The Dual Structure of Comparatives: Coordination and Subordination

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국문요약

비교구문의 적절한 구조에 대한 논의의 주된 관심은 비교첨사의 통사적인 특성연구에 있다. 특히 영어의 비교구문의 비교 문법형태소인 첨사 *than*은 전치사와 등위접속사의 특성을 동시에 갖고 있어 영어비교구문은 등위구조와 종속구조의 이중적인 구조를 지닌다는 주장이 제기되어 오고 있다. 이러한 영어비교구문에 대한 연구는 1970년대초 부터 활발히 연구가 되어 오고 있는 반면 한국어의 비교구문에 대한 연구는 이에 비해 놀랄정도로 빈약한 편이다.

본 논문에서는 Moltmann(1992)의 연구를 바탕으로 한국어의 비교구문도 등위구조와 종속구조를 동시에 지니고 있는 이중구조를 갖고 있음을 주장한다. 영어의 than에 해당하는 비교첨사 '보다'도 등위접속사와 후치사의 특성을 동시에 지니고 있는 증거를 제시한다. 2장에서는 NP절 비교구문에 적용되는 공백화변형(gapping)과 long-distance reflexive '자기'와 전역규칙(across-the-board principle)현상을, 그리고 NP구 비교구문에 적용되는 격일치(case matching)와 같은 네가지 증거를 제시하면서 한국어 비교구문이 등위구조의 특성을 지니고 있음을 보여준다. 3장에서는 NP구 비교구문에 적용되는 주제화(topicalization)/뒤섞기(scrambling)의 증거로 비교구문이 종속구조를 지니고 있음을 보여준다. 그리고 이러한 종속구조의 잠정적인 증거로서 long-distance reflexive '자기'와 관련된 비교구문의 문장에서의 NP절 비교문의 위치와 NP구 비교구문에서의 격비일치(case mismatching)을 제시한다.

1. Introduction[1]

There has been a long history of debate concerning the appropriate structure to

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[1] This paper is a slightly revised and abridged version of section 4.3 of my Ph.D. dissertation, which was published by Hankuk Publshers in 1995.

assign to English comparatives. The debate hinges on the status of the comparative particle *than*.[2] *Than* has a dual status: it behaves like both a preposition and a coordinator. Evidence for this claim has been given by Gazdar (1982), Goodall (1987), Hendriks (1991), Moltmann (1992), Napoli (1983), Pinkham (1982), and Ryan (1983). This body of evidence has led Moltmann (1992) to claim that comparatives involve two distinct, simultaneous syntactic structures.[3] Although I do not elaborate this theory here, what is meant by simultaneous is that a single structure can be assigned a dual structure. Hence, a comparative is simultaneously a coordinate structure (with *than* as a coordinating conjunction) and a subordinate structure (with *than* as a prepostion, paralleling subordinating prepositions such as *after* and *since*).

Following Moltmann (1992), I propose that Korean comparatives involve simultaneous coordinate and subordinate structures. The particle *pota* 'than' in both clausal and plain NP-comparative constructions is simultaneously a coordinating conjunction and a postposition.[4] To establish the dual nature of comparatives, first I discuss several ways comparatives behave like coordinate structures and unlike subordinate structures (section 2). Then I give several ways that comparatives are like subordinate structures rather than coordinate structures (section 3). I conclude that a simultaneous analysis, such as that proposed for English by Moltmann (1992), captures this dual nature of Korean comparatives.

2. Comparatives and Coordination

This section provides four types of evidence for regarding comparatives as coordinate structures. Y. Kim (1988) has demonstrated a number of phenomena that distinguish coordination from subordination. I take two of these—gapping and the long-distance reflexive *caki*—and apply them to clausal NP-comparatives. The third piece of evidence stems from an across-the-board (ATB) principle. I conclude that these phenomena

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[2] The syntactic status of a comparative particle than has also been treated as a complementizer for clausal comparatives and as a preposition for phrasal comparatives in Bresnan (1973), Chomsky (1977), Hankamer (1973), Hellan (1981), Ishii (1991), and others.

[3] Moltmann follows Goodall's (1987) view that one and the same sentence may have two distinct, simultaneous syntactic structures, a two-dimensional subordinate structure and a three-dimensional coordinate structure. Moltmann (1992) criticizes and develops his idea, and she proposes that both structures have to be semantically evaluated to yield part of the meaning of the sentence. See Moltmann (1992) for an extensive discussion.

[4] The differences and the similarities between Korean plain and clausal NP-comparatives are presented in Jhang (1994), based on two similarities (NP accessibility, island effects) and three differences (multiple comparatives, case, and word order effects). For a detailed discussion, see Jhang (1994: 141-167).

provide evidence for a coordination analysis of clausal NP-comparatives. The fourth evidence I discuss, based on case matching and mismatching effects, provides an argument for the coordinate structure of plain NP-comparatives.

2.1 Gapping

It has been pointed out by Hankamer (1973), Hendriks (1991), P. Huang (1977), and Kuno (1976), among others, that gapping is allowed in coordinate but not subordinate structures. Thus, gapping is regarded as a special case of coordination.[5],[6] This contrast is illustrated by the following English examples:

(1) John saw Mary and Bill Sue
(2) *John saw Mary because Bill Sue

That gapping is possible in coordinate but not subordinate structures also holds for Korean (cf. (3) vs. (4) and (5)):

(3) Chelswu-ka   chayk-ul   ∅(kuliko)   Yumi-ka   sinmwun-ul   ilk-ess-ta
    C.-NOM   book-ACC   and   Y.-NOM   newspaper-ACC   read-pst-ind
    'Chelsu read a book and Yumi a newspaper'
    (lit: 'Chelsu a book and Yumi read a newspaper')

(4) *Chelswu-ka   pap-ul   ∅ hwuey   Yumi-ka   sakwa-lul   mek-ess-ta
    C.-NOM   rice-ACC after   Y.-NOM   apple-ACC   eat-pst-ind
    '*Yumi ate an apple after Chelsu the rice'

(5) *Chelswu-ka   hakkyo-ey   ∅ hwuey   Yumi-ka   cip-ey   ka-ss-ta
    C.-NOM   school-LOC   after   Y.-NOM   house-LOC   go-pst-ind
    '*Yumi went home after Chelsu went to school'

In traditional terms, "gapping" is simply a deletion rule that deletes a repeated verb in conjoined clauses.[7] As expected for verb-final languages, Korean has backward

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5) Goodall (1987) and others argue that gapping is an instance of clausal coordination. Moltmann (1992) on the other hand argues that gapping is an instance of phrasal coordination. See Moltmann (1992) for a discussion.

6) In particular, I assume that Korean data are consistent with at least the two syntactic constraints on gapped constructions proposed by Kuno (1976: 318): (i) Gapping can apply only to parallel coordinate structures; (ii) gapped elements must include main clause verbs.

7) An alternative analysis of gapping is a pro-verb analysis, which means that the deleted verb is base-generated as a pro, not in the derivation of the deletion rule. However, it does not matter

gapping. Thus gapping in Korean can be schematized roughly as follows:[8]

(6)　　　 [NP1　　NP2　　 Vi]s　　 COD　　 [NP3　　 NP4 Vi]s

　→　 [NP1　　NP2　　 $\emptyset$i]s　　 (COD)　　 [NP3　　 NP4 Vi]s

Let us look at gapping in ditransitive clauses:

(7)　a.　John-i　Mary-eykey　sakwa-lul　cwu-ess-ta　kuliko
　　　　 J.NOM　M.-DAT　　apple-ACC　give-pst-ind　and
　　　　 Tom-to　Sue-eykey　sakwa-lul　cwu-ess-ta
　　　　 T.-also　S.-DAT　　apple-ACC　give-pst-ind
　　　　 'John gave apples to Mary and Tom also gave apples to Sue'

　　b.　John-i　Mary-eykey $\emptyset$ $\emptyset$ kuliko Tom-to　Sue-eykey　sakwa-lul　cwu-ess-ta
　　　　 J.-NOM　M.-DAT　　　 and　　T.-also　S.-DAT　　apple-ACC　give-pst-ind
　　　　 'John gave apples to Mary and Tom also to Sue'

　　c.　*John-i　Mary-$\emptyset$ $\emptyset$ $\emptyset$ kuliko Tom-to　Sue-eykey　sakwa-lul　cwu-ess-ta
　　　　 J.-NOM　M.　　　 and　　T.-also　S.-DAT　　apple-ACC　give-pst-ind
　　　　 'John gave apples to Mary and Tom also Sue'

In (7b), the object and verb of the first clause are deleted since they are identical to the object and verb of the second clause. Note that an I-case such as DAT in the first conjunct cannot be deleted even if the same case appears in the second conjunct, otherwise, the sentence will be ungrammatical, as in (7c).

　This prediction is born out as we see in other examples of I-case such as locative, instrument, comitative, etc. Here, due to the limit of space, I give an example illustrating locative case only:

(8)　a.　John-i　mikwuk-eyse kongpwuha-n-ta　kuliko　Mary-to
　　　　 J.-NOM　America-LOC study-pre-ind　and　　M.-also
　　　　 khanata-eyse　kongpwuha-n-ta

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which position we take, since the point is to see whether clausal NP-comparatives behave like Gapping with respect to the restriction on I-case deletability.

8) In (6), COD stands for a coordinator. When an affixal coordinator like -ko is used, it must be deleted together with the verb in the first conjunct. When a non-affixal coordinator like kuliko is used, on the other hand, it may remain after gapping. See Jhang (1994: 171-172) for examples of gapping with conjunct markers -ko and kuliko.

Canada-LOC   study-pre-ind
'John studies in America and Mary also studies in Canada'

    b.   *John-i mikwuk-eyse kuliko Mary-to khanata-eyse kongpwuha-n-ta
           J.-NOM America-LOC and   M.-also Canada-LOC   study-pre-ind
           'John studies in America and Mary also in Canada'

    c.   *John-i mikwuk-eyse kuliko Mary-to khanata-eyse kongpwuha-n-ta
           J.-NOM America-LOC and   M.-also Canada-LOC   study-pre-ind
           'John studies in America and Mary also in Canada'

The same restriction on case deletability in gapping holds for the affixal coordinator -*ko*. What the above data show is that gapping is possible (7-8b), but only if the I-case on the oblique NP is not omitted (cf. (*7-8c)).

Similar phenomena are also observed in clausal NP-comparatives. Each example (b) involves gapping derived from (a). Moreover, as in (c) of each example group (9)-(10), the same restriction on I-case deletability in gapping holds for clausal NP-comparatives.[9]

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9) At first glance, there appears to be a difference between coordination and clausal NP-comparatives in the process of gapping. One might think that clausal NP-comparatives allow gapping only when a nominal with I-case remains in the first conjunct, while coordination has no such restriction. However, this is not the case. Compare coordination (i), an affixal coordinator -*ko*, and (ii), a coordinator particle *kuliko*, with comparatives (iii), as in the below:

(i)   John-i   sakwa-lul   ∅, Mary-ka panana-lul   mek-ess-ta
       J.-NOM apple-ACC   M.-NOM banana-ACC eat-pst-ind
       'John ate apples and Mary bananas.'

(ii)   John-i   sakwa-lul   ∅   kuliko Mary-to panana-lul   mek-ess-ta
       J.-NOM apple-ACC   and   M.-also banana-ACC eat-pst-ind
       'John ate apples and Mary also bananas.'

(iii) *[John-i   Mary-ul   ∅]-pota Tom-i   Sue-lul   (te) cohaha-n-ta
       J.-NOM M.-ACC   -than T.-NOM S.-ACC   TE   like-pre-ind
       'Tom likes Sue more than John Mary.'

In contrast to gapping in coordinate structures ((i) and (ii)), gapping in comparatives (iii) is ungrammatical. However, the ungrammaticality of (iii) is accounted for by a general constraint on *pota*: it cannot appear immediately following an S-case such as the accusative in (iii). Note that in a comparative like (iv), where pota follows an I-case, the result is grammatical.

(iv) [John-i   sakwa-lul   kakey-eyse ∅]-pota Mary-ka   panana-lul
       J.-NOM apple-ACC   store-LOC-than   M.-NOM banana-ACC
       cip-eyse   (te) manhi mek-ess-ta
       house-LOC TE   many   eat-pst-ind
       'Mary ate more bananas in the house than John apples in the store.'

(9) a.　[John-i　Mary-eykey　__　cwu-n　　kes]-pota　　Tom-i
　　　　J.-NOM　M.-DAT　　　　give-adn　KES-than　　T.-NOM
　　　　Sue-eykey　(te)　manhun　sakwa-lul　cwu-ess-ta
　　　　S.-DAT　　TE　many　　apple-ACC　give-pst-ind
　　　　'Tom gave more apples to Sue than John gave to Mary'

　　b.　[John-i　Mary-eykey　∅]-pota Tom-i Sue-eykey (te) manhun
　　　　sakwa-lul cwu-ess-ta 'Tom gave more apples to Sue than John to Mary'

　　c.　*[John-i Mary-∅　∅]-pota Tom-i Sue-eykey (te) manhun sakwa-lul
　　　　cwu-ess-ta 'Tom gave more apples to Sue than John Mary'

(10) a.　[John-i　mikwuk-eyse　　__　　kongpwuha-nun kes]-pota
　　　　J.-NOM　America.-LOC　　　study-adn　　　　KES-than
　　　　Mary-ka　khanata-eyse　(te)　yelsimhi　kongpwuha-n-ta
　　　　M.-NOM　Canada-LOC　　TE　hard　　　study-pre-ind
　　　　'Mary studies in Canada harder than John studies in America'

　　b.　[John-i mikwuk-eyse　∅]-pota　Mary-ka khanata-eyse　(te)　yelsimhi
　　　　kongpwuha-n-ta
　　　　'Mary studies in Canada harder than John in America'

　　c.　*[John-i mikwuk-∅　∅]-pota　Mary-ka　khanata-eyse (te) yelsimhi
　　　　kongpwuha-n-ta
　　　　'*Mary studies in Canada harder than John America'

What the above discussion has shown is that gapping in comparatives parallels gapping in coordinate structures. Furthermore, gapping is not allowed in subordinate structures, as is generally assumed cross-linguistically. The absence of gapping in subordinate clauses in Korean is illustrated by (4)-(5) above. Thus, from the point of view of the gapping facts, comparatives behave like coordinate and not like subordinate structures.

2.2 Long-distance reflexive *caki*

The behaviour of the long-distance reflexive *caki* provides another piece of evidence for claiming that clausal NP-comparatives involve coordination.[10] The reflexive *caki*

can be used either locally (11a) or non-locally (11b):

(11) a. Chelswu$_i$-ka caki$_i$-lul   piphanha-yss-ta
        C.-NOM   self-ACC   criticize-pst-ind
        'Chelsu$_i$ criticized himself$_i$'

     b. Chelswu$_i$-ka [caki$_i$-ka Yumi-lul piphanha-yss-ta-ko]
        malha-yss-ta
        C.-NOM   self-NOM Y.-ACC criticize-pst-ind-comp say-pst-ind
        'Chelsu$_i$ said that self$_i$ criticized Yumi'

(11a) shows a local dependency between a reflexive *caki* and its antecedent Chelswu, whereas (11b) shows a non-local (or unbounded) dependency between them since caki is bound by an element outside its own clause. The latter is called the long-distance reflexive pronoun in the sense of Cole et al. (1990).

   The asymmetrical behaviour of the long-distance reflexive *caki* between coordination and subordination is discussed in Y. Kim (1988). *Caki* in a subordinate clause may be bound by its antecedent in the second conjunct or in the main clause. For example, subordinate clauses allow only backward reflexive pronominalization in the subject position, as shown in the following contrastive pairs of examples taken from Y. Kim (1988: 103-104):

(12) a. Caki$_i$-ka ci-nikka   Cheli$_i$-ka simswul-ul   pwuli-n-ta
        self-NOM be defeated-since C.-NOM crabbedness-ACC show-pre-ind
        'Cheli$_i$ is cross since he$_i$ was defeated'

     b. *Chelswu$_i$-ka ci-nikka   caki$_i$-ka   simswul-ul pwuli-n-ta
        C.-NOM be defeated-since self-NOM crabbedness-ACC show-pre-ind
        '*Hei is cross since Chelsui was defeated'

(13) a. Caki$_i$-ka   il-ul   kkuthnay-kose Toli$_i$-ka   tolawa-ss-ta
        self-NOM job-ACC finish-after   T.-NOM return-pst-ind
        'Toli returned after he finished his job'

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10) It is still controversial in the literature whether *caki* 'self' is a pronoun or an anaphor. See K. Park (1988) and others for the pronominal analysis and S. Park (1985) and others for the anaphor analysis.

b. *Toli$_i$-ka il-ul　　kkuthnay-kose caki$_i$-ka　　tolawa-ss-ta
　　T.-NOM　job-ACC finish-after　　self-NOM　return-pst-ind
　　'*He$_i$ returned after Toli$_i$ finished his job'

In coordinated clauses, however, *caki* in one conjunct cannot have an antecedent in the other conjunct.[11]　For example, coordinated clauses do not allow long-distance reflexive *caki* in the same position, regardless of directionality, as illustrated in the following pairs of examples.

(14) a. *Caki$_i$-ka han son-ey　　kkoch-ul　　tul-ko　　Swuni$_i$-ka
　　　 self-NOM one hand-LOC flower-ACC take-and　S.-NOM
　　　 han　son-ey　　kapang-ul　　tul-ess-ta
　　　 one　hand-LOC bag-ACC　　take-pst-ind
　　　 'Self$_i$ took flowers in one hand and Suni$_i$ took a bag in the other hand'

　　 b. *Swuni$_i$-ka　han son-ey　　kkoch-ul　　tul-ko　　caki$_i$-ka
　　　 S.-NOM　　one hand-LOC flower-ACC　take-and　self-NOM
　　　 han　son-ey　　kapang-ul　　tul-ess-ta
　　　 one　hand-LOC bag-ACC　　take-pst-ind
　　　 'Suni$_i$ took flowers in one hand and self$_i$ took a bag in the other hand'

(15) a. *Caki$_i$-ka sinmwun-ul　　po-kena Toli$_i$-ka　　capci-lul　　ilk-nun-ta
　　　 self-NOM newspaper-ACC see-or　　T.-NOM　magazine-ACC read-pre-ind
　　　 'Self$_i$ sees a newspaper or Toli$_i$ reads a magazine'

　　 b. *Toli$_i$-ka sinmwun-ul　　po-kena caki$_i$-ka　　capci-lul ilk-nun-ta
　　　 T.-NOM newspaper-ACC see-or　　self-NOM magazine-ACC read-pre-ind
　　　 'Toli$_i$ sees newspapers or self$_i$ reads a magazine'

Now let us consider clausal NP-comparatives. I show that the same constraint on the long-distance reflexive *caki* that Y. Kim (1988) notes in coordination is also observed in clausal NP-comparatives like (56).

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11) This constraint was first stated (for English) by Ross (1967: 253): the Reflexivization Rule is subject to the Coordinate Sentence Constraint (CSC), as in (i).

　　(i)　　a.　*Bill and Mary washed himself
　　　　　 b.　*Andy pinched Sarah and tickled herself

(16) a. *[Caki$_i$-ka Swuni-eykey cwu-n   kes]-pota   Toli$_i$-ka
          self-NOM   S.-DAT   give-adn KES-than   T.-NOM
          Swunca-eykey (te) manhun sakwa-lul   cwu-ess-ta
          S.-DAT   TE   many   apple-ACC give-pst-ind
          'Toli$_i$ gave more apples to Sunca than self$_i$ gave to Suni'

      b. *[Toli$_i$-ka Swuni-eykey cwu-n   kes]-pota   caki$_i$-ka
          T.-NOM S.-DAT   give-adn KES-than   self-NOM
          Swunca-eykey (te) manhun sakwa-lul cwu-ess-ta
          S.-DAT   TE   many   apple-ACC give-pst-ind
          'Self$_i$ gave more apples to Sunca than Toli$_i$ gave to Suni'

Regardless of the directionality of reflexivization, clausal NP-comparatives do not allow the long-distance reflexive *caki*. It can be argued therefore that clausal NP-comparatives behave like coordinated clauses in this respect.

2.3 ATB principle

Next, I turn my attention to an across-the-board (ATB) principle. I show that the ATB principle constitues one piece of evidence for coordination in Korean clausal NP-comparatives.

The Coordinate Structure Constraint (CSC) correctly predicts that (17a) is ungrammatical. However, the CSC cannot predict that (17b) is grammatical; examples (17a) and (17b) comes from van Riemsdijk and Williams (1986: 27-28):

(17) a. *Who$_i$ is Bill proud of his father and tired of t$_i$?
      b. I wonder [which book]$_i$ Mary hates t$_i$ and Sam likes t$_i$.

To predict the grammaticality of (17b), Williams (1977), following Ross (1967), defines the ATB principle as follows: "If a rule applies into a coordinate structure, then it must affect all conjuncts of that structure."

The ATB principle may also constitue one piece of evidence for coordination in English comparatives, as the contrast in (18) shows; (Napoli 1983: 682-83):

(18) a. Nancy Reagan$_i$, you saw more pictures of t$_i$ than (you read) books about t$_i$
      b. *Who$_i$ did you see more pictures of t$_i$ than (you read) books about Nancy Reagan?

The same fact holds for Korean data. Coordination with *-ko* in Korean is subject to the ATB principle, as the contrast in (19) shows.[12]

(19) a. Sakwa-lul/nun,   pwunmyenghi Mary-ka __ sa-ss-ko,
　　　apple-ACC/TOP   certainly   M.-NOM   buy-pst-and
　　　John-i __ sa-ss-ta
　　　J.-NOM   buy-pst-ind
　　　'Apples/As for apples, certainly Mary bought __ and John bought__'

b. Sakwa-lul/nun,   pwunmyenghi Mary-ka   panana-lul   sa-ss-ko,
　apple-ACC/TOP   certainly   M.-NOM   bananas-ACC   buy-pst-and
　John-i __ sa-ss-ta
　J.-NOM   buy-pst-ind
　'Apples/As for apples, certainly Mary bought bananas and John bought __.'

Similarly, clausal NP-comparatives allow for ATB extraction, as in (20a). However, violation of the CSC in clausal NP-comparatives yields the ungrammatical result in (20b):

(20) a. [[John-i __ manna-n kes]-pota [[Mary-ka __ (te)
　　　J.-NOM   meet-adn KES-than   M.-NOM   more
　　　cacwu   chacaka-n] ku   sinsa]]
　　　often   visit-adn   the   gentleman
　　　'the gentleman who Mary visited __ more often than John met _'

b. *[[__ Ku sinsa-ul   manna-n kes]-pota   [[Mary-ka
　　　the gentleman-ACC meet-adn KES-than   M.-NOM
　　　kyoswunim-ul (te) cacwu   chacaka-n]   sensangnim]]
　　　professor-ACC more often   visit-adn   teacher
　　　'*a teacher who Mary visited a professor more often than __ met the gentleman'

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12) However, coordination with *kuliko* is not subject to the ATB principle, as in (i):

(i) *Sakwa-lul/nun, pwunmyenghi Mary-ka __ sa-ss-ta   kuliko John-i ___ sa-ss-ta
　apple-ACC/TOP certainly   M.-NOM   buy-pst-ind conj J.-NOM   buy-pst-ind
　'Apples/As for apples, certainly Mary bought ___ and John bought __.'

At this point, I do not know why *kuliko*-coordination differs from ko-coordination with regard to ATB extraction.

Therefore, clausal NP-comparatives behave like coordinate structures in that they allow ATB movement.

From the three pieces of evidence for coordination in clausal NP-comparatives discussed so far, we can draw the conclusion that clausal NP-comparatives may be coordinated with the main clause only when they occur sentence-initially. When a clausal NP-comparative is not sentence initial, a coordinate—not a subordinate—structure is involved, as discussed further in section 3 below.

2.4 Case matching

It has been argued so far that clausal NP-comparatives behave like coordinated clauses. I have presented two pieces of evidence for this claim based on gapping and the long-distance reflexive *caki*. Specifically, it has been argued that Korean comparatives containing sentence-initial clausal NP-comparatives involve a coordinate structure.

I now turn my attention to plain NP-comparatives. Moltmann (1992) gives several arguments that such comparatives should be analyzed as coordinate structures. The first argument, drawn from Napoli (1983), is based on parallelism to categories other than NP in English. A second argument, also originally from Napoli, is based on extraction and fronting data in English. Moltmann's third argument concerns case parallelism in German. Only the third argument is applicable to Korean.

This section shows that there is case parallelism between targets and compared elements in plain NP-comparatives in Korean. It will be argued that this parallelism can be a convincing argument for coordination rather than subordination in the plain NP-comparative. This section also concerns case matches and mismatches between targets and compared elements in plain NP-comparatives. I will show that there is a correlation between the comparative particle *pota* and the NP-coordinator *(k)wa*.

2.4.1 Case matches

Moltmann (1992: 352-53) gives evidence for coordination in the phrasal comparative construction based on case parallelism between a target NP and its antecedent. The basic idea behind her argument comes from the "biuniqueness condition for case assignment" and a selectional syntactic requirement which must be met by each conjunct NP in coordination. According to the biuniqueness condition for case assignment, a case assigner can assign case only once to an NP. However, this condition cannot be satisfied in three-dimensional theory without making a distinction

between formal and meaningful planes (f-planes and m-planes respectively in Moltmann's terms).[13] For instance, it may be violated in (21) because the predicate compared assigns accusative case twice: once to the first conjunct the picture and once to the second conjunct the photograph.

(21) John compared the picture and the photograph

She argues that this condition can be satisfied only in the following two f-planes of (21) which are given in (22):

(22) f-plane 1: John compared the picture
     f-plane 2: John compared the photograph

For phrasal comparatives, the question of how an NP (= target) in a *than*-phrase gets case is also raised. Moltmann's answer to this question is that, as in coordination, an NP in a than-phrase of a phrasal comparative must also meet case assignment and selectional requirements imposed by the predicate of which the compared element is an argument. This claim is based on the observation that phrasal comparatives with NPs generally require the NP to receive the same case as its antecedent. This point is established by the contrast seen in the following German examples.[14]

(23) a. Hans hat dem Jungen mehr gegeben als dem Mann
         'John has given the boy (DAT) more than the man (DAT)'

      b. *Hans hat dem Jungen mehr gegeben als den Mann
         'John has given the boy (DAT) more than the man (ACC)'

To capture the same case relation between two elements of a single predicate, it can

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13) Moltmann (1992) addresses the necessity of the distinction between f-planes and m-planes because it is not possible to maintain the same notion of plane and satisfy both syntactic (application of syntactic principles and conditions) and semantic (semantic interpretation of three-dimensional phrase markers and representation of scope) requirements. F-planes are required for the satisfaction of certain types of syntactic conditions such as the biuniqueness condition of Case Theory, Coordinate Structure Condition, X'-Theory, and part of Binding Theory, whereas m-planes not only play a role in semantic interpretation and representation of scope, they also influence the linearization of a sentence at PF. See Moltmann (1992, chapter 1) for her new theory of coordination and arguments for the separation of f-planes and m-planes.

14) Example (23a) is taken from Moltmann (1992: 353 (228)), and (23b) is from Peter Muntigl (personal communication)

be argued that they should be construed as coordinate. This also appears to hold for the Korean example shown in (24):15)

(24) a. Sensayngnim-i Mary-eykey-wa John-eykey phyenci-lul
         teacher-NOM   M.-DAT-conj   J.-DAT   letter-ACC
         ssu-key   ha-si-ess-ta
         write-comp do-hon-pst-ind
         'The teacher made Mary (DAT) and John (DAT) write letters'

  b. Sensayngnim-i Mary-eykey-pota John-eykey (te) manhun
         teacher-NOM   M.-DAT-than   J.-DAT   TE   many
         phyenci-lul   ssu-key   ha-si-ess-ta
         letter-ACC   write-comp   do-hon-pst-ind
         'The teacher made Mary (DAT) write more letter than John (DAT)'

In a causative construction like (24), a target Mary can be marked DAT, which receives the same case as a compared element, DAT-marked John.16) This prediction is borne out, as the contrast in (25) shows:

(25) a. *Na-nun nwui-eykey-pota tongsayng-ulwihayse (te)
         I-TOP   sister-DAT-than   brother-for   TE
         manhun cangnankam-ul mantul-ess-ta
         many   toy-ACC   make-pst-ind
         'I made more toys for my brother (BEN) than (for) my sister (DAT)'
  b. Na-nun nwui-lulwihayse-pota   tongsayng-ulwihayse
         I-TOP   sister-for-than   brother-for
         (te) manhun cangnankam-ul   mantul-ess-ta
         TE   many   toy-ACC   make-pst-ind
         'I made more toys for my brother (BEN) than (for) my sister (BEN)'

The plain NP-comparative (25a) is ungrammatical since the case on the target nwui 'sister' is different from the case on the comparative element tongsang 'brother'. On

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15) Against this claim, one could argue that there are some constructions which allow for case alternations but seem to show no case parallelism with the same comparatives. This problem will be discussed later.

16) To see whether or not there is case parallelism between a target and a compared element in the plain NP-comparative construction, only non-dropped I-case is used for a test since S-case must always be deleted on the target.

the other hand, (25b) is grammatical since the target receives the same case, BEN, as its compared element.

The above discussion has shown that case parallelism is required between the target and the compared element in Korean.[17] In this respect, comparatives are like coordinate structures, which also require such parallelism, as the contrasts in (24) versus (*25) shows.

2.4.2 Case mismatches

Let us now turn to case mismatches between targets and their antecedents. As shown in the previous section, the plain NP-comparative usually requires case parallelism between the target and its antecedent, as in (25) above.
Pharasruph However, unlike phrasal comparatives in English and German, plain NP-comparatives in Korean sometimes allow case mismatches. For example, the case on the compared element need not match the case on the target in (26)-(28).

(26)   John-i Mary-eykey-pota Sue-eykey/lul (te) manhun sakwa-lul cwu-ess-ta
         J.-NOM M.-DAT-than S.-DAT/ACC TE many apple-ACC give-pst-ind
         'John gave more apples to Sue (DAT/ACC) than Mary (DAT)'

(27)   Mary-eykey-pota John-eykey/i (te) manhun ton-i philyoha-ta
         M.-DAT-than J.-DAT/NOM TE many money-NOM need-ind
         'John (DAT/NOM) needs more money than Mary (DAT)'

(28)   Na-nun Sewul-ey-pota Pwusan-ey/ul (te) cacwu ka-ss-ta

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17) This case parallelism is also found in Japanese phrasal comparatives. Like Korean, Japanese also appears to have case matches between a *yori*-phrasal NP and its compared element. That is to say, in many instances, the case on a *yori*-phrasal NP should be identical to the case on the compared element or the sentence will be ruled out. We see this result in the following data (from Tadao Miyamoto, p.c.):

  (i)   Jon-ni-yori Tomu-ni takusan(-no) hon-ga yomeru
        John-DAT-than Tom-DAT many book-NOM can read
        'Tom (DAT) can read more books than John (DAT)'

  (ii)   *Jon-ni-yori Tomu-ga takusan(-no) hon-o yomeru
        John-DAT-than Tom-NOM many book-ACC can read
        'Tom (NOM) can read more books than John (DAT)'

  In potentials, either a NOM ACC (i) or DAT NOM (ii) case pattern can be used. The target of comparative must match the compared nominal in case, however, as (i) versus (ii) shows.

I-TOP Seoul-LOC-than Pusan-LOC/ACC TE often go-pst-ind
'I went to Pusan (LOC/ACC) more often than Seoul (LOC)'

(26) is based on a ditransitive construction, (27) is based on a dative subject construction, and (28) is based on an accusative locative construction. How can we account for case mismatches in these examples and for the lack of the case mismatches in examples like (25a)?

I claim that case mismatches are only allowed in comparatives with counterparts involving case alternations. As discussed in Gerdts (1991), there are several constructions in Korean where a nominal having an oblique semantic role (such as goal or locative) is a "final argument". In these structures, the nominal can be marked with either an appropriate I-Case or the relevant S-Case (NOM if it is subject and ACC if it is object). We see this in (29)-(31), the non-comparative counterparts to (26)-(28).

(29)   John-i   Sue-eykey/lul   sakwa-lul   cwu-ess-ta
        J.-NOM   S.-DAT/ACC   apple-ACC   give-pst-ind
        'John gave apples to Sue (DAT/ACC)'

(30)   John-eykey/i   ton-i   philyoha-ta
        J.-DAT/NOM   money-NOM   need-ind
        'John (DAT/NOM) needs money'

(31)   Na-nun   Pwusan-ey/ul   ka-ss-ta
        I-TOP   Pusan-LOC/ACC   go-pst-ind
        'I went to Pusan (LOC/ACC)'

I claim, therefore, that case mismatches can occur only when comparative is based on a construction that allows case alternations.[18]

Returning to examples like (25a), Gerdts (1993) has argued that DAT-marked benefactives and BEN-marked benefactives have different syntactic structures. Thus, the non-comparative counterpart of (25a) does not involve case alternation. Under her

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18) Japanese phrasal comparatives also have case mismatches, where case alternation is allowed: (i) involves DAT-ACC alternations on causees in causatives with intransitives, and (iia-b) involve DAT marked benefactive constructions (data from Tadao Miyamoto, p.c.):

(i)   Meri-wa Jon-ni-yori   Tomu-o   yori ooku   hatarakaseta
       Mary-TOP John-DAT-than Tom-ACC more many work-caus-ind
       'Mary let (or made) Tom (ACC) work more than John (DAT)'

analysis, case mismatching in (25a) is correctly predicted to be ungrammatical.[19]

Case mismatches in clauses involving case alternation can also be observed in nominal coordination. In coordination formed with the conjunction *kuliko*, case mismatching is possible:

(32)   John-i   [Mary-eykey kuliko Sue-lul] sakwa-lul   cwu-ess-ta
        J.-NOM   M.-DAT   conj   S.-ACC   apple-ACC give-pst-ind
        'John gave apples to Mary (DAT) and Sue (ACC)'

(33)   Mary-eykey kuliko John-i   ton-i   philyoha-ta
        M.-DAT   conj   J.-NOM   money-NOM   need-ind
        'Mary and John need money'

In contrast, in coordinate structures formed with the affixal coordinator *-(k)wa* case mismatching is not allowed:[20],[21]

(34)   *John-i Mary-eykey-wa Sue-lul sakwa-lul   cwu-ess-ta
        J.-NOM M.-DAT-conj   S.-ACC   apple-ACC give-pst-ind
        'John gave apples to Mary and Sue'

(35)   *Mary-eykey-wa John-i   ton-i   philyoha-ta
        M.-DAT-conj   J.-NOM money-NOM   need-ind
        'Mary and John need money'

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19) Japanese contrasts with Korean in this respect. The Japanese benefactive also shows a DAT/BEN alternation. Case mismatching is allowed in comparatives involving benefactives (data from Tadao Miyamoto, p.c.):

  (ii)   a.   Jon-wa   haha-ni-yori   chichi-no tame ni   purezento-o
              John-TOP mother-DAT-than father-BEN   present-ACC
              yori   ooku   ka-tta.
              more many   buy-pst-ind
              'John bought more presents for his father (BEN) than (for) his mother (DAT)'

       b.   Jon-wa   haha-no tame ni-yori chichi-ni   purezento-o yori ooku ka-tta.
              John-TOP mother-BEN-than   father-DAT present-ACC more many buy-pst-ind
              'John bought more presents for his father (DAT) than (for) his mother (BEN)'

20) It is well known that *(k)wa*-coordination always requires case parallelism (cf. Im (1972: 149), Yi (1989: 132), and among others).

21) As in the plain NP-comparative construction, a test for case parallelism in *(k)wa*-coordination is also possible when an I-case appears on the first conjunct NP. As shown in (34)-(35), sentences involving *(k)wa*-coordination will be ungrammatical when the first conjunct NP does not receive the same case as the other conjunct NP.

Thus, the comparative particle pota behaves like the conjunction kuliko as far as case mismatching is concerned. It is not like the affixal coordinator -(k)wa, which requires case parallelism.

2.5 Summary

To sum up this section, I have shown in the above discussion that clausal NP-comparatives in Korean behave in several respects like coordinate clauses. It has been argued that the comparative particle *pota*, which, at first glance, does not seem to be a coordinator, does in fact behave like structures coordinated with conjunctions like *kuliko*. Support for this claim has been provided by evidence from gapping and from the behaviour of the long-distance reflexive *caki*. Furthermore, it has been shown that the third piece of evidence for coordination stems from an across-the-board (ATB) principle in clausal NP-comparatives. In this argument, I have shown that clausal NP-comparatives are like coordinates formed with *-ko*, but unlike coordinates formed with *kuliko*. Finally, I examined case matching effects in plain NP-comparatives. Case matching is generally required in comparatives and thus they parallel coordinate structures formed with coordinators such as *kuliko* and *-(k)wa*. Furthermore, I discuss examples where the target and the compared element do not have the same case. This occurs in a limited set of case alternation constructions. In this respect, comparatives are like coordinates formed with *kuliko*, but unlike coordinates formed with *-(k)wa*.

3. Comparatives and Subordination

In the previous sections, I presented evidence that comparatives should be regarded as coordinate structures in Korean. In this section, I show that comparatives also behave like subordinate structures. I will conclude that comparatives in Korean should be simultaneously regarded as both coordinate and subordinate structures.

3.1 Topicalization and scrambling

Before showing the Korean facts, I will summarize some arguments for a subordinate structure in English comparatives. As presented in Hankamer (1973) and Napoli (1983), English permits PP complements with than as the prepositional head.[22] One

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22) As Moltmann (1992: 358) points out, Hankamer (1973) and Napoli (1983) present two pieces of evidence for a subordinate structure of phrasal comparatives in English. In addition to

piece of evidence follows from the fact that some *than*-complements can be topicalized, which is impossible with coordination, as the contrast in (36) shows; (Napoli 1983: 683-84):

(36) a. Than John, certainly no one has done more.[23]
      b. *And/Or John$_i$, Mary saw Bill t$_i$

By the same token, plain NP-comparatives in Korean can usually be topicalized or scrambled, which is impossible for *(k)wa* and *kuliko* coordination, as in (37):

(37) a. John-pota(-nun) pwunmyenghi Mary-ka (te)   pwucilenha-ta
          J.-than(-TOP)   certainly   M.-NOM more diligent-ind
          '*Than John, certainly Mary is more diligent '

      b. *John-kwa/kuliko(-nun) pwunmyenghi Mary-ka   pwucilenha-ta
          J.-and(-TOP)   certainly   M.-NOM   diligent-ind
          '*And John, certainly Mary are diligent'

The fact that topicalization/scrambling is possible in comparatives suggests that the particle *pota* should be regarded as a PP

3.2 Caki revisited

Now, let us turn to clausal NP-comparatives involving subordinate structures. Here, I want to briefly reconsider the position of clausal NP-comparatives with regard to the long-distance reflexive *caki*. As mentioned above, this type of comparative may have a subordinate structure unless it is in sentence-initial position. Consider example (16a)

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topicalization, the second piece of evidence comes from data involving across-the-board (ATB) violations, as in (i):

(i)   Who$_i$ did John come earlier than t$_i$?

If than in (i) is a preposition, a grammatical result is correctly predicted. If than is a coordinator, however, (i) should be ungrammatical as an ATB violation. However, an argument based on ATB violations is not applicable to Korean plain NP-comparatives, since Korean has no overt syntactic wh-movement.

23) Contrary to Napoli's judgment, many English speakers seem to regard (36a) as a bad example. I thank Cliff Burgess for checking these data with several English speakers. Hence an argument based on topicalization of the English preposition than is questionable. However, Korean counterparts (*pota*-phrases) are freely topicalized or scrambled. This fact will be discussed later.

given in the previous section (2.2), which is repeated below as (38a). This is contrasted with example (38b).

(38)   a. *[Caki$_i$-ka Swuni-eykey cwu-n   kes]-pota   Toli$_i$-ka
          self-NOM S.-DAT   give-adn KES-than   T.-NOM
          Swunca-eykey (te) manhun sakwa-lul   cwu-ess-ta
          S.-DAT   TE many   apple-ACC give-pst-ind
          'Toli$_i$ gave more apples to Sunca than self$_i$ gave to Suni'

       b. Toli$_i$-ka   [caki$_i$-ka   Swuni-eykey cwu-n   kes]-pota
          T.-NOM   self-NOM S.-DAT   give-adn KES-than
          Swunca-eykey (te) manhun sakwa-lul   cwu-ess-ta
          S.-DAT   TE many   apple-ACC give-pst-ind
          'Toli$_i$ gave more apples to Sunca than self$_i$ gave to Suni'

These examples show the different behaviour of the long-distance reflexive *caki* in comparatives in initial (38a) and non-initial (38b) position. *Caki* in (38a) cannot have an antecedent in the main clause of a comparative. However, in (38b), *caki* is bound by its antecedent *Toli*, the subject of the main clause.

  This line of argumentation parallels the contrast between regular coordination and comparative constructions with respect to English quantifier-pronoun binding noted by Moltmann (1992: 338).

(39)   a. Every student read more than his professor wrote
       b. *Every student came and his professor left

A quantifier in the main clause of a comparative like (39a) can bind a pronoun in the comparative clause. However, this is not the case in coordination with *and*, as in (39b). This indicates that (39a) must have a subordinate structure in which the comparative clause is adjoined to the VP since the quantifier in the main clause c-commands the pronoun in the comparative clause.

  Comparing Korean clausal NP-comparatives with English clausal comparatives, different strategies are used in each language. In English, clausal comparatives can be coordinated with the main clause only when they are sentence final.[24] On the other

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24) Moltmann (1992: 338) points out that clausal comparatives can be coordinated with the main clause only when they are extraposed. If extraposition does not take place, constructions with clausal comparatives do not involve coordinate structures but subordinate structures. Consider the following:

hand, the Korean counterparts can be coordinated with the main clause only when they are sentence initial. The mirror-image nature of these restrictions on coordinate structures is attributable to the basic difference in headedness in English versus Korean phrase structure.

3.3 Summary

So far, I have presented three arguments for the subordinate structure of comparatives in Korean. First, topicalization/scrambling is possible with plain NP-comparatives. In addition, I have reviewed two pieces of potential arguments for the subordinate structure: that is, the position of clausal NP-comparatives with regard to the long-distance reflexive *caki*, and case mismatches in plain NP-comparatives.

4. Conclusion

We discussed the dual structure of comparatives: coordination and subordination. A coordinate structure of clausal NP-comparatives in Korean is represented in (40) below.

(40)   Coordinate structure:
         [[…]$_{XP}$ kes]$_{NP}$-pota [… (te) …]$_{YP}$
Whatever the synatactic category (XP or YP), this comparative clause (NP) can be coordinated with the main clause by means of the comparative particle *pota*. I presented four types of evidence for regarding comparatives as coordinate structures. Y. Kim (1988) has demonstrated a number of phenomena that distinguish coordination from subordination. I took two of these—gapping (2.1) and the long-distance reflexive *caki* (2.2)—and applied them to clausal NP-comparatives. The third piece of evidence stems from an across-the-board (ATB) principle in clausal NP-comparatives (2.3) I concluded that these phenomena provided evidence for a coordination analysis of clausal NP-comparatives. The fourth piece of evidence, based on case matching effects

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(i)   a.   A better doctor than John has ever been will treat Mary
      b.   More money than was offered to John was offered to Mary
              (Moltmann 1992: 337 (194))

If than is a coordinator, the Law of the Coordination of Likes (LCL) is violated. Nonetheless, examples (ia-b) are grammatical. Moltmann notes further that (ia-b) are not exceptions to the LCL. The LCL states that conjuncts must have the same syntactic and semantic functions.

(2.4.1), provides an argument for the coordinate structure of plain NP-comparatives. On the other hand, the subordinate structure of Korean clausal NP-comparatives is represented in (41).

(41)   Subordinate structure:
        [... [[[...]$_{XP}$ kes]$_{NP}$-pota]$_{PP}$ (te) ...]$_{YP}$

In section 3, I presented three arguments for the subordinate structure of comparatives in Korean. First, topicalization/scrambling is possible with plain NP-comparatives (3.1). In addition, I gave two potential arguments for the subordinate structure: the position of clausal NP-comparatives with regard to the long-distance reflexive *caki* (3.2), and case mismatches in plain NP-comparatives (2.4.2).

The internal structure of clausal NP-comparatives in Korean is different from that of clausal comparatives in languages such as English and German. However, I argued here, following Moltmann (1992)'s three dimensional model, that Korean comparatives involve simultaneous subordinate and coordinate structures.

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