A Phase-Based Approach to ECM across CP in Korean

Youngsun KIM
Cornell University
Dept. of Linguistics, Morrill Hall
Ithaca, NY 14853, USA
yk48@cornell.edu

Abstract

ECM across a CP in Korean poses difficulties from the standpoint of the locality of A-movement/agreement. A phase-based analysis is developed which requires two steps: (i) in the embedded CP, VP/*v*P containing its VP-internal subject first moves to Spec-CP, which renders the subject accessible to the matrix *v*, in accordance with Chomsky's Phase Impenetrability Condition; (ii) ECM takes place in a local relation between the matrix *v* and the embedded subject. It is shown that the otherwise puzzling fact that ECM across a CP, but not Passivization across a CP, is affected by the type of the embedded verb in Korean is accounted for in a principled way, based on the assumption that CP and *v*P, but not TP and VP, are phases.

1 Introduction

It has been widely held that A-movement/agreement is strictly clause-bounded. A classical case which illustrates the locality of A-movement/agreement is the English ECM (Exceptional Case Marking) construction: ECM is possible across a TP (or IP) but it is impossible across a CP, a clause boundary, as illustrated in (1).

(1) a. John believes [$_{TP}$ her to be pretty].
b. *John believes [$_{CP}$ that [$_{TP}$ her was pretty]].

Apparently in contradiction to this standard view, however, a number of languages have been documented as possessing ECM (or 'raising-to-object') and/or Passivization (or 'raising-to-subject') across a CP boundary (Massam 1985, Rivero 1987, J.-M.Yoon 1991, Ura 1994, among others). Korean is an example of such languages. As illustrated in (2), Korean allows optional ECM across a CP (K.-H. Lee 1988, J.-M. Yoon 1991, J.-S. Lee 1992, among many others).

(2) John-i [$_{CP}$ Mary-ka/lul yepp-ess-tako] mitnunta
-Nom -Nom/Acc be.pretty-Past-Comp believe
'John believes that Mary was pretty.'

In (2), the embedded subject can be optionally assigned accusative Case by the matrix ECM verb (or more correctly, by the matrix *v* under the Minimalist Case theory). An immediate question raised by this Korean long distance ECM (hereafter LD ECM) construction can be stated as in (3).

(3) *Issue 1*: How can the embedded subject be accessible to the matrix verb (or the matrix *v*) without violating the locality of A-movement/agreement?

Two additional facts raise further questions concerning the nature and the mechanism of LD ECM in Korean. First, as we will see in detail later, the availability of LD ECM in Korean is affected by the embedded verb. For instance, ECM is possible if the embedded verb is a stative verb as in (2), whereas ECM is impossible if the embedded verb is a transitive verb. This fact raises the second issue:

(4) *Issue 2*: Why is the availability of ECM across CP determined by the embedded verb?

The other fact concerns Passivization across a CP. As we will see in detail in section 4, Korean allows Passivization across a CP. At first glance, LD ECM and long distance Passivization (hereafter LD Passivization) seem to reflect the same mechanism, since both of them involve the movement /agreement across a CP. However, there is a crucial difference between the two constructions. LD Passivization, unlike LD ECM, is not affected by the type of the embedded verb. For instance, LD Passivization is possible even when the embedded verb is a transitive verb. This contrast raises the following issue:

(5) *Issue 3*: Why is the availability of LD Passivization, unlike LD ECM, not affected by the type of the embedded verb?

In this paper, I attempt to provide principled explanations for the above-mentioned issues on the basis of the theoretical concept of a *phase* in the Minimalist framework (Chomsky 2000, 2001). More specifically, I will first develop an analysis of LD ECM which requires two steps: (i) in the embedded CP, VP/*v*P containing its VP-internal subject moves to Spec-CP, which renders the embedded subject accessible to the matrix *v*, in accordance with Chomsky's (2000, 2001a) Phase Impenetrability Condition; (ii) ECM (or 'raising-to-object') takes place in a local relation between the matrix *v* and the embedded subject (cf. Issue 1). I will then show that the fact that LD ECM, but not LD Passivization, is affected by the type of the embedded verb naturally follows from the assumption that CP and *v*P, but crucially not TP and VP, are (strong) phases (cf. Issue 2 and 3).

2 ECM across CP and Movement of VP to CP

2.1 Locality of A-chains and the Phase Impenetrability Condition

Let us use the term A-chain as a cover term for both A-movement such as Passivization and A-agreement relation such as Case assignment.[1] It has been widely accepted that a conspicuous common property of various A-chains is that they are clause-bounded: they cannot cross a CP. This locality of A-chains can be explained by a conspiracy of two kinds of syntactic constraints. First, there is a locality constraint that permits extraction from a CP only via Spec-CP. Second, there is a constraint on improper movement, namely, the ban on A-A'-A chains, according to which A'-movement cannot feed A-movement (Chomsky 1973, among others). The latter constraint rules out the possibility that LD ECM is mediated by NP-movement to Spec-CP to satisfy the locality requirement. Once NP-movement to Spec-CP occurs, it cannot feed further A-movement or A-agreement.

For concreteness, let us formulate the locality of A-chains using Chomsky's (2000, 2001a) phase-based theory. According to this theory, various restrictions on movement/agreement follow from the fact that the output of syntax is sent to interfaces (PF and LF) not all at once, but in stages. Each such stage is termed as a (strong) *phase*; CP and *v*P, but crucially not TP and VP, constitute the phases of the syntactic derivation. CP is the highest projection of the (tensed) clause, and *v*P is the level at which all arguments of the verb have been introduced, internal and external. Then a (strong) phase is a self-contained subsection of a derivation defined by the category *v* or C. Chomsky's (2000, 2001)

[1] There are two lines of analyses of the English ECM construction. One goes back to Postal (1974), who argues that the examples like (1a) involves a raising operation which makes the embedded subject the matrix object. The other one goes back to Chomsky (1981), who argues that the accusative Case is assigned by the matrix verb without movement of the embedded subject to the matrix clause, with the assumption that the embedded sentence is IP/TP rather than CP. What is common to the two approaches is that the matrix verb (or the matrix *v*) can access the embedded subject. The subsequent discussion does not hinge on a choice between the two alternative analyses. What does matter here is how the embedded subject is accessible to the matrix *v*. In this spirit, I use the term A-chain, which covers both movement and agreement without movement (Case assignment here).

proposal makes a sharp distinction between transitive, and unergative verbs, on the one hand, and stative, unaccusative, and passive verbs, on the other, since the former verbs are presumed to consist of a VP dominated by *v*P, while the latter are presumed to consist of solely of a VP.[2] Thus, only the former verbs project a phase.

Once a phase has been made and sent to the interfaces, some of its contents are accessible to subsequent syntactic operations while others are not. Chomsky's (2000, 2001a) *Phase Impenetrability Condition* (hereafter PIC) is a formulation of such a constraint on *accessibility*, as stated in (6).

(6) *The Phase Impenetrability Constraint* (*PIC*, Chomsky 2000, 2001)

In a (strong) phase HP, in the configuration [$_{ZP}$ Z....[$_{HP}$ XP [H YP]], ZP being the next (strong) phase:

a. The domain of H is not accessible to operations outside of HP; only H and its edge (=Spec) are accessible to such operations.
b. The evaluation for PH1 is at the next (strong) phase PH2.

(6a) states that YP is inaccessible to operations in and above Z; the only way anything can be accessible to such operations is if it is first moved to the space between Z and H. Thus, a version of successive cyclicity is forced by the PIC. For instance, a wh-phrase that must move to achieve a matrix interpretation must move to the edge of any containing phase. (6a), then, forces any long distance movement to take place via at least Spec-CP and Spec-*v*P.

The 'next-higher-phase evaluation' as stated in (6b) makes a distinction between a (strong) phase head and a non-phase head with respect to accessibility. Suppose that the computation L, operating cyclically, has completed HP and moves on to a stage Σ beyond HP. L can access the edge XP and the H of HP. But the PIC now introduces an important distinction between Σ=ZP and Σ within ZP. Let us consider the following basic clausal structure:

(7) [$_{CP}$ C [$_{TP}$ T [$_{vP}$ Subj *v* [$_{VP}$ V Obj]]

(i) -- ^{ok}PIC
(ii) -- *PIC

In (7), T, a non-phase head, can access Obj, an element of the domain (=complement) of *v*P; the PIC imposes no restriction on this. But C, a phase-head, cannot access an element of the domain VP (see Chomsky 2001: 14). In section 4, I will show that this distinction plays a crucial role in accounting for the differences between LD ECM and LD Passivization in Korean.

Now let us turn to the configuration of ECM across a CP:

(8) [$_{TP}$ T {$_{phase2}$ [$_{vP}$ *v* {$_{phase1}$ [$_{CP}$ [$_{TP}$ Subj.....]]}]}

(*PIC)

In (8), the embedded subject at Spec-TP is inaccessible to the matrix *v*, a phase head. This is so because the intervening CP is a phase and the NP is not at the edge of the CP. On the other hand, if the embedded sentence is TP(or IP), then ECM is possible, because there is no intervening phase between the matrix *v* and the embedded subject. In this way, the PIC correctly captures the fact that ECM is allowed only with an infinitival complement in English.

[2] See Hale and Kyser 1993 and their subsequent works for syntactic and semantic motivations for this classification of verbs. Also see Chomsky 1995, Kratzer 1996, among others, for *v*P-VP structure.

2.2 ECM across CP is Mediated by VP-movement

Let us examine the LD ECM construction in Korean more thoroughly. The representative example in (2) is repeated here in (9).[3]

(9) John-i [$_{CP}$ Mary-ka/-lul yepp-ess-tako] mit-nun-ta
-Nom -Nom/-Acc be.pretty-Past-Comp believe-Pres-Dec
'John believes that Mary was pretty.'

In (9), the embedded clause is finite, as indicated by the past tense morpheme *-ess*, and is headed by an overt complementizer, *-ta-ko*.[4] Both of them are hallmarks of full clauses, namely CPs. The optional availability of the nominative Case also indicates that the embedded sentence is a CP.

It has been observed that the (im)possibility of LD ECM in Korean is determined by the embedded verb (K.-H. Lee 1988, J.-S. Lee 1992, among many others). Let us compare (9) with (10). In the former the embedded verb is a stative verb and in the latter it is a transitive verb:

(10) John-i [Mary-ka/*-lul Bill-ul manna-ss-tako] mit-nun-ta
-Nom -Nom/-Acc -Acc meet-Past-Comp believe-Pres-Dec
'John believes that Mary met Bill.'

Even though (10) seems to have the same configuration as (9), ECM results in ungrammaticality.[5] In section 3.1, we will examine exactly what types of the embedded predicates allow LD ECM. For the moment, let us focus on the contrast between stative verbs and transitive verbs.[6]

Suppose that the embedded subject is located at Spec-TP, the typical (derived) subject position. Under the PIC, then, LD ECM is expected to be impossible in Korean just as in English, as shown in (8). Furthermore, the contrast between stative verbs and transitive verbs is puzzling and extremely unusual, because what seems to be at stake is that a syntactic relation between two elements, i.e., the matrix *v* and the embedded subject, is affected by a third element which is located lower than both of them, i.e., the embedded verb.

It is here that I show that ECM is mediated by movement of VP/*v*P to Spec-CP. It has been suggested by many linguists that in languages like Korean and Japanese the subject can stay in the VP-internal position without moving to Spec-TP (J.-M. Yoon 1991, Fukui 1995, among many others; also see Rizzi 1990). In other words, movement of a subject to Spec-TP from the VP-internal position (cf. the VP-internal Subject Hypothesis) is optional in Korean. Now suppose that VP containing its in-situ subject is moved to Spec-CP. Then we get the (partial) configuration in (11) (on the next page). In (11) the matrix *v* can access VP, since VP is located at the edge(=Spec) of CP. It can also access the embedded subject inside VP since there is no intervening phase. The PIC imposes no restrictions on this. The matrix *v* thus can assign accusative Case to the embedded subject or optionally attract the subject to SPEC-*v*P (which yields so-called 'raising-to-object'). Under this analysis, the LD ECM example (9) involves two steps as represented in (12):[7]

---

[3] Similar to the English ECM construction (see fn.1), the Korean LD ECM raises the issue of whether the accusative NP raises overtly to the matrix clause or not. However, as I mentioned in fn.1, the present analysis does not hinge on whether the Korean ECM construction involves overt raising or not. What does matter here again is how the embedded subject is accessible to the matrix *v*.

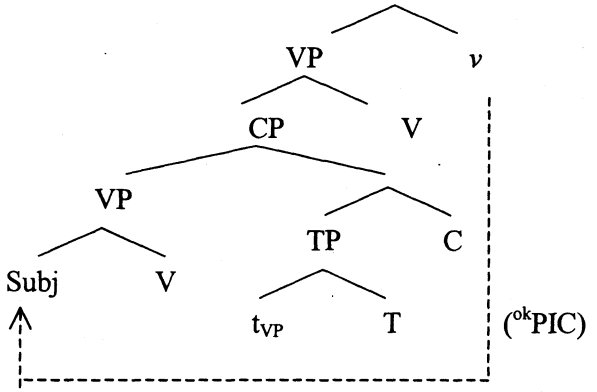
[4] I take *ta-ko* in Korean as a complex complementizer. *–ta* indicates the clause type (mood) and *–ko* indicates whether or not the clause in subordinated. However, positing a distinct functional projection for *–ta* (say, MoodP as often suggested) does not affect my analysis.

[5] The ungrammaticality is not due to a constraint which rules out double accusative NPs (cf. 'Double -O Constraint' in Japanese), because multiple accusative constructions are allowed in Korean. I thank Chris Collins (p.c.) for this point.

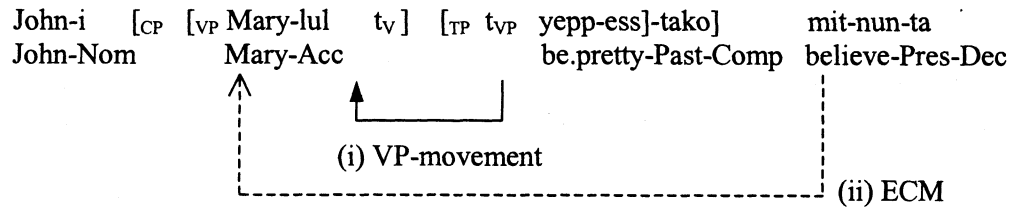
[6] The contrast between stative verbs and transitive verbs is also observed in Japanese. (See Kuno 1976)

[7] In (12) V is raised to T before VP-movement. However, whether V-to-T raising takes place before VP-movement or not is immaterial. Either option is compatible with the present analysis. Note that movement of [$_{VP}$ Mary-lul

(11) *ECM across a CP with an embedded stative verb*



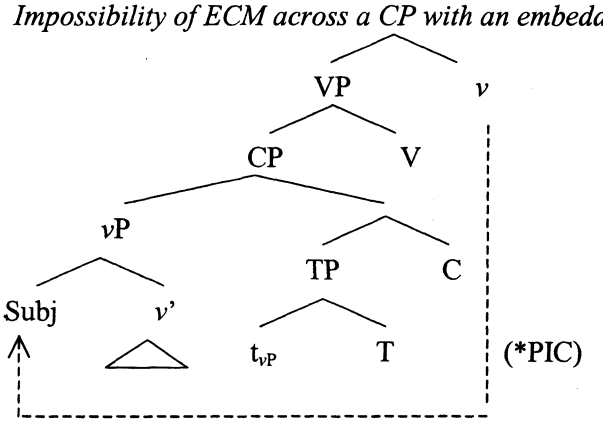
(12)



Note that ECM across CP in (11) and (12) not only satisfies the PIC but also the ban on improper A-A'-A chains. Since what is moved to Spec-CP, an A'-position, is VP, subsequent A-movement (or A-agreement) of the subject does not yield an A-A'-A chain.

Now let us consider the case where the embedded verb is a transitive verb. After VP/*v*P movement takes place, we get the following (partial) configuration:

(13) *Impossibility of ECM across a CP with an embedded transitive verb*



A crucial difference between (11) and (13) is that in the former the embedded verb is a stative verb and thus VP is projected, while in the latter the embedded verb is a transitive and thus *v*P is projected. Now the pending question is whether the matrix *v* can access Subj inside the embedded *v*P under the PIC. There are three phases in (13): the embedded *v*P (PH1), CP (PH2), and the matrix *v*P (PH3). The PIC requires that accessibility of elements in a phase PH1 is only up to the next strong phase (PH2). The following restriction thus follows from the PIC in normal cases:

(14) An element inside a phase, PH1, is accessible only up to the next phase PH2. It is not accessible to operations at PH3.

---

yeppu-] yields the same surface strings.

However, the configuration in (13) is somewhat tricky, because *v*P(PH1) itself is at the edge of CP (PH2), which is accessible to the matrix *v*P (PH3). Does the PIC bar accessibility of Subj to the matrix *v*? To answer this question, let us first consider a conceptual aspect of the phase-based model. The most important conceptual motivation for the phase-based theory is to reduce computational complexity in language. The idea is to have mechanisms in the system (in this instance the PIC) that prevent any sort of global 'search' to determine the structural description of an operation. To put it differently, computational complexity is reduced if the system can "forget" earlier stages of derivation. Under this guiding idea, a reasonable assumption regarding the PIC would be that an element inside PH1 is never accessible to operation at PH3 at any event (unless the element *itself* moves out of PH1 to the edge of PH2 before PH3 is introduced). Under this assumption, the system can "forget" elements inside PH1 at PH3 level, with no need for further specification. Since this is the simplest and strongest assumption, I adopt it.

Given that no direct relation between an operation at PH3 and an element inside PH1 cannot be established at any event, the matrix *v* (the head of PH3) cannot access the subject inside the embedded *v*P (PH1) in (13), even though it can access *v*P itself. Therefore, in (13) ECM is ruled out by the PIC. Note that the restriction in (14) does not block the accessibility of Subj to the matrix *v* in (11). This is because VP, in contrast to *v*P, is not a phase. The contrast between ECM with an embedded stative verb and ECM with a transitive verb then follows from the difference as to whether the embedded verbal projection is a phase or not.

So far I have shown that if we assume that LD ECM is mediated by VP-movement, not only the existence of LD ECM is expected under the PIC, but also the contrast between the embedded stative verb and the embedded transitive verb is accounted for. Under the present analysis, ECM across a CP is possible when (at least) the following three conditions are satisfied. First, The embedded subject can stay inside VP without moving to Spec-TP. Secondly, the embedded verbal projection is not a (strong) phase, namely VP, not *v*P. Thirdly, VP-movement to Spec-CP is available. In the next section I show that evidence for the proposed analysis comes from various constructions in Korean.

3 Evidence

3.1 What kinds of Embedded Verbs Allow ECM across CP?

Under the present analysis, ECM across CP is possible when the embedded verbal projection is VP, not *v*P. Given the assumption that an unaccusative verb projects VP, while an unergative verb projects *v*P, [8] it is predicted that ECM is possible when the embedded verb is unaccusative whereas it is impossible when the embedded verb is unergative. This prediction is borne out, as illustrated by (15) and (16).

(15) *ECM with an embedded unaccusative verb*
John-i [Mary-ka/lul o-ass-tako] mit-ess-ta.
-Nom -Nom/Acc come-Past-Comp believe-Past-SE
'John believed that Mary came.

(16) *Impossibility of ECM with an embedded unergative verb*
John-i [Mary-ka/*lul (mayil achim) tali-n-tako] mit-nun-ta.
-Nom -Nom/Acc every morning run-Pres-Comp believe-Pres-SE
'John believes that Mary runs (every morning).'

As for the types of predicates which allow LD ECM, it has been often claimed or assumed that stativity is the defining property: LD ECM can take place if the embedded predicate is [+stative], whereas it cannot take place if the embedded predicate is [-stative] (K.H. Lee (1988), among others). Stativity captures the contrast between stative verbs like *yeppu* 'be.pretty' in (9) and transitive verbs like

[8] See section 2.1 and fn.2. Also see Perlmutter 1978, Burzio 1986, Levin and Rappaport 1989, among others for various motivations for treating unaccusative and unergative differently.

manna 'meet' in (10). However, the grammaticality of (15) suggests that the generalization based on stativity is not correct. It seems intuitively clear that the verbs such as *o*-'come', and *ka*- 'go' are not [+stative]. The following example with a passive verb suggests the same point:[9]

(17) *ECM with an embedded passive verb*
Mary-ka [John-i/ul cap-hi-ess-ta-ko] mit-ess-ta.
-Nom -Nom/Acc catch-Pass-Past-Dec-Comp believe-Past-Dec
'Mary believed that John was caught.'

Based on the facts considered so far, J.-S. Lee (1992) suggests a new generalization: LD ECM is possible when the embedded predicate is a non-Case-assigner. This Case-based classification captures the fact that unaccusative verbs and passive verbs as well as stative verbs allow ECM, excluding transitive verbs. However, the impossibility of ECM in (16) is problematic for his generalization, under which, contrary to the fact, embedded unergative verbs are expected to be compatible with LD ECM. In other words, J.-S. Lee's (1992) generalization does not capture the contrast between unaccusative verbs and unergative verbs.[10] The unavailability of ECM with an unergative verb suggests that the Case-assigning ability of an embedded verb is not the defining property responsible for LD ECM.

The present phase-based analysis provides us with the correct generalization on the possibility of LD ECM, as stated in (18).

(18) *Generalization about Availability of LD ECM in Korean*
LD ECM is possible only when the embedded predicate does not project a (strong) phase; thus stative, unaccusative, passive verbs allow ECM whereas transitive, unergative verbs do not.

The generalization in (18) correctly makes a distinction between stative, unaccusative, and passive verbs, on the one hand, and unergative and transitive verbs, on the other. Furthermore, the phase-based analysis provides a principle explanation for the classification of the verbs: only verbs which do not project *v*P, a (strong) phase, allow LD ECM, in accordance with the PIC.

3.2 VP-Movement without Subject

Under the present analysis, one of the prerequisites for ECM across CP is that the ECMed NP must stay inside VP. Suppose that an NP moves out of VP to Spec of TP before VP-movement takes place. Then the NP is expected not to be ECMed. Let us consider the following examples:

(19) a. Mary-ka hakkyo-ey ka-ss-ta
-Nom school-to go-Past-Dec
'Mary went to school.'

---

[9] One popular criterion for testing stativity of a certain verb in Korean is to check the compatibility with the progress morpheme *–ko-iss* or the aspectual marker *–(u)n* (cf. M.-Y. Kang 1988, K.-Y. Choi 1991, among others). Unlike stative verbs like *yeppu-* 'be.pretty' (e.g., **yeppu-ko-iss* '*be being pretty'), unaccusative and passive verbs are compatible with such morphemes: e.g., *o-ko-iss* 'be coming'; *cap-hi-ko-iss* 'be being caught' This fact indicates that the unaccusative verb in (15) and the passive verb in (17) are not stative.

[10] J.-S. Lee (1992: 61) actually claims that unergative verbs allow ECM. One of his two examples is given in (i). The other verb he uses is *keleka-* 'walk.go':

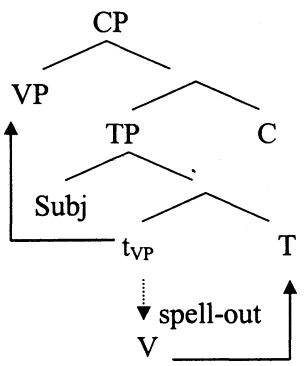
(i) John-i [Mary-lul talieka-ass-ta-ko] mit-nun-ta
-Nom -Acc run.go-Past-Dec-Comp believes
'John believes that Mary ran.'

J.-S. Lee assumes that the verbs like *talieka-* in (ia) and *keleka-* are unergative verbs. However, note that the verbs which he uses are actually a kind of compound verb of the form of 'unergative verb + unaccusative verb'. *talieka-* consists of *tali-*'run' and *ka-*'go' and *keleka-* consists of *ket-* 'walk' and *ka-* 'go'. As we see in (16), genuine unergative verbs like *tali-* 'run' and *ket-*'walk', do not allow ECM. If we assume that the compound verb has a structure of VP-vP (i.e., [$_{VP}$ NP [$_{vP}$ (pro) V-*v*] V]), then the grammaticality is expected under the present analysis: the embedded subject at Spec-VP is accessible to the matrix *v* after VP-*v*P is moved to Spec-CP.

b. [hakkyo-ey ka-ki-nun] Mary-ka ka-ss-ta
school-to go-KI-Top -Nom go-Past-Dec
'Indeed, Mary went to school.'

The example (19b) is a kind of focus construction that involves preposing of a verbal phrase and verb reduplication, which is derived from the basic sentence (19a). Nishiyama and Cho (1998) propose that (19b) are derived by raising of a subject to Spec-TP, followed by VP-movement over the raised subject and that the verb reduplication results from the partial spell-out of the trace of VP to support the following affixal heads. The derivation can be represented as in (20).

(20)



Nishiyama and Cho's analysis shows independently that Korean has VP-movement to CP. A crucial difference between the VP-movement that is employed in the analysis of ECM and the VP-movement in (20) is that the former is string-vacuous while the latter is not. These two versions of VP-movement are expected, given the assumption that raising of a subject to TP is optional in Korean (see section 2.1). In (20) the subject moves to TP before VP-movement takes place while in the ECM examples the subject stays inside VP.[11]

Now let us consider the examples in (21), where the examples in (19) are put in the ECM context:

(21) a. John-i [Mary-ka/lul hakkoy-ey kass-tako] mitessta.
-Nom -Nom/Acc school-to went-Comp believed
'John believed that Mary went to school.'

b. John-i [[$_{VP}$ t_{Mary} hakkoy-ey ka-ki-nun] Mary-ka/*lul t_{VP} kass-tako] mitessta.
-Nom school-to go-KI-Top -Nom/Acc went-Comp believed
'John believed that indeed Mary went to the school.'

In (21b), unlike (21a), the embedded subject cannot bear accusative Case. This is exactly what the present analysis predicts. The crucial difference between (21a) and (21b) is that in the former the embedded subject may remain inside VP, which is moved to Spec-CP, while in the latter the embedded subject ends up at Spec-TP. Under the PIC, the matrix *v* can access the embedded subject inside VP after VP is moved to Spec-CP, but it cannot access the embedded subject at Spec-TP. Thus, the contrast between (21a) and (21b) lends support to the present analysis.

---

[11] There are several other differences. First, the morpheme *–ki* (presumably nominalizer) and topic marker *–nun* are employed in (19), which are not present in the ECM construction. As for this difference, I assume the followings: (i) VP-movement to CP may optionally marked with *–nun* ; (ii) *-nun* has the morphological requirement that it is attached to a nominal. This morphological requirement forces the presence of –ki. Another difference is verb reduplication. I assume that the verb reduplication in (19), as Nishiyama and Cho argue, is employed to support the stranded affixal morphemes like *–ess* and *–ta*. On the other hand verb reduplication is not necessary in the ECM examples like (9), because there is no stranded affixal head.

3.3 Multiple Subject Construction

As is well-known, Korean has a construction which generates more than one NP bearing nominative Case, namely the so-called multiple subject construction. There are (at least) two different types of multiple subject constructions, depending on whether or not they have their genitive counterparts, as illustrated in (22) and (23), respectively.

(22) a. Mary-ka ttal-i yeppu-ta.
-Nom daughter-Nom be.pretty-Dec

b. Mary-uy ttal-i yeppu-ta
-Gen daughter-Nom be.pretty
'John's daughter is pretty.'

(23) a. yakyeng-i Seoul-i coh-ta.
night view-Nom Seoul-Nom be.good-Dec
'As for a night view, Seoul is good. '

b. * yakyeng-uy Seoul-i coh-ta.
Night view-Gen Seoul-Nom be.goood-Dec
'*Night view's Seoul is good.'

Kuno (1973), observing similar Japanese data, argues that (22a) is derived from the (22b) by a process of raising of *Mary-ka* out of NP to Spec-TP. Let us call this kind of multiple subject construction the 'Genitive Raising' construction, following Tateishi's (1994) terminology. Even though we use the term 'raising' for the examples like (22a), it does not mean that the actual raising is obligatory. As we mentioned in section 2.2, I assume that raising of a subject form its VP-internal position to TP is optional in languages like Korean and Japanese. Given the optionality of subject raising in Korean in general, the same thing is expected for the Genitive Raising construction. In other words, we can posit (at least) two different derivations for (22a): either the first subject raises overtly to Spec-TP or the first subject (and the second subject also) stays inside VP. The nominative Case is assigned to both of the nominative NPs by T, the head assigning nominative Case, through the mechanism of multiple feature checking (cf. Ura 1996).

On the other hand, in (23a) the genitive relation is impossible as shown by the ungrammaticality of (23b). Let us call this construction the 'Major Subject Construction', following Kuroda's (1986) terminology. Given the fact that the derivation by Genitive Raising is impossible in the Major Subject Construction and the fact that VP-internal positions are theta-related, it seems reasonable to assume that the Major Subject is base-generated at Spec-TP. Then the representation for the example (23a) will be like the following:

(24) [$_{TP}$ yakyeng-i [$_{VP}$ Seoul-i coh]]-ta
night view-Nom Seoul-Nom be.good-Dec

Note that a crucial difference between the 'Genitive Raising' construction and the Major Subject construction is that only in the former, both of the subjects may stay inside VP.

With this much in mind, let us consider the following contrast:

(25) *ECM with the Genitive Raising construction*
John-i [Mary-ka/lul ttal-i yeppu-tako] mitnunta.
-Nom -Nom/Acc daughter be.pretty-Comp believe
'John believes that Mary's daughter is pretty.'

(26) *Impossibility of ECM with the Major Subject construction*

John-i [yakyeong-i/*ul Seoul-i coh-tako] mitnunta.
-Nom night view-Nom/Acc Seoul-Nom be.good-Comp believe
'John believes that it is a night view in which Seoul is good.'

ECM is possible when the embedded sentence is the Genitive Raising construction as in (25), while it is not possible when the embedded sentence is the Major Subject construction as in (26). Under the present analysis in which LD ECM is mediated by VP-movement to CP, the availability of LD ECM depends on whether the ECMed NP may stay inside VP or not. Therefore, the Major subject, being generated at Spec-TP, cannot be ECMed.

4 Comparison with Passivization across CP

Korean allows Passivization across a CP, as illustrated in (27).

(27) Mary-ka (salamtul-eyuhey) [$_{CP}$ t yeppu-tako] mite-ci-ess-ta
-Nom people-by be.pretty-Comp believe-Pass-Past-SE.
'Lit. Mary was believed (by people) that t was pretty.'

The agentive phrase is added to show that the embedded subject *Mary-ka* is actually raised to the matrix clause in (27).[12]

LD ECM and LD Passivization share the property that the relevant operations take place across a CP boundary. However, there is a crucial difference between the two constructions. LD Passivization, unlike ECM, is not affected by the type of the embedded verb. LD Passivization is possible when the embedded verb is a transitive verb, as illustrated in (28).

(28) John-i (salamtul-eyuhay) [t Mary-lul manna-ss-tako] mite-ci-ess-ta.
-Nom people-by -Acc meet-Past-Comp believe-Pass-Past-SE.
'John was believed (by people) that t met Mary.'

A crucial difference between ECM and Passivization is that in the former the relevant head is a phase head (i.e., the matrix *v*) while in the latter the relevant head is not a phase head (i.e., the matrix T). Recall that the PIC does not prevent a non-phase head from accessing the domain of the lower phase if there is no intervening additional phase between them (cf. (7)). Therefore, the matrix T in Passives can access Spec of the embedded TP, as shown by (29).

(29) [$_{TP}$ [$_{VP}$ {$_{phase}$ [$_{CP}$ [$_{TP}$ NP.....]]} V] T]
↑ ¦ (^{ok}PIC)
¦_____¦

[12] As pointed out to me by Howard Lasnik (p.c), a question which might arise here is whether the movement of *Mary-ka* is an instance of Passivization or long distance scrambling. There is evidence which shows that Korean actually has LD Passivization independently from LD scrambling. Let us consider the following examples:

(i) *Long Distance Scrambling*
Mary-lul salamtul-i [John-i t mann-ass-tako] mitessta.
-Acc people-Nom -Nom meet-Past-Comp believed
'People believe that John met Mary.'

(ii) *Long Distance Passivization*
Mary-ka/*-lul salamtul-eyuyhey [John-i mann-ass-tako] mite-ci-ess-ta.
-Nom/-Acc people-by -Nom meet-Past-Comp believe-Pass-Past-SE.
'Lit. Mary was believed by people that John met t.'

In (i) the object *Mary-lul* is scrambled to the sentence initial position. Note that the scrambled object preserves its accusative Case. This means that LD scrambling has nothing to do with Case assignment. In contrast, in the passive examples in (ii), the sentence initial NP, which was base-generated as the object of the embedded verb, must bear nominative Case. If it preserves accusative Case, it results in ungrammaticality. This suggests that the movement in (ii) is an instance of NP-movement having something to do with Case, rather than scrambling.

Therefore, LD Passivization, unlike ECM, does not need to be mediated by VP movement to Spec-CP.[13] Consequently, LD Passivization, unlike ECM, is possible regardless of the type of the embedded verb. The possibility of Passivization with an embedded transitive thus follows. A prediction is that LD Passivization is possible when the embedded verb is an unergative verb as well as an unaccusative verb. Another prediction is that Major Subject and the subject in the non string-vacuous VP-movement can undergo LD Passivization. The examples in (30) show that these predictions are borne out.

(30) a. *Unergative* (cf. Contrast with (16))
Mary-ka (salamtul-uyhay) [(mayil achim) tali-n-tako] mite-ci-n-ta
-Nom people-by every morning run-Past-Comp believe-Pass-Pres-SE
'Lit. Mary is believed (by people) that t runs (every morning).'

b. *VP- Movement without Subject* (cf. Contrast with (21b))
Mary-ka (salamtul-uyhay) [[hakkyo-ey kaki-nun] t kasstako] mite-ci-ess-ta.
-Nom people-by school-to go-KI-Top went-Comp believe-Pass-Past
'Lit. Mary was believed that indeed t went to the school.'

c. *Major Subject* (cf. Contrast with (26))
yakyeng-i (salamtul-eyuyhay) [t Seoul-i coh-tako] mite-ci-ess-ta.
Night view people-by Seou-Nom be.good-Comp believe-Pass-Pres-SE
'Lit. The night view was believed that Seoul is good.'

Evidence for treating LD ECM and Passivization comes not only from the facts observed in the examples in (30) but also from the typological fact that there are languages which allows LD Passivization, but not LD ECM, such as Modern Greek (Rivero 1987).

Finally, it is worth mentioning the difference between English and Korean with respect to LD ECM and LD Passivization. As Chomsky (2001: 45, note 29) argues, the PIC does not bar Passivization across a CP in English just as in Korean. He argues that **John is believed* [*that* t *is intelligent*] is barred due to the fact that the raised subject *John* has been assigned nominative Case in the embedded sentence. Then the primary difference between the two languages with respect to LD Passivization and ECM would lie in the fact that in Korean, unlike English, an NP which has been assigned a structural Case still can be assigned another structural Case (see J.-M. Yoon 1991, for a detailed discussion).

5 Conclusion

In this paper, I have proposed a mechanism for ECM across CP in Korean. Under the proposed analysis, ECM across a CP is possible when (at least) the following three conditions are satisfied. First, the embedded subject can stay inside VP without moving to Spec-TP. Secondly, the embedded verbal projection is not a (strong) phase, namely VP not *v*P. Thirdly, VP-movement to Spec-CP is available. These conditions are forced by the locality of A-chains, more specifically, by the Phase Impenetrability Condition. The phase-based analysis proposed here provides a principled explanation for the otherwise puzzling fact that the possibility of LD ECM is determined by the type of embedded verbs: ECM is possible with stative, unaccusative, and passive verbs, whereas it is not possible with transitive and unergative verbs. This verb-type restriction reduces to whether the verbal projection is a phase or not, which in turn determines whether an element inside the verbal projection is accessible to operations outside the embedded CP. The phase-based analysis also explains the difference between LD ECM and

[13] This analysis might be extended to *seem*-type raising construction in Korean:
(i) apeci-ka [$_{CP}$ t apun-ket] katu-si-ta]
father-Nom be.sick-Comp seem-Honorific-Dec
'Lit. Father seems that t is sick.'
In (i) the raising of *apeci-ka* does not violate the PIC just as in LD Passivization. I thank John Whitman (p.c) for bringing this construction into my attention.

LD Passivization in a principled way on the basis of the distinction between a phase head (v in ECM) and a non-phase head (T in Passivization). If the present analysis is on the right track, it supports the view that languages do not differ with respect to core computational component. Specifically, under the present analysis, the PIC regulates movement/agreement in Korean as well as in English. The present analysis also lends strong support to the distinction between VP and vP with respect to the notion of a phase, which has sometimes been questioned on empirical grounds (cf. Legate 1998).

Acknowledgements

I am grateful to John Whitman for invaluable comments and the warm encouragement in preparing this paper. I have also benefited from discussing the subject matter of this paper with Chris Collins and Howard Lasnik. Thanks also go to Eungyeong Kang and Sang-Doh Park for the help with the Korean data. Of course, all errors are mine.

References

Burzio, L. 1986. *Italian Syntax: A Government-Binding Approach*. Reidel. Dordrecht.

Choi, K.-Y. 1991. *A Theory of Syntactic X^0-Subcategorization*. Ph D Dissertation, University of Washington, Seattle.

Chomsky, N. 1973. Conditions on transformations, In A Festschrift for Morris Halle. (eds) S.R. Anderson and P. Kiparsky. Holt, Reinhart and Winston, New York.

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

Chomsky, N. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Chomsky, N. 2000. Minimalist inquiry. In *Step by Step*. (eds) R. Matin, D. Michaels, and J.Uriagereka. The MIT Press, Cambridge, Massachusetts.

Chomsky, N. 2001. Derivation by phase. *In Ken Hale: A Life in Linguistics*. (ed) M. Kenstowicz. The MIT Press, Cambridge, Massachusetts.

Fukui, N. 1995. *Theory of Projection in Syntax*. CSLI Publications and Kurosio Publishers.

Hale, K. and S. J. Keyser. 1993a. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20*. Cambridge, Mass.: MIT Press.

Kang, M.-Y.1988. *Korean Syntax and Universal Grammar*. Ph D Dissertation, Harvard University

Kratzer, A. 1996. Serving the external arguments from its verb, In J. Rooryck and L. Zaring, (eds.), *Phrase Structures and the Lexicon*: 109-138. Dordrecht:Kluwer.

Kuno, S. 1973. *The Structure of the Japanese Language*, Cambridge, MIT Press.

Kuno, S. 1976. Subject raising. In *Syntax and Semantics 5: Japanese Generative Grammar*. (ed.) M. Shibatani. New York: Academic Press.

Kuroda, S.-Y. 1986. Movement of noun phrases in Japanese, Imai, T. and M. Saito (eds*) Issues in Japanese Linguistics*, Dordrecht, Foris, pp. 229-271.

Lee, J.-S. 1992. *Case Alternation in Korean: Case Minimality*. Ph.D Dissertation. University of Connecticut.

Lee, K.-H. 1988. *A Study on the Case Marker 'ul/lul' in Korean*. Top Press, Seoul.

Legate, J. A. 1998. Verb phrase types and the notion of a phase. ms. MIT.

Levin, B and M. Rappaport. 1989. An approach to unaccusative mismatches, *NELS 19*, pp 314-329.

Massam, D. 1985. *Case Theory and the Projection Theory*. PhD Dissertation, MIT, Cambridge.

Nishyama, K. and E. Cho 1998. Predicate cleft constructions in Japanese and Korean: the role of dummy verbs in TP/VP-preposing. In *Japanese and Korean Linguistics Vol. 7*. (eds) N. Akatsuka, H. Hoji, S. Iwasaki, S.-O. Sohn, and S. Strauss. CLSI Publications & SLA.

Perlmutter, D. M. 1978. Impersonal passives and the unaccusative hypothesis, *BLS 4*, Berkely.

Postal, P. 1974. *On Raising*. MIT Press, Cambridge.

Rivero, M-L. 1987. Barriers and the null subject parameter in Modern Greek. In *Proceedings of NELLS 18*.

Rizzi, L. 1990. *Relativized Minimality*. MIT Press, Cambridge.

Tateishi, K. 1994. *The Syntax of Subjects*, CSLI Publications & Kurosio Publishers.

Ura, H. 1994. Varieties of raising and the feature-based bare phrase structure theory, *MIT Occasional Papers in Linguistics 7*, MIT.

Ura, H. 1996. *Multiple Feature-Checking: A Theory of Grammatical Function Splitting*. Ph D Dissertation, MIT.

Yoon, J.-M. 1991. *The Syntax of A-Chains: A Typological Study of ECM and Scrambling*. Ph D Dissertation. Cornell University. Ithaca, NY.