ON “MINIMAL LINK CONDITION EFFECTS”

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In this paper, we explore the possibility of dispensing with the MLC (Minimal Link Condition) in syntax within the current framework of the minimalist program. We propose the MMC (Maximal Matching Condition) and the Earliness principle, and claim that apparent “MLC Effects” are in fact epiphenomena of the proposed system. Evidence in favor of the proposed system comes from acceptable instances of long-distance DP-movement in English, Georgian, and Niuean. We also argue that in multiple *wh*-questions, any *wh*-movement is syntactically ruled in and that the (un)acceptability of the sentences is determined by the constraint for the functional interpretation of *wh*-phrases.*

Keywords: *Minimal Link Condition, Maximal Matching Condition, Earliness*

1. Introduction

The Locality restriction on movement, which is often formulated as the MLC (Minimal Link Condition), has been assumed to be one of the principles which determine the optimality in C_{HL} (the computational system for human language) in the recent minimalist theory. However, not a few empirical facts which are inconsistent with the MLC have been observed. For instance, although the MLC never

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allows superraising constructions, i.e., it cannot move one DP across another DP, such constructions in fact exist in various languages including Moroccan Arabic, Mandarin Chinese, Indonesian, and so on, according to Ura (1994).¹ Similar instances which seem to be problematic for the MLC are also found in multiple *wh*-questions involving D(discourse)-linked *wh*-phrases in English. In the literature, most authors have attempted to solve these problems leaving the MLC intact (Ura (1994), Kitahara (1997), and Pesetsky (2000), among others). On the other hand, it should be noted that there still remains another solution: to question the very existence of the MLC in syntax. Although pursuing this question would play a significant role in reconsidering what kind of principle is relevant in determining the optimality of C_{HL} , this question does not seem to have been discussed extensively in the literature. In this paper, we attempt to explore the possibility of eliminating the MLC from syntax and discuss its theoretical consequences. We set up the MMC (Maximal Matching Condition), which requires that the feature-matching effects be maximal, and the Earliness principle, according to which uninterpretable features must be deleted as soon as possible. Then, we argue that apparent “MLC effects” are in fact epiphenomena and follow from the proposed system. We also show that in accounting for acceptable instances of superraising in English, Georgian, and Niuean, the proposed system is to be preferred to the MLC. Furthermore, we claim that a potential problem with the proposed system concerning multiple *wh*-questions is avoided under the constraint for the functional interpretation of *wh*-phrases.

This paper is organized as follows. In section 2, we set up the MMC and Earliness. In section 3, we show that the so-called “MLC effects” are accounted for within the proposed system without recourse to the MLC. In section 4, we provide evidence in favor of the proposed system by examining acceptable instances of superraising in English, Georgian, and Niuean. In section 5, we deal with multiple *wh*-questions. Section 6 is a conclusion.

¹ In section 4, we will point out that similar instances which involve long-distance A-movement are found in English and Georgian as well.

2. C_{HL} without the MLC: Proposals

Under Chomsky's (1998) probe-goal system, if uninterpretable features render G active, the operation Agree does not apply to every active and matching pair, but it requires G to be in the domain of P (D(P)) and to satisfy the MLC, according to which the space in which a probe searches for a goal is limited as minimal. Here D(P) is the c-command domain of P and the MLC requires that there be no closer goal G' to P in D(P) than G. The MLC needs an additional assumption (1):

- (1) Terms of the same minimal domain are "equidistant" to probes. (Chomsky (1998: 38))

The minimal domain of a head H is the set of terms immediately contained in the projections of H. Thus in Chomsky's (1998, 1999) probe-goal system, Agree/Move requires a G to be both active and local.

On the other hand, although we assume that Agree requires a goal G to be active, I claim, unlike Chomsky, that the goal must induce maximal matching effects with the probe. This restriction is formulated as the Maximal Matching Condition (MMC) in (2):²

- (2) *Maximal Matching Condition (MMC)*

Agree applies to a probe and an active goal if the goal induces maximal matching effects with the probe.

In the light of the number of applying operations, economy dictates that the number of features dealt with by one application of Agree be maximal, where the number of operation necessary in the derivation as a whole is minimal. That is, based on the notion of economy, the operation which induces more matching effects is more economical than the one which induces less matching effects. Therefore we can conclude that (2) follows from the notion of economy.

Given the above, consider the illustration in (3). Under the MLC, one would predict that Agree applies between P and X, while the proposed system would make slightly more complicated predictions as stated in (3a, b).³

² Fujita (1996) has already proposed a similar condition named the Maximal Checking Condition (MCC) for localizing the Shortest Derivation Condition. It should be noted that Fujita (1996) postulates the MLC as well, whereas we do not.

³ (3b) allows multiple Agree (cf. Hiraiwa (2001), Chomsky (2001)). We mention this situation in section 5.

- (3) Given the structure [P ... [... X ... Y...] ...],
- a. X is regarded as a goal of P if X induces more matching effects than Y, and Y is regarded as a goal of P if Y induces more matching effects than X.
 - b. Either X or Y can be regarded as a goal of P if X and Y induces the same matching effects.

Here we might face the apparent conceptual problem of globality: in searching the goal, (3a, b) allow “look-ahead” or “backtracking,” either of which would increase the computational complexity and thus should be barred in the minimalist program, which favors “local determinability.” However, we can overcome this problem using the notion of phase in Chomsky (1998, 1999, 2001). In Chomsky (1998, 1999, 2001), a derivation proceeds phase by phase, and the PIC (Phase Impenetrability Condition) in (4a) is assumed, which enables C_{HL} to reduce its computational burden.

- (4) a. At the phase ZP containing phase HP, the domain of H is not accessible to operations, but only the edge of HP.
(Chomsky (2001: 5))
- b. $HP \ [\alpha \ [H \ \beta]] \ (\alpha, H: \text{edge})$

(4a) restricts the search space in computation to the next lower phase, as Chomsky (2001: 5) notes. Given the PIC in (4a), let us return to the definition of the MMC in (2) and its predictions in (3a, b). It is noteworthy that although we may still have to resort to look-ahead, the computational complexity is fairly reduced under the PIC, in that the space for a probe to search the matching goal is restricted. Therefore we can, though tentatively, conclude that our problem concerning globality is circumvented in the sense above.⁴ Although there may remain problems with this solution, we put them aside for future research.

Let us turn now to the question of when X and Y are accessible to the C_{HL} after the application of Agree. In order to clarify this, let us incorporate the notion of the DIC (Defective Intervention Constraint) assumed in Chomsky (1998, 1999, 2001) into the proposed system. In the configuration in (5), where β has already become inactive owing to

⁴ I am grateful to Masaru Nakamura for suggesting these conceptual arguments.

a prior application of Agree, the DIC dictates that β block the application of Agree between α and γ .

(5) $\alpha > \beta > \gamma$ (α : probe, β, γ : matching goals)

While adopting the basic idea of this constraint, we slightly articulate Chomsky's (1998, 1999) formulation of the DIC when β and γ are Case. Inherent Case is different from structural Case with respect to Case licensing, i.e., structural Case requires to be licensed in certain structural configurations, whereas inherent Case does not since it is θ -related. Based on this property, we assume that inherent Case and structural Case do not compete: inherent Case does not block Agree between a probe and structural Case. Thus, in (5), if β is the inherent Case and γ is the structural Case, β does not operate as a blocker in establishing Agree between α and γ , while if β is replaced by structural Case, it competes with γ , that is, it is a potential blocker. If β is structural and blocks Agree between α and γ because β induces more matching effects than γ , γ remains to be a potential goal of the next probe as far as it is in the domain visible to the probe under the PIC.

Next, let us consider a situation where we also have another option, i.e. Merge, in addition to Move, at some stage of the derivation. In order to be able to clarify which operation is preferred, consider the following. In Chomsky (1998), the overt-covert distinction concerning syntactic components is eliminated, so that the motivation for Procrastinate would no longer exist in this framework. Chomsky (1999) suggests that the opposite principle such as (6), which was originally proposed by Pesetsky (1989), should be required for efficient computation.

(6) *Earliness*

Perform computations as quickly as possible.

(Chomsky (1999: 12))

Given the agreement system in which a probe P seeks a goal G of matching features, Chomsky assumes that (6) requires that the operation Agree must check off the uninterpretable features of P and G as maximally as possible. In this paper, let us assume a slightly different version of Earliness, which is stated in (7):

(7) *Earliness* (revised)

Once uninterpretable features are introduced in the derivation, they must be deleted as early as possible.

(cf. Nakamura (2000))

The conceptual reason behind (7) is as follows: as argued in Nakamura

(2000), if uninterpretable features stay till late in the derivation, they cause a computational burden in that they remain to be visible and require to be licensed. Therefore such features must be licensed and deleted as early as possible in order to reduce computational complexity. As noted in Nakamura (2000), (6) and (7) imply that Move is preferred to Merge at some stage of the derivation where both operations are possible. This is contrary to the preference for Merge over Move assumed in Chomsky (1995).⁵ Under (7), Merge is applied only if Move is not available.

In short, we have proposed that the MLC is supplanted by the MMC, which requires that the feature-matching effects between the probe and the goal in the domain of phase be maximal, which contributes to the minimization of the number of the application of Agree in the derivation. We have also assumed that under the concept of Earliness, Agree must be applied as early as possible in the derivation in order to reduce the computational burden.

3. “MLC Effects”

In this section, we will show that given the proposed system, the apparent “MLC effects” follow as the consequences of the relevant system, which dispenses with the MLC. When we discuss the distance between P and G, we should consider the following two points: one is the distance from G to P; the other is the distance from P to G. The former will be dealt with in section 3.1 and the latter in section 3.2.

3.1. The Minimal Link from a Goal

Let us first consider the distance from G to P. In other words, we are concerned with which one is identified as a probe among the possible candidates at some point of the derivation. Consider the structure in (8):

(8) $[P_1 \dots [P_2 \dots [\dots G \dots]]]$ (P: probe; G: goal)

If P_2 is not in the same minimal domain as P_1 , the MLC ensures the locality by forcing G to agree with P_2 rather than P_1 . Our system,

⁵ As for the detailed discussions concerning theoretical and empirical advantages of the preference for Move over Merge, see Shima (2000).

however, can capture this locality phenomenon in terms of Earliness in (7), which requires uninterpretable features to be checked off as early as possible once they are introduced in the derivation. In (8), P_2 must be identified as a probe of G before P_1 is introduced, which means that P_1 cannot be introduced before P_2 is checked off. Thus the locality found in (8) is ensured by the Earliness principle without recourse to the MLC.

3.2. The Minimal Link from a Probe

Let us next turn to the second aspect of the MLC. Look at the structure in (9):

(9) [P..... [... G_1 ... [... G_2 ...]]]

If G_1 is not in the same minimal domain as G_2 , the MLC forces P to agree with G_1 , not G_2 . However, we claim that the “MLC effects” in this case are only the side effects of the interaction of the MMC in (2) and Earliness in (7). In the remainder of this section, we will argue on the “MLC effects” found in superraising and head movement, in sections 3.2.1 and 3.2.2, respectively.^{6, 7}

3.2.1. The Ban on Superraising in English

Let us first examine the instance of superraising involving expletive *it* in English. Consider (10a–c):

- (10) a. *John_i seems it was arrested t_i .
 b. *It_i seems t_i was arrested John.
 c. It seems John_i was arrested t_i .

(10a–c) share the structure in (11) at some stage of the derivation:

(11) [_{TP} T-was [_{VP} arrested John]]

T, then, requires its EPP to be satisfied. In Chomky’s (1995) system,

⁶ As for locality in the so-called superiority effects in (i), which has generally been regarded as the typical motivation for the MLC, we will deal with it in section 5, for it is seemingly problematic for the proposed system. So let us put it aside for the moment.

(i) a. Who_i t_i bought what?
 b. *What_i did who buy t_i ?

⁷ Note that the aim of this section is to show that locality in A-movement and head movement can be reduced to the proposed system. As mentioned in note 6, we postpone the discussion of A'-movement until section 5. Therefore we do not consider it a problem that we have not dealt with locality of A'-movement here too.

Merge is preferred to Move when they are both available at some point of the derivation. Suppose the insertion of *it*, instead of the raising of *John*, is applied. In (10a), since it involves the raising of *John* across the subject *it*, it is excluded as a violation of the MLC. Therefore (10a) has been generally regarded as a typical example which motivates the MLC. However, the ungrammaticality of (10b), which involves the raising of *it*, not *John*, leads us to raise the question of whether the MLC is really relevant to the ungrammaticality of (10a).^{8,9}

Our system accounts for the ungrammaticality of (10a) without resorting to the MLC. Following Fujita (1996), let us suppose that there is no distinction in cost between Merge and Move. Then, we would have two options to satisfy the EPP of the T in (11): the raising of *John* {D, Case, ϕ } and the merger of *it* {D, Case, ϕ }. Since Earliness in (7) forces the uninterpretable features of *John* to be eliminated as early as possible, the raising of *John* is preferred to the merger of *it*. Therefore the embedded clauses in (10a) and (10b), both of which involve the merger of *it* instead of the raising of *John*, could never be generated. Thus, the proposed system correctly generates only (10c), which involves the raising of *John*. This shows that one major motivation for the MLC is removed under the Earliness principle.

3.2.2. "Locality" in Head Movement

Next consider the contrast in (12a, b), which has been regarded as a typical instance of the head movement constraint effect.

- (12) a. Has_i John *t_i* fixed the car?
 b. *Fixed_i John has *t_i* the car?

In Kitahara (1997), this phenomenon is reduced to the MLC: Assume that a feature F of C triggers SAI (subject-auxiliary inversion) and both

⁸ According to Chomsky (1995: 348), (10b) is excluded since neither the Case-feature of matrix T nor that of *John* remains unchecked, which causes the derivation to crash. However, as Fujita (1997) and Shima (1998), etc. point out, this account is not on the right track, since the Case-feature of *John* can undergo movement to matrix T at LF to enter into a checking relation with the relevant T, the derivation of which would turn out to be convergent.

⁹ In Chomsky's (1995) system, (10c) is generated as follows: Since the condition preferring Merge over Move selects among convergent derivations, the option of inserting *it* as in (10a, b), which do not converge, is not chosen. Thus, only (10c), even though it involves the movement of *John*, is derived.

has and *fixed* bear the feature which enters into a checking (matching) relation with F. Then, the closest category to C, i.e. *has*, moves to C under the MLC.

However, we believe that the contrast in (12a, b) can be accounted for without the locality condition. Suppose the features triggering SAI are the finite-feature and the V-feature and auxiliaries have both features, whereas main verbs have only the V-feature.¹⁰ Then, at some point, the derivation yields the structure in (13):

- (13) [_{CP} C {V, finite} [_{TP} John has {V, finite} [_{VP} fixed {V} the car]]]

The next step of the derivation requires the uninterpretable features (C) to be deleted. Under the MMC, the operation Agree applies between {V, finite} (C) and the goal which would induce the maximal matching effect, namely, {V, finite} (*has*). Thus the contrast in (12a, b) is accounted for within the proposed system without resorting to the MLC.

It may be worth pointing out, in passing, that there is another possibility: the feature triggering SAI is only the finite-feature, which is illustrated in (14):

- (14) [_{CP} C {finite} [_{TP} John has {V, finite} [_{VP} fixed {V} the car]]]

¹⁰ As an anonymous reviewer pointed out, postulating a finite-feature in C might require independent evidence. Although we cannot present enough arguments here, it may be possible to relate this issue to the proposal concerning verb second phenomena in Holmberg and Platzack (1988). They propose that in verb second languages such as German, V to C movement is triggered by the finite-feature of C. Although it is unclear whether or not this assumption can be extended to English V to C movement, let us leave the matter open, since it is not the point of this section. We should note, in passing, that although we assume that a finite-feature is involved in V to C movement in English, this assumption is not extended to all verb movements such as V to I movement. In French, for instance, verb raising in infinitives is possible, as the reviewer pointed out:

- (i) a. Ne pas être heureux est une condition pour écrire des romans.
 'Ne to not be happy is a prerequisite for writing novels.'
 b. N' être pas heureux est une condition pour écrire des romans.
 'Ne to be not happy is a prerequisite for writing novels.'

(Pollock (1989))

As for the trigger of V to I movement, many arguments have been presented in the literature. But since this is also irrelevant to our main subject, let us put it aside here for future research.

In this case, there exists no option other than the movement of the auxiliary *has*, since *has* bears the feature to enter into a matching relation with the probe, whereas the main verb *fixed* does not. Hence, one might argue against the above discussion by pointing out that, given the structure in (14), the contrast in (12a, b) is no more an MMC effect than it is an MLC effect.¹¹ However, we insist that this is not a fatal problem with the proposed system, since our account still stands because {V, finite} (*has*) would induce more matching effects than {V} (*fixed*) to the probe, and so the MMC is met, though trivially. Since the aim of this section has been to show that the phenomena which have generally been regarded as the motivation for the MLC are epiphenomena, this aim is satisfied here too.

Now we are in a position where both the MLC and the MMC can be evaluated by comparing each other and, consequently, one of them is discarded, since postulating both principles would cause redundancy in the account. In section 4, we will provide several arguments which claim that the MMC is empirically more adequate than the MLC.

4. Acceptable Instances of Superraising

In this section, we will provide three empirical arguments for the preference of the MMC over the MLC. We examine acceptable cases of superraising found in English, Georgian, and Niuean, in sections 4.1, 4.2, and 4.3, respectively.

4.1. *Strike* in English

Consider the paradigm in (15) and (16). The ungrammaticality of (16a) can be accounted for if it has a structure such as (16b) at some stage of its derivation. This is because *him* c-commands *John*, which causes the violation of the Binding Condition (C). This leads us to assume that in (15b), *me* c-commands *this claim*. If so, under the assumption that closeness is defined in terms of c-command, (15a) would be incorrectly predicted to involve the violation of the MLC. However, (15a) is fully acceptable. On the other hand, the raising of the experiencer DP is not allowed, as shown in (15c).

¹¹ This was pointed out to me by Masaru Nakamura (personal communication).

- (15) a. This claim strikes me as correct.
 b. [_{TP} T [_{vP} v [_{VP} me strikes [_{SC} this claim as correct]]]]
 c. *I/Me strike(s) this claim as correct.
- (16) a. *Mary strikes him_i as angry at John_i.
 b. [_{TP} T [_{vP} v [_{VP} him strikes [_{SC} Mary as angry at John]]]]
 (Lasnik (1998))

Kitahara (1997) attempts to solve this problem from the c-command point of view. Consider the following example:

- (17) a. They seem to him to like John.
 b. [_{TP} T [_{vP} [_{VP} [_{PP} to him] seem [_{TP} ... they]]]]

In (17b), *him* does not c-command in the embedded TP because PP intervenes. This leads Kitahara to claim that (17a) does not involve the violation of the MLC. However, this account cannot be extended to (15a) since there is no PP preventing c-command.¹² Therefore the grammaticality of (15a) poses a problem for Kitahara's (1997) solution in terms of c-command.

Our system, on the other hand, correctly predicts the grammaticality of (15a). Suppose T has the Case-feature (Nominative), ϕ -set, and the selectional feature EPP.¹³ The DP *me* is assumed to have inherent Case such as Dative based on the contrast in (18a, b), where the extraction from the oblique object of *strike* in (18a) is impossible, whereas the extraction from the accusative object is possible in (18b). It has often pointed out in the literature that extraction from oblique objects is impossible, while it is possible from accusative objects. If this is correct, it is natural to assume that in (15a), the DP *me* has inherent Case.¹⁴

- (18) a. *Of which discipline_i did this claim strike [a scholar *t_i*] as correct?
 b. Of which discipline_i did this claim surprise [a scholar *t_i*]?

Given that, the derivation yields the structure in (19) at some stage:

¹² This problem is pointed out in Lasnik (1998).

¹³ Concerning the features T bears, our assumption is different from that of Chomsky (1999), which assumes that T does not bear a Case-feature and the structural Case-feature of DP is valued as a reflex of ϕ -agreement with a Case-assigning head.

¹⁴ I thank an anonymous reviewer for pointing out this line of reasoning.

- (19) [_{TP} T {Nom, ϕ , EPP} [_{VP} [_{DP} me {D, $\bar{D}\bar{a}t$, ϕ }] strikes [_{SC} this claim {D, Nom, ϕ } as correct]]]

At next step of the derivation, the uninterpretable features {Nom, ϕ , EPP} (T) requires that they be deleted under agreement with the matching goal. Since {D, Nom, ϕ } (*this claim*) has more features to agree with {Nom, ϕ , EPP} of T than {D, $\bar{D}\bar{a}t$, ϕ } (*me*), the MMC forces Agree to hold between {Nom, ϕ , EPP} (T) and {Nom, ϕ } (*this claim*), and *this claim* moves to Spec of TP to satisfy the EPP. Thus the sentence in (15a) is derived under the proposed system.

As for (16a) and (17a), let us assume Kitahara's (1997) analysis stated above in which *him* c-commands the small clause in (16b) and *him* does not c-command the embedded TP in (17b). Then (16a) is excluded as a violation of Binding Condition (C). In (17b), {Case} of *him* has licensed and deleted within the PP, so that the following structure is yielded:

- (20) [_{TP} T {Case, ϕ , EPP} [_{VP} [_{VP} [_{PP} to him {D, Case}] seem [_{TP} they {D, Case, ϕ } to like John]]]]]

The MMC forces {Case, ϕ , EPP} (T) in (20) to agree with {D, Case, ϕ } (*they*), which has more matching features with {Case, ϕ , EPP} (T) than {D, Case} (*him*); hence (17a) is derived. Since *him* does not c-command the embedded TP, condition (C) is not violated in (17a). Thus our system can give a unified account of the acceptable cases of superraising in English in (15a) and (17a) on the one hand, and the unacceptable superraising in this language presented in section 3.2.1 on the other hand.

4.2. Unaccusatives in Georgian

Evidence for preferring the MMC over the MLC is also found in Georgian. Given the proposed system, we predict that long-distance DP movement is possible in unaccusative constructions as well, in which A-movement is assumed to be involved under the Unaccusative Hypothesis originally proposed in Perlmutter (1978).¹⁵ This prediction

¹⁵ Adopting the Unaccusative Hypothesis, we assume that an unaccusative verb takes an object and no subject when it is introduced in the derivation, as in the syntactic configuration in (i), and the NP in (i) undergoes movement to a subject position afterward.

(i) — [_{VP} V NP]

is borne out in Georgian, where the experiencer DP bears the dative case. Consider the following example:

- (21) Bavšveb-i Vano-s e-mal-eb-ian
 children-Nom Dat Unacc-hide-suffix-Pres.Pl
 'The children are hidden from Vano.'

(Nash (1995), McGinnis (1998))

Based on the arguments in Barss and Lasnik (1986), we assume the structure in (22) at some point of the derivation. In (22), the indirect object asymmetrically c-commands the direct object. The direct object receives a theta-role from the lower verb and the indirect object receives a theta-role from the higher verb.

- (22) [_{VP} Vano-s V [_{VP} bavšveb-I e-mal-eb-ian]]

At later stage of the derivation, the DP *bavšveb-I* in (22), which is the direct object of the unaccusative verb *e-mal-eb-ian*, raises past the higher DP *Vano-s* to the subject position to yield the sentence in (21). This is problematic for the MLC, and Kitahara's (1997) solution also faces problem due to the same reason mentioned in section 4.2 since the dative object *Vano-s* is not in the PP.

On the other hand, the proposed system can account for the acceptability of (21) as follows. Along the line of McGinnis (1997), let us assume the structure in (23) at some point of the derivation of (21).¹⁶

- (23) [_{TP} T { ϕ , Nom } ... [_{VP} Vano-s { D, ϕ , ~~Dative~~ } V [_{VP} bavšveb-I { D, ϕ , Nom } e-mal-eb-ian]]]

Following McGinnis (1997), let us assume here that the Dative case of *Vano-s* in (23) is inherent case and so the relevant case has been checked off within the base-generated position. Then, at the next step of the derivation of the structure in (23), the probe { ϕ , Nom } (T) searches its goal. Since { D, ϕ , Nom } (*bavšveb-I*) in the lower VP induces more matching effects against the probe than { D, ϕ , ~~Dative~~ } (*Vano-s*) in the higher VP, the MMC forces the operation Agree to hold between { ϕ , Nom } (T) and { D, ϕ , Nom } (*bavšveb-I*). Thus the sentence in (21) is generated within the proposed system.

It should also be noted, on the other hand, that there are certain languages such as Icelandic, where the Dative argument itself can raise to the subject position, as shown in (24):

¹⁶ For the details of the relevant structure, see McGinnis (1997).

- (24) *Mér_i virðist t_i [Haraldur hafa gert þetta vel].*
 me.Dat seems H.Nom to have done this well
 'Harald seems to me to have done this well.'

(Thráinsson (1979))

In these languages, the Dative argument blocks the raising of the subject of the embedded infinitival clause, according to McGinnis (1998b) and Ura (1999). Here we are required to account for the cross-linguistic variation between two types of languages: the first type, such as Icelandic and Modern Greek, allows the raising of Dative subjects; the second type, such as Georgian and English, does not.^{17, 18}

Moore and Perlmutter (2000) argue that Dative nominals, which have been treated uniformly due to their apparent subject status, are, in fact, separated into two classes, i.e., one is a subject, and the other is not, each of which must be treated distinctly in typology and syntactic theory.¹⁹ Based on this proposal, we assume that there is cross-linguistic variation concerning the availability of Dative movement: in the first class, a Dative DP is a subject and can raise to Spec, TP, the head of which has some feature which is checked by Dative Case. In this sense, the Dative DP has quasi-structural status. In the other class, the Dative DP is not a subject, and it cannot undergo raising to the subject position nor does TP require Dative raising. Given this, the grammaticality of (24) is captured if we assume that Icelandic belongs to the former type. That is, in (24), the Dative DP *Mér* would induce more matching effects with the probe, i.e. matrix T, than the Nominative DP *Haraldur*, so that *Mér*, not *Haraldur*, is raised to the subject position to yield the sentence in (24). We assume, on the

¹⁷ This variation is observed and accounted for in McGinnis (1998) and Ura (1999).

¹⁸ Ura (2000c) observes that in English, this typology does not hold in the case of small clauses as shown in (i). But the sentence becomes fully acceptable if the Experiencer argument disappears or if it occurs in a place other than the intervening position, as shown in (ii).

(i) *John_i seems to Mary [_{SC} t_i angry with his son].

(ii) John_i seems [_{SC} t_i angry with his son] (to Mary).

This is beyond the scope of this paper. We put aside this issue for future research.

¹⁹ According to Moore and Perlmutter (2000), the Dative nominal which belongs to the second class is a surface indirect object, although it behaves like a subject. See Moore and Perlmutter (2000) for the detailed discussions.

other hand, that Georgian exemplified in (21), is part of the latter type. Then, in (23), since the probe T does not require Dative-raising, there is no possibility that *Vano-s*, whose inherent Case has been already checked off, be raised. Thus only *bavšveb-I*, which has structural Case, can move to the subject position. In this way, we can describe the cross-linguistic difference between Icelandic type languages and Georgian type languages: Dative-raising is possible in the former, while it is impossible in the latter and long-distance raising is applied.

To sum, in this subsection, we have accounted for superraising involving an unaccusative verb in Georgian and have also described the cross-linguistic variation between Icelandic type languages and Georgian type languages.²⁰

4.3. Superraising in Niuean

In this subsection, we will point out another problem with the MLC, by discussing the superraising construction in Niuean, and show that the proposed system can successfully account for the relevant phenomena.

Niuean is basically a VSO language and its Case system is Ergative (Erg)-Absolutive (Abs). Following Miyoshi (1997), we assume that Erg and Abs in this language are both structural. Given that, consider the raising construction in Niuean exemplified in (25):

- (25) Kua kamata e akau_j ke hala he tama_i t_j
 Perf begin Abs tree Sbj cut Erg the child
 'The tree has begun to be cut down by the child.'

(Seiter (1980))

In (25), the DP *e akau* is moved across the ergative subject DP *he tama*. Along the line of Miyoshi (1997), let us assume the following structure at some stage of the derivation of (25):

²⁰ As an anonymous reviewer pointed out, one might claim that (15a) in English and (21) in Georgian are not instances of superraising. For instance, McGinnis (1998a) solves the problem with the MLC assuming that in the relevant constructions, the inherent Case which the experiencer arguments have is "inert," that is, it has no potential to block the movement of the lower DP. Even if McGinnis's (1998a) claim is correct, this is not a fatal problem for us, but the proposed analysis only loses its status as strong evidence for the MMC. We put this problem aside here for future research.

- (26) [_{VP} *v* {Abs, ϕ , EPP}] [_{VP} [_{CP} [_{TP} *he tama_i* {D, ~~Erg~~, ϕ } T
 {~~Erg~~, ϕ , EPP}] [_{VP} *t_i* [_{VP} *e akau_j* {D, Abs, ϕ }]]]]]

In (26), {D, ~~Erg~~, ϕ } of the ergative subject *he tama_i* has already entered into an agreement relation with {~~Erg~~, ϕ , EPP} (T), where the ergative case-feature has already been deleted. Then, at a later stage of the derivation, the probe {Abs, ϕ , EPP} of the higher *v* seeks the goal for entering into a matching relation. Note here that the two DPs *he tama_i* and *e akau_j* are not in the same minimal domain. Since the MLC forces the raising of *he tama_i*, which is closer to the probe than *e akau_j*, MLC-based analyses cannot account for the successful raising of *e akau_j* across *he tama_i*.

Our system, on the other hand, correctly predicts the grammaticality of (25). In (26), the probe {Abs, ϕ , EPP} (*v*) searches its goal as the next step of the derivation. Since {D, Abs, ϕ } (*e akau_j*) in VP induces more matching effects with the probe than {D, ~~Erg~~, ϕ } (*he tama_i*) in Spec of TP, the MMC forces the operation Agree to hold between {Abs, ϕ , EPP} (*v*) and {D, Abs, ϕ } (*e akau_j*) rather than between {Abs, ϕ , EPP} (*v*) and {D, ~~Erg~~, ϕ } (*he tama_i*). Thus the sentence in (25) is successfully derived within the proposed system.

However, a theoretical problem might arise in this case. Recall that we adopted the PIC in (4a) in order to reduce computational complexity. Is the proposed analysis concerning Niuean superraising consistent with the PIC? Consider again the structure in (26). When *e akau_j* raises to the spec of the matrix *v*, it crosses the CP introduced by the subjunctive marker *ke*. If the CP constitutes a "strong phase" (Chomsky (1999, 2001)), the matrix *v*, which also constitutes a phase, can see only the edge of the phase CP and thus cannot see inside the embedded *v*P, which has been already spelled out. Thus, this might pose a problem for us since the proposed analysis does not stand if CP is a kind of phase. However, note that superraising in Niuean is allowed only from a certain type of complement (subjunctive). Since it has been pointed out in the literature that subjunctive clauses generally do not form islands, it is possible that a tenseless CP does not constitute a "strong" phase. If this is correct, in (26), the matrix *v* can see inside the embedded *v*P, hence the proposed analysis is coherent to the PIC. Anyway, there is room for further investigation.

Before ending up this subsection, let us also consider the following: concerning well-formed instances of superraising, Ura (1994) proposes the generalization in (27):

- (27) Superraising is allowed in a language *L* if *L* allows multiple specs.

If (27) is correct, it may be interesting to ask how it is captured within the proposed system. Under the MMC, what is crucial in determining what element can move is the property of the Case, i.e., whether it is inherent or structural. Thus, whether multiple specs are available or not does not directly affect the availability of the so-called long-distance movement within the proposed system. Therefore, arguing on this point would carry us too far away from the aim of this paper. It may be, however, useful to consider whether or not (27) is at least relevant to the proposed system. This is related to the issue of whether or not successive cyclicity in A-movement is valid. That is, if we adopt successive cyclic movement, (27) is relevant to the proposed system to some extent, while if we do not adopt it, (27) comes to be irrelevant. However, the discussion on the validity of successive cyclicity lies outside the scope of this paper, so let us leave this issue open.

To sum up this section, by examining acceptable instances of superraising in English, Georgian, and Niuean, we have argued that the proposed analysis provides a better account than the MLC-based analyses.

5. Multiple *Wh*-Questions and the Syntax-Semantics Interface

This section, which deals with multiple *wh*-questions in English, has two aims: one is to show that a potential counterargument to the proposed system can be avoided, and another is to attempt to fix the boundary between syntax and semantics in the analysis of the relevant constructions.

Following Chomsky (1998), let us assume that a *wh*-phrase has an uninterpretable *wh*-feature and an interpretable Q-feature, which matches the uninterpretable probe {Q} (C).^{21, 22} This is illustrated in (28):

²¹ In this paper, we regard multiple *wh*-questions as containing two *wh*-phrases for the sake of simplicity.

²² Shima (1998), independently of Chomsky (1998), proposes the Split *Wh*-Feature Hypothesis, according to which the Operator feature is responsible for interpretation at LF and the *wh*-feature forces movement.

(28) $[C \{Q, EPP\} [\dots WH_1 \{wh, Q\} \dots [\dots WH_2 \{wh, Q\} \dots]]]$

The MLC-based analyses predict that the probe $\{Q\}$ (C) agrees with $\{wh, Q\}$ (WH_1), not $\{wh, Q\}$ (WH_2). The proposed system, on the other hand, predicts that in (28), both $\{wh, Q\}$ (WH_1) and $\{wh, Q\}$ (WH_2) are qualified to agree with the probe. The latter prediction may be construed as allowing multiple Agree (cf. Hiraiwa (2001), Chomsky (2001)). Strictly speaking, however, we assume that in English, single Agree, not multiple Agree, is applied due to the reason which will be mentioned in the latter part of this section.

Bearing in mind this difference between the MLC-based analyses and the proposed system, consider the contrast in (29a, b):

- (29) a. Who_i t_i bought what?
 b. *What_i did who buy t_i ?

This contrast shows that the movement of the subject *wh*-phrase is allowed, whereas the movement of the object *wh*-phrase across the subject *wh*-phrase is not. Let us consider the derivation of these sentences. (29a) and (29b) share the structure in (30) at some stage of the derivation:

(30) $[_{CP} C \{Q, EPP\} [_{TP} who_i \{wh, Q\} [_{VP} t_i \text{ bought what } \{wh, Q\}]]]]$

The next step of the derivation is to check off the Q-feature of C. Under the MMC, the operation Agree applies between the probe $\{Q, EPP\}$ (C) and either $\{wh, Q\}$ (*who*) or $\{wh, Q\}$ (*what*). Therefore one might argue against the proposed system by pointing out that it predicts (29b) to be grammatical as well as (29a), contrary to fact.

However, we claim that the proposed system can be maintained if we consider the functional interpretation on *wh*-phrases in multiple questions. Multiple *wh*-questions are known to require pair-list answers. An answer to the question in (29a) is exemplified in (31):

(31) John bought an apple, Bill an orange, Mary a banana.

(31) shows that the value of *what* in (29a) is functionally determined by the value of *who*. In other words, *who* corresponds to x and *what* y in the function (32), where the value of y is determined by substituting a particular value for x .²³

²³ Strictly speaking, a pair-list interpretation and a functional interpretation are not the same. For instance, to the question in (i), we can give a functional inter-

(32) $y=f(x)$

Here we should note the difference between *which*-phrases and other *wh*-phrases such as *who* and *what*: a *which*-phrase can always specify the value of the other *wh*-phrase since it is inherently discourse (D)-linked; this makes the domain of the function explicit. Thus we can successfully list the pair answers based on the functional interpretation. On the other hand, *who* and *what* are D-linked contextually, not inherently, so that it is necessary that they be in the appropriate position for specifying the value of the other *wh*-phrase. Concerning this "appropriate position," we assume that *wh*-phrases in multiple questions are subject to the constraint in (33):

(33) In a multiple *wh*-question, a *wh*-phrase X can specify the value of a *wh*-phrase Y at LF if every member of the chain of X c-commands Y.

Keep in mind that a *which*-phrase is inherently D-linked, hence it is not required to be in a certain position as stated in (33), for the reason mentioned above. And what we want to point out is that (33) is a condition for semantic interpretation. That is, (33) is not a condition on the application of syntactic movement. Therefore we retain the idea that any *wh*-phrase in a multiple question can in principle undergo movement and such a movement would never cause a syntactic ungrammaticality.

Based on the above, let us consider the contrast in (29a, b), repeated here as (34a, b):

- (34) a. Who_i t_i bought what?
 b. *What_i did who buy t_i?

As argued above, the MMC syntactically rules in both (34a) and (34b). But we can account for the contrast in (34a, b) in terms of the constraint in (33): In (34a), the trace of the moved *wh*-phrase, i.e. *who*, c-

pretation answer such as "Their favorite fruits," but we cannot give a pair-list one.

(i) What did most people bought?

Given that, Chierchia (1992) argues that a functional interpretation is unmarked, while a pair-list interpretation is marked. We adopt this assumption and regard the *wh*-phrases in multiple questions as basically having a functional interpretation. Concerning the nature of the functional interpretation of *wh*-phrases, see Chierchia (1992), Hornstein (1995), and Nishigauchi (1999) for details.

commands the other *wh*-phrase, i.e. *what*, so that under the condition in (33), *who* can determine the set of the values of *what*, which makes it possible to list the pair answers based on the functional interpretation. In (34b), on the other hand, the chain of the moved *wh*-phrase, i.e. *what*, does not c-command the other *wh*-phrase, i.e. *who*, so that (33) prevents *what* from determining the value of *who*. If so, however, (34b) cannot be answered since it is impossible to list the pair answers. Due to the answerability condition on questions, (34b) is excluded. In this way the contrast in (34a, b) is accounted for, so that the proposed system can be maintained.

Furthermore, the above analysis can be extended to the case in which both *wh*-phrases in a multiple question are inherently D-linked, which is problematic for the MLC-based analyses. Consider the sentences in (35a, b):

- (35) a. Which person_i *t_i* bought which book?
 b. Which book_i did which person buy *t_i*?

In the acceptable sentence (35b), *which book* is moved over a subject *wh*-phrase. Thus (35b) is a serious problem for the MLC-based analyses since its acceptability cannot be predicted by the relevant analyses in which only the closest *wh*-phrase can move.²⁴ On the other hand, the proposed system predicts both (34a) and (34b) to be grammatical. (35a) and (35b) both have the structure in (36) at some stage of the derivation:

- (36) [_{CP} C {Q, EPP} [_{TP} which person_i {wh, Q} [_{VP} *t_i* bought which book {wh, Q}]]]

In (36), since the two *wh*-phrases would induce the same matching effects with the probe {Q, EPP} (C), we predict, based on (3b), that both of them can agree with the probe under the MMC. If the probe agrees with {wh, Q} (*which person*), the sentence in (35a) is derived;

²⁴ Pesetsky (2000) attempts to solve this problem by claiming that in (35b), *which person* undergoes feature movement first, and then *which book* overtly moves to the sentence-initial position. However, his analysis requires a stipulation in which the multiple questions involving inherently D-linked *wh*-phrases are exceptionally formed with a complementizer which requires a single specifier, not multiple specifiers. As Pesetsky himself points out, the reason why D-linked *wh*-phrases are exceptions to the multiple specifier requirement is not clear.

if it agrees with $\{wh, Q\}$ (*which book*), the sentence in (35b) is derived.

Next, let us consider the functional interpretation of (35a, b). As mentioned above, a *which*-phrase does not have to be in a certain position as stated in the condition in (33) since they are inherently discourse (D)-linked, so that it can always determine the value of the other *wh*-phrase, which, in turn, enables us to list the pair answers. Therefore it is possible for both (35a) and (35b) to be pair-answered. Thus, the acceptability of (35a, b), which is seriously problematic for the MLC-based analyses, is accounted for within the proposed system.²⁵

We now return to the point which we postponed in the former part of this section, i.e. multiple Agree. In multiple *wh*-questions, *wh*-phrases in English behave differently from other languages such as Romanian, which is known to allow multiple *wh*-fronting as shown in (37), and Japanese, where (overt) *wh*-movement is not required as in (38).

- (37) Cine_i ce_j t_i a cumpărat t_j?

who what bought

'Who bought what?'

(Daniela Lupsa, personal communication)

- (38) Dare-ga nani-wo katta no?

who-Nom what-Acc bought Q

'Who bought what?'

To capture these typological facts, we assume, concerning multiple *wh*-questions, that in Romanian, multiple Agree is overtly applied to C and two *wh*-phrases, while in Japanese, it is applied covertly. In English, on the other hand, we assume that single Agree, rather than multiple Agree, is applied, given that when the EPP functions, Move must

²⁵ As an anonymous reviewer pointed out, the distribution of adjunct *wh*-phrases is different from that of argument *wh*-phrases treated here, which might be a potential problem with the proposed system. For instance, the unacceptability of (ib) and (ii) shows that argument *whom* can be in situ, while adverbial *how* cannot.

(i) a. Who fainted when you attacked whom?

b. *Who fainted when you behaved how? (Reinhart (1998))

(ii) *Whom did you praise how?

Although it is worth inquiring into, we leave the matter open in this paper.

Furthermore, Ga-No Conversion in Japanese shown in (39) provides evidence for the MMC coupled with the assumption concerning multiple Agree.²⁷

- (39a, b) show that two Nominatives can convert to Genitives. Suppose these conversions are realized by establishing multiple Agree between them and some functional head such as C. Given that, note that MLC-based analyses cannot capture the phenomenon, since *Taro-ga* and *eigo-ga* are not in “the same minimal domain” in the sense of (1) and thus cannot enter the relation of multiple Agree. On the other hand, the proposed system can correctly capture multiple conversion. That is, since *Taro-ga* and *eigo-ga* induce the same matching effects, the proposed analysis predicts that Agree can be applied to both of them, under the assumption that Japanese allows multiple Agree in this case as well as multiple questions.

(40) a. The book was given Mary.
 (cf. The book was given to Mary.)
 b. Mary was given the book.

²⁶ It is also possible to claim that Move is not necessarily applied to the syntactic objects to which Agree has applied; in other words, Move is not connected to Agree. However, to follow up this issue would take us beyond the scope of this paper. Thus, let us put it aside here.

²⁷ This was suggested by an anonymous reviewer. I am grateful to him/her.

for the proposed system, since if two DPs have structural Case, they induce the same matching effects to the probe, and thus it is predicted, as in the case of multiple *wh*-questions, that both DPs may undergo movement under the MMC, contrary to fact. However, we can circumvent this potential problem by attributing the relevant dialectal variations to the difference of the Case frames. Specifically, we assume that in AE, the IO (indirect object) has structural Case and the DO, inherent Case (cf. Larson (1988)), whereas in BE, both the IO and the DO bear the structural Case. Given that, we can describe the parametric variation in (40): in AE, since the DO does not have structural Case, it cannot undergo movement, due to the same logic in section 4.1. On the other hand, in BE, since the DO and the IO both have structural Case, they are equally qualified to move, just as in the case of multiple *wh*-questions in English.

Summarizing this section, we have argued that a potential problem with the proposed system concerning the unacceptability of **What did who buy?* can be avoided under the constraint concerning the functional interpretation of multiple *wh*-questions. That is, we have claimed that in a multiple question, any *wh*-movement is ruled in syntactically and that the (un)acceptability of multiple *wh*-questions is determined by the condition on semantic interpretation.

6. Conclusion

In this paper, we have examined the possibility of dispensing with the MLC in syntax. We have proposed the MMC and Earliness, and have argued that apparent “MLC effects” are in fact epiphenomena and follow from the proposed system. Furthermore, examining acceptable instances of superraising in English, Georgian, and Niuean, we have claimed that the proposed system is preferred to the MLC. Lastly, we have argued that a potential problem with the proposed system concerning multiple *wh*-questions can be avoided under the condition for the semantic interpretation of *wh*-phrases.

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