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Explorations in extending the Miracle Creed framework*

Hisatsugu Kitahara

This note explores the conceptual and empirical consequences of several extensions of the Miracle Creed framework (outlined by Chomsky (2023) and the Keio-EMU lectures, entitled "Working Toward the Strong Interpretation of SMT," and elaborated by a series of work by Kitahara and Seely (2023, 2024)) to empirical domains, which include: (i) contraction, (ii) complementizers and their externalization requirements, (iii) parasitic gap and across-the-board, (iv) reconstruction with successive cyclic A- and A'-movement effects, and (v) remnant movement and its interaction with NP-movement, *Wh*-movement, and scrambling.

1. Contraction

Let us begin with contraction. First recall the current analysis of "controlled PRO" (1a), "NP-trace" (1b), and "*wh*-variable" (1c).

(1) a. Bill_2 tried [Bill_1 to leave]
b. Bill_2 seems [Bill_1 to have left]
c. Who_2 do you think [who_1 left]

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In (1a,b), $Bill_2$ and $Bill_1$ are structurally identical copies, and being a lower copy, $Bill_1$ is not detectable under MS. In (1c), however, who_1 is the one detectable under MS and accessed by the matrix C_Q. Such C_Q-access to who_1 yields the externalization of who_2 in a position close to the matrix C_Q.

Given this much, the so-called *wanna* contraction asymmetries, exhibited in (2a-f), naturally follow from a very general condition, formulated as (3).

(2) a. We want to eat the pie.
b. We wanna eat the pie.
c. We want Bill to eat the pie.
d. * We wanna Bill eat the pie.
e. Who do you want to eat the pie?
f. * Who do you wanna eat the pie?

(3) if Z, detectable under MS, intervenes between X and Y, then there is no contraction of X and Y

Consider (2a,b), a case of subject control, where contraction is not blocked. In the analysis of obligatory control, the matrix v is not a phase-head, hence, matrix subject and embedded subject are in the same phase, namely the CP phase, represented as (4):

(4) [C [we_3 [Infl [we_2 [v [want [we_1 to eat the pie]]]]]]]

In (4), there are three copies of *we* – we_3, we_2, and we_1 – and we_3 is the highest one; hence we_2 and we_1 are not detectable under MS. Assuming *want* is externalized at the matrix v, no element, detectable under MS, intervenes between *want* and *to*. Thus, contraction is not blocked.

Consider (2c,d), a case of ECM, where contraction is blocked. In the analysis of ECM, the matrix v* is a phase-head, hence matrix subject is not part of the v*P phase, represented as (5), where embedded subject has undergone IM to Spec-V:

(5) [v* [$Bill_2$ [want [$Bill_1$ to eat the pie]]]]

In (5), there are two copies of *Bill* – $Bill_2$ and $Bill_1$ – and $Bill_2$ is the higher one; hence $Bill_1$ is not detectable under MS. Assuming *want* is externalized at the matrix v*, $Bill_2$, detectable under MS, intervenes between *want* and *to*. Thus, contraction is blocked.

Consider (2e,f), a case of *wh*-variable, where contraction is blocked. In the analysis of *wh*-variable, the matrix v* is a phase-head, hence matrix subject is not part of the v*P phase, represented as (6), where embedded subject has undergone IM to Spec-V:

(6) [v* [who_2 [want [who_1 to eat the pie]]]]

In (6), there are two copies of *who* – who_2 and who_1 – and who_2 is the higher one; hence who_1 is not detectable under MS. Assuming *want* is externalized at the matrix v*, who_2, detectable under MS, intervenes between *want* and *to*. Thus, contraction is blocked.

Note that the subsequent derivation of (6), which yields the CP phase (7), will not alter this result, because who_2 no longer undergoes IM; hence, who_2 remains to be detectable under MS.

(7) [C_Q [you_2 [Infl [you_1 [v* [who_2 [want [who_1 to eat the pie]]]]]]]]

As demonstrated above, the *wanna* contraction asymmetries (2a-f) naturally follow from the very general condition (3). That is, if some element, detectable under MS, intervenes between *want* (externalized at the matrix v/v*) and *to*, then there will be no *wanna* contraction.

2. Complementizers and their Externalization Requirements

The proposed analysis sheds new light on cross- and inter-linguistic phenomena concerning complementizers and their externalization requirements.

2.1 English covert C_Q and Japanese overt C_Q

Consider the following contrasts between English (8a,b) and Japanese (9a,b):

(8) a. * Who do you like [books that criticize t_{wh}]?
b. * Do you like [books that criticize whom]?

(9) a. * dare-ni John-wa [t_{wh} atta onnanoko-o] sitteiru-no?
who-Dat John-Top saw girl-Acc know-Q
'Who does John know [a girl who saw t_{wh}]'
b. John-wa [dare-ni atta onnanoko-o] sitteiru-no?
J-Top who-Dat saw girl-Acc know-Q
'Does John know [a girl who saw **who**]'

(8a,b) show that *who* cannot undergo externalization either outside or inside the adjunct clause. (9a,b) show that *dare-ni* cannot undergo externalization outside the adjunct clause, but it can do so inside the adjunct clause, while taking a matrix scope. (9a) may not be as bad as (8a), but we assume there is a contrast between (9a,b). Now what separates these two languages? We propose the following externalization requirement that English covert C_Q must satisfy, but Japanese overt C_Q need not.

(10) English covert C_Q requires that a *wh*-element must be externalized in a position close to it, while there is no such requirement for Japanese overt C_Q.

(11) X and Y in [X [C_Q [Y ...]]] are close to C_Q
(Spec of C_Q and Spec of C_Q's complement are close to C_Q)

Given (10), with the notion closeness (11), (8a) and (9a) violate the ban on externalization out of an adjunct clause, a reformulation of the adjunct condition (for recent discussion on the notion *adjunct* in the Miracle Creed framework, see Blümel and Goto 2024). (8b) violates the externalization requirement for English covert C_Q, but there is no such requirement for Japanese overt C_Q; hence, (9b) meets all the conditions, exhibiting no deviance.

Note that whether C_Q is overt or covert does matter (see among others, Cheng 1991), and this analysis demonstrates that the observed cross-linguistic difference between English and Japanese is reducible to the externalization requirement (10).

Under the current assumptions, it follows that an argument, regardless of whether it is

a *wh*-element or not, enters to theta by EM and moves to non-theta by IM, and these two steps are universal. So, with respect to the shifted position of the *wh*-element, what Merge generates for English (8a,b) and Japanese (9a,b) is the same. But how C_Q meets its externalization requirement differs in these two languages. English covert C_Q requires a *wh*-element to be externalized in a position close to it, while there is no such morpho-phonological requirement for Japanese overt C_Q.

2.2 English overt C_{that} and covert C

The proposed analysis also extends to the so-called "that-t" phenomena, given in (12a-d):

(12) a. Who did John say [Mary saw $\boldsymbol{t_{wh}}$]?
b. Who did John say [$\boldsymbol{t_{wh}}$ saw Mary]?
c. Who did John say [that Mary saw $\boldsymbol{t_{wh}}$]?
d. * Who did John say [that $\boldsymbol{t_{wh}}$ saw Mary]?

We argue that the deviance of (12d) is a result of the conflicting demands imposed by the two distinct complementizers: English overt C_{that} and covert C_Q. We propose the following externalization requirement that overt C_{that} must satisfy, but covert C need not.

(13) In English, overt C_{that} requires that an element close to C_{that} must be externalized with it, while there is no such requirement for covert C.

Given (10) and (13), there is no way to generate a convergent derivation for (12d) because there are two conflicting demands that cannot be satisfied simultaneously. That is, to satisfy the externalization requirement of covert C_Q, *who* must be externalized in a position close to C_Q, but to satisfy the externalization requirement of overt C_{that}, *who* must be externalized in a position close to C_{that}. There is no way to meet simultaneously, these conflicting demands imposed by the two distinct complementizers: English covert C_Q and overt C_{that}.

Note that in (12c), the same demands are imposed by these two complementizers, but they are met by the two distinct elements: *who* is externalized in a position close to C_Q,

and *Mary* is externalized in a position close to C_{that}.

Note that the proposed analysis of (12c,d) readily extends to the following contrasts:

(14) a. * Who did John say [that t_{wh} ran to the store]?
b. Who did John say [that fortunately t_{wh} ran to the store]?
c. * Who did John say [that t_{wh} quickly ran to the store]?

In (14a), *who* cannot be externalized simultaneously in a position close to C_Q and in a position close to C_{that}; hence, a violation of either (10) or (13) necessarily results.

In (14b), however, sentential adverb *fortunately* counts as an element close to C_{that}; hence, the two externalization requirements imposed by covert C_Q and overt C_{that} are met by the two distinct elements: *who* and *fortunately*.

But if we replace *fortunately* with manner adverb *quickly*, as in (14c), the conflicting demands arise again. Given that *quickly* is part of the verbal phrase, it is too low, and what counts as an element close to C_{that} is *who*, not *quickly*. Thus, (14c) is out for the same reason that (14a) is out.

As demonstrated above, the observed cross- and inter-linguistic contrasts are all reduced to how each language meets its externalization requirements.

3. Parasitic Gap and Across-the-Board

In this section, we examine some of the core data on parasitic gap (PG) and across-the-board (ATB) phenomena (for recent discussion, see among others, Huijbregts 2023, Goto and Ishii 2024).

3.1 Parasitic Gap

Consider the following contrasts in PG, exhibited by (15a-d), with their schematic representations (16a-d):

(15) a. What did John [file t_{wh}] without reading her manuscripts?

b. * What did John file her manuscripts without [reading t_{wh}]?
c. What did John [file t_{wh}] without [reading t_{wh}]?
d. * What was [filed t_{wh}] without [reading t_{wh}]?

(16) a. [C_Q [John$_1$ [Infl [... [[v* [**what$_1$** [file ...]]] [without [her manuscripts$_1$ [reading ...]]]]]]]]
b. [C_Q [John$_1$ [Infl [... [[v* [her manuscripts1 [file ...]]] [without [**what$_1$** [reading ...]]]]]]]]
c. [C_Q [John$_1$ [Infl [... [[v* [**what$_1$** [file ...]]] [without [**what$_2$** [reading ...]]]]]]]]
d. [C_Q [**what$_1$** [Infl [[was filed ...] [without [**what$_2$** [reading ...]]]]]]]

In (16a), C_Q accesses what$_1$ in the main clause and externalizes it in Spec-C_Q. In (16b), C_Q accesses what$_1$ in the adjunct clause and externalizes *what* in Spec-C_Q, thereby violating the ban on externalization out of an adjunct clause.

In (16c), C_Q accesses what$_1$ in the main clause and what$_2$ in the adjunct clause, neither of which c-commands the other, and externalizes *what* (what$_1$=what$_2$) in Spec-C_Q. Note the ban on externalization out of an adjunct clause is circumvented in (16c). We assume this is because the externalization of what$_1$ counts as a legitimate operation.

In (16d), C_Q accesses what$_1$ in the main clause, but it cannot access what$_2$ in the adjunct clause, because what$_1$ asymmetrically c-commands what$_2$; hence, what$_2$, not detectable under MS, fails to receive a legitimate CI interpretation. Under MS, therefore, the anti-c-command constraint on parasitic gap is dispensable.

Note, in (16c), *what$_1$* and *what$_2$* belong to different phases, so they are repetitions, but they are interpreted as identical copies. What forces this interpretation? We suggest this is an inevitable consequence of the simultaneous access of C_Q to what$_1$ and to what$_2$. That is, to provide coherent instructions to C_Q, it must be the case that what$_1$ and what$_2$ are identical copies.

3.2 Across-the-Board

Turning to ATB, consider the following contrasts, exhibited by (17a-e), with their schematic representations (18a-e). Assuming that two IPs are coordinated in (17a-d),

and two verbal phrases, vP and v*P, are coordinated in (17e), we argue that the observed contrasts follow from the parallelism requirement on the coordinated structures:

(17) a. * (I wonder) what [John bought t_{wh}] and [Bill handed a sandwich to Tom]
b. (I wonder) what [John bought t_{wh}] and [Bill handed t_{wh} to Tom]
c. * (I wonder) who [John met t_{wh}] and [t_{wh} insulted Bill]
d. (I wonder) who [John met t_{wh}]and [I think t_{wh} insulted Bill]
e. (I think) John [arrived t_{wh}] and [t_{wh} met Bill]

(18) a. [C_Q [[John$_1$ [Infl [v* [**what$_1$** [bought ...]]]]] and [Bill$_1$ [Infl [v* [a sandwich ...]]]]]]
b. [C_Q [[John$_1$ [Infl [v* [**what$_1$** [bought ...]]]]] and [Bill$_1$ [Infl [v* [**what$_2$** ...]]]]]]
c. [C_Q [[John$_1$ [Infl [v* [**who$_1$** [met ...]]]]] and [**who$_2$** [Infl [v* [Bill$_1$ ...]]]]]]
d. [C_Q [[John$_1$ [Infl [v* [**who$_1$** [met ...]]]]] and [I think [C [**who$_2$** [Infl [v* [Bill$_1$ ...]]]]]]]]
e. [C [John$_1$ [Infl [[v [arrived **John$_2$**]] and [**John$_3$** [v* [Bill$_1$ [met Bill$_2$]]]]]]]]

In (18a), C_Q accesses what$_1$ in the first conjunct and externalizes it in Spec-C_Q, and there is no *wh*-element in the second conjunct, thereby violating the parallelism requirement.

In (18b), C_Q accesses what$_1$ in the first conjunct and what$_2$ in the second conjunct, and externalizes *what* (what$_1$=what$_2$) in Spec-C_Q, thereby satisfying the parallelism requirement.

In (18c), C_Q accesses who$_1$ in the first conjunct and who$_2$ in the second conjunct, and externalizes *who* (who$_1$=who$_2$) in Spec-C_Q. This is what the parallelism requirement expects, but it contradicts with the instruction provided by who$_2$, which externalizes *who* in Spec-Infl, a position close to C_Q. Thus, the parallelism requirement is not met.

But in (18d), the tension between the two instructions disappears. In (18d), C_Q accesses who$_1$ in the first conjunct and who$_2$ in the second conjunct, and externalizes *who* (who$_1$=who$_2$) in Spec-C_Q. Notice neither who$_1$ nor who$_2$ is in a position close to

C_Q, so the externalization of *who* in Spec-C_Q (who_1=who_2) can occur, and the parallelism requirement is satisfied.

In (18e), there is no c-command relation between $John_2$ and $John_3$, so either of them can undergo IM to Spec-Infl. Upon the completion of the CP phase, all three inscriptions of *John* ($John_1$=$John_2$ & $John_1$=$John_3$; hence, $John_1$=$John_2$ =$John_3$) are taken to be structurally identical copies, and $John_1$, the highest copy, gets externalized, and the parallelism requirement is satisfied.

Note, in (18b,d), who_1 and who_2 belong to different phases, but they are taken to be identical copies for the same reason we discussed in PG. In (18e), however, $John_1$, $John_2$ and $John_3$ belong to the same phase, and they are taken to be structurally identical copies under MS (see Chomsky 2023).

4. Reconstruction

In this section, we examine various types of so-called reconstruction asymmetries.

4.1 Core Data

Let us begin with the following core data concerning reconstruction asymmetries.

(19) a. * Mary seems to him_i to like $John_i$.
b. * Which argument that $John_i$ is a genius did he_i believe?
c. Every argument that $John_i$ is a genius seems to him_i to be flawless.

(19a) shows that despite the presence of *to*, him_i binds $John_i$ at the matrix CP phase, thereby violating Condition C. Given this analysis of (19a), we demonstrate that the observed asymmetry, exhibited by (19b,c), naturally follows. Consider the CP phase of (19b), schematically represented as (20):

(20) [C_Q [he_i [Infl [he_i [v* [[which argument that $John_i$ is a genius][believe [... $John_i$ ...]]]]]]]]

In (20), the *wh*-phrase containing $John_i$ has undergone IM to Spec-V, and being a

higher copy, it is detectable under MS. Thus, at the CP phase, he_i in Spec-Infl binds $John_i$ inside the *wh*-phrase occupying Spec-V, thereby violating Condition C.

Turning to (19c), consider its derived CP phase, schematically represented as (21):

(21) [C [[every argument $John_i$ is a genius] [Infl [seems to him_i [[... $John_i$ ...] to be flawless]]]]]

In (21), the QP containing $John_i$ has undergone IM to Spec-Infl, and its lower copy is not detectable under MS. Thus, him_i does not bind $John_i$, because the only detectable QP containing $John_i$ is the one occupying Spec-Infl, not c-commanded by him_i. Thus, there is no violation of Condition C.

4.2 Evidence for Successive Cyclic A-movement Revisited

The analysis of (19a-c) is confronted with the following binding facts, taken to be evidence for successive cyclic A-movement:

(22) a. $John_i$ seems to Mary to appear to $himself_i$ to be ill.
b. * Mary seems to $John_i$ to appear to $himself_i$ to be ill.

To capture the observed contrast in (22a,b), Chomsky (2021, 29-30) proposes that the underlying structures for (22a,b) are schematically represented as (23a,b), where ***to***-phrase is located in a position higher than Spec-Infl:

(23) a. [To Mary [$John_i$ [Infl [seems [to appear to $himself_i$ [to be [$John_i$ ill]]]]]]]
b. [To $John_i$ [Mary [Infl [seems [to appear to $himself_i$ [to be [Mary ill]]]]]]]

With (23a,b), the binding facts follow. In (23a), $himself_i$ is locally bound by $John_i$, but not in (23b), because *Mary* intervenes between $John_i$ and $himself_i$. Thus, only the latter violates Condition A.

Note, however, (19c) poses a problem for this analysis. Consider the underlying structure for (19c), schematically represented as (24):

(24) [To him$_i$ [[every argument John$_i$ is a genius] [Infl [seems [[... John$_i$ ...] to be flawless]]]]]

In (24), to him$_i$ is located in a higher position from which him$_i$ c-c-commands John$_i$ inside the QP occupying Spec-Infl. Thus, it would predict a violation of Condition C, contrary to fact.

As an alternative, we suggest a different analysis, where all the binding facts follow if we stipulate EPP as a clausal requirement, as in (25):

(25) every clause, regardless of whether finite or non-finite, must have a subject

Given (25), the derived structures of (22a,b) will be (26a,b):

(26) a. [C [John$_4$ [Infl seems to Mary [John$_3$ [to appear to himself [John$_2$ [to be John$_1$ ill]]]]]]]
b. [C [Mary$_4$ [Infl seems to John [Mary$_3$ [to appear to himself [Mary$_2$ [to be Mary$_1$ ill]]]]]]]

Recall that only theta-marked element can undergo IM. Given this, in (26a), every application of IM applies to theta-marked John$_1$. That is, IM moves John$_1$ to John$_2$, John$_1$ to John$_3$, and John$_1$ to John$_4$ – one by one. In the process of phase-building, all occurrences of *John* are taken to be repetitions, and Condition A requires *himself* to be coreferential with the closest c-commanding element, namely John$_3$. Finally, upon the completion of the CP phase, the four occurrences of *John* – John$_4$, John$_3$, John$_2$, and John$_1$ – are all interpreted as structurally identical copies; hence, *himself* is interpreted as coreferential with *John*.

Similarly, in (26b), IM moves Mary$_1$ to Mary$_2$, Mary$_1$ to Mary$_3$, and Mary$_1$ to Mary$_4$ – one by one. In the process of phase-building, all occurrences of *Mary* are taken to be repetitions, and Condition A requires *himself* to be coreferential with the closest c-commanding element, namely Mary$_3$. Finally, upon the completion of the CP phase, the four occurrences of *Mary* – Mary$_4$, Mary$_3$, Mary$_2$, and Mary$_1$ – are all interpreted as structurally identical copies; hence, *himself* is interpreted as coreferential with *Mary*, a wrong result.

As for (19c), we can retain the original analysis, repeated below:

(21) [C [[every argument John$_i$ is a genius] [Infl [seems to him$_i$ [[... John$_i$ ...] to be flawless]]]]]

In (21), the QP containing John$_i$ has undergone IM to Spec-Infl, and only this IMed QP is detectable under MS. Thus, him$_i$ does not bind John$_i$, because it fails to c-command John$_i$ inside the detectable QP (occupying Spec-Infl); hence, there is no violation of Condition C.

As demonstrated above, this analysis explains the observed binding facts by allowing multiple applications of IM. Note that they are different from the ones that constitute successive cyclic A-movement, but its desirable effects follow from them.

4.3 Evidence for Successive Cyclic A'-movement Revisited

There are cases taken to be evidence for successive cyclic A'-movement. Consider the following contrast, exhibited by (27a,b) (where A'-movement feeds anaphoric interpretation). Their schematic representations are given in (28a,b):

(27) a. * John$_i$ thinks Mary likes these pictures of himself$_i$.
b. Which picture of himself$_i$ does John$_i$ think Mary likes t_{wh}?

(28) a. [C John$_i$ Infl thinks [C Mary Infl [v* [[these pictures of himself$_i$][likes [... himself ...]]]]]]
b. [C$_Q$ John$_i$ Infl thinks [C Mary Infl [v* [which picture of himself$_i$][likes [... himself ...]]]]]

Following Chomsky (2023), we argue that there is no successive cyclic A'-movement, but their desirable effects follow in a different way.

In (28a), *these pictures of himself* enters to theta by EM and moves to non-theta by IM, and it gets interpreted and externalized in this IMed position. Condition A requires *himself* to be coreferential with the closest c-commanding element, namely *Mary*.

In (28b), however, *himself* can be interpreted as coreferential with *John*. The crucial difference is the presence of C_Q in the matrix clause. It is the C_Q that accesses *which picture of himself* in the IMed position, and *which picture of himself* gets externalized and takes scope at the C_Q, and *himself* is interpreted as conrferential with *John*.

Chomsky (2023) suggests that the determination of *which picture of himself* can be dissociated, spreading over the phasal categories between the C_Q and *which picture of himself*. Specifically, the externalization and scope interpretation are determined at the matrix C_Q, while the anaphoric interpretation of *himself* is determined at the embedded C, where *himself* is interpreted as coreferential with the closest c-commanding element, namely *John*.

Informally speaking, the C_Q-access expands the binding domain for *himself* by spreading over the phasal categories between the C_Q and the accessed *wh*-phrase in the IMed position. By doing so, this analysis explains the binding facts (27a,b), with no reference to successive cyclic A'-movement.

5. Remnant Movement

In this section, we examine various types of so-called remnant movement asymmetries, drawing relevant data from English and Japanese (for recent discussion, see among others, Sugimoto 2024).

5.1 Remnant Movement with NP-movement and *Wh*-movement

We have been assuming that an argument, regardless of whether it is a *wh*-element or not, enters to theta by EM and moves to non-theta by IM within its lowest phase cycle. With this assumption, consider the following asymmetries in the remnant movement phenomena:

(29) a. (guess) [how $\boldsymbol{t_{John}}$ likely to win the race] [John] is $\boldsymbol{t_{how}}$.
b. * (guess) [which picture of $\boldsymbol{t_{who}}$] John wonders [who] Mary liked $\boldsymbol{t_{which}}$.
c. ?? (guess) [who] John wonders [which picture of $\boldsymbol{t_{who}}$] Mary liked $\boldsymbol{t_{which}}$.

Recall that (i) being compliant with MS, Merge can apply to members of the WS even if the output is not a theta-structure, and (ii) internal to the output of Merge, only theta-marked elements can undergo further applications of Merge, thanks to theta-sensitive search. Given this much, consider the CP phase for (29a), schematically represented as (30):

(30) [C_Q [$John_2$ [Infl [is [how likely $John_1$ to win ...]]]]]

In (30), the *how*-phrase enters to non-theta by EM, and $John_1$ moves to $John_2$ by IM. Upon the completion of the CP phase, $John_1$ is no longer detectable under MS, and the C_Q accesses the *how*-phrase and receives the relevant instructions. As a result, *how likely to win the race* is externalized at the C_Q and it takes scope from there.

Turning to the derivations of (29b,c), they share the same (embedded) CP phase, schematically represented as (31):

(31) [C_Q [$Mary_2$ [Infl [$Mary_1$ [v* [[which picture [who_2 [of who_1]]]][liked [which ...]]]]]]]]

In (31), the argument *wh*-phrase *which picture of who* enters to theta by EM and moves to non-theta (Spec-V) by IM, and the argument NP *Mary* enters to theta by EM and moves to non-theta (Spec-Infl) by IM in the process of building the v*P/CP phases, and the argument *wh*-phrase *who* inside *which picture of who* also enters to theta by EM and moves to non-theta (Spec-P) by IM in the process of building the nominal phase. Thus, the derivation yields (31), where there are two copies of *which picture of who* and two copies of *who* (in each nominal phrase). The shaded objects are not detectable under MS, because they are lower copies.

Suppose this analysis is on track. Then, upon the completion of the CP phase, the C_Q accesses the closest *wh*-phrase under MS. Which one counts as the closest? The closest *wh*-phrase to the C_Q is the one occupying Spec-V, because its head *which* c-commands *who*. Thus, under MS, the C_Q receives the relevant instructions from *which picture of who*, not *who* inside. This means that *which picture of who* is externalized at the embedded C, rendering a derivation for (29b) impossible.

As for (29c), if the *wh*-phrase, accessed in the the previous phase cycle, does not interfere with subsequent search from a higher C_Q, because it has no relevant instructions to provide, then the derivation continues from the stage (31) and yields the CP phase for (29c), represented as (32).

(32) [C_Q [$John_2$ [Infl [$John_1$ [wonders [C_Q ... [v* [which picture [who_2 [of who_1]]] [liked ...]]]]]]]

In (32), the matrix C_Q accesses the closest *wh*-phrase under MS. The closest *wh*-phrase is who_2, given that the *wh*-phrase (headed by *which*) occupying Spec-V, accessed in the previous phase cycle, has no relevant instructions to provide for the matrix C_Q. Thus, the matrix C_Q receives the relevant instructions to determine externalization and scope interpretation of who_2 at the matrix C_Q, as in (29c).

As demonstrated above, given MS, it follows that the only possible externalization pattern is that *who* is externalized at the matrix C_Q, while *which picture of* is externalized at the embedded C_Q.

The proposed analysis also captures the following remnant movement asymmetry:

(33) a. ?? (guess) [how likely $\boldsymbol{t_{who}}$ to win the race] John wonders [who] is $\boldsymbol{t_{how}}$.
b. * (guess) [who] John wonders [how likely $\boldsymbol{t_{who}}$ to win the race] $\boldsymbol{t_{who}}$ is $\boldsymbol{t_{how}}$.

The derivations of (33a,b) share the same (embedded) CP phase, schematically represented as (34):

(34) [C_Q [who_2 [Infl [is [how likely who_1 to win ...]]]]]

In (34), the *wh*-phrase *how likely to win the race* enters to non-theta by EM, and the argument *wh*-phrase *who* moves to Spec-Infl by IM. Upon the completion of the CP phase, who_1, a lower copy, is no longer detectable under MS. Thus, the C_Q accesses the closest *wh*-phrase, namely, the one occupying Spec-Infl. In this way, the C_Q receives the relevant instructions to determine externalization and scope interpretation of who_2.

Recall that English covert C_Q requires externalization of a *wh*-element close to it, and the specifier of its complement, namely Spec-Infl, counts as a close position; hence, who_2 is externalized at Spec-Infl, which in trun makes the derivation of (33b) impossible.

As for (33a), if the *wh*-phrase, accessed in the the previous phase cycle, does not interfere with subsequent search from a higher C_Q, assuming that *wh*-phrase, accessed in the previous phase cycle, has no relevant instructions to provide, then the derivation continues from the stage (34) and yields the CP phase for (33a), represented as (35):

(35) [C_Q [$John_2$ [Infl [$John_1$ [wonders [C_Q [who_2 [Infl [is [how likely who_1 to win the race]]]]]]]]]

In (35), the matrix C_Q accesses the closest *wh*-phrase under MS. The closest *wh*-phrase is *how likely to win the race*, given that the *wh*-phrase occupying Spec-Infl, accessed in the previous phase cycle, has no relevant instructions to provide for the matrix C_Q. Thus, under MS, the matrix C_Q receives the relevant instructions to determine externalization and scope interpretation of *how likely to win the race*, allowing the derivation of (33a).

As demonstrated above, given MS, it follows that the only possible externalization pattern is that *how likely to win the race* is externalized at the matrix C_Q, while who_2 is externalized in Spec-Infl, a position close enough to the embedded C_Q.

5.2 Remnant Movement with Scrambling

Saito (1989, 1992, 2003) draws data from Japanese and discusses the following contrast in the context of remnant movement with scrambling. We argue that the proposed analysis captures the observed contrast if scrambling is an instance of externalization by a phasal head:

(36) a. [Taroo-ga [Hanako-ga Sooru-ni iru to] omotteiru] (koto)
Taroo-NOM Hanako-NOM Seoul-in be that think fact
'Taroo thinks that Hanako lives in Seoul'

b. [Sooru-ni$_i$ [Taroo-ga [Hanako-ga t_i iru to] omotteiru]] (koto)
Seoul-in Taroo-NOM Hanako-NOM be that think fact
'In Seoul$_i$, Taroo thinks that Hanako lives t_i'

c. * [[Hanako-ga t_i iru to]$_j$ [Sooru-ni$_i$ [Taroo-ga t_j omotteiru]]] (koto)
Hanako-NOM be that Seoul-in Taroo-NOM think that
'[That Hanako lives t_i]$_j$, in Seoul$_i$, [Taroo thinks t_j]'

Under the current assumptions, the derivations of (36b,c) share the same CP phase, schematically represented as (37) (for illustration purposes, all heads are placed in left):

(37) [C_S [Taroo-ga [Infl [V [Hanako-ga ... [Sooru-ni] ...]]]]]

Suppose that the so-called scrambling is an instance of externalization resulted from the C_S-access to a phrase bearing some relevant property for the C_S. Then, to generate (36b), there must be one and only one such phrase, the PP phrase [Sooru-ni], and the C_S accesses the PP phrase and receives the relevant instructions to determine externalization of [Sooru-ni] at the C_S.

But to generate (36c), there must be two phrases relevant to the C_S, the embedded CP and the PP phrase [Sooru-ni] inside the embedded CP. Given this analysis of (37), the C_S accesses the closest relevant phrase, and the closest relevant phrase is the embedded CP, not the PP phrase inside.

Under MS, the C_S has no choice but receives the relevant instructions to determine externalization of the embedded CP at the C_S, making the derivation of (36c) impossible.

5.3 Remnant Movement with Scrambling and NP-movement

There is another important case discussed in the context of remnant movement with scrambling. Saito (2003) presents the following paradigm which involves scrambling and NP-movement:

(38) a. [Hanako-ga Taroo-ni [PRO Sooru-made iku koto]-o meizita]
Hanako-NOM Taroo-to Soeul-to go N -ACC ordered
'Hanako ordered Taroo to go to Soeul'

b. [Hanako-ga Sooru-made$_i$ Taroo-ni [PRO ***t$_i$*** iku koto]-o meizita]
Hanako-NOM Soeul-to Taroo-to go N -ACC ordered
'Hanako, to Soeul$_i$, ordered Taroo to go t$_i$'

(39) a. [[PRO Sooru-made iku koto]-ga$_j$ Taroo-ni ***t$_j$*** meizirareta]
Soeul-to go N -NOM Taroo-to ordered-was
'[To go to Seoul]$_i$ was ordered Taroo t$_i$

b. * [[PRO ***t$_i$*** iku koto]-ga$_j$ Sooru-made$_i$ Taroo-ni ***t$_j$*** meizirareta]
go N -NOM Seoul-to Taroo-to ordered-was
'[To go t$_i$]$_j$, to Seoul$_i$, was ordered Taroo t$_j$'

(38a,b) show that the PP phrase *Sooru-made* can be scrambled out of the infinitival complement to a higher clause but below the matrix subject, and (39a) shows that the infinitival complement, headed by the nominalizer *koto*, can be passivized as a regular object. But these two applications of movement – scrambling and NP-movement – cannot generate the remnant structure (39b), where the PP phrase *Sooru-made* is externalized in a higher clause but below the matrix subject.

Saito (2003) argues that (39b) does not fall under Takano-Müller's generalization (Takano 1994, Müller 1996), and that Kitahara's (1997) MLC account does not extend to this example. Under the current assumptions, however, the deviance (or absence) of (39b) naturally follows.

(38a,b) are transitive sentences, so there exists a verbal phase v* between the two clausal phases: the matrix CP and the embedded CP, as illustrated in (40):

(40) [C [Hanako-ga [Infl [v* [V Taroo-ni [PRO Sooru-made iku koto]-o] ...]]]]]

Suppose that scrambling is an externalization of phasal heads such as C and v*. Then, given (40), the scrambling of the PP phrase can be analyzed as an instance of

externalization by a verbal phase v*. As a result, *Sooru-made* is externalized at the v*; hence it is in a higher clause but below the matrix subject.

By contrast, (39a,b) are passive sentences, so there exists no verbal phase-head v*. Suppose there is v, not v*. Then, in the process of building the matrix CP phase, the embedded infinitival complement moves to Spec-Infl by IM, as illustrated in (41):

(41) [C [PRO Sooru-made iku koto]-ga$_j$ [Infl [v [V Taroo-ni t_j ...]

Such movement has been analyzed as NP-movement or passive movement, and given the absence of v*, it does not cross a phase-boundary, as desired. But this means that (39b) lacks the v* that accesses the PP phrase and externalizes *Sooru-made*. Thus it follows that there is no derivation where the PP phrase *Sooru-made* is externalized in a higher clause but below the matrix subject.

As demonstrated above, being compliant with MS, the current system fails to generate derivations for those deviant cases, drawn from English and Japanese.

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