Coordination (A)symmetries

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1 Introduction

The purpose of this paper is to examine two (a)symmetries in coordinate structures in Korean and English in light of the current debate on whether coordinate structures exist as a type of syntactic structure distinct from other types of syntactic structures (Munn 1993, Kayne 1994, Chomsky 1995).[1]

The first type of (a)symmetry concerns morphosyntactic marking. In English, conjuncts must be marked symmetrically for the morphosyntactic feature required by the external context of the coordinate structure, while in Korean, only the final conjunct need be marked with the relevant morphosyntactic feature (Yoon 1993, inter alia). The asymmetric morphosyntactic marking may be, and has been, construed as evidence in favor of the non-existence of coordinate structures in Korean (E-Y Yi 1994). In contrast, analogous marking in English appears to suggest a symmetrical coordinate structure for that language.

The second type of (a)symmetry concerns phrasal (XP) extraction from coordination. In both Korean and English, while extraction out of most coordinate structures is symmetric, in the sense that such extraction obeys the Coordinate Structure Constraint (and the Across-the-Board exception - hereafter abbreviated CSC-ATB), the existence of extraction from coordinate structures in violation of CSC-ATB has been known for some time. While the former is suggestive of the existence of a symmetrical coordinate structure, distinct from other types of syntactic structures, the latter suggests that coordinate structures may not be too different from other types of structures with regard to phrasal extraction.

We are thus left with two apparent puzzles - a crosslinguistic one posed by the first (a)symmetry and another puzzle that holds in both languages. I will argue that the first step toward solving the puzzles lies in recognizing that some of the distinctive properties of coordinate structures may be due to the semantics and/or pragmatics of coordination, rather than the syntax of coordination. The second step consists in recognizing that languages may differ in how they map semantic coordination vs. subordination to syntactic co- vs. sub-ordinate structures.

Once such recognition is made and a proper analysis of inflectional marking in Korean is established, we shall see that with regard to

morphosyntactic marking, Korean and English are alike in requiring symmetrical (or, across-the-board) marking. With regard to the extraction asymmetry, we will see that the determining factor is the semantics-pragmatics of coordination. Asymmetric extraction is possible only from structures that are semantically-pragmatically subordinate (Culicover & Jackendoff 1997). However, the languages part ways when it comes to the syntactic expression of semantic-pragmatic subordination - Korean maps semantic subordination to syntactic subordination, while English may map semantic subordination to syntactic coordination (Lakoff 1986; Culicover & Jackendoff 1997).

The organization of the paper is as follows. In section 2, we review various properties of coordinate structures, some suggesting symmetry and others suggesting asymmetry. We identify some analytic choices that can cope with the observed (a)symmetry of coordinate structures. We will then introduce two (a)symmetries that are the concern of this paper. Section 3 deals with morphosyntactic marking. Section 4 analyzes XP-extraction. Section 5 concludes the paper and explores the implications of the analysis proposed in this paper for the theory of coordination.
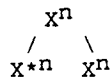
2 Symmetry and Asymmetry in Coordinate Structures

2.1 Is Coordination Fundamentally Symmetrical or Asymmetrical?

Coordinate structures have long been recognized to exhibit properties that are not found in other types of syntactic structures. The properties specific to coordination can be considered properties of symmetry, in the sense that the conjuncts that make up a coordination must display these properties simultaneously.

The symmetry of coordination is captured directly in the PS-rules (or X-bar/ID-schemata) which license coordinate structures. For example, the following PS-rule/schemata and coordination licensing principles are predicated on the assumption that conjuncts in a coordinate structure are symmetric with respect to a number of syntactic properties.[2]

(1) a. <u>Coordination-specific PS-rule/X-bar schema:</u>

$$X^n$$
$$\diagup \quad \diagdown$$
$$X^{*n} \quad X^n$$

b. <u>Coordination Principle</u> (Pollard & Sag 1994)
In a *coordinate-structure*, the CATEGORY and NONLOCAL value of each conjunct daughter is identical to that of the mother.

Indeed, coordinate structures display symmetrical properties, such as the requirement that conjunct be of the same category (2), that conjuncts be

uniform with respect to whether they contain an extraction gap (CSC-ATB) (3). The conjuncts display symmetry with respect to a variety of other syntactic-semantic properties as well (4).

(2) a. John wrote [a letter] and [a postcard].
   b. *John wrote [a letter] and [to Fred].

(3) a. *Who does John [expect to invite Bill] and [introduce Mary to t]?
   b. Who does John [expect to invite t] and [introduce Mary to t]?

(4) a. Some student [admires *every professor*] and [despises the dean].[3]
      =/=For every professor there is a student who admires him/her and despises the dean. (May 1985)
   b. Which article [proves *which theory*] and [defends *which theorem*]?
   c. *Which article [proves John's theory] and [defends *which theorem*]? (Pesetsky 1982; Kayne 1983)
   d. *[We gave him_i enough opportunity], and [every senator_i, no matter how honest, succumbed to corruption]. (Culicover & Jackendoff 1997 - hereafter C&J)

The fact that sister constituents in a coordination can permute without a change in truth conditions (5a,b); or iterate (5c) are also properties setting apart coordinate structures from other syntactic structures.

(5) a. [John] and [Mary] came into the room
      =
   b. [Mary] and [John] came into the room
   c. John [invited Mary], [called up Susan], and [sent a fax to Bill]

Further distinctive properties of coordination include Gapping (6) and Right Node Raising (7).[4]

(6)   [John likes apples] and [Mary __ oranges]

(7)   [John likes __] but [Mary hates __] [bagels]

However, the properties indicative of symmetry are plagued by counterexamples indicating that coordinate structures are symmetric like other syntactic structures.

Conjuncts need not be of the same category (8); exceptions to CSC-ATB are well-known (9);[5] certain coordinations display various types of syntactic-semantic asymmetries (10).

(8) a. John is [_{NP} a Republican] and [_{AP} crazy].
   b. They know [_{NP} the question] and [_{CP} how to answer them].

(9) <u>Element Condition:</u>

a. Which wine$_i$ did John [go to the store] and [buy t$_i$]?
Conjunct Condition:
b. All the heaviness$_i$ had gone [t$_i$ and the height] (Johannessen 1993)

(10)a. Someone from Wal-Mart [went to *every department store*] and
[bought out the entire inventory].
= For every department store, there is someone from Wal-Mart who
went to it and bought out the inventory (as part of a hostile takeover
scheme)
b. ?[John's$_i$ mother] and [he$_i$] went for a walk.
c. *[He$_i$] and [John's$_i$ mother] went for a walk.

Conjuncts may fail to permute (11) or iterate freely (12).

(11)a. He [went to the store] and [bought some whisky].
=/=
b. He [bought some whisky] and [went to the store].

(12)a. *You drink another can of beer, Bill eats more pretzels, and I'm
leaving.
b. You drink another can of beer, and I am leaving. (C&J 1997)

Gapping and RNR may be prevented in certain structures that are arguably
coordinate (C&J 1997).

(13)a.*Big Louie steals another hubcap, and Little Louie ___ the car radio.
(* on the conditional reading)
b. *Big Louie finds out about ___, and Big Louie puts out a contract on
___, [that guy who stole some loot from the gang].
(* on the conditional reading)

Adding to these empirical problems are recent theoretical/conceptual
arguments against the existence of coordination as a distinct type of
syntactic structure. Munn (1993), Kayne (1994), and Chomsky (1995) all
develop restrictive versions of X-bar theory that do not allow coordinate
structures of the sort in (1a).

2.2. Ways to Account for the (A)symmetry

Let us consider for a moment what the facts we have examined above
indicate about the syntactic representation of coordinate structures. The fact
that conjuncts display certain kinds of asymmetry does not automatically
invalidate a syntactic representation of coordination like (1a). Likewise, the
fact that certain symmetries can be found among conjuncts does not
constitute evidence that an asymmetric syntactic representation of
coordination (à la Munn, Kayne, Chomsky) is on the wrong track. Since a
linguistic property does not come labelled and categorized, we have to first
determine whether the (a)symmetry in question is morphological
(morphosyntactic), syntactic, semantic, or pragmatic. It is only **the
(a)symmetry of syntactic properties** that have a bearing on the question of
the syntactic representation of coordination.

The problem is that while morphosyntactic and genuinely pragmatic
conditions are relatively easy to isolate, difficulty arises when one tries to
distinguish between **syntactic reflexes of semantic conditions** from
genuinely syntactic (i.e., autonomously syntactic) **conditions** on coordinate
structures (Culicover & Jackendoff 1997). Nevertheless, one must make a
distinction among these properties before one can tackle the question of the
nature of the syntactic representation of coordination. Assuming that one can
distinguish autonomous syntactic conditions on coordination from the
syntactic reflexes of semantic conditions, we may explore one of three
options listed below in seeking to determine the nature of the syntactic
representation of coordination.

> **Option 1**: Coordination is **fundamentally asymmetrical syntactically**
> (i.e., there is no coordination in syntax; or if there is, its syntactic
> properties are no different from those of other structures), but may be
> symmetrical or asymmetrical semantico-pragmatically.

This is the option pursued by Munn, Kayne, and Chomsky, though the latter
two are not explicit on how an asymmetric coordinate structure can deal
with various symmetries.

> **Option 2**: Coordination is **fundamentally symmetrical syntactically**,
> but may be symmetrical or asymmetrical semantico-pragmatically:

This is the option adopted implicitly in classical, symmetrical analyses of
coordination[6] and one that is explicitly endorsed in C&J (1997).

> **Option 3**: Syntactically, there are both **symmetrical** (when semantically
> symmetric) and **asymmetrical** (when semantically asymmetric)
> **coordinate structures**.

This alternative is difficult to characterize precisely, since the relevant
details are usually not worked out. Ross, Schmerling, Goldsmith, Na &
Huck might belong to this group, since they distinguish symmetric (logical)
and asymmetric (scenario-oriented or idiomatic) conjunctions. However,
none suggest explicitly that the syntactic representation of asymmetric
conjunctions is that of subordination while that of symmetric conjunction is
that of coordination.

With these in mind, we now examine two coordination (a)symmetries in
English and Korean, seeking to determine ultimately how an adequate
analysis of the (a)symmetries bears on the analytic options identified in this
section.

2.3 Two Coordination (A)symmetries in English and Korean

2.3.1 (A)symmetry of Morphosyntactic Marking in Verbal Coordination - English vs. Korean

We focus first on the pattern of morphosyntactic marking in verbal coordination in English and Korean. As we see below (14 - 16), when the external context of a coordinate VP requires it to carry a particular morphosyntactic marking, such marking must be found across-the-board in all conjuncts in English. That is, verbs in each conjunct must bear inflection appropriate to their morphosyntactic context (tense or aspectual marking). If a verb is marked differently, the phrase it heads is interpreted as lying outside the scope of the element that selects the marking (15a', b', 16a', b'), or else such structures become ungrammatical (cf. 14b).

(14)a. John [[cooked] and [ate/*eat]] his dinner
    b. John [[*cook/cooked] and [ate]] his dinner

(15)a. John is [[reading the review] and [writing/*write/*wrote a report]]
    a'. John [is reading the review] and [(already) wrote a report]]

(16)a. Can [[John read the review] and [Mary write/*should write a report]]?
    a'. [[Can John read the review] and [should Mary write a report]]?

However, in Korean, the facts are different, as noted by several researchers. (J-I Kwon 1977; K-D Lee 1993; J H-S Yoon 1989, 1993, 1994; S-Y Cho 1995; S-O Shin 1995; J-B Kim 1995; E-Y Yi 1994; J-M Yoon 1996, etc.)
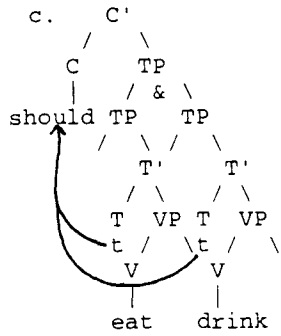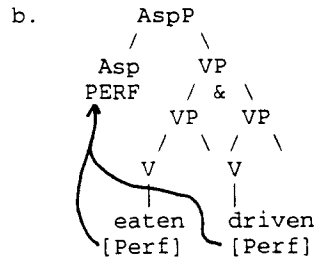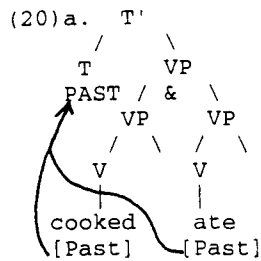   In Korean affixal coordination, verbs in non-final conjuncts may (17a,b) occur without the inflection appropriate to its morphosyntactic context (tense or Comp-endings - 18a'/19a' show that Comp-marking is marginally possible in analytic (zero) coordination), when followed by affixal conjunctions *-ko/-kena*. If a non-final conjunct verb is inflected for tense, the phrase it heads is interpreted as lying outside the scope of the relevant morphosyntactic marking on the final conjunct (18b, 19b). In addition, clause-type marking is found only on the final conjunct verb.

(17)a. John-i [pap-ul   coaha]-ko [ppang-ul silhehay-ss-ta]
      J-NOM meal-ACC like-CONJ   bread-ACC dislike-PST-DC
      'John liked steamed rice and hated bread.'
      (also; John likes steamed rice and hated bread.)
    b. John-i [pap-ul   coahay-ss]-ko [ppang-ul silhehay-ss-ta]
      J-NOM meal-ACC like-PST-CONJ bread-ACC dislike-PST-DC
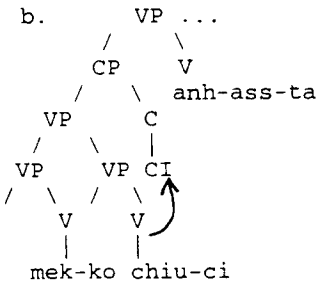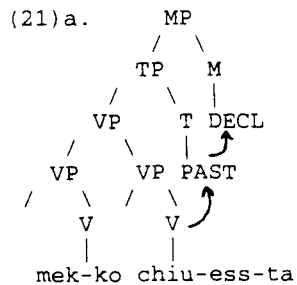   'John liked steamed rice and hated bread.'

(18)a. John-i [pap-ul   coaha]-kena [ppang-ul silheha-ci]   anh-ass-ta

J-NOM meal-ACC like-CONJ   bread-ACC dislike-COMP not-PST-DC
      'John neither liked steamed rice nor hated bread.'
    a'. John-i [pap-ul   coaha-ci]-to [ppang-ul silheha-ci]-to   anh-ass-ta
      J-NOM meal-ACC like-COMP-also bread-ACC dislike-COMP-also not-PST-DC
    b. John-i [pap-ul   coahay-ss]-kena [ppang-ul silheha-ci anh-ass-ta]
      J-NOM meal-ACC like-PST-CONJ   bread-ACC dislike-COMP not-PST-DC
      'John either liked steamed rice or hated bread.'
      =/= 'John neither liked steamed rice nor hated bread.'

(19)a. John-i [pap-to   mek]-ko [kwail-to mek-e]   po-ass-ta
      J-NOM rice-also eat-CONJ fruit-also eat-COMP try-PST-DC
      'John tried both eating the steamed rice and eating the fruit.'
    a'.?John-i [pap-ul   mek-e]-to   [kwail-ul mek-e]-to   po-ass-ta
      J-NOM rice-ACC eat-COMP-also fruit-ACC eat-COMP-also try-PST-DC
    b. John-i [pap-to   mek-ess]-ko [kwail-to mek-e   po-ass-ta]
      J-NOM meal-also eat-PST-CONJ fruit-also eat-COMP try-PST-DC
      'John both ate the steamed rice and tried eating the fruit as well.'
      =/= 'John tried both eating the steamed rice and eating the fruit.'

One possible analysis of these facts is as follows. Suppose V-inflection (tense or aspect marking) is lexically attached on all verbs in a conjoined structure. The English facts above can be analyzed by supposing that V-raising applies in an ATB manner to all verbs in a conjoined structure. Specifically, adopting Minimalist assumptions, we can analyze the tense and aspect features on verbs as raising ATB at LF, while analytic auxiliaries raise ATB in overt syntax. We can see that the pattern of morphosyntactic marking in English is **symmetric**, since it is **distributed ATB**.

(20)a.
```
        T'
       / \
      T   VP
    PAST / & \
        VP   VP
       / \  / \
      V   V
      |   |
   cooked ate
   [Past] [Past]
```

b.
```
        AspP
       /  \
     Asp   VP
    PERF  / & \
         VP   VP
        / \  / \
       V   V
       |   |
    eaten driven
    [Perf] [Perf]
```

c.
```
        C'
       / \
      C   TP
      |  / & \
   should TP  TP
        / \ / \
       T'   T'
      / \   / \
     T  VP T  VP
     t / \t / \
       V    V
       |    |
      eat  drink
```

In contrast, under the same assumptions, Korean V-inflection appears to be attached only on the verb in the final conjunct in affixal coordination. Only the final conjunct V (or the relevant feature) appears to raise to relevant inflectional heads (at LF or in overt syntax). This pattern of morphosyntactic marking is **asymmetric**, since it **is non-ATB**, as sketched briefly below.

(21)a.
```
          MP
         / \
        TP   M
       / \   |
      VP  T DECL
     / \  | 
    VP  VP PAST
   / \ / \
  V   V
  |   |
mek-ko chiu-ess-ta
```

b.
```
        VP ...
       /  \
      CP    V
     / \  anh-ass-ta
    VP  C
   / \  |
  VP  VP CI
 / \ / \
V   V
|   |
mek-ko chiu-ci
```

2.3.2 (A)symmetries in XP Extraction - English vs. Korean

While CSC-ATB holds for extraction out of coordinate structures, the existence of counterexamples have been known for a long time (Ross 1967; Schmerling 1975; Goldsmith 1985; Lakoff 1986; Deanne 1991; Na & Huck 1992). Thus, while extraction in (22) conforms to CSC-ATB, that in (23) does not.

(22)a. *What$_i$ does John [raise goats] and [cultivate t$_i$]?
    b. *What$_i$ did John both [drink t$_i$] and [stay sober]?
    c. *What$_i$ did John [go to the store] or [buy t$_i$]?

(23)a. What$_i$ did he [go to the store] and [buy t$_i$]?
    b. How much$_i$ can he [drink t$_i$] and [still stay sober]?
    c. This is the loot$_i$ that [you just identify t$_i$] and [we arrest the thief on the spot].

Similar facts can be found in Korean as well (S-Y Cho 1995; E-Y Yi 1994; S-O Shin 1995; J-B Kim 1995, etc.). Extraction out of what appears to be a coordinate structure[7] can sometimes violate CSC-ATB (24), while it may not in other cases (25).

(24)a. Mwues-ul$_i$ John-i [chayk-ul ilk-ko] [t$_i$ mek-ess-ni]?
    what-ACC John-NOM book-ACC read-CONJ eat-PST-QS
    Lit. 'What did John read the book and then eat?'
    b. John-i nwuku-lul$_i$ [pap-ul mek-ko] [t$_i$ manna-ss-ni]?
    John-NOM who-ACC meal-ACC eat-CONJ meet-PST-QS
    Lit. 'Who did John eat and then meet?'
    c. ?[John-i yenkwu-lul ta ha-ko] [Mary-ka t$_i$ palphyoha-n] nonmwun$_i$
    John-NOM research-ACC all do-CONJ Mary-NOM present-COMP article
    Lit. 'The article that John did all the research for and Mary presented.'

(25)a. *Mwues-ul$_i$ John-i [chayk-ul ilk-ess-ko] [t$_i$ mek-ess-ni]?
    What-ACC John-NOM book-ACC read-PST-CONJ eat-PST-QS
    Lit. 'What did John read the book and then eat?'
    b. *[John-i Mary-lul salangha-ko t$_i$ miweha-nun] Jane$_i$
    John-NOM Mary-ACC love-CONJ hate-COMP Jane
    Lit. 'Jane who John loves Mary and hates.'
    c. *[John-i t$_i$ mek-kena ppang-ul mek-un] pap$_i$
    John-NOM eat-CONJ bread-ACC eat-COMP meal
    Lit. 'Steamed rice which John ate or ate bread.'

The problems raised by the two (a)symmetries can be summed up as follows. The first (a)symmetry raises the question of how languages can differ with respect to the marking of morphosyntactic information. If the format for coordinate structures is fixed by UG,[8] one must find independent reasons for the observed crosslinguistic differences.

The second (a)symmetry, while not raising cross-linguistic questions, nevertheless raises difficulties for the assumption that UG licenses coordinate structures as uniformly symmetric or asymmetric, since in some cases, the extraction facts appear to be consistent with symmetry, while in others, it is consistent with asymmetry.

In the rest of the paper, I undertake a detailed analysis of these asymmetries. In section 3, I will argue that once we understand the morphosyntactic differences in inflectional marking in Korean and English, the pattern of morphosyntactic marking found in Korean is no longer asymmetric. The result is that with respect to morphosyntactic marking, coordinate structures are symmetrical in both languages. Arguments are presented against a recent analysis that takes the asymmetry of inflectional marking to be due to the lack of coordinate structures in Korean.

Section 4 is devoted to explicating XP-extraction in violation of CSC-ATB. It will be shown that while non-ATB extraction from true coordinate structures is possible in English, structures exhibiting such extraction in Korean are Adjunct-Head structures syntactically. Thus, true coordination in Korean always conforms to CSC-ATB. This then raises another puzzle as to why the two languages differ in this way. I argue that the differences boil down to how the semantic relation of co- vs. sub-ordination is mapped to syntactic structures. In English, as recently argued by Culicover & Jackendoff (1997), relations of semantic subordination may be mapped to syntactically coordinate structures, while in Korean semantic subordination and coordination align respectively with syntactic subordination (Adjunct-Head structures) and coordination.

3 Accounting for the Asymmetry in Morphosyntactic Marking

3.1 Affixal Coordination as Adjunction (E-Y Yi 1994; J-B Kim 1995)

One way to analyze the differences in morphosyntactic marking in coordinate structures in the two languages is to question whether the structures exhibiting asymmetric marking in Korean are coordinate structures at all. If instead the structures are syntactically Adjunct-Head structures, then as in other structures of the same kind, inflection required by the external context need be marked only on the Head constituent, not the Adjunct constituent.

E-Y Yi (1994) proposes such an analysis. She analyzes structures containing the verbal "coordinator" -ko as follows.

(26) <u>VP-adjunct:</u>

   [$_{IP}$ John-i$_i$ [$_{VP}$ [$_{CP}$ PRO$_i$ pap-ul mek-ko] [$_{VP}$ t$_i$ ca-ss-ta]]]

   <u>IP-adjunct:</u>

   [$_{IP}$ [$_{CP}$ John-i pap-ul mek-(ess)-ko] [$_{IP}$ (Mary-ka) ca-ss-ta]]

The non-final conjuncts lacking the appropriate inflectional marking are adjuncts in her analysis. Since the external context of the constituent in question (i.e., root clause) requires a verb inflected for Tense and Mood, under her analysis, it is natural that the markings are found only on the verb

that is part of the head VP - i.e., the final verb. The verb within the adjunct is not required to carry the markings, but must instead carry inflection appropriate to its status as adjunct (i.e., -ko).

As evidence for her analysis, she gives the following arguments. First, the distribution of Negative Polarity Items (NPI) in -ko coordination parallels that in unambiguous adjunct-head structures (cf., 27). In particular, under a coordinate analysis, the failure of NPI to surface in the initial conjunct in (27c) is unexpected. Yi argues that Yoon's (1994) coordination analysis also predicts that (27b) will be well-formed, contrary to fact.

(27)a. **Amuto** pap-ul mek-ko kulus-ul chiu-ci **anh-ass-ta**
   Nobody   meal-ACC eat-CONJ dish-ACC clean-COMP not-PST-DC
   'Nobody ate the meal and cleaned up the dishes.'

   a'. **Amuto**, [PRO pap-ul mek-un hwu-ey], kulus-ul chiu-ci **anh**-ass-ta
   Nobody   PRO meal-ACC eat-COMP after-at dish-ACC clean-COMP not-PST-DECL

   b. *__Amuto__ pap-ul mek-ko John-i kulus-ul chiu-ci **anh**-ass-ta
   Nobody meal-ACC eat-CONJ J-NOM dish-ACC clean-COMP not-PST-DC
   Lit. 'Nobody ate the meal and then John cleaned up the dishes.'

   b'. *[**Amuto** pap-ul mek-un hwu-ey], J-i kulus-ul chiu-ci **anh**-ass-ta
   Nobody meal-ACC eat-COMP after-at J-NOM dish-ACC clean-COMP not-PST-DC
   Lit. 'After anyone ate, John didn't clean up the dishes.'

   c. *John-i **amukes-to** mek-ko kulus-ul chiu-ci **anh**-ass-ta
   J-NOM nothing eat-CONJ dish-ACC clean-COMP not-PST-DC
   Lit. 'John ate anything and didn't clean up the dishes.'

   c'. *John-i, [PRO **amukes-to** mek-un hwu-ey], kulus-ul chiu-ci
   J-NOM PRO nothing eat-COMP after-at dish-ACC clean-COMP
   anh-ass-ta
   not-PST-DC
   Lit. 'After John ate anything, he didn't clean up the dishes.'

   d. John-i pap-ul mek-ko **amukes-to** ha-ci **anh**-ass-ta
   J-NOM meal-ACC eat-CONJ nothing do-COMP not-PST-DC
   'John ate his meal and didn't do anything.'

   d'. John-i, [PRO pap-ul mek-un hwu-ey], **amukes-to** ha-ci **anh**-ass-ta
   J-NOM PRO meal-ACC eat-COMP after-at nothing do-COMP not-PST-DC
   'After having his meal, John didn't do anything.'

NPI distribution in (28) below is also consistent with the adjunct analysis given in (26), though Yoon's (1994) coordination analysis makes the same prediction as the adjunct analysis for these sentences.

(28)a. *__Amuto__ pap-ul mek-ess-ko ppang-ul mek-ci **anh**-ass-ta
   Nobody meal-ACC eat-PST-CONJ bread-ACC eat-COMP not-PST-DC

   b. *__Amuto__ pap-ul mek-ess-ko John-i kulus-ul chiu-ci **anh**-ass-ta
   Nobody meal-ACC eat-PST-CONJ J-NOM dish-ACC clean-COMP not-PST-DC

   c. *John-i **amukes-to** mek-ess-ko kulus-ul chiu-ci **anh**-ass-ta
   J-NOM nothing eat-PST-CONJ dish-ACC clean-COMP not-PST-DC

   d. ?John-i pap-ul mek-ess-ko **amukes-to** chiu-ci **anh**-ass-ta
   John-NOM meal-ACC eat-PST-DC nothing clean-COMP not-PST-DC

Second, she notes that negation in the final conjunct fails to take distributive scope into the initial conjunct, contrary to the predictions of the coordination analysis.

(29)a. John-i pap-ul mek-ko kulus-ul chiu-ci anh-ass-ta
John-NOM meal-ACC eat-CONJ dish-ACC clean-COMP not-PST-DC
=/= John didn't eat his meal and he didn't clean up the dishes.
= John, after eating his meal, didn't clean up the dishes.

b. John-i, [PRO pap-ul mek-un hwu-ey], kulus-ul chiu-ci anh-ass-ta
John-NOM PRO meal-ACC eat-COMP after-at dish-ACC clean-COMP not-PST-DC
=/= John, after not eating his meal, didn't clean the dishes.
= John, after eating his meal, didn't clean the dishes.

Third, she points to the fact that the structures analyzed as coordination fail another diagnostic of standard coordination - CSC-ATB. (30) contains acceptable sentences violating the Element Condition of CSC, while (31) are sentences violating the Conjunct Condition of CSC.

(30)a. **Mwues-ul**ᵢ John-i [chayk-ul ilk-ko] [tᵢ mek-ess-ni]?
What-ACC John-NOM book-ACC read-CONJ eat-PST-QS
Lit. 'What did John read the book and then eat?'

b. John-i **nwuku-lul**ᵢ [pap-ul mek-ko] [tᵢ manna-ss-ni]?
John-NOM who-ACC meal-ACC eat-CONJ meet-PST-QS
Lit. 'Who did John eat and then meet?'

(31)a. [Nolay-lul pwulu-ko]ᵢ, na-nun Chelswu-ka [[tᵢ] [chwum-ul
song-ACC sing-CONJ I-TOP Chelswu-NOM dance-ACC
chwu]]-ess-ta-ko sayngkakha-n-ta
dance-PST-DC-COMP think-PRST-DC
'After Chelswu sang, I think he also danced.'

b. [Chelswu-ka nolay-lul pwul-ess-ko]ᵢ, na-nun [[tᵢ] [Yongho-ka
Chelswu-NOM song-ACC sing-PST-CONJ I-TOP Yongho-NOM
chwum-ul chwu-ess]-ta-ko sayngkakha-n-ta
dance-ACC dance-PST-DC-COMP think-PRST-DC
'After Chelswu sang, I think Yongho danced.'

c. tᵢ Yongho-ka chwum-ul chwu-ess-ta. // [Chelswu-ka nolay-lul
Yongho-NOM dance-ACC dance-PST-DC // Chelswu-NOM song-ACC
pwulu-ess-ko]ᵢ
sing-PST-CONJ
'Yongho danced after Chelswu sang a song.'

Violation of CSC-ATB is attested with elements that are assumed to undergo LF-movement, such as WH in-situ.

(32) John-i **mwues**-ul mek-ko cam-ul ca-ss-**ni**?
John-NOM what-ACC eat-CONJ sleep-ACC sleep-PST-QS
'What did John eat and then go to sleep?'

This, she argues, contrasts with LF-movement in genuine coordinate structures that cannot violate CSC-ATB.

(48) Some professor admires *every student* and despises the dean.
=/= 'For every student there is a professor such that s/he admires that student and despise the dean.'

3.2 But There Is Coordination!

Convincing as Yi's arguments appear to be, I will argue in this section that they are not tenable. Following S-Y Cho (1995), I argue that the non-final conjuncts in Korean that appear to behave as adjuncts (w.r.t. Extraction and other diagnostics) do so because **they are indeed adjuncts**. They are temporal/causal adjuncts, as can be seen by the fact that *V-ko* in them may be replaced by *V-ko-se* or *V-ko-nun* (S-C Song 1976; S-O Shin 1995).

In contrast, the non-final conjuncts that cannot be so marked are true conjuncts. By this test, all *tensed non-final conjuncts* and *tenseless conjuncts with stative verbs* come out as conjuncts, while tenseless conjuncts with non-stative predicates come out as ambiguous between conjunction and adjunction.

Looking ahead to the overall conclusion of the paper, the pattern of semantics-to-syntax mapping observed in Korean implies that in this language, relations of semantic subordination map to syntactic subordination, and semantic coordination to syntactic coordination, unlike the case of English we will examine in a moment.

As noted above, the primary indication that the non-final "conjuncts" in Yi's analysis may be adjuncts is based on the alternation of -ko with unambiguous adjunct markers *-ko-(se)-(nun)*.

(34)a. John-i pap-ul mek-ko-(**se/nun**) ppang-ul mek-ess-ta
John-NOM meal-ACC eat-KO-SE/NUN bread-ACC eat-PST-DC
'John, after eating his meal, ate bread.'

b. Emeni-ka aki-lul ep-ko-(**se/nun**) il-ul hay-ss-ta
mother-NOM baby-ACC carry-KO-SE/NUN work-ACC do-PST-DC
'While carrying her baby on her back, mother did her work.'

c. Salamtul-un i swul-ul masi-ko-(**se/nun**) 100-sal-kkaci sa-n-ta
people-ACC this liquor-ACC drink-KO-SE/NUN 100-year-till live-PRST-DC
'People, drinking this liquor, live to be a 100.'

The alternation is strictly prohibited in the case of true conjuncts, as we see below.[9]

(35)a. John-i pap-ul mek-**ess**-ko-(*nun/*se) cam-ul ca-ss-ta
John-NOM meal-ACC eat-PST-CONJ-NUN/SE sleep-ACC sleep-PST-DC
(*tensed V*)
'John ate and slept.'

b. John-i Mary-lul **salangha**-ko-(*nun/*se) Jane-ul **miweha**-n-ta
John-NOM Mary-ACC love-CONJ-NUN/SE Jane-ACC hate-PRST-DC
(*stative V*)
'John loves Mary and hates Jane.'

c. John-i pap-ul mek-**kena** ppang-ul mek-ess-ta
John-NOM meal-ACC eat-CONJ bread-ACC eat-PST-DC
(*disjunction*)
'John either ate steamed rice or bread.'

d. John-i pap-**to** mek-ko-(*nun/*se) ppang-**to** mek-ess-ta
John-NOM meal-also eat-CONJ-NUN/SE bread-also eat-PST-DC
(*both ~ and*)
'John ate both steamed rice and bread.'

We present below several pieces of evidence that the structures in (35) are symmetric, coordinate structures syntactically.

First, while conjuncts in a true coordinate structure can be permuted without a change in meaning, the adjunct and the head constituent in an adjunct-head structure cannot be so permuted. This is confirmed by the fact, that (36a), if followed immediately (as in cf. below) by a sentence identical to it except that the order of conjuncts has been reversed, sounds odd. Presumably this is so because no new information is conveyed by altering the order of conjuncts.

<u>True Coordination:</u>
(36)a. John-i cam-ul ca-ss-ko pap-ul mek-ess-ta
John-NOM sleep-ACC sleep-PST-CONJ meal-ACC eat-PST-DC
'John slept and John ate.'
= John-i pap-ul mek-ess-ko cam-ul ca-ss-ta
(36a) + Aniya("no"), J-i pap-ul mek-ess-ko cam-ul ca-ss-e.)

b. John-i Jane-ul miweha-ko Mary-lul salangha-n-ta
John-NOM Jane-ACC hate-CONJ Mary-ACC love-PRST-DC
'John hates Jane and loves Mary.'
= John-i Mary-lul salangha-ko Jane-ul miweha-n-ta

However, this is not the case with adjunct-head structures.

<u>Adjunct-Head structure:</u>
(37)a. John-i ca-n taumey pap-ul mek-ess-ta
John-NOM sleep-COMP afterwards meal-ACC eat-PST-DC
'John ate after sleeping.'
=/=

b. John-i pap-ul mek-un taumey ca-ss-ta
'John slept after eating.'
(cf. (37a) + Aniya, (37b))

<u>V-ko-(se) Adjunct:</u>
(38)a. John-i ca-ko-(se) Mary-ka ca-ss-ta
John-NOM sleep-KO-SE Mary-NOM sleep-PST-DC
'After J slept, Mary slept too.'
=/=

b. Mary-ka ca-ko-(se) John-i ca-ss-ta
'After M slept, J slept too.'
(cf. (38a) + Aniya. (38b))

Second, conjuncts can iterate, while adjuncts cannot. When multiple adjuncts occur, they are interpreted either as conjoined or successively embedded.

(39)a. John-i Mary-lul coaha-ko, Jane-ul silheha-ko, Ruth-lul
John-NOM Mary-ACC like-CONJ Jane-ACC dislike-CONJ Ruth-ACC
conkyengha-n-ta
respect-PRST-DC

a'. John-i Jane-ul silheha-ko, Mary-lul coaha-ko, Ruth-lul
conkyengha-n-ta
'John likes Mary, hates Jane, and respects Ruth.'

(40) *John-i, Mary-lul coaha-ki ttamwuney, Jane-ul silheha-ki
John-NOM Mary-ACC like-NMN because Jane-ACC hate-NMN
ttwamwuney, Ruth-lul conkyengha-n-ta
because Ruth-ACC respect-PRST-DC
'*Because he hates Jane because he likes Mary, John respects Ruth.'
(O.k. if [Because he hates Jane [as he likes Mary]], John respects
Ruth.)

(41)a. John-i [pap-ul mek-ko-(se) [kulus-ul chiu-ko-(se)]] TV-lul
John-NOM meal-ACC eat-KO-SE dish-ACC clean-KO-SE TV-ACC
po-ass-ta
watch-PST-DC
'After washing the dishes after his meal, J watched TV.'

a'. *John-i [pap-ul mek-ko-(se)], [kulus-ul chiu-ko-(se)] TV-lul
John-NOM meal-ACC eat-KO-SE dish-ACC clean-KO-SE TV-ACC
po-ass-ta
watch-PST-DC

Third, Gapping is possible in coordinate structures, but not in adjunct-head structures.

(42)a. John-i Mary-lul ∅, Bill-i Jane-ul coaha-n-ta
John-NOM Mary-ACC Bill-NOM Jane-ACC like-PRST-DC
'John likes Mary and Bill likes Jane.'

b. *John-i Mary-lul ∅ (ttaymwuney), Bill-i Jane-ul coaha-n-ta
John-NOM Mary-ACC because Bill-NOM Jane-ACC like-PRST-DC
'Because John likes Mary, Bill likes Jane.'

c. John-i pap-ul ∅, Mary-ka ppang-ul mek-ess-ta
John-NOM meal-ACC Mary-NOM bread-ACC eat-PST-DC
=

c'. Mary-ka ppang-ul ∅, John-i pap-ul mek-ess-ta
(cf. #(42c) + Aniya, (42c'))

We know that Gapping in (42c) is from a coordinate structure and not an adjunct-head structure since (42c') shows that permuting the order of Gapped constituents leads to unacceptability. This is a property diagnostic of coordination, as we saw earlier in the paper.

Fourth, only conjuncts can be linked with analytic coordinators *kuliko* or *ttonun*.[10]

(43)a. John-i Mary-lul coaha-ko *kuliko* Jane-ul silheha-n-ta
John-NOM Mary-ACC like-CONJ and Jane-ACC dislike-PRST-DC
'John likes Mary and hates Jane.'

b. *John-i, Mary-lul coaha-ki ttaymwuney, *kuliko* Jane-ul silheha-n-ta
John-NOM Mary-ACC like-NMN because and Jane-ACC dislike-PRST-DC
'Because he likes Mary, John hates Jane.'

c. ??John-i Mary-lul manna-ko-se *kuliko* Jane-ul manna-ss-ta
John-NOM Mary-ACC meet-KO-SE and Jane-ACC Jane-ACC meet-PST-DC

d. John-i ca-kena *ttonun* pap-ul mek-ko iss-keyss-ta
John-NOM sleep-CONJ or meal-ACC eat-COMP be-FUT-DC

Fifth, in true coordinate structures, negation does take distributive scope into non-final untensed conjuncts (contra Yi) when the coordinator is *-kena* ('or'), due to De Morgan's Law. When the coordinator is *-ko*, negation is interpreted (metalinguistically) as having the entire coordinate structure in its scope. When the non-final conjunct is tensed, it always lies outside the scope of the negative auxiliary on the final conjunct, due to the fact that the position of the negative auxiliary *anh-* is lower than that of tense (Yoon 1993).

Neg scope in coordinate structures:
(44)a. John-i sakwa-lul coaha-**kena** orange-lul silheha-ci **anh**-ass-ta
John-NOM apple-ACC like-CONJ orange-ACC dislike-COMP not-PST-DC
= John didn't like apples or hate oranges.

b. John-i sakwa-lul coaha-**ko** orange-lul silheha-ci **anh**-ass-ta
John-NOM apple-ACC like-CONJ orange-ACC dislike-COMP not-PST-DC
= It's not that J liked apples and hated oranges. (In fact, he hated

them both.)
=/= While he liked apples, John hated oranges.

c. John-i sakwa-lul coahay-ss-kena orange-lul silheha-ci **anh**-ass-ta
John-NOM apple-ACC like-PST-CONJ orange-ACC dislike-COMP not-PST-DC
=/= J liked neither apples nor oranges.
= J either liked apples or hated oranges.

Neg scope in adjunct structures:
(45)a. John-i pap-ul mek-**ko-se** kulus-ul chiu-ci **anh**-ass-ta
John-NOM meal-ACC eat-KO-SE dish-ACC clean-COMP not-PST-DC
=/= John didn't eat his meal and he didn't clean up the dishes.
= After eating his meal, John didn't clean up the dishes.

b. John-i, [PRO pap-ul mek-un hwuey], kulus-ul chiu-ci **anh**-ass-ta
John-NOM PRO meal-ACC eat-COMP after dish-ACC clean-COMP not-PST-DC
=/= After not eating his meal, John didn't clean the dishes.
= After eating his meal, John didn't clean the dishes.

Sixth, CSC-ATB violations are attested only in adjunct-head structures, but not true coordinate structures. This is confirmed through a range of extraction (and ellipsis) phenomena, for both the Conjunct and Element Conditions of the CSC.

Extraction from coordinate structures:
(46) *Mwues-ul$_i$ John-i [chayk-ul ilk-**ess**-ko-(*se)] [t$_i$ mek-ess-ni]?
What-ACC John-NOM book-ACC read-PST-KO-SE eat-PST-QS
Lit. 'What did John read the book and then eat?'

Extraction from adjunct structures:
(47)a. Mwues-ul$_i$, John-i, [PRO chayk-ul sa-**ss**-ki ttamwun-ey] t$_i$ al-key
What-ACC John-NOM PRO book-ACC buy-PST-NMN because know-COMP
toy-ess-ni?
become-PST-QS

b. Mwues-ul$_i$, John-i [chayk-ul ilk-ko-se] [t$_i$ mek-ess-ni]?
What-ACC John-NOM book-ACC read-KO-SE eat-PST-QS

Scrambling of conjunct:
(48)a. *[Sakwa-to coaha-ko]$_i$, Yenghi-nun mikwuk-ey sa-l ttay,
Apple-also like-CONJ Yenghi-TOP America-LOC live-COMP time
[t$_i$ [orange-to coahay]]-ss-ta
orange-also like-PST-DC
'When she was living in America, Yenghi used to like both apples and oranges.'

b. *[Sakwa-lul coaha-kena]$_i$, Yenghi-ka mikwuk-ey sa-l ttay,
apple-ACC like-CONJ Yenghi-NOM America-LOC live-COMP time
[t$_i$ [orange-lul coahay]]-ss-ta
orange-ACC like-PST-DC
'When she was living in America, Yenghi used to like either apples

or oranges (but not both).'

Scrambling of adjunct:
(49) [Nolay-lul pwulu-ko-se]ᵢ Yenghi-nun pang-eyse [tᵢ [chwum-ul
song-ACC sing-KO-SE Yenghi-TOP room-LOC dance-ACC
chwu-ess-ta]]
dance-PST-DC
'After singing, Yenghi danced in her room.'

VP-"fronting" stranding a conjunct:
(50) *[Orange-ul coaha-ki-nun]ᵢ, Yenghi-ka [sakwa-lul silheha-ko]
orange-ACC like-NMN-TOP Yenghi-NOM apple-ACC hate-CONJ
coahayᵢ-ss-ta
like-PST-DC
'*Like oranges, Yenghi hated apples and.'

VP-"fronting" stranding an adjunct:
(51) ?[Chwum-ul chwu-ki-nun]ᵢ, Yenghi-ka [nolay-lul pwulu-ko-se]
dance-ACC dance-NMN-TOP Yenghi-NOM song-ACC sing-KO-SE
chwuᵢ-ess-ta
dance-PST-DC
'Dance, Yenghi did after singing.'

VP-"ellipsis" stranding a conjunct:
(52) Yenghi-nun [sakwa-lul silheha-ko] [orange-lul coaha-n-ta]
Yenghi-TOP apple-ACC dislike-CONJ orange-ACC like-PRST-DC
... Chelswu-to kuleh-ta
... Chelswu-also so-DC
= Chelswu hates apples and likes oranges.
=/= Chelswu hates oranges.
... *Chelswu-nun [swupak-ul silheha-ko] kuleh-ta
... Chelswu-TOP watermelon-ACC dislike-CONJ so-DC

VP-"ellipsis" stranding an adjunct:
(53) Yenghi-nun [nolay-lul pwulu-ko-se] [chwum-ul chwu-ess-ta]
Yenghi-TOP song-ACC sing-KO-SE dance-ACC dance-PST-DC
... Chelswu-to kulay-ss-ta
... Chelswu-also do-PST-DC
= Chelswu danced after singing./= Chelswu danced, too.
... Chelswu-nun [si-lul ulph-ko-se] kulay-ss-ta
... Chelswu-TOP poem-ACC recite-KO-SE do.so-PST-DC

Right Dislocation does not seem to distinguish conjuncts and adjuncts. But then the assumption that extraction from coordinate structures via Right Dislocation is blocked is unwarranted in the first place, as seen by the fact that English coordinate structures allow such extraction.

Right Dislocation:
(54)a. Yongho-nun chwum-ul chwu-ess-ta. // Chelswu-nun nolay-lul
Yongho-TOP dance-ACC dance-PST-DC // Chelswu-TOP song-ACC
pwulu-ess-ko
sing-PST-CONJ
'Yongho danced. But/And Chelswu sang a song.'
b. Yongho-ka chwum-ul chwu-ess-ta. // Animyen Chelswu-ka
Yongho-NOM dance-ACC dance-PST-DC // Or Chelswu-NOM
nolay-lul pwul-ess-kena.
song-ACC sing-PST-CONJ
'Yongho danced. Or maybe Chelswu sang a song.'

(55)a. John danced. // And Mary, too
b. I heard that Mary works out at the gym these days. // And/Or runs a mile everyday, too/maybe.
c. Mary went to the park, I think. // Or to her friend's house, maybe.

Seven, WH in-situ in true coordinate structures must be distributed ATB, while in adjunct-head structures, it can occur in just one constituent.

Scope of WH-in-situ in coordination:
(56)a. *John-i nwuku-lul coaha-ko chayk-ul silhehay-ss-ni?
John-NOM who-ACC like-CONJ book-ACC dislike-QS
'*Who did John like and hate books?'
a'. John-i nwuku-lul coaha-ko nwuku-lul silhehay-ss-ni?
John-NOM who-ACC like-CONJ who-ACC dislike-QS
'Who did John like and who did he hate?'

Scope of WH-in-situ in adjunction:[11]
(57)a. John-i pap-ul mek-ko-se mwues-ul hay-ss-ni?
John-NOM meal-ACC eat-KO-SE what-ACC do-PST-QS
'What did John do after his meal?'
b. John-i mwues-ul mek-ko-se TV-lul po-ass-ni?
John-NOM what-ACC eat-KO-SE TV-ACC watch-PST-QS

Finally, when we examine the distribution of NPI's in coordinate structures, we observe that it follows the predictions of the coordination analysis, not the adjunct-head analysis.

NPI licensing in coordination:
(58)a. *?John-i [[amukes-to peli-kena] [mwulken-ul chiu-ci]] anh-ass-ta.
John-NOM anything discard-CONJ stuff-ACC remove-COMP not-PST-DC
'John did not discard anything or remove stuff.'
a'. Amukes-toᵢ, John-un [[tᵢ kentuli-kena] [tᵢ peli-ci]] anh-ass-ta.
Anything John-TOP touch-CONJ(or) discard-COMP not-PST-DC
b. ??John-i [[mwulken-ul peli-kena] [amukes-to chiu-ci]] anh-ass-ta.
John-NOM stuff-ACC discard-CONJ(or) anything remove-COMP not-PST-DC

b'. **Amukes-to**$_i$, John-i [[t$_i$ peli-kena] [t$_i$ chiu-ci]] **anh**-ass-ta.
   Anything John-NOM discard-CONJ(or) remove-COMP not-PST-DC

c. *[[John-i **amukes-to** mek-ess-ko] [(pro) kulus-ul chiu-ci
   John-NOM anything eat-PST-CONJ dish-ACC clean-COMP
   anh-ass-ta]]
   not-PST-DC

d. ?[[John-i mwulken-ul peli-ess-ko] [(pro) **amukes-to** chiu-ci
   John-NOM stuff-ACC discard-PST-CONJ anything remove-COMP
   anh-ass-ta]]
   not-PST-DC

If NPI is licensed by a c-commanding clause-mate negation, the ungrammaticality of (58c) is predicted, but the marginality of (58a) and (58b) is unexpected. (58b',c') show that ATB-extraction of the NPI improves the structures.

We propose to explain the distribution by assuming that there is an additional requirement that the NPI be 'governed' by the negation at S-structure (K-W Sohn 1995). The oddity of (58d) in turn may be because the propositions expressed by two tensed conjuncts have little in common (K-D Lee 1993).

In contrast, under the assumption that the structures in question are adjunct-head structures (Yi 1994), we would analyze the sentences in the manner indicated below.

NPI licensing in adjunction:
(59)a. *John-i [**amukes-to** mek-ko-se] kulus-ul chiu-ci **anh**-ass-ta
   John-NOM anything eat-KO-SE dish-ACC clean-COMP not-PST-DC
   '*John did not clean up the dishes after eating anything.'

b. John-i [pap-ul mek-ko-se] **amukes-to** ha-ci **anh**-ass-ta
   John-NOM meal-ACC eat-KO-SE anything do-COMP not-PST-DC
   'John didn't do anything after having his meal.'

c. *[John-i **amukes-to** mek-ess-ko [(pro) kulus-ul chiu-ci **anh**-ass-ta]]
   John-NOM anything eat-PST-CONJ dish-ACC clean-COMP not-PST-DC
   '*John ate anything and didn't do the dishes.'

d. ?[John-i pap-ul mek-ess-ko [(pro) **amukes-to** ha-ci **anh**-ass-ta]]
   John-NOM meal-ACC eat-PST-CONJ anything do-COMP not-PST-DC
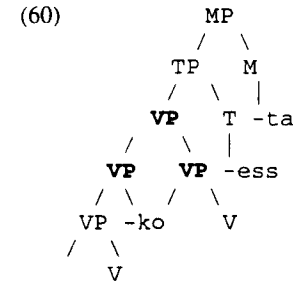   'John had his meal and didn't do anything.'

Yi's adjunct analysis correctly predicts the distribution of NPI in (59a, b, c). However, (59d) is predicted to be as good as (59b), but is marginal. This is expected under a conjunction analysis, as noted above. The conjuncts in tensed coordination are understood to describe separate unrelated events, hence the oddity of (59d).

3.3 Analysis of Asymmetric Morphosyntactic Marking in Korean

If we are correct that the adjunct analysis is untenable and if coordinate structures exist in Korean, the (a)symmetry of morphosyntactic marking still remains to be accounted for.

I suggest that the apparent asymmetry ceases to be a problem once we adopt a particular morphological analysis of inflectional affixes in Korean, different from the one sketched briefly in (21a-b), which Yi appears to be assuming (cf. 26).

Yoon (1989, 1993, 1994, 1996), Yoon & Yoon (1990), J-M Yoon (1996), Lapointe (1996), etc. assume that Korean inflectional suffixes are **phrasal suffixes/enclitics**, while English verbal inflections are lexically attached suffixes (as shown in 20a-c). Since Tense and Mood elements cliticize to the right edge of the coordinate structure, we have the appearance of asymmetric morphosyntactic marking. However, in reality, the inflection combines with the entire coordinate structure and not just with the verb of the final conjunct. Thus, under this analysis, we can maintain that inflectional marking in Korean is symmetric, or across-the-board.

(60)
```
                MP
               /  \
            TP     M
           /  \    |
         VP    T  -ta
        /  \   |
      VP    VP -ess
     / \   / \
   VP -ko     V
  /  \
 V
```

John-i [[sakwa-lul coaha]-ko [orange-lul silheha]]-ss-ta

The morphosyntactic marking in English coordination is also symmetric, or across-the-board, as demonstrated earlier in the discussion (cf. 20a-c), though in a way different from Korean.

Based on the arguments in this section, we may come to the following conclusions about morphosyntactic marking in coordinate structures.

(i) Both English and Korean has coordinate structures.
(ii) Both English and Korean are symmetric regarding morphosyntactic marking, despite the appearance to the contrary in Korean.

Having addressed the first (a)symmetry, let us turn now to the second asymmetry, phrasal extraction in violation of CSC-ATB.

4 CSC-ATB in XP-Extractions in English vs. Korean

We already have an analysis of CSC-ATB violations in Korean. In discussing Yi's adjunct analysis in the previous section, we saw that phrasal extraction in violation of CSC-ATB is possible only in adjunct-head structures, not true coordinate structures. We took this to mean that there is no mismatch between syntax and semantics regarding sub- vs. co-ordination in Korean.

The question now is whether such an analysis is also applicable to English. The answer seems to be negative. The structures that allow asymmetric extraction out of them - asymmetric conjunctions - do not seem to be analyzable syntactically as head-adjunct structures.

4.1 Non-ATB Extraction in Asymmetric Coordination in English

In the literature, two types of asymmetric conjunctions have been discussed. The first can be termed "scenario-oriented" and has been discussed by Goldsmith (1985), Lakoff (1986), and Deanne (1991), among others. A second type of asymmetric coordination, which can be termed "conditional" coordination, has been investigated recently by Culicover & Jackendoff (1997).

Lakoff (1986) argues convincingly that the "scenario"-type asymmetric conjunctions in English must be analyzed as syntactically coordinate, not head-adjunct structures, for the following reasons.

The structures allowing non-ATB extraction exhibit hallmarks of coordinate structures such as iteration, simultaneous extraction from several conjuncts, and intonation patterns typical of coordinate structures.

(61)a. What$_i$ did he go to the store, buy t$_i$, load t$_i$ in his car, drive home, and unload t$_i$?
    b. How many courses$_i$ can you take t$_i$ for credit, still remain sane, and get all A's in t$_i$?

Secondly, even though phrasal extraction from such asymmetric conjunctions may violate ATB, Subject-Aux Inversion is obligatorily ATB.

(62)   How many courses$_i$ can you take for credit, and still remain/*will remain sane?

Thirdly, as argued by Lakoff (1986) and Deanne (1991), the multiple gaps found in asymmetric conjunctions cannot be analyzed as parasitic gaps. A true parasitic gap (63b) requires a gap in the main clause VP, while the multiple gaps found in asymmetric conjunctions are fine even when the main VP does not contain an extraction gap (63a).

(63)a. Sam's not the kind of guy$_i$ you can just sit there, listen to t$_i$, and not want to punch t$_i$ in the nose
    b. *Sam's not the kind of guy$_i$ you can just sit there, while listening to t$_i$, and not want to punch t$_i$ in the nose·

C&J (1997) argue that the asymmetric conjunctions interpreted as conditionals are syntactically coordinate structures, despite the fact that these structures fail a large number of classical diagnostics for coordination. Asymmetric conjunction of the conditional type display the following properties which suggest that they are not coordinate structures syntactically (see C&J for details and section 2.1 for examples).

- Failure to license Gapping and Right Node Raising.
- The structures can only be binary.
- The structures allow binding into the conjunct interpreted as a conditional.
- Allows non-ATB extraction.
- Extraction is marginal if ATB.
- The structures exhibit various construction-specific restrictions (tense, no VP, CP-conjunction, etc.)

However, C&J also point out that there is evidence in favor of the coordinate status of these structures.

- The conjunct interpreted as a conditional allows extraction; true adjuncts don't.
- Each conjunct independently allows inversion. Inversion is impossible in adjunct clauses.

Based on these last two properties, C&J argue that conditional asymmetric conjunction has a coordinate structure syntactically, and propose to explain away the various asymmetries suggesting a non-coordinate analysis of asymmetric conjunction.

4.2 Analysis of Non-ATB Extractions in English

While details differ, what is common to the analyses of non-ATB extraction from syntactically coordinate structures of the "scenario" type in English appears to be the assumption that CSC-ATB is a non-syntactic constraint. That is, unlike theories that attempt to derive the CSC-ATB as a consequence of the syntax of coordinate structures (GPSG, HPSG), these accounts (Lakoff 1986 and Deanne 1991 being the most explicit) view CSC-ATB as semantic-pragmatic. In a nutshell, the idea is that CSC-ATB holds in syntactic structures that express semantically symmetric (coordinate) propositions, but not elsewhere. Non-ATB extraction is possible in "scenario"-type asymmetric coordinations because while syntactically

coordinate, such structures do not express semantically symmetric-coordinate propositions.

C&J's conclusions regarding "conditional" asymmetric conjunction are similar. They suggest that relations of semantic subordination may map to syntactically coordinate structures in English. They propose further, that while CED (Subjacency) is syntactic, CSC-ATB is semantic-pragmatic. This accounts for the fact that while extraction from the conjunct interpreted as a conditional is possible (not being a violation of the semantic CSC-ATB), it is barred from a genuine conditional adjunct (being a violation of the syntactic CED).

5 Conclusion

By way of conclusion, we return to a question that we left the previous section with - how do we account for the differences in ATB-extraction between English and Korean, since there is an apparent paradox? CSC-ATB looks syntactic in Korean, since, if we are right, it holds only for syntactically coordinate structures, while in English, a plausible case could be made that it is semantic, given the Lakoff-Deane-Culicover-Jackendoff evidence that asymmetric conjunctions are syntactically coordinate.

Another question based on the conclusions reached earlier about morphosyntactic marking is the following - why do the languages behave in the same way with regard to morphosyntactic marking, while they differ regarding CSC-ATB?

The tentative answer to the questions we propose is as follows. We agree with Lakoff-Deanne-Culicover-Jackendoff that **CSC-ATB is "really" a semantic-pragmatic constraint**, but one with a syntactic reflex. It appears to hold only of syntactically coordinate structures in Korean because syntactic coordination always signals semantic coordination in Korean. In contrast, it appears to hold of a subset of syntactically coordinate structures (i.e., those that are also semantically coordinate) in English because semantic subordination may sometimes map to syntactic coordination in English (Lakoff 1986; C&J 1997).[12]

In contrast, we propose that **morphosyntactic marking is a purely syntactic requirement** on coordinate structures in both languages. Thus, both languages are symmetric with respect to such marking, despite initial evidence to the contrary in Korean.

If correct, the conclusions we have reached have implications for the general theory of coordination. Of the analytic choices mentioned in 2.2, something like **Option 2** -- which holds that there are (i) syntactically coordinate structures, distinct from subordinate constructions, and (ii) that there are both syntactic and semantic-pragmatic conditions on coordination -- appears to be valid. The results thus constitute an argument against recent attempts to do away with coordination syntactically, such as those of Munn, Kayne, and Chomsky.

[1] By 'other types of syntactic structures' we mean structures where there is a unique Head, such as Spec-Head, Head-Complement, Adjunct-Head structures. All such structures are asymmetric.

[2] Thus, (1a) claims that the conjuncts must be identical in terms of category and are structurally sisters of the same BAR-level, while (1b) adds the further requirement (via the NONLOCAL attribute) that the conjuncts be symmetrical with regard to whether or not they contain an extraction gap.

[3] (4a,b) show that QR and WH-R at LF are also restricted by CSC-ATB. (4c) shows that a Q-NP in one conjunct cannot bind a pronoun in another, presumably because the Q-NP cannot c-command out of its conjunct into another conjunct.

[4] However, certain non-coordinate structures allow RNR, so that RNR by itself is not sufficient to single out coordinate structures.

[5] The CSC consists of the Conjunct Condition, prohibiting extraction of entire conjuncts, and the Element Condition, prohibiting extraction out of conjuncts, unless such extraction is Across-the-Board. The distinction is due to Grosu.

[6] I say "implicitly" because classical symmetrical analyses of coordination do not in general offer an account of the asymmetries, focussing only on the symmetries.

[7] As we shall see in a moment, this assumption is not justified, since the structures exhibiting non-ATB extraction are adjunct-head structures.

[8] That is, if UG licenses coordinate structures as uniformly symmetric or asymmetric, the fact that languages appear to differ in the syntactic representation of coordination is a problem.

[9] Trivially so in the case of (c) containing a disjunctive marker, since there is no adjunct marker *-kena-(se)-(nun). However, the existence of disjunctive coordination showing all the hallmarks of symmetric coordination is important to the question of whether coordinate structures as such exist independently of Adjunct-Head structures.

[10] The fact that kuliko-marking is not completely out with V-ko-se appears problematic for the claim that the verbal ending is an adjunct marker. This is perhaps because speakers are analyzing kuliko in (43c) as kuliko-(na)-se, which I would consider to be a temporal adjunct pro-form.

[11] WH in-situ in the adjunct clause in (57b) can take matrix scope, since Subjacency is irrelevant to LF movement, as is well-known.

[12] This proposal receives intuitive support from the fact that Korean possesses a far greater variety of adjunct clausal connectives than English. Presumably the reason English has both (a) and (b) below is because the meaning expressed in asymmetric coordination in (a) is not equivalent to that expressed in the head-adjunct structure in (b), whereas in a language like Korean, there are appropriate adjunct connectives capable of expressing the subtle differences in meaning (e.g., ko-se for (a) and ci-man for (b)).

(a) John drank a bottle of wine and was still sane.
(b) John was still sane despite drinking a bottle of wine.

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30

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II. LANGUAGE ACQUISITION