# Verb Movement and Structure of IP in Korean

Jeong-Me Yoon

In the recent proposals of Pollock (1989) and Chomsky (1989), the structure of IP becomes more articulated, each feature of INFL, namely, AGR and Tense being analyzed as the syntactic head of a maximal projection. In these analyses, inflectional morphology is explained in terms of verb movement in syntax. In this paper, we propose a more articulated structure of IP in Korean which shows rich verbal morphology. Specifically, we show that Korean provides us with strong evidence that each maximal projection proposed in the previous analyses without any argument for its status as a maximal projection really is a maximal projection which can act as an independent syntactic unit. In addition, we show how the inflectional morphology in Korean can be explained in terms of Verb movement in syntax.

## 0. Introduction

In the recent proposals of Pollock (1989) and Chomsky (1989), the structure of IP becomes more articulated, with each feature of INFL, namely AGR and Tense, being analyzed as the syntactic head of a maximal projection. In these analyses, inflectional morphology is explained in terms of verb movement, i.e., $X^0$-movement in the syntax. In this paper, we are going to propose a more articulated structure of IP in Korean which shows rich verbal morphology and explain the inflectional morphology in terms of V-movement in syntax. As we will see, Korean turns out to be a language which gives strong evidence that each maximal projection proposed in the previous analyses is a really independent syntactic unit.

More specifically, we examine the following issues in this paper. First, we will consider how many independent syntactic heads we need for the adequate analysis of Korean IP (e.g., CP (or MoodP), AspP, TP, AgrP,

NegP), and the hierarchical ordering of each maximal projection. For this issue, we will crucially refer to coordination facts in Korean which provide a crucial test case for the independence of each maximal projection we are going to posit for IP structure of Korean. Secondly, we will examine whether the verbal morphology in Korean can be adequately analyzed in terms of V-movement. For this, we will consider two types of negation in Korean, namely pre-verbal and post-verbal negation and how they interact with V-movement in terms of HMC and ECP. Thirdly, we will examine some related issues of IP structure such as the position of subjects and the assignment of nominative case in Korean.

## 1. Verbal Morphology in Korean

Korean is a highly agglutinating language where complex words are formed by affixation and compounding of stems. There are three kinds of verb suffixes, namely stem-forming suffixes which combine with a stem to form a complex stem, word-forming suffixes which combine with a stem to form a word and word suffixes which combine with a word to form a word. For example, in the complex verb form in (1), *-ess*, *-si*, *-kess* are stem-forming suffixes and *-ta* and *-ko* are word-forming suffixes.[1]

(1) a. mek-ess-ta
       eat-Pst-Dec
    b. mek(u)-si-kess-ko[2]
       eat-Honorific-may(modal)-and(Connective)

There is a strict ordering among the morphemes which are attached to a verb stem, as the following data show.

(2) a. cap-                    'catch'
    b. cap-ess-ta              'catch-Pst-Dec'
    c. cap(u)-si-ess-ta        'catch-Honorific-Pst-Dec'
    d. cap(u)-si-ess-kess-ta   'catch-Honorific-Pst-modal(may)-Dec'
    e. *cap-ess-si-ta          'catch-Pst-Hon-Dec'

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[1] Verb suffixation in Korean is a very complicated phenomenon and we do not attempt to give a whole picture of it in this paper, but concentrate on the affixation of inflectional morphemes.

[2] 'u' is an epenthetic vowel inserted for phonological reasons, i.e., for the convenience of pronunciation between two consonants.

    f. *cap-ta-ess-si      'catch-Dec-Pst-Hon'

    g. *cap(u)-si-ess-ta   'catch-Hon-Pst-Dec'

## 2. Two types of Negation in Korean

There are two types of negation in Korean, namely pre-verbal negation and post-verbal negation. In pre-verbal negation, the main verb is immediately preceded by the negative morpheme *ani* ((3a)). In post-verbal negation, the verb stem is attached with *-ci*, which is a kind of nominalizer, and the negative morpheme *ani* is followed by the dummy verb *ha* 'do' which is attached with the inflectional elements ((3b)).

(3) a. Chelswu-ka pap-ul ani mek-ess-ta

        Nom meal-Acc not eat-Pst-Dec

     'Chelswu did not eat the meal.'

   b. Chelswu-ka pap-ul mek-ci ani ha-ess-ta

        Nom meal-Acc eat-Comp not do-Pst-Dec

The difference between pre-verbal negation and post-verbal negation lies in their scope of negation. The scope of pre-verbal negation is restricted to the verb itself, however the scope of post-verbal negation can range over the whole clause.[3] Thus, the pre-verbal negative sentence (4)a can mean only (5)a, however, (4)b which is a post-verbal negative sentence, can

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   [3] It seems that there is some disagreement in the judgement on the scope of post-verbal negation, specifically whether subjects are within the scope of post-verbal negation or not. We think that subjects can also be within the scope of post-verbal negation and thus (5)c is a possible reading for (4)b. The following sentence more clearly shows that subjects are within the scope of negation.

  (a) ta o-ci    ani ha-ess-ta.

     all come-ci not do-Pst-Dcl

  ( i ) Nobody came.

  ( ii ) Not everybody came.

In addition, the fact that negative polarity words can occur in the subject position in Korean provides a strong piece of evidence that subjects are within the scope of negation.

  (b) amwuto o-ci ani ha-ess-ta.

     anybody come-ci do-Pst-Dcl

     'Nobody came.'

  cf. *Anybody did not come.

     See, however, Suh (1990) for a different view. She claims that the scope of post-verbal negation is VP, not S.

have all four interpretations, (5)a, b, c, d.

(4) a. Chelswu-nun keki-e yele-pen an ka-ess-ta.
           Top there-to several times not go-Pst-Dec
       'Chelswu did not go there several times.'
    b. Chelswu-nun keki-e yele-pen ka-ci ani ha-ess-ta.
                                    go-Comp not do-Pst-Dec
       'Chelswu did not go there several times.'

(5) a. It is several times that Chelswu did not go there.
    b. It is not several times that Chelswu went there.
    c. It is not Chelswu who went there several times.
    d. It is not there where Chelswu went several times.

## 3. Proposed structure

To explain the preceding facts of verbal morphology in terms of V-movement in syntax, we propose the following structure of IP in Korean.[4]

(6)

optional
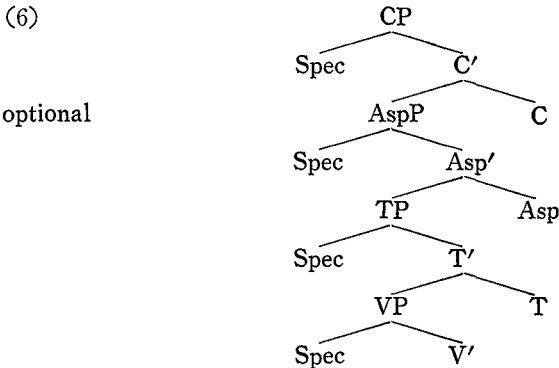


For the post-verbal negation sentences, we propose the following structure.[5]

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[4] In this paper, we ignore the questions related to Spec positions of each maximal projection proposed. See Mahajan (1989; 1990), Deprez (1990), Yoon and Yoon (1990), J-M Yoon (in preparation), etc. for the discussion.
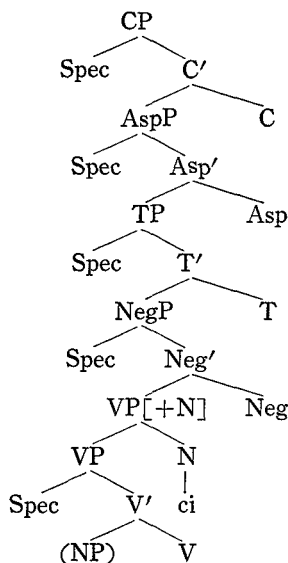
[5] A reviewer has pointed out to us that our proposed structure does not explain the fact that *motun salam* in the following sentence always has a wide scope.
   (a) motun salam-i o-ci ani ha-ess-ta.
       every body-Nom come-ci not do-Pst-Dcl
His point is that since the position of subjects is lower than Neg in Korean under

(7)                                    CP
                               Spec        C′
                                    AspP          C
                               Spec      Asp′
                                    TP          Asp
                               Spec      T′
                                    NegP          T
                               Spec      Neg′
                                    VP[+N]      Neg
                               VP          N
                          Spec      V′    ci
                          (NP)      V

As will be discussed later, we claim that only post-verbal negation is done in syntax, whereas pre-verbal negation is a lexical process. Therefore, the structure of pre-verbal negation sentences will be the same as that of affirmative sentences, i.e., (6).

In the proposed strucure, we have posited CP, AspP, TP NegP as maximal projections above VP, excluding the existence of AgrP in Korean.

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the VP-internal Subject Hypothesis, it must be the Neg which has a wide scope. Although we disagree on the judgement and think that (a) is ambiguous between the following two readings, we admit that it has to be explained how (i) is possible, i.e., how subjects can have a wider scope than Neg.

    ( i ) Nobody came.

    ( ii ) Not everybody came.

A possible account of reading (i) is to assume Quantifier Raising. However, as is pointed out by the reviewer, if we follow Aoun & Li (1989) that variable must be bound by the most local potential A'-binder, QR of subjects from the VP-internal position will not explain the wide scope reading of subjects over Neg. However, we think that there is an answer for this problem. Although subjects can stay in VP-internal position in Korean, it does not mean that they have to stay in VP-internal position. Thus, subjects can move to the Spec of IP position and this movement will be A-movement. If this is the case, the most local potential A'-binder for the trace of Quantifier Raising is the one adjoined to IP, and since it is higher than Neg in the structure, subjects can have a wider scope than Neg.

In accordance with general assumptions about AGR in Korean, and based
on some coordination facts in Korean which will be discussed shortly, we
claim that there is no AgrP in Korean. In the following section, first, we
will justify the proposed structure based on the coordination facts in Korean.

## 4. Coordination

Coordination in Korean provides a crucial test case for the proposed
structure. Coordination facts in Korean have led people to claim that
phrasal affixation (Sadock (1985, 1986), Kendall & Yoon (1986a, b)) is
necessary to explain the coordination facts in Korean. As an example,
consider the following NP coordination in Korean.

(8) Chelswu-nun [chayk-kwa yenpil]-ul sa-ess-ta.
          -Top book-and pencil-Acc buy-Pst-Dec
      'Chelswu bought a book and a pencil.'

In (8), the case marker *-ul* attached to the second NP, *yenphil* is distributed
over both the first and second NP. Based on facts like this people have
claimed that this kind of affix is combined with syntactically constructed
phrases and thus are syntactic sisters to them. This view explains the
scope fact naturally, since in this view, phrasal affixes are sisters to the
coordinated phrases and thus c-command them and have scope over them.
In verbal morphology, we find similar data.

(9) [Chelswu-ka chayk-ul sa]-ko [Yenghi-ka
          Nom book-Acc buy-and      Nom
      kongchayk-ul sa]-ess-ta.
      notebook-Acc buy-Pst-Dec
      'Chelswu bought a book and Yenghi bought a notebook.'

In (9), the first clause is not marked with tense feature, and its tense is
dependent on the tense in the second clause, i.e., the past tense morpheme
*-ess* affixed to the verb stem in the second clause distributes over the first
clause as well as the second clause. We think that this kind of coordination
facts and phrasal affixation provide crucial evidence for the independence
of each of the maximal projections we have posited for the IP structure of
Korean. Since coordination is possible only for constituents, first, the fact

that phrases like TP, AspP, NegP can be coordinated with another provides
strong evidence that it is a syntactically independent unit. Since it is clear
that phrases like [*Chelswu-ka chayk-ul sa*] is not an X⁰-element, they must
be a higher level category, X' or X''. Secondly, according to the X'-theoretic
requirements, the fact that the scope of phrasal affixes like *ess* ranges over
the whole conjoined phrases shows that they are syntactic heads which take
a specific maximal projection as its complement.[6]

(10)

$$XP$$

Spec          X̄'

YP          X

Having this as background, let us consider the following coordination facts
about verbal morphology.

(11) [CP Chelswu-ka chayk-ul sa-ess-kess-ta]. kuliko[7] [CP
          Nom book-Acc buy-Pst-may-Dec and
     Yenghi-ka kongchayk-ul sa-ess-kess-ta].
     notebook-Acc buy-Pst-may-Dec
     'Chelswu might have bought a book and Yenghi might have bought
     a notebook.'

(12) [AspP Chelswu-ka chayk-ul sa-ess-kess]-ko [AspP
          Nom book-Acc buy-Pst-may-and
     Yenghi-ka kongchayk-ul sa-ess-kess]-ta.
          Nom notebook-Acc buy-Pst-may-Dec
     'Chelswu might have bought a book and Yenghi might have bought
     a notebook.'

(13) [TP Chelswu-ka chayk-ul sa-ess]-ko [TP Yenghi-ka
          Nom book-Acc buy-Pst-and          Nom

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[6] Another possibility is that those phrasal affixes be $X^0$ modifiers adjoined to
XPs. However, this possibility is excluded since Korean is a head-final language,
and modifiers must precede modifiees. In fact, in Korean, there is no case of
modifiers following the modifiee.

[7] *kuliko* and *ko* are allomorphemes. *ko* is a suffix attached to the verb stem
and *kuliko* is a separate word used after the complementizer-*ta*. Morphologically,
*ko* and *ta* take the same slot, and therefore, are incompatible with each other.

kongchayk–ul sa–ess]–kess–ta.
notebook–Acc buy–Pst–may–Dec
'Chelswu might have bought a book and Yenghi might bought a notebook.'

(14) [NegP Chelswu–ka chayk–ul sa–ci ani ha]–ko
                    Nom book–Acc buy–Pst–and
[NegP Yenghi–ka kongchayk–ul sa–ci ani ha]–ess–ta.
                    –Nom notebook–Acc buy not–do–Pst–Dec
'Chelswu did not buy a book and Yenghi did not buy a notebook.'

(15) [VP Chelswu–ka chayk–ul sa]–ko [VP Yenghi–ka
                Nom book–Acc buy–Pst–and        Nom
kongchayk–ul sa–ci] ani ha–ess–ta.
netbook–Acc buy–Comp not–do–Pst–Dec
'It was not the case that Chelswu bought a book and Yenghi bought a notebook.'

Sentence (11) shows the coordination of CPs[8], and in (12), *ta*, which is

(12)'



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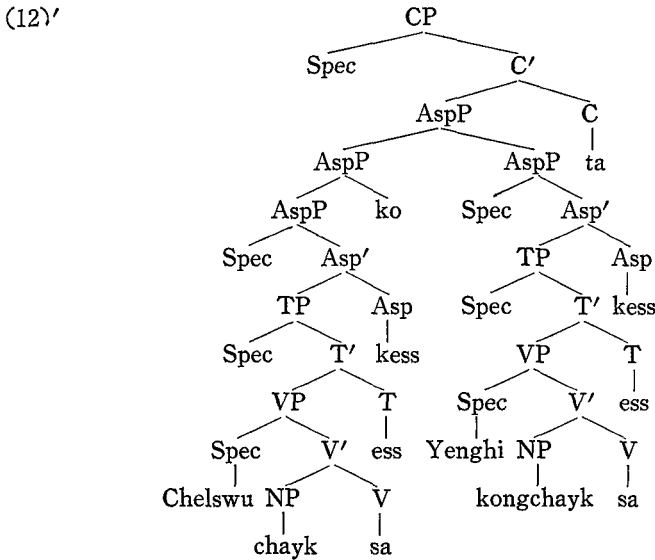
[8] We analyze the mood markers like -ta, declarative, -*kka* or -*ni*, interrogative marker, which are suffixed to the very end of the word as a kind of complemen-

a declarative mood marker, ranges over the first clause as well as the second clause, showing that it c-commands the whole coordinated phrase AspP. Thus, it is a head of the maximal projection CP, which takes an AspP (or TP) complement. CP is an obligatory projection, since every verb stem must be closed off by an element of C (word-forming suffix). (12) also shows that AspP is a maximal projection, since it can be coordinated with another maximal projection.

The Asp marker *-kess* is a syntactic head since in (13), the first clause is not marked with aspect but its aspect is interpreted as the same with the second clause. This shows that the aspect marker *-kess* of the second clause distributes over the first clause as well as the second clause it is affixed to. AspP takes TP as its complement, and is an optional projection.[9] (13) also shows that TP is a maximal projection.

(14) shows that NegP is a maximal projection since it can be coordinated with another maximal projection. In (15), Neg ranges over the first clause as well as the second clause.[10] This shows that Neg c-commands the whole coordinated phrase as a syntactic head. NegP takes VP as its complement.

Thus, we have claimed that CP, AspP, TP, NegP are independent maximal projections based on the coordination data of Korean. The existence of AgrP in Korean, however, is dubious and was excluded from the clausal structure of Korean, based on the following facts. First of all, it is well-known that there is no person, number and gender agreement of English-type languages in Korean, and thus, the very existence of Agr itself has been questioned. The only verbal element which can and has been analyzed as the realization of Agr in Korean is the subject honorific marker *-si*. However, the presence or absence of *-si*, itself, does not affect the grammaticality of sentences, but rather affects the correctness in the felicitous use

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tizer. For this paper, it will not make any crucial difference, even if we use the term MP instead of CP.

   [9] Since AspP is an optional projection, it is not necessary that the first clause have aspect, and therefore, a different reading is possible, i.e., Chelswu bought a book and Yenghi might have bought a notebook.

   [10] Again, since NegP is optional, it is not obligatory for the Neg in the second clause to have the scope over the first clause. Thus, (15) can have the reading "Chelswu bought a book and Yenghi did not buy a notebook." For this interpretation, we must assume some sort of Tense drop. This will be discussed again in footnote 11.

of sentences in a pragmatic sense. Secondly, we are considering two points to see whether a phrase is a syntactically independent maximal projection, i.e., first, whether it can be coordinated with other constituents and secondly, whether the scope of the head can distribute over both first and second conjuncts. Suppose we analyze *-si* as the realization of Agr and as the head of "AgrP" in Korean and see whether AgrP satisfies the above two conditions like other maximal projections proposed, AspP, TP, or NegP. "AgrP" seems to satisfy the first condition since it can be coordinated with other maximal projections.

(16) [$_{AgrP}$ apenim-i nolay-lul pwulu-si]-ko [$_{AgrP}$ amenim-i
　　　 father-Npm song-Acc　sing-Hon-and　　　　mother-Nom
　　　 chwum-ul chwu-si]-ess-ta.
　　　 dance-Acc dance-Hon-Pst-Dec

However, AgrP does not seem to satisfy the second condition of syntactic headhood as the following example shows.

(17) ??[apenim-i nolay-lul ha-ko amenim-i chwum-ul
　　　 father-Nom song-Acc do-and mother-Nom dance-Acc
　　　 chwu]-si-n-ta.
　　　 dance-Hon-Prs-Dec

(18) Chelswu-ka nolay-lul ha-ko amenim-i chwum-ul
　　　　　　　 Nom song-Acc do-and mother-Nom dance-Acc
　　　 chwu-si-n-ta.
　　　 dance-Hon-Prs-Dec

Although the judgement about honorific agreement sentences is not very clear due to the fact that the presence or absence of *si* itself does not affect the grammaticality of sentences, in (17), the honorific marker *-si* does not seem to distribute over the first clause, and that if we really want to honorify the subject, *apenim*, then *-si* must be attached to the first verb stem, too. Similarly in (18), *si* attached to the second verb stem does not appear to range over the first clause. If *-si* distributes over the first clause also, the sentence will be odd for the interpretation where *Chelswu* is not somebody  to be honorified, however it doesn't seem to be the case. Therefore, although it appears that (17) looks like a case of AgrP coor-

dination, the coordinated phrases are not, in fact, AgrPs, since *-si* as the realization of Agr does not seem to qualify as the head of a maximal projection.

This point becomes clearer, when we consider the derivational morphology of passive *-hi* or causative *-li*. The derivational morphology of passive *-hi* or causitive *-li* shows that inflectional morphology we have considered so far is different from them and is clearly a syntactic process, rather than lexical. The coordination facts of the passive morpheme *-hi* affixed to the verb stem as in (19) below is different from those of the inflectional affixes we have seen so far.

(19) a. *[chwi-ka koyangi-eykey cap-ko mek]-hi-ess-ta.
        mouse-Nom mouse-by catch-and eat-Pas-Pst-Dec
        'A mouse was caught and eaten by a cat.'
    b. chwi-ka koyangi-eykey cap-hi-ko mek-hi-ess-ta.

In (19)a, the passive morpheme *hi* can distribute over only to the verb stem *mek* it is attached to, but not to the first verb *cap*, and thus, the sentence is ungrammatical. This fact crucially shows that affixation of the passive morpheme *hi* is a lexical process, and thus is different from that of inflectional morphemes which we claimed is a syntactic process. However, as in (17), although *-hi* does not satisfy the second condition of syntactic headhood, we find the sentences which look like the coordination of "Causative phrases".

(20) [chwi-ka koyangi-eykey cap-hi]-ko [thokki-ka yewu-eykey
      mouse-Nom cat-by catch-Pass-and rabbit fox-by
      cap-hi]-ess-ta.
      catch-Pass-Pst-Dec
      'A mouse was caught by a cat and a rabbit was caught by a fox.'

It is clear in (20) that the passive morpheme *-hi* is simply attached to the verb stem, and thus (20) is not the case of "causative phrase" coordination. We think that (17) which looks like the case of coordination of AgrP is exactly like (20), and that the honorific marker *-si* is just attached to the verb stem, under some pragmatic conditions.[11] From this, we conclude

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[11] A generalization about the distribution of *si* seems to be that whenever

that honorific marker *-si* in Korean as the realization of abstract Agr is
not a syntactic head and there is no AgrP in Korean.[12]

We also have claimed that pre-verbal negation is a lexical operation, and
thus Neg in pre-verbal negation is not a syntactic head. This is evidenced
by the coordination facts again, since the Neg attached to the second verb
in pre-verbal negation cannot have a scope over the first clause as that in
post-verbal negation.

(21) [$_{VP}$ Chelswu-ka chayk-ul sa]-ko [$_{VP}$ Yenghi-ka
                Nom book-Acc buy-and          Nom
      kongchayk-ul ani sa]-ess-ta.
      notebook-Acc not buy-Pst-Dec
      'Chelswu bought a book and Yenghi did not buy a notebook.'

Another piece of evidence for the proposed structure of IP is found in
the contrasts between the sentences like the following.

(22) a. [$_{TP}$ Chelswu-ka chayk-ul sa]-ko [$_{VP}$ Yenghi-ka
                  Nom book-Acc buy-and          Nom
        kongchayk-ul sa]-ci ani ha-ess-ta].
        notebook-Acc buy-Comp not do-Pst-Dec
        'It is not the case that Chelswu bought a book and Yenghi
        bought a notebook.'
    b. [$_{TP}$ Chelswu-ka chayk-ul sa-ess]-ko [$_{VP}$ Yenghi-ka
                  Nom book-Acc buy-Pst-and          Nom
        kongchayk-ul sa]-ci ani ha-ess-ta].
        notebook-Acc buy-Comp not do-Pst-Dec
        'Chelswu bought a book and Yenghi did not buy a notebook.'

As the structure shows, (22)a can be a case of VP coordination in our

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there is a verb stem, it can be attached to it, if some semantic and pragmatic
conditions are met.

   [12] This is also compatible with the fact that there is no distinction of lexical
vs. non-lexical verbs for the verb movement in Korean. If the distinction is
made in terms of the strength of Agr, as has been assumed by Pollock and
Chomsky, then either Agr in Korean must be strong or there is just no AgrP in
Korean, as we have proposed.

(22) a′
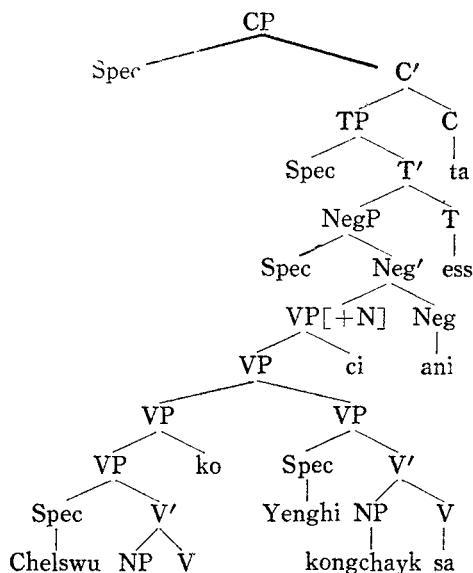


(22)b′
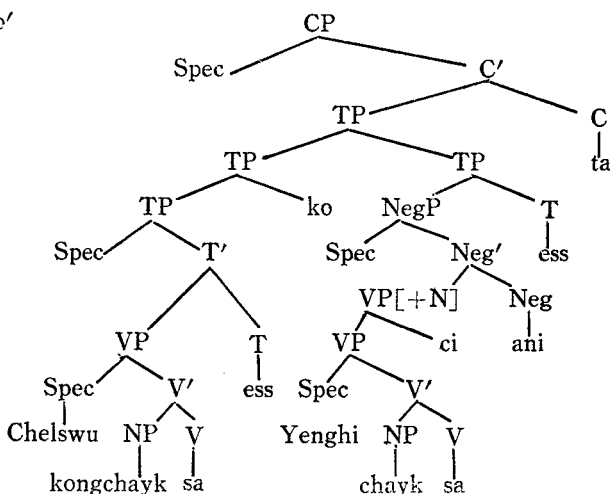


analysis,[13] and the negative morpheme *ani* c-commands the whole VP. Therefore, the scope of negation extends to the first as well as to the second clause, and this is exactly what the reading of (22)a is. However,

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[13] Again, the first clause can be TP with Tense morpheme dropped. In this case, the reading is "Chelswu bought a book and Yenghi did not buy a notebook."

Neg in (22)b cannot extend to the first clause, since the verb stem in the first clause is affixed with tense morpheme. As the structure shows, (22)b is the case of coordination of two TPs, not of VP coordination, and since TP is higher than NegP, Neg cannot c-command the first clause. Again, this is exactly the reading we get from (22)b: first clause in (22)b is not a negative sentence.[14]

## 5. V-movement and HMC

In this section, we examine how the correct surface order of verbal morphology can be derived in terms of Head movement. We also consider the possibility of affix lowering and cliticization.

### 5.1. V-movement in Affirmative sentences

The structure and V-movement of affirmative sentences is quite straight-forward.

(23) mek-ess-kess-ta

(23)′



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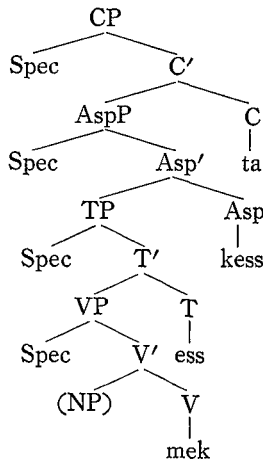
[14] The distinction between (22) a and b is crucial, since as we have mentioned in the fn 8 and 11, we have to assume some sort of Tense drop to explain the case when Neg does not distribute over the first clause. It is because Tense is higher than Neg in the proposed structure, and thus, we cannot say that Tense in the second verb distributes over the first clause, without Neg distributing over the first clause. Therefore, the first clause must be a TP where tense morpheme is dropped. Since Korean is a so-called "super" pro-drop language in which almost

The verb, *mek* first raises to T, forming an amalgamated form *mek-ess*, then to Asp, forming *mek-ess-kess*, and finally to C, forming *mek-ess-kess-ta*. Thus, the structure after movement will be like the following, thus deriving the right output, *mek-ess-kess-ta*.

(23″)

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                              CP
                    ┌─────────┴─────────┐
                  Srec                  C′
                          ┌─────────────┴────┐
                        AspP                  C
                  ┌──────┴──────┐             |
                Spec          Asp′      mek-ess-kess-ta
                        ┌──────┴──────┐
                       TP            Asp
                ┌──────┴──────┐       |
              Spec           T′    t (mek-ess-kess)
                      ┌──────┴──────┐
                     VP            T
              ┌──────┴──────┐       |
            Spec           V′    t (mek-ess)
                    ┌──────┴──────┐
                  (NP)           V
                                  |
                                  t
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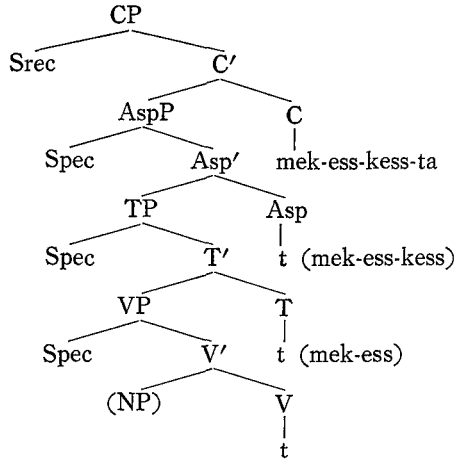
Each trace in (23″) is antecedent governed by the moved element since the moved element L–marks each maximal projection, and thus voids barrierhood. V–movement is constrained by HMC, since the raising of V is allowed only to the next head.

(24) Head Movement Constraint

Movement of a zero-level category $\beta$ is restricted to the position of a head $\alpha$ that governs the maximal projection $\gamma$ of $\beta$, where $\alpha$ θ–governs or L–marks $\gamma$ if $\alpha \neq C$. (Chomsky 1986b, p. 71)

Therefore, forms like the following are excluded.

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anything can be dropped if it can be retrieved from the context, it is not surprising that Tense morpheme can be dropped when its presence can be easily inferred from the context. This might appear to undermine the structure we have posited for conjoined VPs, namely one tense distributes over both conjoined phrases, since we need Tense drop, anyway, in addition to the structure we have posited. However, if (22)a is analyzed simply as a case of tense drop, we cannot explain why the first clause can be interpreted as negative. Assuming Neg drop, like tense drop, is not viable, since, first of all, Neg is optional, and secondly, if we do, then, we face the problem with (22) b, i.e., why the first clause in (22) b cannot be interpreted as negative, unlike (22)a.

(25) a. *ess-mek-kess-ta.

  b. *ess-kess-mek-ta.

## 5.2. V-movement in Post-verbal Negation Structures

The structure and V-movement of pre-verbal negation sentences will be basically the same as those of affirmative sentences. The negative form of the verb will be lexically derived by the prefixation of the negative morpheme *ani* to the verb stem, and this will be inserted into the V-slot, and then, the subsequent movement of the verb will be the same as in affirmative sentences. Post-verbal negation sentences, however, need more explanation, and we propose the following structure.

(26) mek-ci ani ha-ess-ta

(26)′
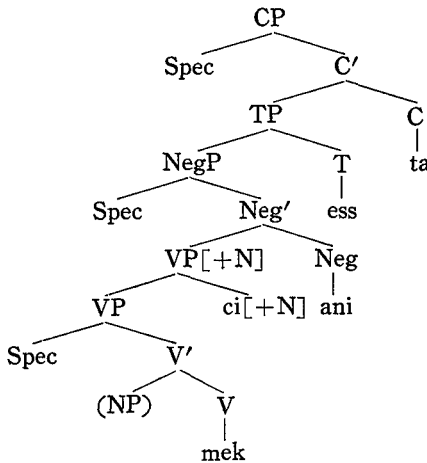


*ci* is a nominalizer which makes the whole VP nominal and it is selected by the Neg *ani*.[15] Other Neg elements in Korean, such as *mos* and *mal* also select *ci* complements.

(27) Chelswu-nun keki ka-ci mos ha-ess-ta.

          Top there go-ci cannot do-Pst-Dec

    'Chelswu could not go there.'

(28) Keki-e ka-ci mal-ala.

---

[15] We might analyze the nominalizer *ci* as a complementizer which takes the non-finite VP as complement.

there go-ci do not-Imp
'Do not go there.'

Now, let's turn to the movement of verb in this structure. As the grammatical output shows, the verb cannot raise to T in post-verbal negation structures, unlike affirmative sentences of pre-verbal negation sentences. It just raises to -ci, forming *mek-ci*. Consequently, inflectional morphemes are stranded and are supported by a kind of dummy verb -*ha* 'do.' Now, a question we must answer is why the movement of verb (more precisely, the complex form of mek-ci) to T is blocked in this structure. The answer seems to be simple, i.e., HMC and ECP: the verb cannot raise over NegP, skipping the head, *ani*, since it violates the HMC.

(26)″
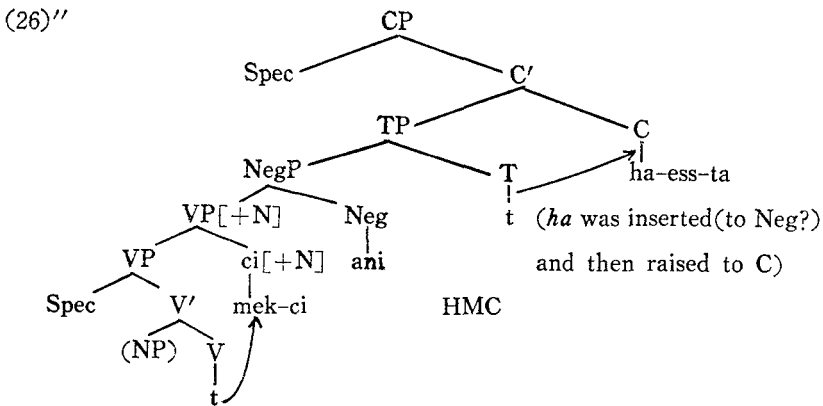


Affix lowering also is not possible since even the following cover-up of traces by LF-movement (Chomsky 1988) cannot save the structure. In fact, the V-raising in post-verbal negation sentences in Korean is very much the same with that in negative sentences with lexical verbs in English, which also shows the insertion of dummy verb 'do' to save the structure.

(29) John did not hit Mary.
(30) John I neg AGR hit Mary

Chomsky's(1988) explanation for the impossibility of affix lowering goes like the following: From the D-structure (30), first the lowering of I to AGR forms [$_{AGR}$ AGR-I], leaving the trace $t_I$, and the complex element is further lowered to V, forming [$_V$ V [$_{AGR}$ AGR-I]], and leaves the trace

t$_{AGR}$, but this trace is deleted, since it doesn't play any role in LF.

(30′) John t$_I$ neg [e] [$_{VP}$ [$_V$ hit [$_{AGR}$ AGR-I] Mary]

In LF, the complex V raises to the position [e], leaving a V-trace and further to the position of t$_I$, again leaving a V-trace. This movement of complex V to t$_I$ over NegP violates the HMC and ECP, since neg is the closer governor and thus it violates minimality condition. Since both V-raising and affix lowering are not possible, a dummy verb 'do' is inserted to save the structure.

Now, let's consider the post-verbal negation sentences in Korean ((26)) in terms of this analysis. Setting aside the presence of -ci, after affix lowering at S-structure, the following LF-movement of complex V, *mek-ess-ta* to T over the NegP violates HMC and ECP, since the trace of V cannot be deleted and is not governed because of the closer head, Neg. Since both V-raising and affix lowering cannot save the structure, a dummy verb 'ha' is inserted to support the stranded inflectional elements, as in English.

We can also think of some morphological reasons for the impossibility of V-raising over the NegP, namely the nominal vs. verbal paradigm in Korean. In the lexicon, each word or morpheme is specified for whether it is a verbal element or a nominal element. Except for the category changing affixes, [+V] elements, and [+N] elements can combine with only [+N] elements, and for the elements of two different categories to be combined, intervention of some kind of category changing element is needed. For example, inflectional morphemes like -*ess*, -*si*, -*ta* are clearly [+V] elements, since they can be attached only to [+V] elements like verbs or adjectives. The negative morpheme *ani* also is a [+V] element, since it cannot directly precede a [+N] element. As an example of this verbal vs. nominal paradigm, let's consider the copula *i* in Korean. One function of *i* seems to be to change the [+N] element to [+V] element to which [+V] affixes can be attached.

(31) a. Chelswu-nun haksayng-i-ta.
             Top student-cop-Dec
        'Chelswu is a student.'

   b. *Chelswu-nun ani haksayng-i-ta.

          Top not student-cop-Dec

     'Chelswu is not a student.'

   c. *Chelswu-nun [Yenghi-ka ttokttokha-ta]-lul

          Top          -Nom be smart-Dec-Acc

     al-n-ta.

     know-Prs-Dec

     'Chelswu knows that Yenghi is smart.'

   d. Chelswu-nun [Yenghi-ka ttokttokha-m]-ul al-n-ta.

          Top         -Nom be smart-m-Acc know-Prs-Dec

     'Chelswu knows that Yenghi is smart.'

In (31)a, since the declarative ending -ta is a [+V] element, it cannot directly be attached to the noun haksayng, therefore, the copula i, which changes [+N] element to [+V] element is attached before -ta is attached. The fact that ani is [+V] is shown by the impossibility of sentence (31)b. Similarly, (31)c is bad since a case marker, which must be attached to a [+N] element, immediately follows -ta, which is [+V]. The sentence becomes good as we see in (31)d, if we nominalize the embedded CP with -m, and then attaches the accusative case marker -lul.

Now, we are ready to answer the question why V-raising in (26)' is blocked. In (26)', the verb first moves to the nominal head -ci, forming mek-ci, however the movement of this amalgamated form mek-ci to T, however, is blocked. There are two possibilities for this movement. The first possibility is that mek-ci moves to the Neg ani, and then moves to T. This will be excluded, first of all, since ani is not a bound morpheme and thus it will not form an amalgamated form. Secondly, since mek-ci is [+N], it cannot be attaced to ani which is [+V]. The direct move-ment of mek-ci to T is also blocked since the tense morpheme -ess is also [+V], and thus cannot be attached to [+N] element, mek-ci.[16] Since the

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[16] Unlike Chomsky, Pollock (1989) analyzes that NegP itself is not an absolute barrier to V-raising, assuming some sort of relativized minimality of Rizzi (1988) but without clarifying it. A speculation is if the verbal vs nominal paradigm is not language specific but a more general phenomenon, we might claim that [+V] head does not block the movement of [+V] head (English, French), whereas it blocks the movement of [+N] head (post-verbal negation in Korean).

movement of verb to T is blocked, the inflectional morphemes like *-ess, ta*
are stranded, and to prop up these stranded morphemes, a kind of dummy
verb *ha* 'do' is inserted.

## 5. 3. V-movement in Coordinated structures

So far, we have considered how the correct surface verbal morphology
in simple sentences can be derived in terms of verb movement. For simple
affirmative sentences, we claimed that verb raises to C, through T.
Although affix lowering can also derive the correct surface morphology, we
argue for the V-raising analysis, appealing to the notion of "economy of
derivation" of Chomsky (1988). [17] For the post-verbal negation sentences,
we showed that both V-raising and affix lowering cannot save the structure
and thus as the last resort, a dummy verb 'ha' was inserted.

Now, let's consider how the correct surface  verbal morphology in coor-
dinated structures as in (32) can be derived.

(32)  [vp Chelswu-ka chayk-ul sa]-ko [vp Yenghi-ka
                    Nom book-Acc buy-and        Nom
      kongchayk-ul phal]-ess-ta.
      notebook-Acc sell-Pst-Dec
      'Chelswu bought a book and Yenghi sold a notebook.'

(32)′

```
                                  CP
                         _____/  \
                      Spec            C′
                              _____/  \
                            TP           C
                      ____/   \          |
                   Spec         T′       ta
                        _____/   \
                      VP           T
                 ___/   \          |
               VP         VP       ess
           __/   \     __/   \
         VP      ko  Spec     V′
      __/  \          |     _/  \
   Spec     V′     Yenghi NP     V
     |     _/  \          |      |
 Chelswu  NP    V     kongchayk phal
          |     |
        chayk   sa
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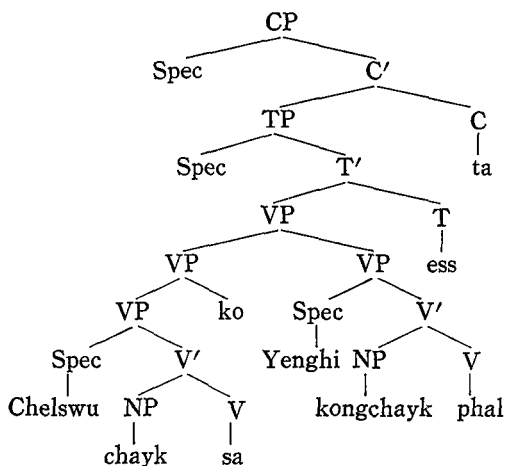
[17] Note that Pollock style explanation for the  obligatoriness of V-raising,

Derivation of surface verbal morphology in terms of V-raising seems to be somewhat problematic. As we see from the correct output, the Tense and Comp affixes are attached only to the second verb. In our analysis, it means that it is the second verb which raises to T. This movement seems to pose some problem, namely, violation of the coordinate structure constraint, showing no Across-the-board effect (Williams 1978) in that the verb of one, i.e., second, conjunct moves out of the conjoined VPs to T when there is no parallel verb in the other conjunct. A way out from this problem is to assume that ATB constraint applies only to operators, following Pesetsky (1982) and Massam (1985). Since verb is not an operator, it need not observe the ATB constraint.

Now let's consider two other alternatives to V-movement, namely, affix lowering and cliticization. Affix lowering, however, is not viable, since affixes are attached only to the second verb, and the subsequent LF-movement of complex form of [V-affixes] will face the same problem with V-raising in S-structure. Cliticization as a purely PF phenomenon also seems to face some problem. If the verbal affixes seemly cliticize to the conjoined VPs as a PF phenomenon, it is difficult to explain why they do not cliticize to the NegP in post-verbal negation sentences as in (33), and instead the dummy verb 'ha' is inserted.

(33) a. [_VP Chelswu-ka chayk-ul sa]-ko [_VP Yenghi-ka
                    Nom book-Acc buy-and          Nom
        kongchayk-ul phal]-ci ani ha-ess-ta.
        netebook-Acc sell-ci neg do-Pst-Dec
        'Chelswu bought a book and Yenghi sold a notebook.'
    b. *Chelswu-ka chayk-ul sa-ko Yenghi-ha
        kongchayk-ul phal-ci ani-ess-ta.

It is because if cliticization is a purely PF-phenomenon, then the cliticized element will not differentiate the hosts to which it is cliticized. As an example, the cliticization of s' in English is quite uniform.

(34) a. [the man I know]'s daughter

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namely, Tense is an operator and therefore, must bind a trace· (ban on vacuous quantification), is not possible for Korean, since there is no finite-non-finite tense distinction for V-raising in Korean. The verb rises to T, regardless of finiteness.

   b. [a friend of mine]'s book

Therefore, in the absense of a better solution, we adopt the V-movement
analysis.

## 5.4. Predictions of the analysis

Now, we will consider how the proposed structure of post-verbal negation
sentences explain the following facts about the post-verbal negation.

(35) a. *mek-ess-ci ani ha-ess-ta
     b. *mek-ess-kess-ci ani ha-ess-ta
     c. ani mek-ci ani ha-ess-ta 'ate'

As we see in (35) a and b, tense or aspect is never allowed inside the
phrase nominalized by *ci*. Our structure clearly explains this, since in the
proposed structure, NegP is lower than TP, and Neg selects a VP which
is nominalized by -ci. (32)c does not cause a problem, either, although it
looks like a case of repeated NegP. It is because the double negation in
(35)c is a combination of pre-verbal negation and post-verbal negation,
and pre-verbal negation is lexical in our analysis. Therefore, it is not the
case of repeated NegPs.

The distinction we have made between pre-verbal and post-verbal
negation sentences and the proposed structure of post-verbal negation
sentences explain the scopal differences between the two types of negation,
mentioned earlier in the paper. In the following example, (36)a, which is
a pre-verbal negation sentence, can mean only (36)c, i.e., only the verb
can be negated, however (36)b, which is a post-verbal negation sentence,
can have several different readings, i.e., all (36) c,d,e,f.

(36) a. Chelswu-ka keki-e yele-pen an ka-ess-ta.
             Nom there-to several times not go-Pst-Dec
     b. Chelswu-ka keki-e yele-pen ka-ci an ha-ess-ta.
                     go-Comp not do-Pst-Dec
     c. It is several times that Chelswu did not go there.
     d. It is not several times that Chelswu went there.
     e. It is not there where Chelswu went several times.
     f. It is not Chelswu who went there several times.

(36)a′

```
                          CP
                    Spec      C′
                         TP        C
                   Spec     T′      ta
                       VP        T
                  Spec    V′      ess
                Chelswu  PP  PP  V
                         △   △   △
                      keki-e yele-pen ani ka
```

(36)b′

```
                          CP
                     Spec     C′
                          TP      C
                    Spec    T′
                        NegP      T
                   Spec    Neg′
                     VP[+N]      Neg
                  VP     ci      ani
              Spec    V′
          ·Chelswu PP   PP   V
                   △    △
                keki-e yele-pen   ka
```
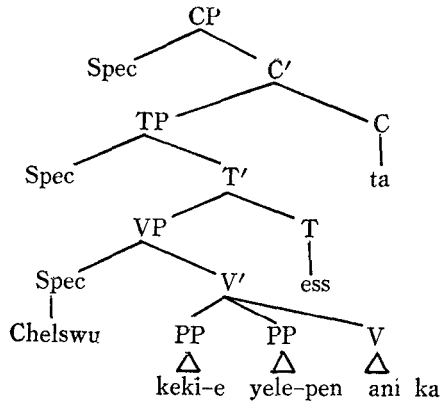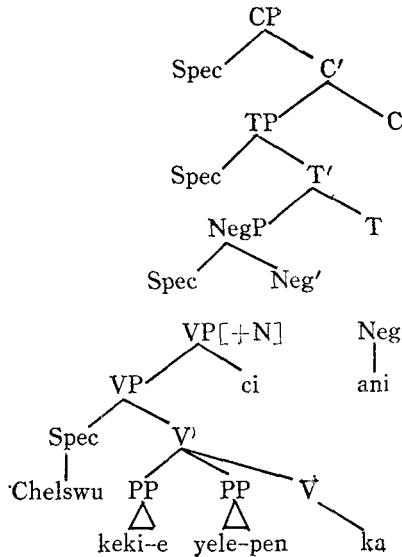
In pre-verbal negation, since the negative form of the verb is lexically derived, it can have a scope only over the verb itself. In post-verbal negation, however, the Neg c-commands the $ci$ clause, and thus can have a scope over the whole clause.

## 6. Position of Subjects: Evidence for VP internal subject Hypothesis

In a recent proposal of Koopman & Sportiche (1988), it was claimed that the base position of subjects is inside VP[18], not the Spec of IP(VP-

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[18] Actually, it is inside V$^N$, not exactly insideVP, as the structure (37) shows.

internal Subject Hypothesis), and that there are two classes of languages, namely languages like English, French (Class I) for which the movement of the VP-internal subject to the Spec of IP position is obligatory, and the others like Irish, Japanese, Korean (Class II), for which the subject can stay at the D-structure position, i.e., Spec of VP. This parametric difference was explained in terms of Case theory, namely, in Class I languages, nominative case is assigned by INFL under the condition of Spec-Head agreement, therefore, the subject must move to Spec of IP (NP^) to get a nominative case, whereas in Class II languages, nominataive case is assigned by INFL under the condition of government, and thus subjects can stay at the D-structure position (NP*) and can get nominative case, there.

(37)

```
                    IP
              ╱─────────╲
         NP^              I'
                    ╱─────────╲
                   I           V^N
                        ╱─────────╲
                     NP*           VP
```
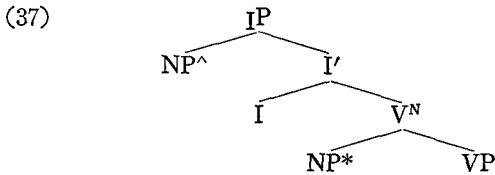
In this section, we will show that the IP structure we have proposed in this paper and the coordination facts provide evidence for the VP-internal Subject Hypothesis of Koopman & Sportiche, although we depart from them in the explanation of nominative case assignment. To see this, let's look at the coordination structures like the following, again.

(38) [$_{VP}$ Chelswu-ka pap-ul ha]-ko [$_{VP}$ Yenghi-ka
                 Nom rick-Acc cook-and        Nom
     koki-lul kwu]-ess-ta.
     meat-Acc broil-Pst-Dec
     'Chelswu cooked the rice and Yenghi broiled the meat.'
     Eg. *Chelswu cook the rice and Yenghi broiled the meat.

---

Koopman & Sportiche (1988) says that VP is some phrasal projection of V, while V$^N$ is the maximal projection (fn 3, P2). Treating VP as non-maximal projection, contra well established analysis, however, seems to cause many unnecessary problems. Then, what exactly V$^N$ is? We might analyze it as another functional projection above VP. If we adopt the analysis of Bowers (1988), it might be analyzed as Predicate phrase. For now, we just focus on the contrast between the subject position in the Spec of IP and that lower than Spec of IP, and use the term VP, without making any distinction between V$^N$ and VP.

The structure of (38) will be like the following.

(38′)
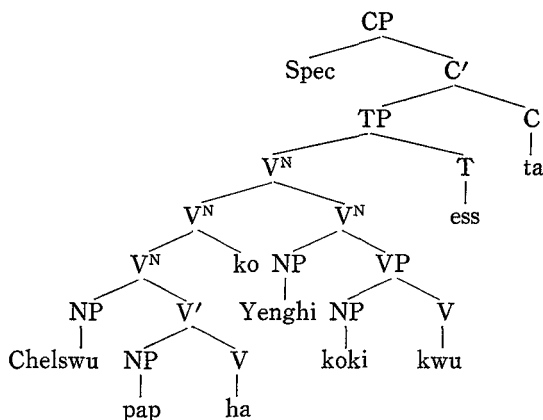


We claimed that (38) is a case of inP ($V^N$) coordination based on the coordination facts, namely, the Tense of the second clause extends to the first clause. In this structure, it is hard to say that nominative case was assigned by Tense, since there is just one tense element in the sentence but two nominative cases were assigned. We might claim that there is no one-to-one relation between the case assigner and the assignee in languages like Korean, and that any number of Nominative case be assigned by Tense as long as the condition of government is satisfied. This, however, seems to be an implausible claim since although there are cases where more than one nominative case is assigned in Korean, e.g., multiple subject constructions, in that case, a special restriction is imposed (e.g., predication relation, [+stative] predicate condition). Furthermore, if there are some intermediate maximal projections such as NegP between the TP and VP, it gets more difficult to think of government relation between the case assigner, namely Tense and the assignee.

(39) [vp Chelswu-ka chayk-ul sa]-ko [vp Yenghi-ka
            Nom book-Acc buy-and       Nom
      kongchayk-ul sa-cil ani ha-ess-ta.
      notebook-Acc buy-Comp not do-Pst-Dec
      'It is not the case that Chelswu bought a book and Yenghi bought
      a notebook.'

Agr also doesn't seem to qualify as the assigner of nominative case in Korean. This is because the very existence of Agr in Korean is very dubious as we have discussed earlier in the paper. At best, it is an optional element, and the assignment of nominative case is possible in the absence of it as we saw in (39). Therefore, it is untenable that nominative case in Korean is assigned by any element of INFL, Tense or AGR, if there is any, and we have to assume a different way of nominative case assignment. Although we are not going to go into this issue in detail, what is clear from the preceding coordination facts is that the only possible position for subjects in Korean seems to be the Spec of VP both at D-Structure and S-structure and that nominative case is assigned VP-internally.

Crucially, coordination facts of multiple subject constructions, and Topic sentences support this claim.

(40) [$_{VP}$ Chelswu-ka chayk-ul sa]-ko [$_{VP}$ Yenghi-ka
                  Nom book-Acc buy-and        Nom
      kongchayk-ul sa-ci] ani ha-ess-ta.
      notebook-Acc buy-Comp not do-Pst-Dec
      'It is not the case that Chelswu bought a book and Yenghi bought a notebook.'

(41) [Chelswu-ka apeci-ka pwuca-i]-ko [Yenghi-ka ameni-ka
                  -Nom father-Nom rich and mother-Nom beautiful
      yeppu-ci] ani ha-ta.
      not do-Prs-Dec
      'It is Chelswu that his father is rich and it is Yenghi that her mother is not pretty.'

In (40), the scope of negation can range over both first and second clause. This is explained since it is the case of VP coordination. However, in (41), when we have conjoined two multiple subject sentences, the scope of Neg does not distribute over the first clause. Our analysis can easily explain this, since the position of the multiple subjects is not VP-internal but is usually assumed to be the Spec of IP (Tateishi 1988), which is TP in our analysis, or adjoined positions to IP (or CP and CP adjoined positions J-M. (Yoon 1988)). For the Neg to range over the first clause, the con-

joined clauses must be VPs in our analysis, however, they are TPs (or CPs) since there are multiple subjects the position of which is outside of VP.

Coordination facts of Topic sentences give similar evidence.

(42) [Chelswu-nun chayk-ul sa]-ko [Yenghi-nun
          Nom book-Acc buy-and        Nom
     kongchayk-ul sa-ci] ani ha-ess-ta.
     notebook-Acc buy-Comp not do-Pst-Dec
     'As for Chelswu, he bought a book and as for Yenghi, she did not buy a notebook.'

(43) [sayngsyn-un camci-ka mas-iss]-ko [kwail-un ttalki-ka
     fish-Top tuna-Nom tasty and fruits-Top strawberry-Nom
     mas-iss-ci] ani ha-ta.
     is tasty-Comp not do-Dec
     'As for fish, tuna is tasty and as for fruit, strawberry is not tasty.'

As in the coordination of multiple subject sentences, the scope of Neg in (42) and (43) does not extend to the first clause. This also is explained easily in our analysis, since the position of topic is Spec of CP (or TopicP), clearly a VP-external position.[19]

The preceding facts strongly support the Hypothesis of VP-internal subjects and show that the subject position in Korean is the same at D-st and S-st, and that nominative case is assigned VP-internally.

## 7. Conclusion

In this paper, we have proposed a highly articulated structure of IP in Korean. We showed that each inflectional affix is the head of a maximal projection and that V-raising is responsible for the amalgamated complex verbal form. For this, we have crucially referred to the coordination facts in Korean. We think that Korean gives strong evidence to the more articulated structure of IP proposed as in Pollock (1988) and Chomsky

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[19] If we extend the data a little bit, the coordination facts involving individual level predicates should also side with those of Multiple Subject Constructions or Topic sentences, since the position of subjects of individual level predicates also has been claimed to be outside of VP (Diesing 1989; Tateishi 1988). The data is not very clear, and for now, we will not make any strong claim about them.

(1988). We also have argued for the VP–internal Subject Hypothesis based on the coordination facts in Korean.

# References

Ahn, H. & H. Yoon (1989) "Functional Categories in Korean," to appear in the proceedings of the third Havard Workshop on Korean Linguistics.

Aoun, J. & A. Li (1989) "Scope and Constituency," *Linguistic Inquiry* 20, 141–172.

Borer, H. (1989) "Anaphoric AGR," ms., UC, Irvine.

Bowers, J. (1988) "A Structural Theory of Predication," ms. Cornell University.

Cho, J & J. Morgan (1986), "The Interaction of Syntax and Morphology in Korean VP Coordination,"

Choe, H.-S. (1988) *Restructuring Parameters and Complex Predicates: A Transformational Approach*, Ph.D dissertation, MIT.

Chomsky, N. (1981) *Lectures on Government and Binding*, Foris, Dordrecht.

Chomsky, N. (1986a) *Knowledge of Language*, Praeger, New York.

Chomsky, N. (1986b) *Barriers*, MIT Press, Cambridge, Massachusetts.

Chomsky, N. (1989) "Some Notes on Economy of Derivation and Representation," in I. Laka & A.K. Mahajan, eds., *MIT Working Papers in Linguistics* 10, 43–73.

Deprez, V. (1990) "The Pattern of SPEC–Head Agreement in CP," paper presented at the Gerona Summer Linguistic Institute Conference.

Diesing, M. (1989) "Bare Plural Subjects and the Stage/Individual Contrast," ms. University of Massachusetts.

Han, H. (1987) *The Configurational Structure of the Korean Language*, Ph.D dissertation, University of Texas at Austin.

Kang, M. (1988) *Topics in Korean Syntax*, Ph.D dissertation, MIT.

Kendall, S & J. Yoon (1986) "Sentence Particles as Evidence for Morphosyntactic Interaction with Pragmatics," *Studies in the Linguistic Sciences*, 16.

Koopman, H. & D. Sportiche (1988) "Subjects,", ms., UCLA.

Mahajan, A. (1989) "On the A/A-bar Distinction: Scrambling, Weak Crossover and Binding in Hirdi," ms. MIT.

Mahajan, A. (1990) *The A/A' Distinction and Movement Theory*, Ph.D dissertation, MIT, Cambridge.

Massam, D. (1985) *Case Theory and the Projection Principle*, doctoral dissertation, MIT.

Pesetsky. D. (1982) *Paths and Categories*, doctoral dissertation, MIT.

Pollock, J-Y. (1989) "Verb Movement, UG, and the Structure of IP," *Linguistic Inquiry*, 20, 365-434.

Rizzi, L. (1988) "Relativized Minimality," ms., Stanford University.

Suh, J. (1990) Scope Phenomena and Aspects of Korean Syntax, Ph.D dissertation, USC.

Tateishi (1988) "Subject, Spec, and DP in Japanese," to appear in NELS 19.

Williams, E. (1978) "Across the Board Rule Application," Linguistic Inquiry 9.

Yang, D. (1976) "Korean Negation Revisited," Language 1, Seoul Korean.

Yoon, J. H-S. (1989) *A Restrictive Theory of Morphosyntactic Interaction and its Consequences*, doctoral dissertation, University of Illinois, Urbana-Champaign.

Yoon, J-M. (1988) "ECM and Multiple Subject Constructions in Korean," in Kuno, S. et al eds. *Harvard Studies in Korean Linguistics III.*

Yoon, J-M. & J.H-S. Yoon (1990) "ECM, Multiple Case Assignment, and the Ambiguity of Government," ms., Cornell University and University of Illinois at Urbana-Champaign.

600 Warren Rd 1-1D
Ithaca, NY 14850
U.S.A