# A Raising-to-Object Analysis of English ECM Constructions*

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Lee, Hyeran. 2007. A Raising-to-Object Analysis of English ECM Constructions. *The Linguistic Association of Korea Journal 15*(3), 109-139. This paper aims to account for Exceptional Case Marking (ECM) constructions in English in terms of the raising to object (RTO) analysis. First, I propose that the complement subject of English ECM constructions is not actually ECMed but raised to the matrix Spec-VP by RTO. A variety of data are provided to support the claim that the position of the complement subject is actually higher than the embedded clause. Second, I claim that the driving force (Probe) for RTO is the V-Agree feature inherited by v and the position for RTO is the matrix Spec-VP. I especially demonstrate why the position must be the Spec-VP, not the Spec-vP. Third, I claim that RTO is not optional but obligatory, satisfying the Last Resort Principle. The subject object asymmetry with regard to extraction in ECM constructions is also argued to fall under our analysis as evidence supporting the obligatoriness of RTO. Fourth, I suggest that the ECM verbs select C or T for categorial(c-) selection cross-linguistically, though they uniformly select a proposition for semantic(s-) selection: The English ECM verbs select T while the Korean ECM verbs select C.[1) The crosslinguistic differences thus come from lexical properties of ECM verbs, not from differences in universal principles of derivations. Thus the RTO analysis of English ECM constructions satisfies the Strong Minimalist Thesis (SMT), producing the optimal derivation for sentences to converge.

Key Words: ECM, RTO, raising to object, Agree feature, edge feature, EF, Spec-VP, Spec-vP

1) The analysis of Korean ECM constructions is provided in H. Lee (2007).

# 1. Introduction

English ECM constructions[2] have been analyzed by Bresnan (1972), Massam (1985), Chomsky (1973, 1981) and others as an S'-deletion or a CP-deletion. Since Postal (1974), the RTO analysis has been proposed by many authors such as Johnson (1991), Saito and Lasnik (1991), Koizumi (1993, 1995), Runner (1995, 2006), Bošković (1997, 2002), Tanaka (2002), Kawai (2006), Chomsky (1995, 2005, 2006) and others. The two possibilities, the ECM analysis and the RTO analysis, are both competitive since English ECM constructions show no overt complementizer. With no phase boundary like CP, the complement subject can be Case-marked by the matrix verb, or it can be raised to the matrix Spec-VP to get accusative Case. Which one conforms to the economy of derivation, providing explanatory power under the minimalism, is our focus of discussion.

(1) a. John believes that Mary is honest.
    b. John believes Mary to be honest.
(2) a. John believes that Mary is a doctor.
    b. John believes Mary to be a doctor.

The above English ECM constructions show that the embedded clause is apparently the infinitive clause rather than the full clause with CP. The complement clause is non-finite, as the tense element cannot be accommodated. Then our concern is whether the accusative Case on the complement subject is given by the matrix verb across the embedded clause or it is given by the matrix verb as a result of RTO.

In Section 2, the previous studies on ECM constructions are summarized in both the ECM and RTO perspectives. In Section 3, data related with Binding Condition, passivization, sentential adverb

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2) The traditional term ECM is used to indicate the ECM constructions. RTO is used whenever raising is to be emphasized for the purpose of analysis.

placement, scope, superiority condition, particle constructions, quantifier float, pseudogapping, NPI licensing and others are provided to support the claim that the position of the complement subject is actually higher than the embedded clause. It is proposed that the complement subject of English ECM constructions is not actually ECMed but raised to the matrix Spec-VP by RTO. Section 4, based on Adger (2003), introduces discussion on the categorial status of the embedded clause of ECM constructions. It is proposed that the ECM verbs select C or T for c-selection cross-linguistically, though they uniformly select a proposition for s-selection: The English ECM verbs select T while the Korean ECM verbs select C. The crosslinguistic differences thus come from lexical properties of ECM verbs, not from differences in universal principles of derivations. Section 5 shows the detailed derivation of English ECM constructions based on Chomsky (2005, 2006). It is argued that the driving force (Probe) for RTO is the V-Agree feature inherited by v and the position for RTO is the matrix Spec-VP. In particular, it is discussed why the position for raising is the Spec-VP, not the Spec-vP. In Section 6, it is claimed that RTO is not optional as in Lasnik (1999) but obligatory as in Bošković (1997, 2002) and Chomsky (2005, 2006), satisfying the Last Resort Principle. The classical subject object asymmetry with regard to extraction in ECM constructions is also analyzed under the recent minimalism as evidence supporting the obligatoriness of RTO. Section 7 serves as concluding remarks.

## 2. ECM vs. Raising

A tension between ECM and raising has long been present to analyze the ECM constructions. I would like to briefly introduce the ECM analysis and the raising analysis from the previous studies. Chomsky (1973, 1981) argues in favor of ECM in whose constructions the embedded subject is part of the embedded clause within the weak CP boundary by an S′-deletion. See the following sentences.

(3) a. Julian believes [S (=IP) [NP them] to [be nice]]

    b. Who does Julian believe [S (=IP) [NP e] to [be nice]]?
      (Chomsky and Lasnik (1977), Davies and Dubinsky (2004))

According to Chomsky, the complement subject exceptionally Case-marked by the matrix verb stays within the embedded clause. The S is the clause boundary for the embedded clause with an S′(CP)-deletion, which makes ECM possible.

  Rosenbaum (1967) and Bach (1974) argue for the subject status of the complement subject with data including existential *there* and idiom chunks.

  (4) I believe there to be a man in the garden
  (5) I believe advantage to have been taken of John
  (6) a. *I force there to be a man in the garden
     b. *I force advantage to have been taken of John

The existential *there* is inserted in the Spec-TP when there is no subject. *There* in (4) thus has the subject status though it appears in the postverbal position. The position of *there* in (6a) is a clear object position where the presence of *there* leads the sentence to crash. In (5) and (6b), the postverbal DPs are construed with the embedded clause since they are part of the idiom chunks. (5) is grammatical due to the subject status of the DP, while (6b) is ungrammatical due to the clear object status of the DP. They thus claim that the asymmetry shown in *there* constructions and idiom chunks supports the ECM analysis rather than the raising analysis.

  Massam (1985) argues that the complement subject moves to the Spec-CP for Case as in (7a) and may optionally raise to an argument position of the matrix clause as in (7b). However, the optional movement from an A′-position to an A-position is induced by improper movement, which is not allowed by a prohibition on an application of A-movement to the output of A′-movement.

  (7) a. [CP...         [CP DP [VP t ...  ]

    b. [CP...     DP   [CP  t   [VP t...   ]

   Bruening (2001), based on the language Passamaquoddy, proposes that the complement subject moves to the Spec-CP for one operation (8a) while it is base-generated in the Spec-CP and moves to the matrix clause for another operation (8b). The former is posited  for Case checking by the matrix verb, and the latter is posited due to the lack of thematic role of the complement subject in the matrix clause. The two operations A-A′ and A′-A movements avoid improper movement, but the base generation in the Spec-CP cannot be fully justified with a lack of empirical evidence.

  (8) a. [CP ...     [CP DP  [TP  ... t ...
      b. [CP ...  DP  [CP t  [TP

Unlike Chomsky (1973, 1981), Massam (1985) and Bruening (2001) thus employ CP rather than IP to analyze ECM constructions, arguing for the existence of both ECM and RTO.

   On the other hand, the raising analysis can be divided into two kinds: covert raising and overt raising. Lasnik and Saito (1991) propose that the complement subjects are derived objects like regular objects. Both of them, the complement subject and the regular object, covertly move into the Spec-AgroP for Case checking. They mention the possibility of an overt raising, but they basically argue for a covert raising at LF due to the word order problem. Chomsky and Lasnik (1993) and Chomsky (1995) also suggest that the complement subject of *believe*-type verbs raises to the Spec-AgroP at LF.

   Postal (1974) claims that the complement subject behaves like an object, not a subject, with an extensive range of data. Johnson (1991) proposes that verbs always move out of the VP that they head and that accusative Case marked NPs move to the Spec-VP. The position of adverbs and the adverbial phrase below support his claim for the raising analysis.

(9) *Mary believes sincerely Gary to be a fool.
(10) Who have you believed (who) for a long time now (who) to be
    a fool?
(11) Who does Mary believe (who) sincerely (who) to be a fool?

When the complement subject *Gary* stays in the embedded clause as in (9), the ungrammaticality is induced. When the *wh*-phrase is raised through the matrix VP area to the matrix Spec-CP to undergo *wh*-movement, the grammaticality is induced as in (10) and (11).

Koizumi (1993, 1995) argues that the ECM subjects, like regular objects, raise to the Spec-AgroP overtly. Using Japanese data, Tanaka (2002) proposes that particular lexical items (the RTO verbs) select CP whose head can license an A-position in its edge. Through the position, the complement subject raises to the matrix clause. Runner (1995, 2006) claims that direct objects in English move overtly to a Case position external to VP. He continues to propose that the complement subject also moves to a Case position external to VP.

Bošković (2002) claims that overt object shift obligatorily takes place in ECM constructions. He argues that regular objects of transitive verbs are optional in overt object shift with both the structural Case option and the inherent Case option.[3] He assumes that structural Case requires overt licensing. According to Bošković, the ECM accusatives, not being theta-marked by their Case licensor, have the structural Case option only so that they must undergo overt object shift.

So far we have examined the previous studies on English ECM constructions. We have seen that the analyses go into two directions: the ECM analysis and the RTO analysis. In what follows, I will argue that the ECM constructions should be analyzed as raising, that is, as RTO. A variety of data will be shown first with different structures. The analysis of data under the recent minimalism comes next.

# 3. Evidence for Raising to Object

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3) Inherent Case is licensed in situ under theta-role assignment.

Data related with the Binding Condition show the object status of the complement subject. Postal (1974) and Lasnik and Saito (1991) provide data with Condition B and Condition A.

(12) a. *$Jack_i$ believed $him_i$ to be immoral
　　 b. $Jack_i$ believed $himself_i$ to be immoral
(13) $They_i$ believed each $other_i$ to be honest
(14) a. ?The DA proved [the $defendants_i$ to be guilty] during each
　　　　 $other's_i$ trials.
　　 b. ?*The DA proved [that the $defendants_i$ were guilty] during
　　　　 each $other's_i$ trials.

The pronoun *him* in (12a) is construed with the matrix subject, inducing the Condition B violation while the anaphor *himself* in (12b) and the reciprocal in (13) are well bound within the matrix clause. The reciprocal in (14a) is bound to the antecedent in the higher position of the matrix clause while the reciprocal in (14b) cannot be bound with the antecedent being in the lower embedded position.

Data related with Condition C are provided by Langacker (1969), Postal (1974), and Lasnik and Saito (1991).

(15) a. Joan believes $he_i$ is a genius even more fervently than $Bob_i$
　　　　 does
　　 b. *Joan believes $him_i$ to be a genius even more fervently
　　　　 than $Bob_i$ does
(16) a. ?*Joan believes $him_i$ to be a genius even more fervently than
　　　　 $Bob's_i$ mother does
　　 b. Joan believes $he_i$ is a genius even more fervently than
　　　　 $Bob's_i$ mother does

The ungrammaticality of (15b and 16a) comes from the higher position status of the pronoun *him* to which the R-expression *Bob* is bound, causing Condition C violation.[4)]

The object status of the complement subject is evidenced by binominal *each* according to Postal (1974), Safir and Stowell (1988) and Lasnik and Saito (1991)

(17) a. Jones proved [the defendants to be guilty] with one accusation each
    b. ?? Jones proved [that the defendants were guilty] with one accusation each

Binominal *each* is located in the same matrix clause with *the defendants* satisfying the clausemate condition in (17a) while *each* in the matrix clause in (17b) cannot be in the same clause with *the defendants*.

Possibility of passivization is another evidence that the complement subject is raised to the matrix clause according to Postal (1974) and Lasnik and Saito (1991).

(18) Jack believed Joan to be famous
(19) Joan was believed to be famous by Jack

Passivization cannot apply to the embedded subject but only apply to the object of a verb. (19) shows that passivization is possible and thus the complement subject is actually raised to the matrix clause.

The sentential adverb placement test is a typical test to decide the

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4) As noted by Davies and Dubinsky (2004), Bresnan (1976) suggests that the ungrammaticality of the sentence in (15b) comes from the source sentence with VP ellipsis. If we get the elided part back, Condition B is violated as seen below.

(i) *Joan believes him to be a genius even more fervently than Bob$_i$ believes him$_i$ to be a genius.

However, Lasnik and Saito (1991) claim that the ungrammaticality does not come from the source sentence in (16a). There is no Condition B violation in the source sentence as below.

(ii) *Joan believes him to be a genius even more fervently than Bob's$_i$ mother believes him$_i$ to be a genius.

position of an element between the matrix clause and the embedded clause. See the following examples.

(20) a. I believed that Nixon, foolishly, was interested in ending the war
    b. I believed Nixon, foolishly, to be interested in ending the war.  (Postal 1974)
(21) Mike expected Greg incorrectly to take out the trash. (Runner 1995)

The sentential adverb in (20a) is clearly construed with the embedded clause while the sentential adverb in (20b) and (21) receives a matrix interpretation. This is evidence that the complement subject is raised to the matrix clause.

The scope phenomena manifest the object status of the complement subject as noted by Postal (1974) and Lasnik and Saito (1991).

(22) a. The FBI proved that few students were spies.  [Wide or narrow scope]
    b. The FBI proved few students to be spies.  [Only wide scope]

In (22), the complement subject, *few students*, has either wide scope or narrow scope interpretation while it has only the wide scope interpretation in (22b). This means that the complement subject is raised to the matrix clause.

The superiority condition by Bošković (2002) provides evidence that the complement subject is raised. See below.

(23) a. Whom did John prove to be guilty when?
    b. *When did John prove whom to be guilty?

According to Bošković, the superiority violation is caused if *when* is moved as in (23b). The ungrammaticality does not take place if *whom* is raised to the matrix clause and then subsequently to the Spec-CP.

Particle constructions are evidence for the raising analysis according to Postal (1974), Johnson (1991), and Runner (1995, 2006)

(24) She made Jerry out to be famous

The verb and the particle cannot be separated between the matrix clause and the embedded clause. When *Jerry* separates them apart, it means that *Jerry* is indeed in the matrix clause with the verb and the particle.

The word order change can be evidence for raising as below.

(25) a. The boys probably all will leave after the movie
    b. ?*The boys all probably will leave after the movie
(26) John expects the boys all probably to have left

Runner (1995, 2006) says that the sentential adverb *probably* precedes the floated quantifier *all* in the finite clause as in (25a). When the complement subject *the boys* is raised to the matrix Spec-VP (the Spec-AgroP in his term) *all* resides in the embedded subject position vacated after raising. The grammaticality with the different word order in (26) is evidence for raising.

From the pseudogapping constructions, Lasnik (1999) argues for the overt raising of the complement subject.

(27) Mary proved every Mersenne number not to be prime, and John
    will every Fibonacci number [prove not to be prime]

In (27), the universal quantifier must take scope over negation, which means that object shift takes place overtly.[5]

According to Lasnik and Saito (1991), Negative Polarity Item (NPI) licensing shows the raising of the complement subject.

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5) For this example, Lasnik (1999) notes that object shift is obligatory, In the other cases he argues that object shift is optional.

(28) a. ?The DA proved [none of the defendants to be guilty] during
　　　 any of the trials.
　　 b. ?*The DA proved [that none of the defendants were guilty]
　　　 during any of the trials.

In (28a), the raised NPI c-commands *any* while in (28b) the NPI in the
embedded clause cannot c-command *any*, causing the ungrammaticality.
　　More evidence comes from Postal (1974) which shows asymmetry
between the embedded subject position and the raised matrix position.
*Not*-initial NPs as below occur only in (derived) subject positions.

(29) a. Harry believes that not many pilots are familiar with Racine
　　 b. *Harry believes not many pilots to be familiar with Racine

*Alone*-final NPs as below can occur only in (derived) subject positions.

(30) a. Larry found that Bob alone had drunk the bourbon + vinegar
　　　 mixture
　　 b. *Larry found Bob alone to have drunk the bourbon + vinegar
　　　 mixture

The ungrammaticality of (29b) and (30b) tells us that the complement
subject is not in the embedded clause any more but is raised to the
matrix clause.
　　In this section, we have reviewed a broad range of data that can
support the RTO analysis. Both the ECM analysis and the RTO
analysis make use of the categorial status of the embedded clause: The
embedded clause is assumed as TP by a CP-(S') deletion or as CP.
The ECM analysis makes ECM possible across the embedded clause
either with a CP-deletion or with the embedded subject raised to the
Spec-CP. The RTO analysis on the other hand makes an overt raising
possible across TP or CP. This categorial status is more problematic
cross-linguistically since languages like Korean, unlike English, have the
CP category in ECM constructions with an overt complementizer.[6] Next

comes the discussion on the categorial status of the embedded clause in ECM constructions.

# 4. The Categorial Status of the Embedded Clause

## 4.1. Adger (2003)

The section heavily depends on discussion by Adger (2003). Adger shows that Verbs like *intend* select *for*-clause (CP), not *that*-clause as in (31).

(31) a. John intended for Mary to be present.
    b. John intended for him to learn magic.
    c. *John intended for he to learn magic
    d.*John intended for PRO to learn magic
    e.*John intended that he learns magic

Control verbs like *try* selects CP with the C [null]. The [null] Case feature lies on the unpronounced complementizer and the C checks the null Case for unpronounced pronoun, PRO. (32a) below is grammatical with PRO while (32b) is ungrammatical with pronounced pronoun *her*.

(32) a. Mary tried [C [null] [PRO to see him ]]
    b. *Mary tried [C [null] [her to leave ]]

We then may be able to say that ECM verbs select CP since the complementizer is not visible as in control constructions.

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6) The complementizer *-ko* is overt in Korean as below. The detailed analysis of Korean data is made in H. Lee (2007).

   (i) John-i      Mary-lul    yepputa-ko      sangkakhanta
       John-NOM   Mary-ACC   pretty-COMP    think
       'John thinks Mary to be pretty'

(33) We believed him to be innocent

(34) *We believed [C(null) [*PRO to be the innocent]]

With the C [null] as in (34), PRO should follow. However, in ECM constructions, the pronounced pronoun *him* follows as seen in (33). The *believe*-type verbs cannot select the C [null] and hence PRO cannot follow.

   Another possibility is that we may have to say that ECM verbs select TP.

(35) What Mary attempted was to take care of her children.

(36) What Mary arranged was for her children to be taken care of.

(37) *What Mary believed was Jason to be a murder.

Control clauses in (35) and *for*-clauses in (36) behave in a similar way with respect to pseudoclefting, while they behave differently from ECM clauses in (37). Pseudoclefting is possible with CP as in (35) and (36) while it is not with TP as in (37). Thus the complement clause is not CP but TP in ECM constructions. More examples are seen below.

(38) What I said was [CP that we would go]

(39) *What I said that was [TP we would go]

It is impossible to pseudocleft TP (non-finite TP) in (39). This leads us to conclude that the ECM verbs select TP.

   With regard to s-selection, ECM verbs select a proposition. CPs and TPs are both propositions. Then we have to say that the ECM verbs select either C or T for c-selection. It seems that the ECM verbs select T in languages like English while the ECM verbs select C in languages like Korean.[7] Unlike ECM verbs, raising verbs select either CP or TP (non-finite TP) within a language as seen below.

(40) It seems that John left

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7) Refer to H. Lee (2007) for Korean ECM constructions.

(41) John seems to have left

In sum, the categorial status of the embedded clause is all different depending on the verb types: *intend*-verbs select *for*-clause, control verbs select the null C, raising verbs select both CP and TP, and the ECM verbs select TP in languages like English or CP in languages like Korean. Based on the selected clauses, Case of the infinitival subjects seems to be checked by *for* in *for*-clauses, by C [null] in control clauses, by T outside the embedded clause in raising clauses and by matrix V outside the clause in ECM(/RTO) clauses.

## 4.2. C-selection and S-selection in the Lexicon

In the previous section, we have examined that crosslinguistic differences in the categorial status of ECM complement clauses depend on c-selection along with s-selection. According to Chomsky (1981, 1995), properties of lexical items include a phonological form, a syntactic category and semantic characteristics. In the lexicon, subcategorization and selectional conditions play a central role. Subcategorization (c-selection) conditions tell us what phrasal categories a lexical head takes as complements. Selectional (s-selection) conditions specify intrinsic semantic features of the complements and subject. Chomsky (1995) suggests that it is possible to reduce most of c-selection (subcategorization) to s-selection (semantic properties). He agrees to Pesetsky (1982)′s proposal where c-selection is argued to be replaced with Case assigning distinction. However, he does not completely exclude c-selection in the lexicon.

As cited in Chomsky (1995), let us first consider Grimshaw (1981)′s argument.  See the verbs *ask* and *wonder* below.

(42) Mary asked [what time it was]
(43) Mary asked the time
(44) Mary wondered [what time it was]
(45) *Mary wondered [the time]

The verbs *ask* and *wonder* both semantically select a question. The differences in (42-45) come from c-selection: The verb *ask* c-selects clause or NP as in (42) and (43) while the verb *wonder* c-selects clause only as in (44) and (45). Grimshaw thus argues that further syntactic specification, c-selection, is needed in addition to s-selection. As noted in Chomsky (1995: 33), Pesetsky (1982) proposes that the difference between *ask* and *wonder* need not be stated in terms of c-selection, but rather follows from Case difference: *Ask* assigns objective Case but *wonder* does not. The possibility of passivization shows such a difference as well.

(46) It was asked what time it was
(47) *It was wondered what time it was

Without reference to c-selection, the fact that the verb *wonder* c-selects a clause only can be expressed by Case difference: *wonder* does not assign objective Case.

Such a reduction of c-selection to s-selection seems more desirable, but Chomsky (1995: 33) does not completely exclude c-selection from the lexicon as below.

(48) This reduction seems quite successful for a wide range of cases, but it is important to note that formal syntactic specifications in lexical entries have not been entirely eliminated in favor of semantic ones. Whether or not a verb assigns objective Case is, as far as is known at present, a purely formal property not deducible from semantics. While much of c-selection follows from s-selection, there is a syntactic residue, statable, if Pesetsky is correct, in terms of lexically idiosyncratic Case properties.

To summarize, if we assume that c-selection is still in effect in the lexicon, the parametric difference in ECM complements can be

accounted for by lexical properties of the ECM verbs: English ECM verbs select TP while Korean ECM verbs select CP. Putting aside Korean data, focuses are on the analysis of English ECM constructions. Next comes the detailed analysis of ECM constructions in English.

# 5. Derivation

## 5.1. Driving Force and Position for Raising

Chomsky (2005, 2006) claims that the Agree-feature of T is inherited from C so that the C-T Probe is responsible for nominative Case checking by long-distance agreement or by Internal Merge (IM). Likewise, the Agree-feature of V is inherited from v so that the v-V Probe is responsible for accusative Case checking by long-distance agreement or by Internal Merge (IM). The C Probe has the Edge Feature (EF), inducing A′-movement while T or V induces A-movement, checking Case by the Agree operation. According to Chomsky (2005: 21), CP and vP are phases, the locus of determination of structural Case and agreement for object and subject. The EF and Agree-feature of the phase head apply in parallel: The EF raises XP or a complement of XP within XP to Spec-PH (Phase Head), while the Agree-feature values all uninterpretable features and may or may not raise XP to form an A-chain (Chomsky 2005: 18).

Chomsky (2005) suggests a possibility that the ECM infinitival subject raises rather than staying within the embedded clause. See his example as below.

(49) of which car did they believe the (driver, picture) to have caused a scandal.

He says that *of which car* is raised from an intermediate position, the Spec-TP of the ECM infinitval, before it reaches the matrix Spec-vP. If we take a closer look at the sentence, the following derivation is obtained.

(50) [CP *of which car* [TP did they [vP *(of which car)*   believe [VP
     *(the driver, picture)*     [TP *(the driver, picture of which car)* to
     [vP *(the driver, picture of which car)* have caused a scandal]]]].

In the infinitival clause, the DP *the driver, picture of which car* raises
to the lower Spec-TP due to EPP. With no C that inherits its
Agree-feature, the uninterpretable features of DP cannot be valued at
the lower Spec-TP. It means that the DP is still activated as a Goal
with regard to a Probe outside. Once the DP is inactivated with
valuation of all uninterpretable features nothing can move out of the
position. At the lower Spec-TP, *of which car* raises to the matrix
Spec-CP by the Probe C (EF) through the intermediate Spec-vP and
*the driver, picture* raises to the   Spec-VP by the Probe V (the
V-Agree feature inherited from v). Thus *of which car* undergoes
A'-movement by the EF and *the driver, picture* undergoes
A-movement by the Agree feature: Both movements apply in parallel.
    If we apply the analysis related with *wh*-phrase to the typical English
ECM constructions, the derivation is illustrated as below.

(51) Mary believes John honest
(52) [CP[TP Mary [vP (Mary) believes [VP John   (believes) [TP
     (John)   to [vP (John) be   honest]]]]]]

*John* moves to the lower Spec-TP due to EPP where it is still
activated with uninterpretable features: the T, not selected by C, has no
phi-features and hence cannot value any uninterpretable features of
*John*. The Agree feature of V inherited from v probes the Goal *John*
and the uninterpretable features are valued either by long-distance
agreement or by IM. In the above English case, Chomsky claims that
raising by IM is a choice due to the binding and scopal consequences.
At the Spec-VP, the Case feature of *John* is valued and *John* is
inactivated in that position, not moving further.
    Such an account by parallel movement conforms to the notion of

phase (Chomsky 2005, 2006). Spell-Out is made phase by phase, the lower vP, the higher vP, and then the matrix CP that are all phases in English ECM constructions. TP is not a phase by definition and this is true of TP in ECM constructions with all uninterpretable features activated. *John* with uninterpretable features can thus freely move out of TP to be valued and spelled out in the next cycle.

With regard to the raising analysis, Chomsky (2006: 14) says that there is no visible effect[8] by word order change and no semantic motivation, but there are semantic consequences related with scopal and binding phenomena. With respect to the question of why T should appear in clauses that are not selected by C such as in ECM or raising constructions, he answers that the UG principle that inserts T before vP is generalized to prevent automatic crash at a later stage if C is merged by EM (Chomsky 2006: 15). The merge of C without T insertion will cause the derivation to crash.

We have demonstrated the actual derivation of RTO in terms of Chomsky (2005, 2006). It is summarized as follows.

(53) The driving force for RTO is the Agree-feature of V inherited from v, which induces A-movement.
(54) The position of the raised complement subject is the matrix [Spec, VP].

The RTO raising analysis seems to be necessary not only to explain a broad range of data but also to observe the UG principles of derivations. The basic operation Merge (EM and IM) and EF and Agree-feature as driving forces all play together to account for the derivation of the RTO constructions. More discussions on the position of the raised complement subject will be made in the following subsection.

## 5.2. Spec-vP vs. Spec-VP

In this subsection, introducing Bošković's analysis, I show why the

8) Chomsky (2006: 15) says that T may or may not raise to C, but V must raise to v.

position for ECM raising is the Spec-VP, not the Spec-vP. Bošković (1997, 2002) argues that object shift must take place overtly in ECM constructions, while it is optional with the simple transitive accusative. He proposes that the complement subject in ECM constructions, not being theta-marked by its Case licensor, must be assigned structural Case, which makes overt object shift obligatory. On the other hand, he says that the accusative of a simple object DP can be either structural or inherent,[9) which makes overt object shift optional. (1b) is repeated below as (55).

(55) a. John believes Mary to be honest
b. John [AgroP Mary [VP (John) believes [ (Mary) to
be honest]]]

(55b) schematizes Bošković's ECM constructions using the Agr projections of early minimalism. If we change (55b) to the current structure, the following is obtained.

(56) John  [vP Mary [vP (John) believes [VP (believes)
[(Mary) to be honest]]]

In (56), the complement subject *Mary* is raised to the Spec-vP by overt object shift.

This analysis raises serious problems. First, overt object shift must necessarily bring overt verb raising over the shifted object. Otherwise, the proper English word order cannot be obtained as seen in (55b) and (56). The overt verb raising in English is doubtful since such an analysis will invite more problems in the other areas of syntax. Second, the Spec-vP position is analyzed as an A-position since it is a Case position. However, the same position is analyzed as an A'-position when it is used by *wh*-phrase as an intermediate position to move to the Spec-CP.

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9) Inherent Case is licensed in situ under theta-role assignment (Chomsky 1986).

(57) a. What did you buy?
    b. What did you [vP (what) [vP (you) buy [VP (what)]]]

As seen above, the problem is that the same position is analyzed as an A- or an A′-position depending on the moved element.

Our analysis of ECM constructions in which the complement subject raises to the Spec-VP, not to the Spec-vP will provide a better solution for these problems based on Chomsky's (2005, 2006) parallel movement. See the following structure.

(58) John [vP (John) believes [ Mary VP (believes) [TP
    (Mary) to be honest]]]

First, within our analysis the verb overtly appears higher than the object by V-v raising,[10] satisfying the English word order facts. (58) shows the correct word order after ECM raising. Second, the A- and A′-position distinction is clearly made, not causing mixed chains or improper movement. The Spec-VP is always an A-position as a Case position. The Spec-vP through which *wh*-phrase moves is always an A′-position located at the edge of phase. (23) is repeated as below.

(59) a. Whom did John prove to be guilty when?
    b. [CP whom did [TP John [vP (whom)[vP (John) [VP (whom)
       [TP (whom) to [vP (whom) be guilty when]]]]]]

*Whom* first moves to the lower Spec-TP due to EPP. The V-Agree feature raises *whom* to the Spec-VP to check its structural Case and at the same time the v-EF raises *whom* to the Spec-vP by parallel movement. The former is analyzed as an A-movement while the latter is analyzed as an A′-movement. The A and A′ distinction is naturally made, causing neither mixed chains nor improper movement. All

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10) As mentioned in the previous section, Johnson (1991) proposes that verbs always move out of the VP that they head and that accusative Case marked NPs move to the Spec-VP. Chomsky (2006: 15) also says that V must raise to v.

uninterpretable features of *whom* are valued at the Spec-VP with structural Case checked. *Whom* in the Spec-vP can move further driven by the matrix C-EF since the phase edge position is seen from outside by PIC.[11]

In sum, I have shown that the position for ECM raising is the Spec-VP, not the Spec-vP. The Spec-VP position better accounts for the A and A′ distinction in movement.  Unlike the analysis using the Spec-vP (Bošković 2002, D. Lee 2007), the word order is well kept in the Spec-VP analysis with the assumption of V-v raising. The Spec-VP analysis thus works better for English ECM constructions under the recent minimalism.

# 6. Non-optionality of RTO

## 6.1. Optional vs. Obligatory

As noted in the previous section, the question of whether RTO is optional or obligatory can be another interesting issue. Arguing against Lasnik (1999) where ECM raising is analyzed as being optional, Bošković (2002) argues that it is obligatory, reanalyzing data that support an optional raising. See the following (Bošković 2002: 205).

(60) Everyone is believed not to have arrived yet.
(61) I believe everyone not to have arrived yet.

Bošković (2002) gives comments on Lasnik's argument in favor of the optionality of raising. While Lasnik uses the above sentences as evidence for optionality, Bošković reanalyzes those sentences in terms of Neg raising, QR of negation. Lasnik says that (60) is not ambiguous with universal quantifier taking wide scope[12] while (61) is ambiguous

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11) Phase Impenetrability Condition (PIC): The domain of H is not accessible to operations outside HP but only H and its edge (Chomsky 2001).

12) According to Lasnik, scope reconstruction under A-movement is not possible.

with universal quantifier taking wide or narrow scope. He argues that such a difference in scope is evidence in favor of the optionality of raising.[13] Bošković, however, provides evidence for the opposite analysis: the scope ambiguity of (61) is not from the optional ECM raising but from the Neg raising. The LF Neg movement can get negation to take scope over the raised complement subject in (61) but not over the raised subject in (60), assuming either that the QR of negation is vP-bound or that the matrix predicate has a blocking effect on the QR of negation.[14]

Bošković introduces another Lasnik's example using the *make out* construction.

(62) a. The mathematician made every even number out not to be the sum of two primes.
   b. The mathematician made out every even number not to be the sum of two primes.

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13) The detailed structures for the wide or narrow scope interpretation in (61) are provided to clarify Lasnik's accounts.

   (i) I believe [everyone not to have arrived yet]. not> everyone, partial negation
   (ii) I believe everyone [not to have arrived yet]. everyone> not, total negation

According to Lasnik, the universal quantifier *everyone* may stay within the embedded clause as in (i) or optionally raises to the matrix clause as in (ii), which results in the ambiguous readings, that is, the narrow scope reading with universal quantifier in (i) and the wide scope reading with universal quantifier in (ii).

14) The detailed structures for (61) are given to clarify Bošković's claim.

   (i) I believe everyone [not to have arrived yet]. everyone> not, total negation
   (ii) I [vP Neg [vP believe everyone [not to have arrived yet]. not> everyone, partial negation

Bošković argues that the complement subject is obligatorily raised as seen in (i) and (ii) above. He suggests that the LF Neg movement as in (ii) provides the ambiguous scope readings: the wide scope reading with universal quantifier in (i) without the LF Neg raising and the narrow scope reading with universal quantifier in (ii) with the LF Neg raising. The crucial assumption for his analysis is that the LF QR is vP bound as illustrated in (ii).

According to Lasnik, negation takes wide scope in (62b), not in (62a), which provides evidence that raising is optional. Bošković, however, assumes different positions for *out*, keeping the position of the ECMed DP constant as below. He suggests that the scope of negation is OutP bound.

(63) a. [AgroP ECM-DP [OutP out [IP...Neg...
     b. [OutP out [AgroP ECM-DP [IP...Neg...

From above, we know that negation can take scope under ECMed DP in (63a) while it takes scope over the ECMed DP in (63b).
   See more Lasnik's examples by Bošković.

(64) a. The DA made the defendants$_i$ out to be guilty during each
      other's$_i$ trials
    b. *The DA made out the defendants$_i$ to be guilty during each
      other's$_i$ trials

Lasnik argues that the ECM-ed element can bind the anaphor in (64a) while the non-ECMed element cannot bind the anaphor in (64b). He says that this is evidence for an optional raising. Bošković, however, argues that the complement subject is obligatorily raised. He suggests that the adverb is adjoined to OutP as below.

(65) a. [AgroP the dependents [OutP during each other's trials [ out
     [IP...
    b. [OutP during each other's trials [ out [AgroP the
     dependents [IP...

(65a) shows that the raised DP binds the anaphor while (65b) shows that the raised DP cannot bind the anaphor.

## 6.2. Subject Status vs. Object Status

In addition to the preceding discussion of optional vs. obligatory, Chomsky's arguments that are in conflict between the early and the recent analysis are reviewed and reanalyzed under the recent minimalism. This will additionally support the obligatoriness of RTO. Chomsky (1973) argues that the ECMed-DP has a subject position property with respect to extraction: the subject island effect states that extraction out of the subject position is not allowed while extraction out of the object position is grammatical. Such an asymmetry is presented as below by Chomsky.

(66) a. Which famous singer does Marcia always believe [gossip about_____]?
　　 b. *Which famous singer does Marcia believe [gossip about ____] to have ruined his career?
　　 c. *Which famous singer does Marcia believe that [gossip about ____] has ruined his career?

Chomsky argues that the structure in (66b) is ECM-ed, not raised since the complement subject shows the subject island effect with respect to extraction. For this argument, Postal (1974) suggests that the base position of the raised element is the subject position so that the subject island effect exists.

Chomsky (2005: 20) however suggests the different analysis for the ECM constructions with similar types of sentences. (49) is repeated as below with other sentences.

(49=67) of which car did they believe the (driver, picture) to have caused a scandal.
(68) *It was the car (not the truck) of which [the (driver, picture) [t caused a scandal]]
(69) It is the car (not the truck) of which [the (driver, picture) is likely [t  to [t cause a scandal]]]

Chomsky suggests that the ECM constructions in (67) and the raising construction in (69) are all grammatical not because of the position status (subject or object status) but because of an optimal derivation itself. The Agree-feature of T inherited from C raises EA (external argument) step-by-step to its final position. The Edge Feature of C extracts the PP complements and raises it to the Spec-CP. The two search operations undergo in parallel. No deep search is required because phase boundaries are not crossed. In (67), the EF of C extracts *of which car* at the intermediate Spec-TP since the whole DP is still activated at this position. The Agree-feature of V inherited from v probes *the driver, picture* to the matrix Spec-VP where the Case feature of the DP is checked. In (69), EPP (still mysterious in Chomsky's comments) attracts *the driver, picture of which car* to the intermediate Spec-TP where the EF of C probes *of which car* and the Agree feature of T inherited from C probes *the driver, picture*, checking its nominative Case. No further movement is allowed since the inactivity condition with all uninterpretable features valued bars extraction from the matrix Spec-TP. (68) is on the other hand ungrammatical since the Agree-feature of T inherited from C probes the Goal, valuing nominative Case. The inactivity condition now applies so that extraction is not possible any more. It is ungrammatical since extraction takes place from the position where the inactivity condition applies.

According to Chomsky (1973), *tough* movement apparently provides evidence that the ECM-ed element has a subject status. *Tough* movement is possible from objects, but not from subjects. The ECMed element cannot move in *tough* constructions, showing the subject status.

(70) a. Bobby is easy to please _____
     b. *Bobby is easy to believe [_____ saw Big Foot]
     c. *Bobby is easy to believe_____ to have seen Big Foot.

The detailed analysis of *tough* movement is not of our concern. However, we may account for why (70b and c) are ungrammatical

based on Chomsky (2005, 2006). (70b) is ungrammatical since all uninterpretable features are valued at the Spec-TP where the inactivity condition applies. (70c) is ungrammatical as well since the DP probed by the Agree-feature of V is valued with accusative Case at the matrix Spec-VP and it gets inactive and invisible to further operation. Extraction out of the position leads the sentence to crash.

To summarize, the sentences provided against the raising analysis come from the traditional subject object asymmetry with respect to extraction. However, the same data can be reanalyzed in terms of an optimal derivation in minimalism. Extraction is not possible when all uninterpretable features are valued and thus invisible. If raising is induced by the C-T Probe or by the v-V Probe, the raised element cannot be extracted from that position; the former explains the subject island effect and the latter accounts for the illicit extraction out of the raised DP in ECM constructions.

In sum, we have seen that RTO is not optional but obligatory. The obligatoriness of RTO can extend its explanatory power to the classical subject object asymmetry with regard to extraction of the ECM infinitival subject. Chomsky's old arguments with regard to ECM extraction has been reanalyzed in the perspective of the recent minimalism.

# 7. Conclusion

We have seen that the complement subject of English ECM constructions is not actually ECMed but raised to the matrix Spec-VP by RTO. A variety of data by many authors are reorganized to support the claim that the position of the complement subject is actually higher than the embedded clause. I have claimed that the driving force (Probe) for RTO is the V-Agree feature inherited by v and the position for RTO is the matrix Spec-VP, not the matrix Spec-vP. In particular, the Spec-VP analysis has been argued be superior to the Spec-vP analysis in terms of word order facts and uniformity of chains. Chomsky (2005) suggested the possibility of raising for English ECM constructions using

data including *wh*-phrase, but he didn't show the detailed analysis. I have provided the actual derivation of the ECM constructions under the recent minimalism. I have claimed that RTO is not optional but obligatory, satisfying the Last Resort Principle. It has been demonstrated that the obligatoriness of RTO further supports the reanalysis of Chomsky's earlier arguments under the recent minimalism. Concerning crosslinguistic differences, I suggested that the ECM verbs select C or T for c-selection depending on languages, though they uniformly select a proposition for s-selection: The English ECM verbs select T while the Korean ECM verbs select C. The crosslinguistic differences thus come from lexical properties of ECM verbs, not from differences in universal principles of derivations.

# References

Adger David. (2003). *Core syntax: A minimalist approach*. Oxford University Press.

Bach, Emmon. (1974). *Syntactic theory*. Holt, Rinehart, and Winston, New York.

Bach, Emmon. (1977). Review article on Postal, On raising: One rule of English grammar and its theoretical implications. *Language 53*: 621-654.

Bošković, Želico. (1997). *The syntax of nonfinite complementation: An economy approach*. Cambridge, Mass.: MIT Press.

Bošković, Želico. (2002). A-movement and the EPP. In *Syntax 5.3*: 167-218. Blackwell.

Bresnan, Joan. (1972). Theory of complementation in English Syntax. Ph.D. dissertation, Cambridge, MIT.

Bresnan, Joan. (1976). Nonarguments for raising. *Linguistic Inquiry 7*: 3-40.

Bruening, Benjamin. (2001). Syntax at the edge: Cross-clausal phenomena and the syntax of Passamaquoddy. Ph.D. Dissertation, MIT.

Chomsky, Noam. (1973). Conditions on transformations. In *A festschrift for Morris Halle*, Stephen Anderson and Paul Kiparsky (eds.), 232-286. New York: Holt, Rinehart, and Winston.

Chomsky, Noam. (1977). On wh-movement. In *Formal syntax*, Peter Culicover, Thomas Wasow, and Adrian Akmajian (eds.), 71-132. New York: Academic Press.

Chomsky, Noam. (1981). *Lectures on government and binding*. Dordrecht: Foris. Reprinted 1993, Dordrecht: Mouton de Gruyter.

Chomsky, Noam. (1986). *Knowledge of language: Its nature, origin, and use*. New York: Praeger.

Chomsky, Noam. (1995). *The minimalist program*. Cambridge, MA: MIT Press.

Chomsky, Noam. (2000). Minimalist inquiries: The framework. In *Step by step: Essays in minimalist syntax in honor of Howard Lasnik*, Roger martin, David Michaels, and Juan Uriagereka (eds.), 89-155. Cambridge, Mass.: MIT Press.

Chomsky, Noam. (2001). Derivation by phase. In *Ken Hale: A life in language*, Michael Kenstowicz (ed.), 1-52. Cambridge, Mass.: MIT Press.

Chomsky, Noam. (2005). On phases. ms., MIT, Mass.: Cambridge.

Chomsky, Noam. (2006). Approaching UG from below, ms., MIT, Mass: Cambridge.

Chomsky, Noam and Howard Lasnik. (1993). The theory of principled parameters. In *Syntax: An international handbook of contemporary research*, Joachim Jacobs, Amim von Stechow, Wolfgang Stemefeld, and Theo Vannemann (eds.), Berlin and New York: Walter de Gruyer, 506-569. (Reprinted in Noam Chomsky. 1995. *The minimalist program*. Cambridge, Mass.: MIT Press, 13-127.)

Davies, William and Stanley Dubinsky. (2004). *The grammar of raising and control*. Blackwell.

Epstein, Samuel D. and T. Daniel Seely. (2006). *Derivation in Minimalism: Exploring the elimination of A-chains and the EPP*. Cambridge: Cambridge University press.

Grimshaw, Jane. (1981). Form, function, and the language acquisition

device. In *The logical problem of language acquisition*, C.L. Baker and J. McCarthy (eds.), Mass.: MIT Press.

Hong, Sungshim. (2002). Raising of objects in small clauses. *Studies in Modern Grammar 30*: 89-108.

Johnson, Kyle. (1991). Object positions. *Natural Language and Linguistic Theory 9*: 577-636.

Jung, Yeun-Jin. (2001). Multiple Case marking and its PF interpretation. *Korean Journal of Linguistics 26*: 239-268.

Kawai, Michiya. (2006). Raising to object in Japanese: A small clause analysis. *Linguistic Inquiry 37*: 329-339.

Kim, Dongseok and Yongha Kim. (2003). Korean ECM constructions and the theory of phase. *Studies in Modern Grammar 33*: 47-77.

Koizmi, Masatoshi. (1993). Object agreement phrases and the split VP hypothesis. *MIT Working Papers in Linguistics 18*: 99-148.

Koizmi, Masatoshi. (1995). Phrase structure in minimalist syntax. Ph.D. dissertation, MIT.

Langacker, Ronald W. (1969). On pronominalization and the chain of command. In *Modern studies in English*, D.A. Reibel and S.A. Schane (eds.),  Prentice-Hall, Englewood Cliffs, New Jersey.

Lasnik, Howard. (1999). Chains of arguments. In *Working minimalism*, S. Epstein and N. Hornstein (eds.), 189-215. Cambridge, Mass.: MIT Press.

Lasnik, Howard and Mamoru Saito. (1991). On the subject of infinitives. In *Papers from the Twenty-seventh Regional Meeting of the Chicago Linguistic Society*. Lise Dobrin, Lynn Nichols, and Rosa Rodriguez (eds.), 324-343. Chicago; Chicago Linguistic Society.

Lee, Doo-Won. (2007). Structural Case-driven object shift of ECMed nominals out of the CP. *The Linguistic Association of Korea Journal 15*: 39-63.

Lee, Hyeran. (2007). A raising-to-object analysis of Korean ECM constructions. *Studies in Generative Grammar 17*: 361-396.

Massam, Diane. (1985). Case theory and the projection principle. Ph.D. dissertation, Cambridge, MIT.

McCloseky, James. (2000). Quantifier float and wh-movement in an Irish

English. *Linguistic Inquiry 31*: 57–84.

Ormazabal, Javier. (1995). The syntax of complementation: On the connection between syntactic structure and selection. Ph.D. dissertation, University of Connecticut, Storrs.

Pesetsky, David. (1982). Paths and categories. Ph.D. Dissertation, MIT.

Postal, Paul M. (1974). *On Raising*. Cambridge: MIT Press.

Rosenbaum, Peter. (1967). *The grammar of English predicate complement constructions*. Cambridge: MIT Press.

Runner, Jeffrey. (1995). Noun phrase licensing and interpretation. Ph.D. Dissertation, University of Massachusetts.

Runner, Jeffrey. (2006). Lingering challenges to the raising-to-object and object-control constructions. *Syntax 9*: 193–213.

Safir, Kenneth J. and Timothy Stowell. (1988). Binominal Each. *NELS 18*: 426–450.

Schütze, Carson T.R. (1997). INFL in child and adult language: Agreement, Case and licensing, Ph.D. dissertation, MIT.

Szczegielniak, Adam. (1999). Multiple spell-out, In *Working minimalism*, Samuel D. Epstein and Nobert Hornstein (eds.), 251–282. Cambridge, Mass.: MIT Press.

Tanaka, Hidekazu. (2002). Raising to object out of CP. *Linguistic Inquiry 33*: 637–652.

Yang Dong-Whee. (2003). Optionality, output effects, and the EPP. *Studies in Modern Grammar 32*: 43–68.

Yoon, Hang-Jin. (2004). ECM in Korean. *Studies in Modern Grammar 37*: 27–57.

Yoon, Jeong-Me. (1989). ECM and multiple subject constructions in Korean. *Harvard Studies in Korean Linguistics III*: 369–381.

Yoon, Jong-Yurl. (1990). Korea syntax and generalized X-bar theory. Ph.D. dissertation, University of Texas, Austin.

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