A Markedness Theory of Movement*

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Yang, Dong-Whee. 2010. A Markedness Theory of Movement. *The Linguistic Association of Korea Journal*. 18(2). 1-25. This paper proposes and motivates a theory of movement based on the notion of "unmarked" vs. "marked" internal merge (IM) in place of "A-/A'-movement." Unmarked IM is a consequence of the unmarked edge feature (EF) (Chomsky 2008) whereas marked IM is a consequence of the marked EF. The unmarked EF is the default EF for every lexical item (LI), which is "optionally deletable" (Chomsky *pc*), whereas the marked EF is the result of blocking the "optional deletability" of the default unmarked EF. Hence, unmarked IM should be a free optional operation triggered by an unmarked EF whereas marked IM should be an exceptional obligatory operation triggered by a marked EF. To conclude, movements across languages should be characterized as either a free optional "unmarked" IM or an exceptional obligatory "marked" IM according to the markedness theory of movement.

Key Words: edge feature (EF), markedness, unmarked default EF, marked EF, merge, internal merge (IM), external merge (EM)

1. Introduction

The probe-goal checking theory of movement (Chomsky 2000, 2001) is a "deterministic" theory of movement in the sense that movement is licensed or "determined" through a feature-checking mechanism. Consider (1a, b):

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(1) a. [$_{CP}$ You will decide [$_{CP}$ that John$_i$ we should not invite t$_i$ to our
      party]].
  b. [$_{CP}$ John$_i$ you will decide [$_{CP}$ that t$_i$ we should not invite t$_i$ to our
      party]].

According to the probe-goal checking theory, (1a, b) would be derived as follows. In (1a) the topic feature posited in the head of the embedded CP functions as the probe undergoing feature-checking with the goal of the topic feature of *John*, which would license or "determine" Topicalization of *John* in terms of thet resort condition.[1] In the derivation of (1b), however, we see that Topicalization of *John* in (1a) need not be a "deterministic" process under the last resort condition; in fact, it should be an *optional* process so that *John* may stay at the edge of the embedded CP or move up to the edge of the matrix CP, either movement serving for the Topicalization of *John*. To conclude, for optional processes like English Topicalization, the last resort condition of the probe-goal checking theory of movement is not necessary or relevant since an optional process cannot be subject to the last resort condition.

Movement serves as a last resort for convergence, overriding the economy considerations, when the movement is the only route toward a converging derivation. In the case of optional movement, however, obviously its application is not the only route toward a converging derivation. If convergence is assured without the necessity of movement, economy considerations would block movement under last resort; hence, last resort does not apply to optional operation.

Hence, we should abandon the last resort condition for movements like Topicalization. Otherwise, we should assume that Topicalization is an obligatory operation (Rizzi 2006) so that it involves the look-ahead problem in the sense that in the derivation of (1b) the movement of *John* to Spec of the lower phase head should be done in anticipation of the topic feature checking with the higher phase head since no topic feature is available in the Spec of the lower

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1) It is assumed that Topicalization in English may involve tucking-in (Richards 2001) as we see in (1a) where the Topicalized element *John* is moved to the right of CI am ignoring herth intermediate additional landing positions (Spec*) for Topicalization of *John* as we see i (1a, b)

phase, unless a dummy topic feature is posited for the checking of the intermediate link in the Spec of the lower phased head.

This paper offers and motivates an alternative view to Topicalization as an obligatory operation, i.e., Topicalization as an optional operation in terms of the markedness theory of movement, which would eliminate the problems of the look-ahead, the postulation of the dummy topic feature, etc.

2. Edge Feature

The markedness theory of movement is based on the notion of edge feature (EF) (Chomsky 2008). EF is an inherent feature of every lexical item (LI) for the propensity of being merged. EF is characterized as "optionally deletable" along with the condition that the "optional deletability" of EF may be blocked (Chomsky *pc*). Other properties of EFs naturally follow. First of all, the unmarked or default EF should be optional since it is characterized as "optionally deletable;" hence, the unmarked EF may induce optional movement or the "unmarked IM".

EF is an uninterpretable feature since it is not semantically interpreted; hence, if it was not "optionally deleted" from the beginning, it has to be deleted by being satisfied through merger. The "optional deletability" of EF may be blocked; hence, the default unmarked EF may become "marked" or obligatory, inducing obligatory movement or a "marked IM". An LI may have multiple EFs, since it is not stipulated that an LI should have only one EF; in fact, multiple EFs per LI are usually justified or required by other motivated conditions and principles like the theta-criterion or the multiplicity of modifiers. In fact, given only the characterization of EF as "optionally deletable" along with the condition that the "optional deletability" of EF may be blocked, the notion of EF optimally functions along with other motivated conditions and principles.[2]

EF is a formal representation of the notion of merge, the fundamental property of human language: it induces internal merge (IM), which characterize

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2) The EF theory can be conceptualized as "Merge-α" just like "Move-α" in the government inding theory (Chomsky 1981).

movement, as well as external merge (EM), which characterizes phrase structure formation. Just as unmarked and marked EFs induce unmarked and marked IMs respectively, they also induce unmarked and marked EMs respectively. Both unmarked IM and unmarked EM are optional free merges, whereas both the marked IM and the marked EM are obligatory forced merges. Hence, I claim that both the marked IM and the marked EM are "unusual,"[3] as will be further discussed.

Given the motivation of unmarked and marked IMs in terms of EF as two types of movements in human languages in this paper, the markedness theory of movement based on the notion of unmarked and marked IM will provide a new characterization of movements in human languages.

Note that the notion of unmarked IM or optional movement has not been formally recognized in the minimalist theory of movement (Chomsky 1995, 2000, 2001, and Miyagawa 2010), in which movement has been characterized only as induced by the last-resort condition. In other words, the notion of movement has been crucially characterized as involving the last-resort condition in the minimalism. Hence, the notion of optional movement has been assumed to be something informal or exceptional.

3. Unmarked vs. Marked IM

Optional movements like English Topicalization are induced by "unmarked IMs," which yield output effects called "D-effects".[4] D-effects, named for "discourse effects" since they include discourse-related meanings like topic and focus, are predicted by a general output effect condition on optional operations (2):

(2) Optional operations can apply only if they have an effect on outcome (Chomsky 2001).

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3) The representative cases of the marked IM and te marked EM are traditional EP phenomena. The apparent obligatory selection of the object by the transitive verb isusually captured by th semantic interpretation for the transitive verb and the object for the unmarked EM of them.

4) "D-effects" include scope-related output effects of unmarked IMs, as discussed further below.

In other words, the unmarked IM of optional English Topicalization as in (1a, b) induces the D-effect of topic for the Topicalized phrase *John* according to (2) and that the D-effect is interpreted at the interface for the unmarked IM applied at narrow syntax.

Given the principle (3), the marked IM also yields the output effect called a "Non-D-effect" just as the unmarked IM yields the output effect called a "D-effect" as discussed above:

(3) Every merge operation induces a (new) interpretation.[5])

The notion of D-effect and the notion of Non-D-effect are in complementary distribution in that the former is determined by the optional disposition of elements due to the unmarked IM according to the principle (2) as discussed above, whereas the latter is determined by the lexical properties of the head inducing the marked IM and the element undergoing the marked IM, so that the Non-D-effects may be subject to wide idiosyncratic variations due to the lexical properties of the elements involved.[6]) For example, consider (4):

(4) What$_i$ do you think [$_{CP}$ t$_i$ that John bought t$_i$]?

In (4) the Non-D-effect of *wh*-scope for the *wh*-phrase is induced by the marked EF property of the C head and the *wh*-property of the *wh*-phrase *what* undergoing the marked IM, but in (5) below the Non-D-effect of the expletive *there* should be null due to the lexical property of the expletive *there* along with the marked EF on the T head:

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5) In fact, (2) should be a special case of (3). Chomsky (2008) describes the semantic effects of every merge operation (EM and IM) as follows (i):

(i) EM yields generalized argument structure (theta roles, the "cartographic" hierarchies, and similar properties); and IM yields discourse-related properties such as old information and specificity, along with scopal effect.

6) In fact, the Non-D-effect of a marked IM may happen to be the same type of effect as the D-effect of an unmarked IM. For example, the marked IM of *Wh*-Movement as in English may induce the Non-D-effect of *wh*-scope and the unmarked IM of *Wh*-Scrambling as in Korean may induce the D-effect of *wh*-scope, as we discuss further below.

(5) [$_{TP}$ There$_i$ seems [$_{TP}$ t$_i$ to [$_{v*P}$ be a man in the room]]].

Note that such variability of output effects is restricted to the Non-D-effect. The D-effect is not subject to such variability as due to the principle (2), as discussed above. Hence, the markedness theory of movement along with the notion of Non-D-effect accounts for why an expletive may undergo a marked IM but not an unmarked IM across languages.[7] Note that if an expletive should undergo an unmarked IM it would violate the principle (2) since expletives are unable to carry D-effects.

Given the motivation of the markedness theory of movement to the effect that both unmarked and marked IMs induce the interpretive effects, i.e., D-effect and Non-D-effect respectively, it will be claimed in this paper that the notion of feature-checking (Chomsky 2000, 2001) is replaced by the notion of interpretive effects in the markedness theory of movement.

4. Unmarked IM

The prototypical unmarked IM is Scrambling in languages like Korean, Japanese, etc. Both long-distance and clause-internal Scrambling would be best accounted for by the notion of unmarked IM. Consider (6), a long-distance Scrambling of an adjunct in Korean:

(6) [$_{CP}$ nayil$_i$ [$_{TP}$ John-i [$_{CP}$ t$_i$ [$_{TP}$ t$_i$ pi-ka ol-kes-i-la]-ko] malha-ess]-ta].
   tomorrow J.-NOM rain-NOM come-FUT-DEC-C say-PAST-DEC
   'Tomorrow, John said that it will rain.'

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7) This statement may be generalized as (i):

(i) An expletive may undergo a marked IM/EM but not an unmarked IM/EM across languages.

In other words, the insertion or movement of an expletive can never be optional across languages.

In (6) the adjunct *nayil* 'tomorrow' undergoes Long-distance Scrambling, an optional non-Agree phasal movement, which would be best analyzed as a phasal unmarked IM since it is clearly an Agree-free optional movement and induces the D-effect of focus on the final link of the successive-cyclic movement of the adjunct *nayil*.[8]

Chomsky (2008) claims that non-Agree EF-movements, or unmarked IMs in this paper, are restricted to phase heads, i.e., only triggered by phase heads only, as we see in (6). But I claim that unmarked IMs are not necessarily restricted to phase heads according to the markedness theory of movement.

Consider (7) the VP-internal Scrambling in Polish (Wiland in prep.):

(7) a. Piotr mogl [$_{v*P}$ (szybko) dac [$_{VP}$ jakiemus chlopcu kazda monete].
    Piotr could   (quickly) give   some boy   every coin ($>")
  b. Piotr mogl [$_{v*P}$ (szybko) dac [$_{VP}$ kazda monete$_i$ jakiemus chlopcu t$_i$].
     Piotr could (quickly) give every coin   some boy (">$ & $>")

The VP-internal Scrambling of the accusative phrase *kazda monete* 'every coin', deriving (7b) from (7a), induces the properties of unmarked IM in that it is optional and induces the D-effects of scope change and old information, i.e., in (7b) the accusative phrase *kazda monete* may carry wide scope and old information, unlike the accusative phrase *kazda monete* in (7a). Note that V always raises to $v*$ in Polish so that in (7a, b) the accusative phrase *kazda monete* which occurs lower than the VP-adverb *szybko* cannot be assumed to ever be in Spec-$v*$; hence, the movement of the accusative phrase *kazda monete* cannot be induced by the EF of the phase head $v*$ but by the EF of the nonphase head V.

For similar evidence of unmarked IM induced by a non-phase head, consider (8) VP-internal Scrambling in Korean:

(8) a. [$_{TP}$ Mary-ka [$_{v*P}$ (ppalli) [$_{VP}$ sonyen-eykey motun tongcen-ul]
    M.-NOM   (quickly) boy-DAT   every coin-ACC
    cu]-ess-ta].
    give-PAST-DEC

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8) It will be discussed later why the D-effect is realized only on the final link of the successive cyclic movement of unmarked IM.

'Mary quickly gave a boy every coin.'   ($>")

b. [$_{TP}$ Mary-ka [$_{v*P}$ (ppalli) [$_{VP}$ motun tongcen-ul$_i$ sonyen-eykey t$_i$]
     M.-NOM   (quickly)   every coin-ACC   boy-DAT

cu]-ess-ta].
give-PAST-DEC
'Mary quickly gave every coin to a boy.'   (">$ & $>")

In Korean a bare DP is ambiguous between definite and indefinite, so in (8a, b) the bare dative phrase *sonyen-eykey* 'boy-DAT' may be interpreted as definite or indefinite. When it is assumed to be indefinite for the existential quantifier reading, it receives only the wide scope reading as in (8a), whereas it receives both the wide and narrow scope readings in (8b), exactly as in the Polish example (7b) above. Hence, we can assume that the VP-internal Scrambling of the accusative phrase *motun tongcen-ul* 'every coin', deriving (8b) from (8a), induces the properties of unmarked IM in that it is optional and induces the D-effect of scope change and old information,[9] i.e., in (8b) the accusative phrase *motun tongcen-ul* carries wide scope and old information.

Note that in (8b) the Scrambled accusative phrase *motun tongcen-ul* may appear below the VP-adverb *ppalli* 'quickly' so that it cannot be assumed to be in Spec-$v*$; hence, the movement of the accusative phrase *motun tongcen-ul* cannot be induced by the EF of the phase head $v*$ but by the EF of the nonphase head V.

Phase-internal unmarked IMs can be identified in terms of binding relations. Consider German examples (9a, b) (Putnam 2007):

(9) a. ⋯ dass seinen Vater$_i$ jeder   t$_i$ besucht hat.
        that his   father everyone   visited has
       '⋯ everyone has visited his father.'

   b. *⋯ dass der Jörg seinen Vater$_i$ jedem   t$_i$ gezeikt hat.
        that the Jörg his   father everyone   shown   has

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9) Note again thatthe D-effect of an unmarked IM can be multiple, as suggested earlier, so that he D-effect of the unmarked IM of Scrambling of the accusative phrase *motun tongcen-ul* 'every coin-ACC' in b) is realized as scope change and old information just as in the Poish example (7b).

'··· Jörg showed his father to everyone.'

In (9a) apparently the object *seinen Vater* 'his father' has undergone a phasal unmarked IM to the phasal edge, Spec-*v**, so that it can reconstruct, resulting in a grammatical sentence in which the genitive pronoun *seinen* can be bound by the quantifier *jeder*. On the other hand, in (9b) the object *seinen Vater* 'his father' has apparently undergone a phase-internal unmarked IM to a position between the subject *der Jörg* and the quantificational indirect object *jedem* 'everyone'; hence, it cannot reconstruct so that the genitive pronoun *seinen* cannot be bound by the quantifier *jedem,* resulting in the ungrammaticality of (9b).

Thus, the binding difference between (9a, b) provides evidence for the phase-internal unmarked IM. Note that (9b) would be grammatical just like (9a) if it were not for the quantifier binding problem. The unmarked IM of the object *seinen Vater* in (9a, b) has been claimed to induce a semantic effect or D-effect of referentiality (Putnam 2007).

The weak crossover phenomena can be used to identify phase-internal unmarked IMs. Consider (10a, b):

(10) a. *Who$_i$ does his mother love t$_i$?
    b. Wen$_i$ hat t$_i$ seine Mutter immer t$_i$ geküßt? (German)
      whom has   his mother always   kissed
      'Whom does his mother always kiss?'

The English example (10a) is ungrammatical due to the violation of the weak crossover constraint. But its rough German counterpart (10b) is grammatical. For this difference, it has been suggested that in (10b) the German *wh*-phrase *Wen* 'whom' undergoes a non-phasal movement to a non-phasal position before it reaches the Spec-C or phasal position unlike in (10a), so that it avoids the weak crossover constraint.

Such an intermediate movement of the German *wh*-phrase as in (10b) cannot be a phasal movement but should be a phase-internal unmarked IM; in fact, I claim, in (10b) the German *wh*-phrase *Wen* undergoes the phase-internal unmarked IM and then the phasal marked IM (*Wh*-Movement), forming a *Wh*-Movement chain. As discussed earlier with respect to (4), the intermediate

links of successive-cyclic movements (marked as well as unmarked IMs) should be unmarked IMs since they cannot qualify as marked IMs.

Clause-internal Scrambling in Korean may also eliminate the weak crossover effect, which means that it functions as a kind of A-movement, which in fact should be a phase-internal unmarked IM. Consider the Korean examples (11):

(11) a. *[$_{TP}$ ku$_i$-uy   chinkwu-ka   nwukwu$_i$-lul ttayli-ess-ni]?
              he-GEN   friend-NOM   who-ACC   hit-PAST-Q
         'His$_i$ friend hit who$_i$?'
     b. [$_{CP}$ nwukwu$_i$-lul$_j$ [$_{TP}$ t$_j$ [$_{TP}$ ku$_i$-uy chinkwu-ka   t$_j$ ttayli-ess-ni]]]?
              who-ACC   he-GEN friend-NOM   hit-PAST-Q
         'Who$_i$ did his$_i$ friend hit?'

(11a) shows that the weak crossover constraint obtains in Korean as in English. But the weak crossover effect disappears if the wh-phrase undergoes Wh-Scrambling as we can see in (11b) unlike in English. This phenomenon can be accounted for as follows. Unlike in English, in scrambling languages like Korean and Japanese, Clause-internal Scrambling may induce an additional A-position in an outer Spec-T as we see in the multiple Specs of T in (11b); that is, in (11b) the trace of the wh-phrase in the outer Spec-T (A-position) functions as the variable for the preposed wh-phrase, eliminating the weak crossover effect.[10]

The Clause-internal Scrambling inducing an additional A-position effect through outer Spec-T as in (11b) cannot be an obligatory Agree-driven movement; it has to be a non-phasal unmarked IM, which in turn functions as an intermediate link for the unmarked IM chain of the *Wh*-Scrambling in Korean.

There are other examples of Clause-internal Scrambling in Japanese and Korean that should be considered as phase-internal unmarked IMs. Consider

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10) Even if in (b) the Clause-internal Scrambling of the *wh*-phrase is assumed to have stopped at the outer Spec-T as it normally would do, the structure is still free from the weak crossover   effect since a covert movement like the LF movement of the *wh*-phrase to Spec-C from the   outer Spec-T (A-position) would not induce the weak crossover effect, which once again   confirms to the A-movement property of Clause-internal Scrambling.

(12)-(13):

(12) ?[$_{TP}$ karera-o$_i$ [$_{TP}$ [otagai-no   sensei]-ga t$_i$ hihansita]]. (Saito 1992)
　　　 they-ACC   each other-GEN teacher-NOM   criticized
　'*Them, each other's teacher criticized.'

(13) [$_{TP}$ John$_i$-eykey [$_{TP}$ [caki$_i$-uy tongsayng]-i t$_i$ kacang   towumtwe-n-ta]].
　　　 J.-DAT　　　 self-GEN brother-NOM most   helpful-PRES-DEC
　'To John$_i$, self's$_i$ brother is most helpful.'

In the Japanese example (12), the object *karera-o* is moved to the outer Spec-T by Clause-internal Scrambling, becoming the binder of the anaphor *otagai* 'each other', which means that Clause-internal Scrambling can be an A-movement, though it is not an Agree-driven movement but an EF-driven movement, i.e., a phase-internal unmarked IM. Note that in (12) the object *karera-o* cannot undergo Agree with T, which apparently would have already undergone Agree with the subject phrase.

In the Korean example (13), the dative phrase is moved to the outer Spec-T by Clause-internal Scrambling, becoming the binder of the anaphor *caki* 'self', which means that Clause-internal Scrambling can be an A-movement, though it is not an Agree-driven movement but an EF-driven movement, i.e., a phase-internal unmarked IM. One might argue that in (12) the preposed object *karera-o* undergoes Agree with V that has undergone head-movement to T (Miyagawa 2003). But such an argument cannot work for (13), where the preposed phrase is a dative phrase, which is not supposed to undergo any Agree.

5. Marked IM

Marked IM is induced by a marked EF, which is realized when the "optional deletability" of the default unmarked EF[11] is somehow blocked (Chomsky *pc*).

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11) I assume that every LI is given one or more default unmarked EFs in the lexicon.

What blocks the "optional deletability" of the default unmarked EF may be items such as the *wh*-feature assigned to the matrix C as in the English *Wh*-question (14):

(14) What$_i$ do you think [$_{CP}$ t$_i$ that John bought t$_i$]?

But what actually attracts the *wh*-phrase *what* to the edge of the matrix CP is not the *wh*-feature or Q-particle head (Cable 2007) assigned to the matrix C but the marked EF realized through blocking the "optional deletability" of the default unmarked EF in the matrix C. Accordingly, in a marked or obligatory successive-cyclic movement, the marked IM may occur only at the final link and all the intermediate links should remain as default unmarked IMs. Hence, in (14) only optional unmarked IMs need to occur at the intermediate links for the marked IM at the final link, and the marked IM at the final link of the *Wh*-Movement induces or determines the Non-D-effect of *wh*-scope.[12]

On the other hand, in an unmarked or optional successive-cyclic movement, all the links have to be unmarked IMs and the derivation naturally stops when it chooses to stop and the final link will receive the D-effect.[13]

What blocks the "optional deletability" of the default unmarked EF for a marked EF may show up as a special lexical item or particle across languages. Consider Gungbe Focus Movement (15):

(15) [$_{CP}$ hǐ ló$_i$ wɛ́ Sɛ́ná sè   [$_{CP}$ t$_i$ ɖó Rɛ́mí   zé t$_i$]].
        knife Foc Sena hear   that Remi take
        'The knife$_i$ Sam heard that Remi took t$_i$."   (Aboh 2004)

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12) A D-effect is necessarily induced by an unmarked IM, but a Non-D-effect may be induced without involving a marked IM or any movement. For example, *wh*-elements like *whether, if*, etc., inserted by EM, may have the same semantic effect of *wh*-scope induced by *Wh*-Movement. Even the *wh*-adjunct *why* in English, which should induce its own *wh*-scope, is claimed to benot moved to but inserted in Spec-C, just like *wh*-elements like *whether, if*, etc (Ko 2006). Hence, the D-effect is a default interpretation of the unmarked IM whereas the Non-D-effect of the marked IM is part of the general interpretation for obligatory merger due to EF.

13) Later I will discuss why and how only the inal link of an unmarked IM chain will receive D-effect.

Gungbe Focus Movement as in (15) can be accounted for as a marked IM with the focus particle head *wέ* (Aboh 2004) blocking the "optional deletability" of a default unmarked EF for a marked EF in the matrix C head.[14] The claim that Gungbe Focus Movement like (15) cannot be an unmarked IM but a marked IM is further supported by the principle (16):

(16) An obligatory process takes precedence over an optional process.

In Gungbe Focus Movement the focus effect is not determined by the principle (2) involving optionality, but lexically determined by the position and nature of the obligatory focus particle *wέ*. In other words, the obligatory option of interpreting the focus effect in terms of obligatory marked IM takes precedence over the optional option of interpreting the focus effect in terms of optional unmarked IM.

Consider (17a, b):

(17) a. [$_{TP}$ A man$_i$ seems [$_{TP}$ t$_i$ to [$_{v*P}$ be t$_i$ in the room]]].
     b. [$_{TP}$ There$_i$ seems [$_{TP}$ t$_i$ to [$_{v*P}$ be a man in the room]]].

The obligatory Subject-Raising in (17a, b) can be accounted for by the markedness theory as follows. The marked IM of the subject in (17a, b) is induced by a marked EF realized through blocking the "optional deletability" of the default unmarked EF on T. What has blocked the "optional deletability" of the default unmarked EF for a marked IM on T can be considered to be the phi-feature on T. The marked EF realized on T will induce the marked IM of *a man* or *there* in (17a, b).

The intermediate links in (17a, b) will remain as unmarked IMs. It has been claimed that the edge of the embedded TP in (17a, b) is also an EPP position,

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14) One might claim that Gungbe Focus Movement is an unmarked IM since the focus particle *wέ* appears *optionally* which induces the focus movement. Note, however, that it is difficult to maintain that the focus effect of Gungbe Focus Movement is simply induced by an unmarked IM in terms of the output effect principle (2), since it can be claimed that the focus effect is induced lexically by the focus particle wὲ,which conforms to he mechanism for the Non-D-effect of a marked IM.

which does not seem to be necessary for the marked IM analysis of (17a, b). Without positing the EPP condition on the edge of the embedded TP in (17a, b) there would be no problem for the analysis of (17a, b) in terms of the markedness theory of movement, as discussed below.

Note that just as the *wh*-feature posited on the C head for the obligatory *Wh*-movement as in (14) and the focus feature or particle posited on the C head for the obligatory Focus Movement as in (15) may block the "optional deletability" of the default unmarked EF for a marked IM on the C head, so the phi-feature posited on the T head for the obligatory Subject-Raising as in (17) may block the "optional deletability" of the default unmarked EF for a marked IM on the T head.

On the other hand, just as the *wh*-feature posited on the C head is interpreted for the *wh*-scope effect due to the obligatory *Wh*-movement, and the focus feature or particle posited on the C head is interpreted for the focus effect due to the obligatory Focus Movement, so I claim the phi-feature posited on the T head is interpreted for the Agree effect due to obligatory Subject-Raising.

Furthermore, I claim that just as the *wh*-scope effect and the focus effect may be induced by other than the marked IM of the obligatory *Wh*-movement or the obligatory Focus Movement, so the Agree effect may be induced by other than the marked IM of obligatory Subject-Raising.[15] Hence, we conclude that the Agree effect should be interpreted in terms of the interpretive system rather than checked in terms of the syntactic feature-checking system.

Just as the marked EF for a marked IM is lexically determined, the output effect or the Non-D-effect of a marked IM is also lexically determined, as discussed earlier. The Non-D-effect of *wh*-scope for the marked IM of *Wh*-Movement in English is lexically determined by the *wh*-head of the matrix C and the *wh*-phrase undergoing the marked IM as in (14). The Non-D-effect of focus for the marked IM of Focus Movement in Gungbe is lexically determined by the focus head *wé* of the matrix C and the focus phrase undergoing the marked IM as in (15). The Non-D-effect of indeterminate specificity for the marked IM of Subject-Raising in English is lexically determined by the phi-feature head of the matrix T and the subject phrase undergoing the marked

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15) Notice the Agree effect between the subject *a man* and the matrix T head (as indicated by the matrix verbseem) in (i)   (i) There seems to be a man in the room

IM as in (17a).

Note that the Non-D-effect of indeterminate specificity for the marked IM of Subject-Raising as in (17a) shows that the Non-D-effect may vary depending on speakers in cases like (17a), as discussed earlier. I claim that the Non-D-effect is lexically determined so that it may vary widely or idiosyncratically; in fact, it may be null, depending on the lexical properties of the head that induces the marked IM and the phrase that undergoes the marked IM. We have to conclude that the marked EF of the matrix T head and the expletive property of *there* induce a Non-D-effect which is null in (17b).[16]

Consider Russian unaccusative constructions (18a, b):

(18) a. [$_{TP}$ Soldata$_i$ [$_{VP}$ ranilo   t$_i$ pulej]].
         soldier-ACC wounded-3PNS bullet-INSTR
       'A soldier was wounded by a bullet.'
    b. [$_{TP}$ Pulej$_i$ [$_{VP}$ ranilo   sodata   t$_i$]].
          bullet-INSTR wounded-3PNS soldier-ACC
       'A bullet wounded a soldier.'   (Lavine and Freidin 2002)

Russian unaccusative sentences like (18a, b), which involve an obligatory A-movement to Spec-T, are accounted for in terms of the markedness theory as follows. The marked EF on T head is satisfied by the marked IM of the unaccusative nominal *sodata* or the instrumental phrase *pulej* to the edge of TP in (18a, b). But the two marked IMs are not for the phi-feature checking between the raised phrases and T since they are not nominative phrases, unless we introduce and motivate a special Agree feature checking between the accusative or instrumental phrase and T. Hence, we have to conclude that there must be some other factor that would block the "optional deletability" of a default

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16) I do not say that in cases like (23b) the marked IM of the expletive *ther* induce   no Non-D-effect but that the marked IM of the expletive *ther* induces the Non-D effect of no effect, according to the principle (i) discussed earlier:

(i) Every operation induces a (new) interpretation.

An expletive may not undergo an unmarked IM, since an unmarked IM of an expletive would contradict the principle (2) as discussed earlier.

unmarked EF for a marked EF in cases like (18a, b)..

6. Interpretive Effects

According to (19) discussed earlier, every merge operation should induce some interpretive effect(s):

(19) Every merge operation induces a (new) interpretation

In other words, every EM induces functional effects like the theta-effects whereas every IM induces scope-related effects like topic and focus. And unmarked IMs and marked IMs induce D-effects and Non-D-effects respectively, which I claim crucially characterizes the markedness theory of movement, as suggested earlier.

In a successive-cyclic movement, the initial link should be an EM, which induces a functional effect, and the intermediate and final link(s) should induce an IM, which induces scope-related effects. The scope-related effects that may be induced by IM are given in (20):

(20) a. Discourse effects: focus, topic, givenness (old information),
          highlighting, etc.
     b. Semantic effects: specificity, definiteness, etc.
     c. Scopal effects: quantifier scope, *wh*-scope, etc.

It may not be always possible to pinpoint which interpretive effect(s) will be induced by which merge operation. But I claim that every IM necessarily induces some interpretive effect(s) according to (19), as follows.

Interpretive effects of IMs, which are mainly scope-related effects, are characterized as derived from the c-command configuration produced by the IM itself, except some inherent lexical properties of non-D-effects. In other words, a merge operation necessarily produces a c-command configuration, which defines a scope relation. The structural scope relation defined by a c-command configuration induced by a merge operation may not be clearly manifested for

interpretive effects like definiteness or specificity of very short IM like Clause-internal Scrambling. But it is clearly manifested for interpretive effects like quantifier scope of very short IM Clause-internal Scrambling,[17] as we see in VP-internal Scrambling in Korean (21a, b):

(21) a. [$_{TP}$ Mary-ka [$_{v*P}$ (ppalli) [$_{VP}$ sonyen-eykey   motun tongcen-ul]
　　　　M.-NOM   (quickly) boy-DAT   every coin-ACC
　　　cu]-ess-ta].
　　　give-PAST-DEC
　　　'Mary quickly gave a boy every coin.'   ($>∀)
　　b. [$_{TP}$ Mary-ka [$_{v*P}$ (ppalli) [$_{VP}$ motun tongcen-ul$_i$ sonyen-eykey   t$_i$]
　　　　M.-NOM   (quickly) every coin-ACC   boy-DAT
　　　cu]-ess-ta].
　　　give-PAST-DEC

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17) The paraphrase relation may be used to make the interpretive effect of a very short IM like Clause-internal Scrambling clearly manifested without using the quantifier scope of quantifier phrases. Consider the Korean examples (i) and (ii):

(i) a. John-i   Mary-eykey senmwul-ul cu-ess-ta.
　　J.-NOM M.-DAT   present-ACC give-PAST-DEC
　　'John gave a present to Mary.'
　b. ?*John-i Mary-eykey senmwul-lo malhamyen cu-ess-ta.
　　J.-NOM M.-DAT   present-as for   give-PAST-DEC
　　'*John gave to Mary as for a present.'
(ii) a. John-i   senmwul-u Mary-eykey   cu-ess-ta.
　　J.-NOM present-ACC M.-DAT   give-PAST-DEC
　　'John gave a present to Mary.'
　b. John-i senmwul-lo malhamye Mary-eykey   cu-ess-ta.
　　J.-NOM present-as for   M.-DAT   give-PAST-DEC
　　'*John gave as for a present to Mary.'

(ia, b) show that the object may not be paraphrased as a topic phrase by adding the topic particle -lo malhamyen 'as for' to it when the object has not moved at all. But (iia, b) show that the object may be paraphrased as a topic phrase by adding the topic particle -lo malhamyen 'as for' to it when the object has undergone a very short IM like Clause-internal Scrambling. In other words, even a very short IM like Clause-internal Scrambling induces an interpretive effect like the D-effect of topicality.

'Mary quickly gave every coin to a boy.'   (">\$ & \$>")

VP-internal Scrambling of the accusative phrase *motun tongcen-ul* 'every coin', deriving (21b) from (21a), induces the properties of unmarked IM in that it is optional and induces the D-effect of scope change and old information, i.e., in (21b) the accusative phrase *motun tongcen-ul* carries wide scope and old information.

It is not the case, however, that the interpretive effect induced by every IM is realized as a new scope-related effect: only the interpretive effect induced by the final link of every IM chain is realized as new scope-related effect. Consider (22) again:

(22) $[_{CP}$ John$_i$ you will decide $[_{CP}$ that t$_i$ we should not invite t$_i$ to our party]].

In the chain for *John* in (22), the interpretive effect of the initial link, which is due to EM, is realized as a theta-effect of patient, whereas the interpretive effect of the final link is realized as a scope-related effect of topic or focus. But the interpretive effects of the intermediate links are not realized as any real semantic effect, which follows from the condition (23):

(23) Phonological and semantic interpretations should go hand in hand.

According to (23), the intermediate links in the chain for *John* in (22) may not keep the semantic interpretive effect since the intermediate links lack phonological interpretation. It is claimed that the initial link of a chain has some phonological effect[18] so that it can keep its semantic interpretive (functional) effect like theta-effects, satisfying the condition (23).

(23) also accounts for the phase-internal covert movement, i.e., the phase-internal movement where the initial link rather than the final link is pronounced or receives the phonological interpretation. In other words,

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18) The initial link of a chain may have some non-null effect, i.e., it may be realized as an overt pronoun (resumptive pronoun) or other lexical elements, and it may have a formal effect like a variable (A'-trace) or an anaphor (A-trace).

according to (23) all the links of a successive-cyclic movement within a phase will receive the phonological and semantic interpretations hand in hand since they will be transferred together within one spell-out domain for a phasal interpretation. Hence, for A-movements, which are inherently phase-internal, the constituent that was moved overtly or covertly is automatically interpreted both phonologically and semantically in the same phase. (23) will also account for why QR a covert movement should be local, as further discussed later.

7. Interpretive Effects and the Notion of Agree

Unmarked IMs, Agree-related or not, induce D-effects according to the output effect condition (2) discussed earlier. I claim that the optional Agree-related movements are in fact unmarked IMs plus Agree *in situ* according to the markedness theory of movment.[19] Consider optional Agree-related movements in Icelandic shown in (24):

(24) a. Nemandin las [$_{v*P}$ ekki þrijá bækur]. (*non-specific*)
      student-the read not three books
      'The students did not read three books.'

   b. Nemandin las [$_{v*P}$ þrijá bækur$_i$ ekki t$_i$]. (*specific*)
      student-the read three books not
      'The students did not read three books.'

(24a, b) show that object shift (OS) is optional in Icelandic even if it is apparently an Agree-related movement. In fact, as shown in (24b), the optional OS consistently induces the D-effect of specificity,[20] unlike obligatory Agree-related movements.[21]

This shows that even an Agree-related movement induces a D-effect if it is

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19) Agree *in situ* is a case of the Agree independent of movement.
20) The EF-driven movement of indefinite phrases to the edge of $v*$P usually induces the D-effect of specificity.
21) Obligatory Agree-related movements or marked IMs induce the Non-D-effect like focus, distinct from the D-effect like specificity of unmarked IMs.

optional. This can be accounted for by the claim that the optional Agree-related movement is an unmarked IM along with Agree *in situ* according to the markedness theory of movement. Here we see that the D-effect of unmarked IM is not a typological stipulation but the evidential consequence of the output effect condition (2). That is, a D-effect is a property of an optional operation according to (2) irrespective of the typology of the movements.

The same phenomenon may be observed in the Icelandic example of optional Subject Raising as shown in (25):

(25) a. Í fyrra luku [$_{VP}$ víst þrír stúdentar öllum prúfunum]. (*non-specific*)
    last year   finished apparently three students all exams-the
    'Last year there were three students who finished all the exams.'
b. Í fyrra luku þrír stúdentar$_i$ [$_{VP}$ víst t$_i$ öllum prúfunum]. (*specific*)
    Last year finished three students apparently all exams-the
    'Three students apparently finished all the exams last year.'

(25a, b) show that Subject Raising is optional in Icelandic, even if it is apparently an Agree-related movement. Indeed, as shown in (25b), optional Subject Raising induces the D-effect of specificity. This can be also accounted for by claiming that the optional Agree-related movement is an unmarked IM along with Agree *in situ* according to the markedness theory of movement. To conclude, the unmarked IM approach to optional Agree-related movements accounts for why optional Agree-related movements induce D-effects, though obligatory Agree-related movements do not.

Consider Subject-to-Object Raising in Korean shown in (26b) in comparison with the ECM construction in English shown in (26c):

(26) a. [$_{TP}$ John-i [$_{CP}$ Mary-ka   ku il-ey   cekimca-i-la-ko]
        J.-NOM   M.-NOM   the work-for   best one-is-DEC-C
      sayngkakha-]-ta.
      think-PRES-DEC
    'John thinks that Mary is the best person for the work.'
b. [$_{TP}$ John-I   Mary-lul$_i$ [$_{CP}$ [$_{TP}$ t$_i$ ku il-ey   cekimca-i]-la-ko]
        J.-NOM M.-ACC   the work-for   best one-is-DEC-C

sayngkakha-n]-ta.
think-PRES-DEC
'John thinks that Mary is the best person for the work.'
c. John considers Mary$_i$ [$_{TP}$ t$_i$ to be the best person for the work].

Subject-to-Object (S-to-O) Raising derives (26b) from (26a) by raising the embedded subject *Mary* to the object position in the matrix clause along with case conversion, as shown in (26b). This S-to-O Raising differs from the English counterpart ECM raising as follows. First, S-to-O Raising is optional in the sense that both the structures before and after the application of S-to-O Raising are grammatical, being in a paraphrase relation, with the case being contextually determined, unlike the English ECM raising in (26c).[22] Second, S-to-O Raising induces the D-effect of focus or highlighting on the raised subject unlike the ECM raising in (26c).

The assignment or licensing of the accusative case of the S-to-O Raised object as in (26b) cannot be a last resort operation required under some structural condition since S-to-O Raising itself is optional. I claim that it should be due to the Case Licensing Condition,[23] which is not related to the notion of Agree. Hence, S-to-O Raising in Korean should be an unmarked IM inducing a D-effect of focus or highlighting, whereas the English ECM raising should be a marked IM inducing a proper Non-D-effect of the weak or null semantic effect.

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22) English ECM raising is obligatory in the sense that the English ECM structure to which ECM raising has not applied yet is ungrammatical

23) It has been claimed that one of the interface conditions for languages like Korean is a Case Licensing Condition, a PF interface condition (Marantz 1991), which captures generalizations on case that are independent of Agree. In fact, the Case Licensing Condition.

(i) was proposed for the Korean case system independent of Agree by Kang (1993):

(i) Case Licensing Condition in Korean
  a. [+ACC] is licensed by [-stative] V.
  b. [+GEN] is licensed by N.
  c. [+OBL] is licensed by P.
  d. [+NOM] is licensed for NPs without the specified licensers. (Default Case Licensing)

8. Implications

The markedness theory of movement naturally derives from the merge theory of movement in terms of EF (Chomsky 2008). It leads to new linguistic generalizations in terms of the notion of unmarked IM. For example, it eliminates the last resort condition as illustrated in the case of Topicalization in English. It also leads to the natural resolution of constraints like look-ahead condition in terms of the notion of marked IM as illustrated in the case of *Wh*-Movement in English. It also leads to the non-deterministic theory of movement in terms of the notion of interpretive effects in place of the notion feature-checking. Finally it also leads to new perspectives in the study of movement in that cognitive and psycolinguistic investigation of movement is more readily available in terms of the notion of unmarked vs. marked IM.

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