

Long-Distance Superiority and the Dependency of Arguments^{*}

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It has been claimed that in Japanese and Korean wh-constructions, superiority effects are exhibited when two wh-phrases are non-clause-mate arguments, while superiority effects do not appear when wh-phrases are clause-mate arguments (cf. Takahashi 1993 for Japanese; Kim 2006 for Korean among others). However, contrary to previous claims, it is observed that long distance wh-scrambling may display superiority effects even when two wh-phrases are clause-mates. To account for this paradoxical phenomenon, this paper shows that, based on the phase-based derivational theory developed in Chomsky (2001, 2008), the superiority effect emerges as a result of early Spell-Out. This analysis provides a unified explanation to the presence/absence of long distance superiority in Korean and Japanese. To make this analysis possible, the relative hierarchical ordering of arguments and the associated effect on Spell-Out are explored.

1. INTRODUCTION

The English wh-constructions below show that when more than two wh-phrases are present, the structurally highest wh-phrase must move to the Spec-CP position in order to obey the superiority condition (Chomsky 1973).¹ In recent minimalist approaches, the superiority condition has been held to be subsumed by economy conditions, such as the Minimal Link Condition (MLC) (Chomsky 1995; Kitahara 1997)² or the Closest Attract/Shortest Move so that the closest category can enter into a checking relation with its triggering head.

- (51) (a) **Who_i** did you think *t_i* would meet whom? (English)
(b) ***Whom_j** did you think who would meet *t_j*?
(c) ***Who_i whom_j** did you think *t_i* would meet *t_j*?
(d) ***Whom_j who_i** did you think would *t_i* meet *t_j*?

As with English, superiority effects are displayed in Korean and Japanese when a wh-phrase moves to cross over another wh-phrase in a higher clause (cf. Takahashi 1993 on Japanese, Kim 2006 on Korean among others). The relevant examples are given in (2).

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¹ Superiority Condition:

- (a) No rule can involve X, Y in the structure
... X ... [... Z ... WYV ...] ...
where the rule applies ambiguously to Z and Y, and Z is superior to Y.
(b) The category A is superior to category B if every major category dominating A dominates B as well but not conversely.

² Minimal Link Condition (Chomsky 1995: 311):

H(K) attracts α only if there is no β , β closer to H(K) than α , such that H(K) attracts β .

- (2) (a) ?* **Mwuessi-ul** John-nun **nwuku-eykey** [Mary-ka ti mekessta ko]
 What-ACC John-TOP whom-DAT Mary-NOM ate COMP
 malhassni?
 said Q
 ‘Whom did John ask that Mary ate what?’ (Korean)
- (b) ?* **Nani-o** John-wa **dare-ni** [Mary-ga ti tabeta to]
 What-ACC John-TOP who-DAT Mary-NOM ate COMP
 itta no?
 said Q
 ‘Who did John tell that Mary ate what?’ (Japanese)

However, when a wh-phrase is extracted from a single clause that contains another wh-phrase and moves to a matrix clause, superiority effects may be exhibited, contrary to the widely held views (Takahashi 1993; Kim 2006 among others). As shown below, (3b) and (4b), which have undergone clause initial wh-scrambling, are considered grammatically correct, but (3c) and (4c), which have undergone long distance wh-scrambling, are considered marginal to some native speakers of Korean and Japanese.

- (3) (a) John-un [nwu-ka **mwuess-ul** mekesstako] malhass ni?
 John-TOP who-NOM what-ACC ate COMP said Q
- (b) John-un [**mwuessi -ul** nwu-ka ti mekesstao] malhass ni?
- (c) ok/?* **Mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 ‘Who did John say t ate what?’ (Korean)
- (4) (a) John-wa [dare-ga **nani-o** tabatato] ittano?
 John-TOP who-NOM what-ACC ate COMP said Q
- (b) John-wa [**nani -o** dare-ga ti tabetato] ittano?
- (c) ok/?* **Nani -o** John-wa [dare-ga ti tabetato] ittano?
 ‘Who did John say t ate what?’ (Japanese)

This suggests that speaker variation in grammaticality judgments of these data does exist regarding the presence and absence of superiority. Despite such discrepancies, the reason that (3c) and (4c) are considered to be grammatically correct is because the wh-phrase is believed to move in a successive cyclic fashion through the edges of the phases (i.e. CP and vP), as shown below.

- (5) (a) [CP Nani -o [TP John-wa [ν^*P ti [CP ti [TP dare-ka [ν^*P ti [VP ti tabe-]] ta]

 to] itta]] no] (=3(c))
- (b) [CP Mwuessi-ul [TP John-un [ν^*P ti [CP ti [TP nwu-ka [ν^*P ti [VP ti mekess-]

 ta] ko] malhass]] ni] (=4(c))

Given superiority effects in (2), (3c) and (4c), the question that must be addressed here is as follows: what limits the application of further operations to a wh-phrase resulting in superiority effects?

The main purpose of this paper is to provide an analysis of the presence and absence of superiority effects in Korean and Japanese long distance wh-fronting. This paper proceeds as follows: Section 2 details the nature of long distance wh-scrambling in Korean and Japanese. Section 3 lays out a phase-based derivation theory (Chomsky 2001, 2008) as the theoretical framework for this investigation. Section 4 presents a proposal that movement of arguments is induced by an EF on every functional head, contrary to Chomsky (2008). Section 5 analyzes the presence/absence of long distance superiority in Japanese and Korean based on the adopted framework. Section 6 draws a conclusion that superiority effects are a result of early Spell-Out which is in turn attributed to the relative hierarchical ordering of arguments (e.g., SOV/OSV).

2. LONG DISTANCE WH-FRONTING AS AN EF-DRIVEN MOVEMENT³

In English wh-constructions, an interrogative C has an uninterpretable wh-feature that acts as a probe for an element that bears an interpretable wh-feature. If the interrogative C finds such an element, C agrees with it, and the wh-phrase obligatorily moves to the Spec-CP position of the matrix clause in a successive cyclic manner through the edges of the phases in compliance with the Phase Impenetrability Constraint (PIC). In multiple wh-constructions, the structurally highest wh-element moves, and the rest of the wh-elements remain in situ.

Wh-fronting in Korean and Japanese differs from the English counterpart wh-movement as follows. First, Korean and Japanese wh-fronting do not involve obligatory wh-movement, in the sense that a wh-phrase does not need to move to the matrix Spec-CP position but can remain either in its base position (i.e., its theta position), as in (6a) and (7a), or land in an embedded clause initial position, as in (6b) and (7b). Since movement involves multiple applications of local steps, it is natural to expect that intermediate landing sites may vary.

- (6) (a) John-un [nwu-ka **mwuess-ul** mekesstako] malhass ni? (=3)
 John-TOP who-NOM what-ACC bought COMP said Q
 (b) John-un [**mwuessi-ul** nwu-ka ti mekesstao] malhass ni?
 (c) ok/?* **mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 ‘Who did John say t ate what?’ (Korean)
- (7) (a) John-wa [dare-ga **nani-o** tabatato] ittano?(=4)
 John-TOP who-NOM what-ACC ate COMP said Q
 (b) John-wa [**nani-o** dare-ga ti tabetato] ittano?
 (c) ok/?* **Nani-o** John-wa [dare-ga ti tabetato] ittano?
 ‘Who did John say t ate what?’ (Japanese)

Second, unlike in English wh-movement, in the Korean and Japanese wh-fronting, the sentence initial wh-phrase can be construed as a yes/no question as well as a wh-question (cf. Ishihara 2003; Sachiko Aoshima *et al.* 2003 on Japanese; Hwang 2006 on Korean) although the latter reading is more likely.⁴ Accordingly, ‘wh-movement’ in these languages cannot be a pure syntactic wh-movement involving feature checking, unlike in English in terms of its landing site and interpretation. Consider below.

³ In scrambling languages such as Hindi, Korean and Japanese, it is a well-known fact that clause initial scrambling can be A/A'-movement, while long distance scrambling is uniformly an A'-movement (Mahajan 1990; Saito 1992 among others). For the limited scope of this paper, I refer the reader to the above-mentioned references.

⁴ Takahashi (1993) argues that long distance A'-movement of a wh-phrase to the initial position of a clause headed by a [+Q] Comp counts as wh-movement in Japanese; thus, the scrambled wh-phrase in initial position in a matrix interrogative clause exhibits a scope-fixing effect. For a similar proposal, see Moon (1996).

- (8) (a) **Mwuessi-ul** John-un [Mary-ka ti mekessnun ci] alkosipeha ni?
 What-ACC John-TOP Mary-NOM ate Q want to know Q
 ‘What does John want to know whether Mary ate?’
 ‘? Does John want to know whether Mary ate?’ (Korean)
- (b) **Nani-o** John-wa [Mary-ga ti tabeta ka] siritagatteiru no?
 What-ACC John-TOP Mary-NOM ate Q want to know Q
 ‘What does John want to know whether Mary ate?’
 ‘? Does John want to know whether Mary ate?’ (Japanese)

An immediate question that arises here is what the driving force of long distance wh-fronting is. Considering the following multiple wh-constructions, the interpretations of wh-in-situ phrases in (9a) and (10a) are not the same as those of fronted wh-phrases in (9b–c) and (10b–c) in terms of wh-question-answer pairs. That is, if both of the wh-phrases stay in-situ it is more likely that both can take embedded scope ((9a) and (10a)), and if one of the two wh-phrases is fronted it is more likely that the fronted wh-phrase takes matrix scope ((9b) and (10b)) and the other wh-phrase in-situ takes embedded scope, and if both of the wh-phrases are fronted it is more likely that both can take matrix scope ((9c) and (10c)). The facts in (9)–(10) seem to clearly indicate that the fronted wh-phrases are relatively given focus interpretation than wh-phrases in-situ.

- (9) (a) John-un [**nwu-ka mwuessi-ul** mekessnun ci] alkosipeha ni?
 John-TOP who-NOM what-ACC ate Q want to know Q
Does John want to know [for which x, y] x ate y
 ?? [For which x, y] John wants to know whether x ate y
 ?? [For which x] John wants to know [for which y] x ate y
 * [For which y] John wants to know [for which x] x ate y
- (b) **Mwuessi-ul** John-un [**nwu-ka** ti mekessnun ci] alkosipeha ni?
 What-ACC John-TOP who-NOM ate Q want to know Q
 ?? Does John want to know [for which x, y] x ate y
 ? [For which x, y] John wants to know whether x ate y
 * [For which x] John wants to know [for which y] x ate y
[For which y] John wants to know [for which x] x ate y
- (c) **Nwukwu-ekey mwuessi-ul** John-un [Mary-ka ti tj cwuessnun ci] alkosipeha ni?
 Who-DAT what-ACC John-TOP Mary-NOM gave Q want to know Q
 ?? Does John want to know [for which x, y] Mary gave x y
[For which x, y] John wants to know whether Mary gave x y
 * [For which x] John wants to know [for which y] Mary gave x y
 * [For which y] John wants to know [for which x] Mary gave x y (Korean)
- (10) (a) John-wa [**dare-ga nani-o** tabeta ka] siritagatteiru no?
 John-Top who-Nom what-Acc ate Q want to know Q
Does John want to know [for which x, y] x ate y
 ?? [For which x, y] John wants to know whether x ate y
 ?? [For which x] John wants to know [for which y] x ate y
 * [For which y] John wants to know [for which x] x ate y

- (b) **Nani-o** John-wa [**dare-ga** ti tabeta ka] siritagatteiru no?
 What-ACC John-Top who-Nom ate Q want to know Q
 ??Does John want to know [for which x, y] x ate y
 ?[For which x, y] John wants to know whether x ate y
 * [For which x] John wants to know [for which y] x ate y
 [For which y] John wants to know [for which x] x ate y
- (c) **Dare-ni nani-o** John-wa [Mary-ga ti tj ageta ka] siritagatteiru no?
 Who-Dat what-Acc John-Top Mary-Nom gave Q want to know Q
 ??Does John want to know [for which x, y] Mary gave x y
 [For which x, y] John wants to know whether Mary gave x y
 * [For which x] John wants to know [for which y] Mary gave x y
 * [For which y] John wants to know [for which x] Mary gave x y (Japanese)

Thus, it is plausible to suggest that long-distance wh-scrambling in Korean and Japanese is an instance of focus movement.⁵ Note, however, that focus movement is not an obligatory operation involving feature checking, but rather an optional operation (i.e. non-agree-driven movement) that brings about interpretive effects (e.g. focus).⁶ Thus, long distance scrambling can be interpreted as triggered by edge features (EFs) (Chomsky 2008) as an instance of internal merge, as Chomsky (2001) states that “optional operations can apply only if they have an effect on outcome.” This will be discussed in more detail in Section 3.

⁵ The widely held view that wh-phrase and focused-element are closely related is also supported by Korean and Japanese in the sense that Korean and Japanese long distance scrambling are considered to be a kind of focus movement (Miyagawa 1997; Niinuma, 2000; Lee 2004 –the authors take scrambling to be feature driven movement). As shown in (i) and (ii), non-focused elements cannot undergo long distance scrambling (Lee 2004 on Korean; Niinuma 2000 on Japanese).

- (i) Q: John-un [**nwu-ka** ku chack-ul sassata ko] sangkakha ni?
 John-TOP who-NOM the book-ACC bought COMP think Q?
 ‘Who does John think bought the book?’
 A: ?? Ku chack-ul John-un [Mary-ka sassata ko] sangkakhanta.
 The book-ACC John-TOP Mary-NOM bought COMP think (Korean)
- (ii) Q: kimi-wa [**dare-ga** Peter-o aishiteru to] itta no?
 You-TOP who-Nom Peter-ACC loves COMP said Q
 ‘Who did you say loves Peter?’
 A: * Peter-o boku-wa [Mary-ga ti aishiteru to] itta
 Peter-ACC I-TOP Mary-NOM loves COMP said (Japanese)

It appears that clause initial scrambling also involves focus movement, on analogy with long distance scrambling.

- (iii) (a) **Nwu-ka** ku chack-ul sassata ni?
 Who-NOM the book-ACC bought Q?
 ‘Who bought the book?’
 (b) ?? Ku chack-ul Mary-ka sassae.
 The book-ACC Mary-NOM bought (Korean)
- (iv) (a) **Dare-ga** Peter-o aishiteru no?
 Who-NOM Peter-ACC loves Q
 ‘Who loves Peter?’
 (b) * Peter-o boku-ka aishiteru
 Peter-ACC I-NOM loves (Japanese)

⁶ Similarly, QR is non-agree-driven movement but has an effect on the output (cf. Chomsky 2001). Thus we see that feature matching and interpretive effects may be independent.

3. DERIVATION-BY-PHASE THEORY

3.1. Derivation by Phase

Chomsky (2000, 2001, 2004) proposes a theory of Agree that refers to a syntactic operation to erase uninterpretable features of probe and goal. To enter an Agree operation, both probe and goal must be active, and the probe must have a complete set of phi-features matching those of the goal in order to delete its uninterpretable features (Chomsky 2001). To implement an Agree operation, feature matching between a probe and a local goal must be made in a c-command relation. That is, in the probe-goal system, a head H with uninterpretable features probes down into the structure seeking an XP goal with matching features, minimizing the search space under the relation of the “closest c-command” (Chomsky 2000). Once the Agree operation between the probe and goal has been established, no further syntactic operations occur.

Since the Agree operation under the probe-goal system enables in-situ checking of features, displacement for feature-checking is unnecessary. Instead, the EPP features play a crucial role for displacement. Chomsky (2000: 106, 2001: 12) suggests that CP and v*P are each a strong phase, and makes the assumption that the heads of phases may be assigned an EPP feature that provides an “escape hatch” for successive-cyclic movement through the edge of a phase.

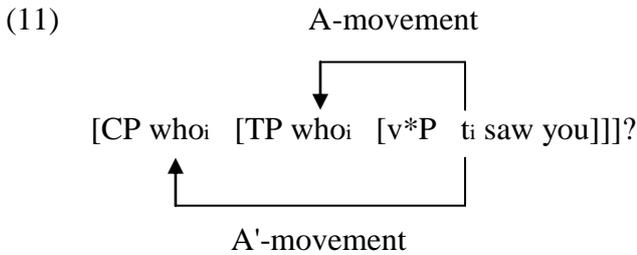
A potentially moveable element must be positioned on the edges of phases because the syntactic structure is spelled out by the phase in the course of derivation. That is, the potential mover must move to the edge of a head due to the Phase Impenetrability Constraint (PIC), which states that “the domain of a head X of a phase XP is not accessible to operations at ZP (the next strong phase); only X and its edge are accessible to such operations” (Chomsky (2001: 14). And the complement of the head of the phase is spelled out to PF and LF and thereby becomes impenetrable to further syntactic operations in the computational component.

Chomsky (2008) introduces another mechanism for movement by an edge feature (EF) by reformulating the EPP. The EF raises an XP to the phase edge without feature matching. Chomsky (2008: 139) stated, “For an LI to be able to enter into a computation, merging with some SO, it must have some property permitting this operation. A property of an LI is called a feature, so an LI has a feature that permits it to be merged. Call this the edge-feature (EF) of the LI.” As the EF-probe does not involve Agree, it is no longer assumed that the C-domain contains Agree-features such as wh-, Q-, Top-, Foc-features, etc.

3.2. Feature inheritance

The phase heads (PH) have Agree-features as well as EF; therefore, an internal merge (IM) is triggered by the phase heads (i.e., C and v*). T does not have ϕ -features in and of itself; rather, ϕ -features on C may percolate down from C to T because T lacks such features in the lexicon. This amounts to saying that T cannot inherit ϕ -features until C is merged and hence derivatively serves as a probe at the phase level CP. In a similar manner, the phase head v* transmits its Agree-feature to V, and the probe of an object with a structural case raises the object to Spec-V. This is the mechanism of feature inheritance.

The notion of feature inheritance leads Chomsky (2008) to claim that the A- and A'-movements that are triggered by a phase head proceed in a parallel fashion. In the case of wh-movement in (11) below, the A'-movement may not necessarily be followed by A-movement since only phase heads are assumed to have an edge feature and ϕ -features.



Specifically, the ϕ -features of T, inherited from C, and the edge feature of C raise the *wh*-phrase *who* to Spec-TP and Spec-CP, respectively, implying that there is no direct relation established between the *wh*-phrases in Spec-CP and in Spec-TP. What is significant here is that *wh*-movement goes through a successive-cyclic derivation via Spec-v*P and Spec-CP, not through Spec-TP.

4. PROPOSAL

As mentioned earlier, *wh*-phrases in Korean and Japanese can remain either in their merged position or land in an embedded clause initial position or move to a matrix clause. I assume that in Korean and Japanese, every functional head bears their own optional EFs driving Internal Merge (IM), extending Chomsky's proposal (2006, 2008) that only phase heads bear EFs driving IM, and thereby either the subject or the object may optionally be raised to Spec-FP in any order without feature matching. That is, it is assumed that a non-phase head T may also inherently bear its own EF driving IM.

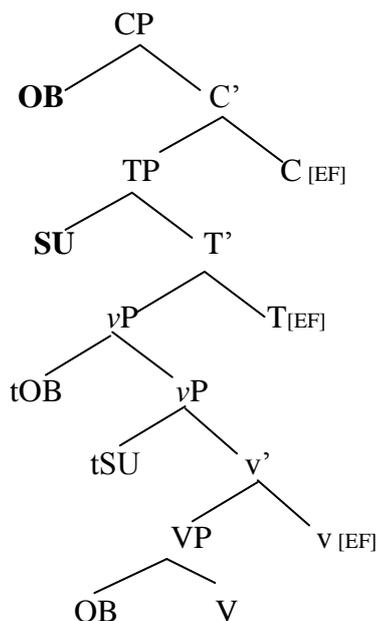
Keeping to this assumption, I show that the *wh*-phrase on the edge of a phase head can remain until the derivation finishes for the purposes of successive cyclic A'-movement, whereas the *wh*-phrase in the complement of a phase head cannot undergo further movement. In other words, movement from a non-phase-edge to a phase-edge gives rise to superiority effects, whereas movement from a phase-edge to a phase-edge overrides superiority effects.

Specifically, if the *wh*-subject moves to Spec-TP, the *wh*-object moves to the embedded Spec-CP via the outer spec of v*P, and ends up landing in the matrix Spec-CP (cf. (12a)). However, if the *wh*-subject remains in its base position, the *wh*-object moves to Spec-TP, and consequently ends up being sent to Spell-Out during the course of derivation (cf. (12b)). Thus, one strategy to avoid superiority effects is to extract the *wh*-object from Spec-v*P, and raise it to Spec-CP, skipping the Spec-TP position. In order to do so, the *wh*-subject must occupy the Spec-TP position.⁷

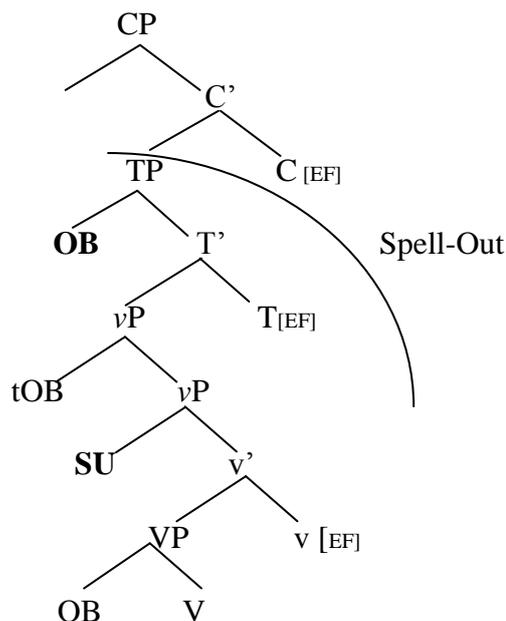
I thus argue that superiority effects emerge not because a certain case of scrambling involves syntactic *wh*-movement (Kim 1996; Kim 2006; Takahashi 1993), but because it is a result of early Spell-Out in the course of derivation, which is attributed to the relative hierarchical ordering of arguments (i.e., SOV/OSV). The early Spell-Out which straightforwardly follows from the PIC ultimately accounts for local *wh*-scrambling not necessarily feeding long distance *wh*-scrambling. With this in mind, let us turn to our analysis.

⁷ Since *wh*-expressions are inherently focused, it appears that *wh*-phrases tend to stay in their base position, i.e., *wh*-in-situ (thus, the fronted *wh*-phrases are likely to be interpreted as contrastive focus (cf. Choi 1996), compared to non-*wh*-phrases). If a *wh*-subject remains in-situ, a *wh*-object relatively moves to Spec-TP, and is consequently subject to Spell-Out in the course of derivation. On the other hand, if a non-*wh*-subject moves to Spec, TP bearing an EF (e.g. focus, topic, scope), a non-*wh*-object relatively moves to Spec-CP, and consequently undergoes a successive cyclic A'-movement. In this respect, I speculate that there is a difference between *wh*-phrases and non-*wh*-phrases.

(12) (a) **Subject raising to Spec-TP**



(b) **Object raising to Spec-TP**



5. ANALYSIS: SINGLE OBJECT WH-EXTRACTION⁸

Let us first look at the data in (2), which are repeated as (13).

- (13) (a) **?* Mwuesi-ul** John-nun **nwuku-eykey** [Mary-ka ti mekessta ko]
 What-ACC John-TOP whom-DAT Mary-NOM ate COMP
 malhassni?
 said Q
 ‘Whom did John ask that Mary ate what?’ (Korean)
- (b) **?* Nani-o** John-wa **dare-ni** [Mary-ga ti tabeta to]
 What-ACC John-TOP who-DAT Mary-NOM ate COMP
 itta no?
 said Q
 ‘Who did John tell that Mary ate what?’ (Japanese)

Recall that an edge feature on T triggers the subject or object. Supposing that the wh-object moves to the Spec-TP position, the derivation of (13a) proceeds as follows (the same analysis holds for Japanese).

- (14) (a) [_v*P Mary-ka [VP mwuess-ul mek-]]
 (b) [TP muwess-ul [_v*P toB Mary-ka mek-]essta]
 (c) [CP [_v*P John-un [VP nwuku-eykey [CP [TP muwess-ul [_v*P toB Mary-ka mek-]essta]ko] malhayss]]ni] → *Derivation converges at this point.*
 (d) * [CP [TP **muwess-ul** [_v*P John-un [VP nwuku-eykey [CP [TP <muwess-ul> Mary-ka t mek-]essta]ko] malhayss]]ni] → *Derivation crashes.* (Superiority effect)

In (14a), the wh-object is initially merged in the VP-internal position, and subsequently the wh-subject is externally merged at the inner spec of _v*P. At the stage of the derivation of (14b), the subject wh-phrase remains in Spec-_v*P and the wh-object moves to the edge of TP

⁸ The analysis of object wh-extraction is similar to that of subject wh-extraction. For the limited scope of this paper, I exclude the latter here.

via the outer spec of v^*P . In (14c), *nwukwu-eykey* ‘whom’ is merged in the matrix clause, and then the matrix subject, *John-un* ‘John’, is externally merged at the inner spec of v^*P . At this stage, the derivation converges. In (14d), the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-TP because it is in the complement of the embedded CP, which has already undergone Spell-Out when the embedded C head is merged. Thus, superiority is respected in the derivation.

Let us now suppose that the wh-subject moves to the Spec-TP position. The derivation of (13a) proceeds as follows.

- (15) (a) [v^*P Mary-ka [VP mwuess-ul mek-]]
 (b) [CP mwuess-ul [TP Mary-ka [v^*P _{TOB} tsu mek-]essta]ko]
 (c) [CP [TP John-un [v^*P tsu [VP nwuku-eykey [CP mwuess-ul [TP Mary-ka [v^*P _{TOB} tsu mek-]essta]ko]mal-]hays]]ni]
 → *Derivation converges at this point.*
 (d) * [CP **mwuess-ul** [TP John-un [v^*P tsu [VP nwuku-eykey [CP <**mwuess-ul**> [TP Mary-ka [v^*P tsu mwuess-ulmek-]essta]ko]mal-]hays]]ni]
 → *Derivation crashes at this point.* (Superiority effect)

In (15a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v^*P . At the stage of (15b), the subject wh-phrase moves to the spec of TP, and subsequently the wh-direct object moves to the edge of CP via the outer spec of v^*P . In (15c), *nwukwu-eykey* ‘whom’ is merged as in matrix clause, and then the John-un ‘John’, occupies the matrix Spec-TP via the inner spec of v^*P . At this stage, the derivation converges. (15d) the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-CP, because it is not accessible to operations at v^*P . The ungrammaticality of (13a) and (13b) can therefore be captured regardless of which argument moves to Spec-TP. Thus, superiority is respected in the derivation.

Let us then look at the data in (3c) and (4c), which are repeated in (16).

- (16) (a) ok/?* **Mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 what-ACC John-TOP who-NOM ate COMP said Q
 ‘Who did John say t ate what?’ (Korean)
 (b) ok/?* **Nani-o** John-wa [dare-ga ti tabetato] ittano?
 what-ACC John-TOP who-NOM ate COMP said Q
 ‘Who did John say t ate what?’ (Japanese)

Likewise, either the subject or the object can be attracted to Spec-TP due to the edge feature on T. Supposing that the object moves to Spec-TP, the derivation of (16a) proceeds as follows (the same analysis holds for Japanese).

- (17) (a) [v^*P nwu-ka [VP mwuess-ul mek-]]
 (b) [TP muwess-ul [v^*P _{TOB} nuw-ka mekess-]ta]
 (c) [CP [TP [v^*P John-un [CP [TP muwess-ul [v^*P _{TOB} nuw-ka mekess-]ta]ko]malhayss]] ni]
 → *Derivation converges at this point.*
 (d) * [CP [TP muwess-ul [v^*P John-un [CP [TP muwess-ul nuw-ka t mekessta-ko]] malhayss]] ni]
 → *Derivation crashes.* (Superiority effect)

In (17a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v^*P . At the stage of (17b), the subject wh-phrase stays in Spec- v^*P , and subsequently the wh-direct object moves to the edge of TP via the outer spec

of v*P. At the stage of the derivation in (17c), the matrix subject *John-un* is externally merged at the inner spec of v*P in the matrix clause and the derivation converges. In (17d) the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-TP, because it is in the complement of CP that has already undergone Spell-Out when the embedded C head is merged. Thus, superiority is respected in the derivation.

Let us now suppose that the subject moves to Spec, TP. The derivation of (16a) proceeds as follows.

- (18) (a) [v*P *nwu-ka* [VP *mwuess-ul mek-*]]
 (b) [CP *mwuess-ul* [TP *nwu-ka* [v*P _{TOB} *tsu mek-*]*jessta*]*ko*]
 (c) [CP *mwuess-ul* [TP *John-un* [v*P _{TSU} [CP _{TOB} [TP *nwu-ka* [v*P _{TOB} *tsu mek-*]*jessta*]*ko*] *malhayss*]*ni*]
 → *Derivation converges at this point* (No superiority effect)

In (18a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v*P. At the stage of (18b), the wh-subject moves to the spec of TP, and subsequently the wh-object moves to the edge of CP via the outer spec of v*P. In (18c), the matrix subject, *John-un* ‘John’, moves to Spec-TP through the inner spec of v*P, and the object wh-phrase successive-cyclically moves to the edge of the matrix CP through the edge of the embedded CP. In this way, successive cyclic A'-movement captures the absence of superiority.

6. CONCLUSION

It has been claimed that in Japanese and Korean wh-constructions, superiority effects are exhibited when two wh-phrases are non-clause-mate arguments, while superiority effects do not appear when wh-phrases are clause-mate arguments (cf. Takahashi 1993 for Japanese; Kim 2006 for Korean among others). However, contrary to previous claims, we have seen that in Korean and Japanese, long distance wh-scrambling may display superiority effects even when two wh-phrases are clause-mates.

To account for this seemingly paradoxical phenomenon, it has been shown that, from the perspective of derivation by phase (Chomsky 2001, 2008), a wh-phrase at the edge of a phase can remain until derivation finishes for the purpose of successive cyclic A'-movement, whereas the wh-phrase in the complement of a phase head cannot undergo further movement because it is transferred to Spell-Out, in accordance with Full Interpretation (FI). Thus, movement from a non-phase-edge to a phase-edge gives rise to superiority effects, but movement from a phase-edge to a phase-edge overrides superiority effects.

This analysis provided a unified explanation to the presence/absence of long distance superiority in Korean and Japanese, considering long distance wh-fronting to be focus movement, not syntactic wh-movement (Kim 2006; Takahashi 1993), and consequently it has been argued that superiority effects are a result of early Spell-Out which is attributed to the relative hierarchical ordering of arguments (i.e. SOV/OSV) in Korean and Japanese.

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