what Tom bought.'
- b. John-un [Tom-i sa-n ku kes]-pota pissan kes-ul  
 John-TPC Tom-NOM buy-MOD the thing-than expensive thing-ACC  
 sa-ss-ta  
 buy-PAST-DECL  
 'John bought a more expensive book than the one Tom bought.'

If *kes* in comparatives were simply a complementizer, this behavior would not be expected: no complementizer can be replaced by a common noun or combine with a determiner.

The functional noun *kes* canonically refers to a non-animate entity or an event. Consider three main environments where the expression *kes* appears (Kim and Sells 2007):

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<sup>16</sup> This is another difference from Japanese comparatives, which allow plain clauses to be the complement of *yori* 'than'.

- (57) 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 (57a) combines with a determiner whereas in (57b) it combines with a relative clause. In both examples, *kes* has a meaning like ‘thing’. In (57c) it combines with a complete clause, referring to the event denoted by that clause. But note that *kes* cannot refer to a person:<sup>17</sup>

- (58) a. \*[[John-i manna-n] kes]-ul manna-ss-ta  
 John-NOM meet-MOD KES-ACC meet-PST-DECL  
 ‘(We) met the one (int.~person) John met.’
- b. ce \*kes/salam-i sacang-i-ta. (referring to a man passing by)  
 that thing/person-NOM president-COP-DECL  
 ‘That man is president (of the company).’

The restriction on what *kes* can refer to holds in comparative construction, too — it cannot refer to a person:<sup>18</sup>

- (59) a. \*John-un [Tom-i manna-n kes]-pota chakha-n  
 John-TPC Tom-NOM meet-MOD KES-than honest-MOD  
 salam-ul manna-ss-ta

<sup>17</sup> See Kim (2004), Kim (2008), and Kim and Sells (2007) for an account of *kes* and comparison with other analyses.

<sup>18</sup> To some speakers, a rather long example like (59a) is acceptable, possibly due to a processing effect. However, many non-linguist native speakers do not accept comparative examples where *kes* refers to a person. When the verb in the comparative clause is in the honorific form, the ungrammaticality becomes more clear:

- (i) \*[sensanygnim-i manna-si-n kes]-pota chakha-n pwun-ul manna-ss-ta  
 teacher-NOM meet-HON-MOD KES-than honest-MOD person(hon.)-ACC meet-PAST-DECL  
 ‘(I) met a more honest person than the teacher met.’

- man-ACC meet-PAST-DECL  
 'John met a more honest man than Tom met.'
- b. John-un [Tom-i manna-n salam]-pota chakha-n  
 John-TPC Tom-NOM meet-MOD man-than honest-MOD  
 salam-ul manna-ss-ta  
 man-ACC meet-PAST-DECL  
 'John met a more honest man than the man Tom met.'

To compare the degree of two events with human participants in Korean, the events themselves must be compared:

- (60) a. John-un [Mary-ka talli-n kes]-pota te ppalli  
 John-TPC Mary-NOM run-MOD KES-than more fast  
 kel-ess-ta  
 walk-PAST-DECL  
 'John walked faster than Mary ran.'
- 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.'

This is expected since Korean allows amount relative clauses, and *kes* here can be replaced by a noun like *cengto* 'degree', *sokto* 'speed', or *kil* 'way':

- (61) a. John-un [Mary-ka talli-n cengto/sokto]-pota te ppalli  
 John-TPC Mary-NOM run-MOD degree/speed-than more fast  
 kel-ess-ta  
 walk-PAST-DECL  
 'John walked faster than the speed that Mary ran.'
- b. [wuli-ka ka-nun kil]-i [haksayng-tul-i o-nun kes-pota]  
 we-NOM go-MOD way-NOM student-PL-NOM come-MOD KES-than  
 phyenha-ta  
 convenient-DECL  
 'For us to go is a more convenient way than for students to come.'

In fact all clause-like comparatives with no overt gap can be reinterpreted as amount relative clauses:

- (62) a. John-un [Bill-i ttokttokha-n kes]-pota te ttokttokha-ta  
 John-TPC Bill-NOM smart-MOD KES-than more smart-DECL  
 'John is smarter than Bill.'  
 b. John-un Bill-i sayngkakha-n kes-pota te ttokttokha-ta  
 John-TPC Bill-NOM think-MOD KES-than more smart-DECL  
 'John is smarter than Bill thought (he is).'

Such examples have been claimed to support reduction analyses (cf. Park 2009). However, as noted here, we can interpret such examples as individual-denoting comparatives on the observation that *kes* here can be replaced by an amount degree nominal like *cengto* 'degree'.

In addition, note the following:

- (63) a. John-un Bill-i mantu-n kes-pota te coh-un  
 John-TPC Bill-NOM make-MOD KES-than more good-MOD  
 cha-lul mantul-ess-ta  
 car-ACC make-PAST-DECL  
 b. John made a better car than what Bill made.  
 c. John made a better car than Bill did.

The reading in (63a) compares the car that John made and the one that Bill made whereas the reading in (63b) means that the comparison is of the degree of two events such that John made a car and Bill made a car. Note that the reduced and direct analysis would predict different readings. (63a) is the reading predicted by a direct analysis whereas (63b) is obtained from a reduced analysis. Unlike its Japanese counterpart (cf. Shimoyama 2008), the Korean sentence here only means (63a) which compares two individuals, rather than the degrees of two events. This supports a direct analysis.

The interpretations of comparatives involving intensional verbs also suggest that Korean phrasal comparatives behave like NPs.<sup>19</sup>

- (64) a. John-un [[Mary-ka wenha-nun] kes-pota] te manhun  
 John-TPC Mary-NOM want-MOD KES-than more many  
 chayk-ul sa-ss-ta  
 book-ACC buy-PAST-DECL

<sup>19</sup> See Shimoyama (2008) for Japanese, in which no-NP comparatives behave in the same manner as (64b).

- 'John bought more books than Mary wanted.'
- b. John-un [[Mary-ka ilk-ki wenha-nun] kes-pota] te  
 John-TPC Mary-NOM read-NMLZ want-MOD KES-than more  
 ki-n chayk-ul ilk-ess-ta  
 long-MOD book-ACC read-PAST-DECL  
 'John read a longer book than Mary wants to read.'

In a clausal analysis where the *pota* complement is a clause with abstraction of degree, only (64a) would have both *de re* and *de dicto* readings. That is, on the *de re* reading, there are specific books that Mary wanted to buy, whereas in the *de dicto* reading, Mary's desire was simply for book-buying. Two readings ought to be possible here since in the *pota* complement, the degree operator could interact with the verb 'want' in the elided source. Meanwhile, in such an analysis, (64b) would have only *de dicto* interpretation since there is no scope operator here. But note that in both examples here in Korean, we have only the *de re* reading; there is a specific book or set of books that Mary wants or Mary wants to read. This implies that there is no scope element within the clause-like standard expression, hence no (degree) operator movement assumed in a clausal or reduced analysis. The possibility of having only one reading in both examples is what the free relative clause analysis predicts where the standard is just an NP headed by *kes*.

## 6. Conclusion

Comparatives are canonically classified into phrasal and clausal ones, but each language varies. There have been several attempts to address variations of comparatives. For example, Beck et al.~(2004) maintain that languages are different according to whether they have binding of degree variables in syntax. Meanwhile, Kennedy (2005) holds that languages may differ in whether the comparative morphology selects for comparison a standard type *d* (degree comparison) or something of type *e* (individual comparison).

We have seen that various pieces of evidence to indicate that Korean phrasal comparatives do not have clausal sources. The standard NP expression functions as the direct argument of the standard marker *pota* 'than'. Further, the clausal comparatives are not really clausal, as they are nominals headed by the bound noun *kes*. This lead us to suggest that Korean has only phrasal comparatives.<sup>20</sup>

<sup>20</sup> See Lin (2009) for a similar claim for Chinese comparatives.

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Received: 2010. 1. 21

Revised: 2010. 3. 20

Accepted: 2010. 5. 10