

Edges, Parallel Movements, and Representational Economy: Implications for Syntax-Discourse Interfaces

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Core Issues and Proposals:

(i) There are two types of “edges” in syntax: edge-C and edge-v. Edge-C is an interface to discourse-scope domain (surface semantics such as focus, topics, presupposition, frame) while edge-v is an interface to argument structure (deep semantics such as verbal aspect, voice, thematic properties). Movements to edge-C have a unique property in that they do not allow reconstruction in contrast to movements to edge-v which exhibit reconstruction effects. Note: Edge-T plays no role here since TP is not a phase, the unit of which is not legible for independent spell-out and interpretation.

(ii) Parallel movement approach put forward in Chomsky (2005) gets some empirical supports from scope facts in Korean. Successive cyclic A-A-A' movement approach cannot be maintained: e.g. [A' Someone_i [A t'_i is likely [A t_i to win]]]

(iii) Some economy conditions (say, Fewest Steps, Islands) are representational in that they can be repaired by interface strategies such as deletion at PF. Derivational economy conditions such as Superiority, on the other hand, cannot be ameliorated by PF-deletion, hence they must be obeyed every single computational step (cf. Boeckx & Lasnik 2006).

1. Background: Ellipsis Approach to Fragments

A fragment answer is a short answer to a question. The DP fragment in (1b) conveys the same propositional content as a fully sentential answer like (1c).

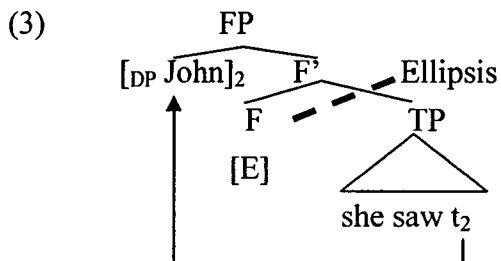
- (1) a. Who did she see?
b. John.
c. She saw John.

To capture this form-function mismatch, direct interpretation analyses assume that fragments don't have hidden sentential structure and consist of non-sentential XPs (cf. Barton 1990, Jackendoff & Culicover 2005 and many others). Minor differences aside, these analyses basically assume that a fragment phrase such as (1b) consists of a non-sentential XP, as shown in (2).

- (2) [DP John]

The unexpressed parts of the fragment's interpretation are supplied not through syntactic structure but via direct correspondence with the meaning of the antecedent sentence.

By contrast, according to an ellipsis approach like Merchant (2004), a fragment is derived through movement of remnant fragments followed by PF-deletion of the full-fledged sentential structures.



The ellipsis analysis, in particular Move-and-Delete analysis, is more plausible in explaining the Case alternation in the following emotional complex predicate construction in Korean (Ahn & Cho 2006b).

- (4) a. Q: Mary-nun nwukwu-lul manna-ko sip-ess-ni?
 Mary-Top who-Acc meet-Comp want-Past-Q
 'Who did Mary want to meet?'
 b. A: Chelswu-lul.
 Chelswu-Acc
 c. A: Chelswu-ka.
 Chelswu-Nom

According to the direct interpretation analyses, a fragment doesn't have its own syntactic structure and depends on the one of its antecedent. Hence, syntactic well-formedness of a fragment depends totally upon its correlates. (4c), therefore, is predicted to be ill-formed in this analysis, contrary to fact.¹

The ellipsis analysis correctly predicts the case alternation. Note that there are two possible sentential answers to (4a), as in (5).

- (5) a. Mary-nun Chelswu-lul manna-ko sip-ess-ta.
 Mary-Top Chelswu-Acc meet-Comp want-Past-Dec
 b. Mary-nun Chelswu-ka manna-ko sip-ess-ta.
 Mary-Top Chelswu-Nom meet-Comp want-Past-Dec
 'Mary wanted to meet Chelswu.'

¹ For some speakers, (4c) is worse than (4b). For these speakers, we speculate that some kind of parallelism constraint on processing seems to come into play.

(9) [motwu ta]_i [~~Mary-ka an-t_i manna-ss-ta~~]

Notice that the full sentential counterpart of (9) prior to ellipsis displays only wide scope reading of *motwu ta* 'all' over sentential negation *an* 'not'. Here the ellipsis analysis correctly predicts the widest scope interpretation of *motwu ta* 'all' in (8A), parallel to its non-elliptical sentential source given in (9).

Proposal #1: The fragment *motwu ta* 'all' in (8A) undergoes movement to edge-C, which is independent of formal feature valuation but solely for discorsal purposes such as focus or frame. Further note that QP that undergoes discourse-driven movement does not reconstruct since the driving purpose itself is in fact to take discourse-scope. Hence, *motwu ta* 'all' is predicted to take widest scope in (8A), a natural consequence.

Puzzle #2: In Korean, the object QP fragment in (10b) shows different scope-taking behavior, compared with the same QP inside its sentential counterpart (10c).

(10) a. myechmyech salamtul-i nwukwu-lul mannas-ni?

several people-Nom who-Acc met-Q

'Who did many people meet?'

b. manhun haksayngtul-ul.

(many > ∃, ∃ > many)

many students-Acc

'Many students.'

c. myechmyech salamtul-i manhun haksayngtul-ul mannassta. (∃ > many only)

several people-Nom many students-Acc met

'Several people met many students.'

Unlike the full sentence answer (10c), QP in fragment answer (10b) shows scope ambiguity. More plausible sentential counterpart of (10b) seems to be (11) that involves a scrambled QP.

(11) manhun haksayngtul-ul myechmyech salamtul-i mannassta. (many > ∃ only)

many students-Acc several people-Nom meet

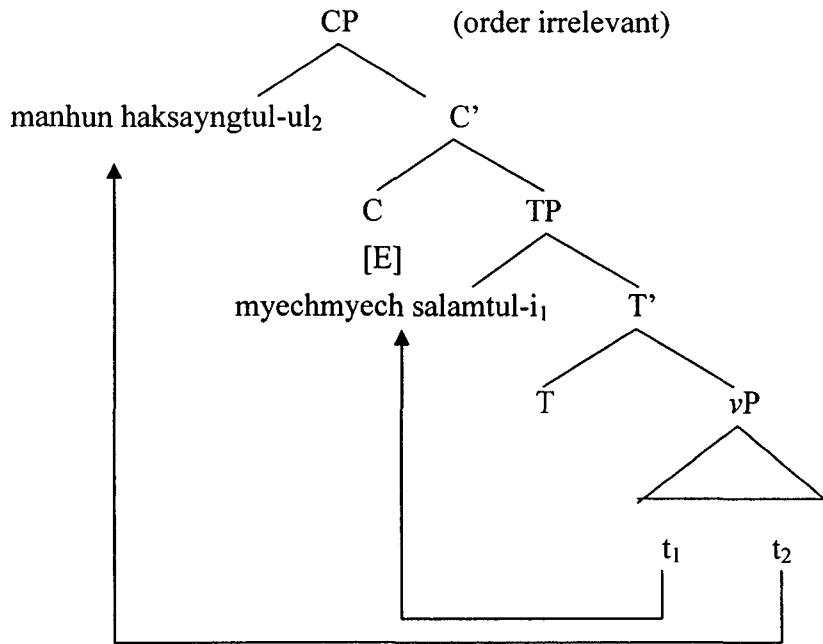
'Many students, several people met.'

In (11), the object QP must take scope over the subject QP. Thus, the fragment answer and its sentential counterpart show scope discrepancy either way.

Proposal #2: Scope difference results from a specific property of Korean syntax: namely, the presence of scrambling operation.

The full sentence answer in (10c) has the derivational representation like (12).

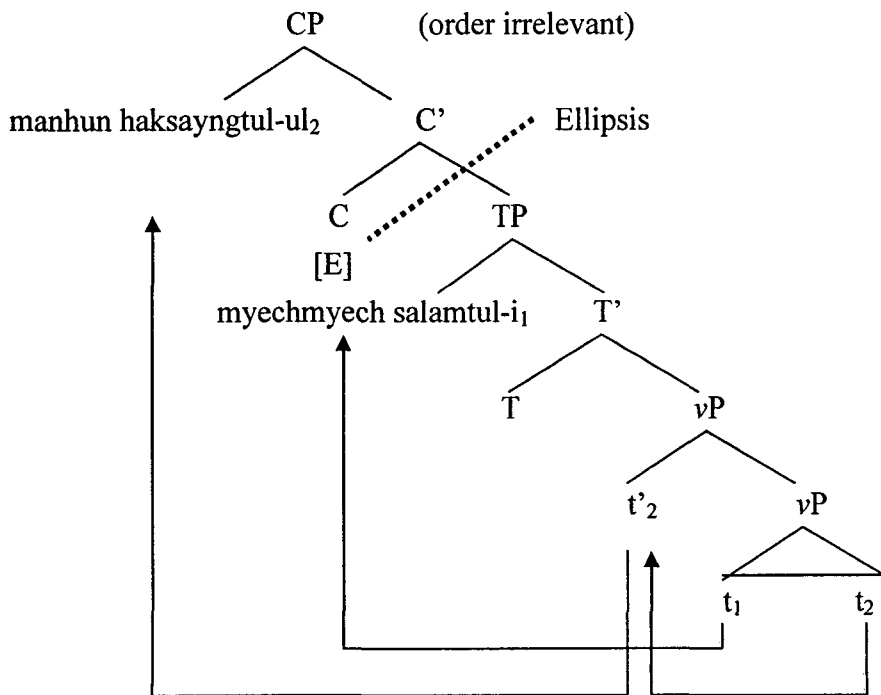
(12)



The scrambled QP is expected to take the widest scope on a par with (8A) since trace t_2 left by movement to Spec-C (edge-C) cannot enter into scope determination.

By contrast, the object fragment answer in (10b) has the parse in (13). In (13), the initial trace t_2 left by scrambling to edge- v may enter into scoping interactions since vP is also a phase in Korean (Chomsky 2005) but the landing site of this movement is not in C-domain. Hence, t_2 is “active” for scope determination unlike the traces left behind discourse-driven movements to C-domain as depicted in (12). Hence, ambiguity arises in (10b).

(13)



Puzzle #3: If (13) were a possible derivation for non-elliptical (10c), in other words, if vacuous edge-*v* scrambling can take place in (10c), it should also be ambiguous. But it's not.

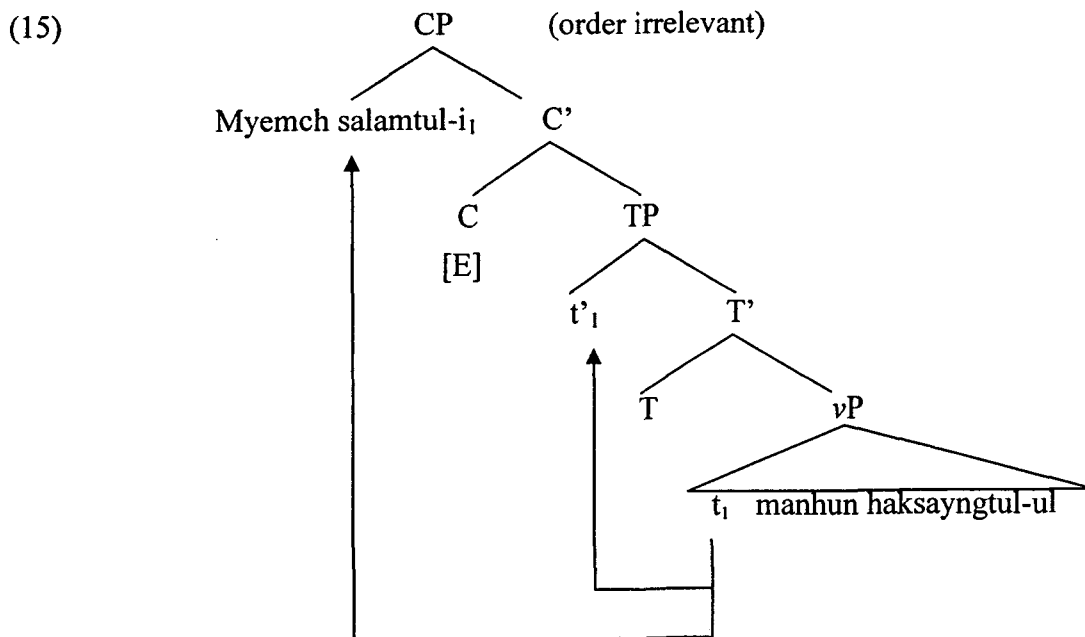
Proposal #3: The object cannot undergo "intermediate" movement to edge-*v* since it will be counted as an unnecessary (move) step, and would violate some version of economy principles such as fewest steps and the shortest derivation.

Puzzle #4: Then, how could the derivation of (10b), i.e. (13c), overcome economy violation?

Proposal #4: In fragments, such violations can be nullified as a result of the ellipsis at PF. This kind of salvation strategy at PF is reminiscent of repairing island violations by ellipsis as discussed in Merchant (2001), Fox & Lasnik (2003). This might imply that like certain island conditions, "fewest steps" is an instance of representational economy (i.e., interface conditions) that can be ameliorated by PF-deletion (see also Boeckx & Lasnik 2006).

In Korean, subject QP fragments show scope connectivity, which patterns with full sentential correlates; hence, no problem seems to arise for ellipsis approaches. BUT why (15) for (14c)?

- (14) a. *nwu-ka manhun haksayngtul-ul manness-ni?*
 Who-Nom many students-Acc met-Q
 'Who met many students?'
 b. *myechmyech salamtul-i.* (∃ > many)
 several people-Nom
 'Several people.'
 c. *myechmyech salamtul-i manhun haksayngtul-ul mannassta.*
 several people-Nom many students-Acc met
 'Several people met many students.' (∃ > many)

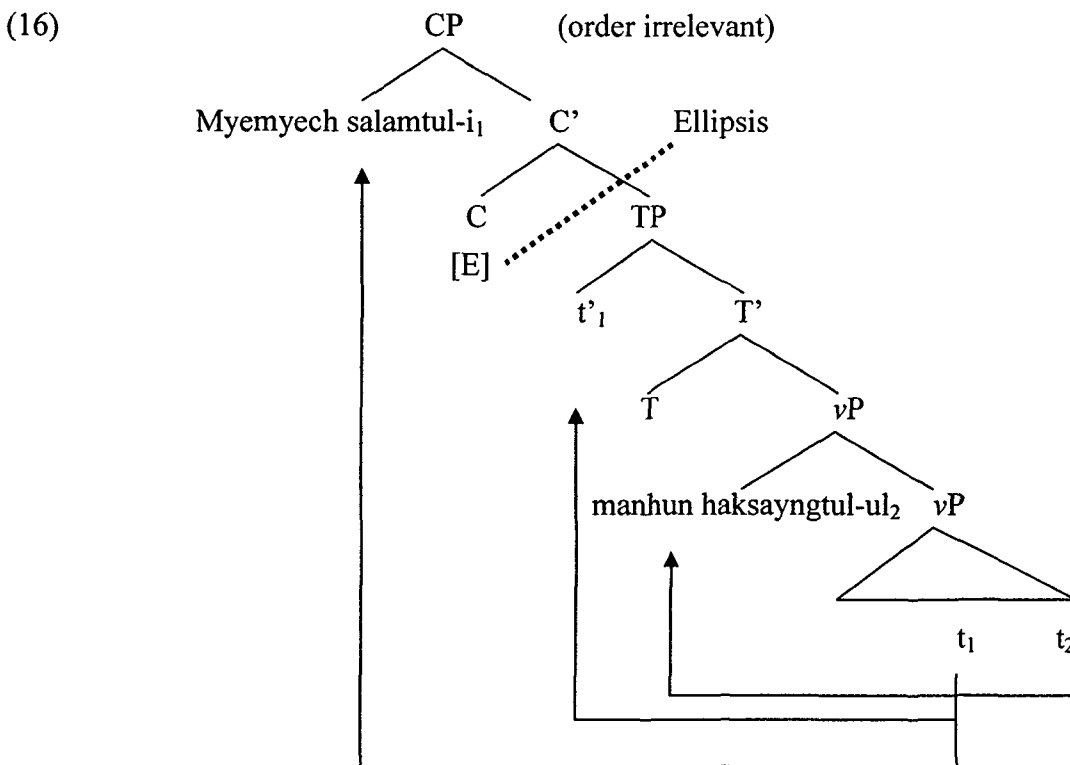


Puzzle #5: Successive cyclic movement (namely, Spec-*v* to Spec-T, and then to Spec-C) does not predict widest scope reading of subject QP since the initial trace in Spec-*v* may induce narrow scope reading under object QP (cf. In English you can get narrow scope reading of subject QP in *Someone loves everyone.*)

Proposal #5: Adopting parallel movement approach advanced in Chomsky (2005), we can account for the widest scope reading of subject QP in (14).

In (15) *myechmyech salamtul-i* undergoes discursal movement to edge-C, following Agree-driven movement to Spec-T. The trace *t'* in Spec-T, however, cannot enter into scope determination since TP is not a phase (Chomsky 2001, 2005). The trace *t* in Spec-*v*, in contrast, may participate in scope determination. However, since *t* is linked to discourse-driven movement to edge-C, it is inactive for scope determination. In other words, the CP internal chain $\langle \textit{myechmyech salamtul-i}, t \rangle$ is visible for scope determination while the TP internal chain $\langle \textit{myechmyech salamtul-i}, t' \rangle$ is not. Thus, *myechmyech salamtul-i* invariably takes scope over *manhun haksayngtul-ul* in (14)

What if vacuous scrambling of object QP takes place prior to ellipsis in (14b)?



The representation resulted from local scrambling of *manhun haksayngtul-ul* 'many students' over the trace *t*₁ (left by movement of *myechmyech salamtul-i* to Spec-T) would not induce many > ∃ reading, either, since the trace *t*₁ is inert for scope determination anyway because the A-chain $\langle t'_1, t_1 \rangle$ has no independent status with respect to the operator *myechmyech salamtul-i* for scope taking: that is, *t*₁ is left by discourse-driven movement to edge-C.

3. Further implications

3.1 Japanese Scrambling

We find that scope asymmetries in Japanese scrambling observed in Miyagawa (2004) correlate with our claim (see also Kitahara 2002).

- (17) Taroo-ga zen'in-no-syasin-o mi-nakat-ta. (not>all, all>not)
Taro-Nom all-Gen-photo-Acc see-Neg-Past
'Taro didn't see everyone's photos.'
- (18) Zen'in-no-gakusei-ga san-satu-no hon-o yoma-nakat-ta. (all>not only)
all-Gen-student-Nom three-Gen book-Acc read-Neg-Past
'Every student did not read three book.'

Interestingly, however, he indicates that when the object is scrambled, a partial negation interpretation becomes possible.

- (19) San-satu-no-hon-o_i zen'in-no-gakusei-ga t_i yoma-nakat-ta.
3-CL-book-Acc all-Gen-student-Nom read-Neg-Past
'Three book, every student did not read.' (not>all, all>not)

We may reinterpret this contrast as follows. In (18) subject QP obligatorily moves up to Spec-C (like Korean), so it takes widest scope. Subject QP cannot move to Spec-C in (19) since object QP already sits in Spec-C. Thus, subject QP can move only up to Spec-T in (19), and since it is not discourse-driven movement (but perhaps EPP + feature-valuation movement), the trace left by subject QP movement may enter into scoping.² Hence, ambiguity occurs in (19) like (17).

3.2 Korean QP in Embedded Clause

- (20) a. na-nun motwu-ka phathi-ey o-ci-anhass-ta-ko sayngkakhanta
I-Top all-Nom party-to come-Neg-Decl-Comp thinks
'I think that all didn't come to the party.' (∇>Neg only)
- b. na-nun motwu-ka phathi-ey o-ci-anhass-eto culkewessta
I-Top all-Nom party-to come-Neg-although enjoyed
'I enjoyed although all didn't come to the party.' (∇>Neg, Neg>∇)
- c. na-nun motwu-ka phathi-ey o-ci-anh-un sasil-cocha mallassta.
I-Top all-Nom party-to come-Neg-Rel fact-even not-knew
'I didn't even know the fact that all didn't come to the party.' (∇>Neg, Neg>∇)

² Ahn & Cho (2006a) indicate some evidence to show that unlike the EPP feature on C, the one on T in Korean is parasitic on the presence of some anchoring features like Case or Agreement.

There seem to be two types of embedded clauses in Korean. Embedded CPs like (20a) headed by *-ko* 'that' may host operator in its Spec, and the subject QP in this clause can (and, in fact, must) move to Spec-C as in (20a), hence widest scope reading only. By contrast, the Spec-C of subordinate clauses like (20b) and noun-complement clauses like (20c) in Korean is already filled by (empty) operators licensed by C, so the subject QP can move only up to Spec-T (since Spec-C is not available for a landing site). Thus, subject QP is predicted to scope under Neg in (20b-c).

3.3 English *Wh* & Quantifier Interaction

- (21) a. Who does everyone love? $(wh > \forall, \forall > wh)$
 b. Who loves everyone? $(wh > \forall)$

(21a) has the structure like (22).

- (22) Who₂ does everyone₁ t'₂ t₁ love t₂?

In (22) *everyone* c-commands *t₂* and it takes over *wh*-phrase. *Wh*-phrase also c-commands *everyone* or *t₁* and it takes scope over *everyone*. Hence, scope ambiguity emerges. Suppose there are four possible derivations for (21b) which are given in (23).

- (23) a. Who₁ loves everyone₂?
 b. Who₁ t₁ loves everyone₂?
 c. Who₁ loves everyone₂ t₁ t₂?
 d. Who₁ t'₁ loves everyone₂ t₁ t₂?

Note that 'Someone loves everyone.' is ambiguous in English, and the $\forall > \exists$ reading can be explained by the assumption that the object *everyone* shifts over *vP* internal subject *someone* or its trace left behind the (Agreement or Case) feature-checking movement (Hornstein 1999). Thus, it seems that (23c-d) which involve object shift is more plausible candidates than (23a-b) that lack it. Vacuous *wh*-movement may or may not be excluded as in (23c) and (23d), respectively. Assuming traditional successive cyclic movements, *wh*-trace may enter into scope-taking relations in (23d), which would give rise to $\forall > wh$ reading, contrary to fact. Therefore, only (23c) seems to be an optimal candidate that can account for $wh > \forall$ only reading since *wh*-trace *t₁* in (23c) is left by phase-edge movement to C-domain, and cannot enter into scope relations. However, assuming parallel movement put forward in Chomsky (2005), neither derivations of (23c-d) produce active *wh*-traces and invoke narrow scoping reading of *who*. Thus, the validity of vacuous *wh*-movement in English is still unsettled under our analysis.

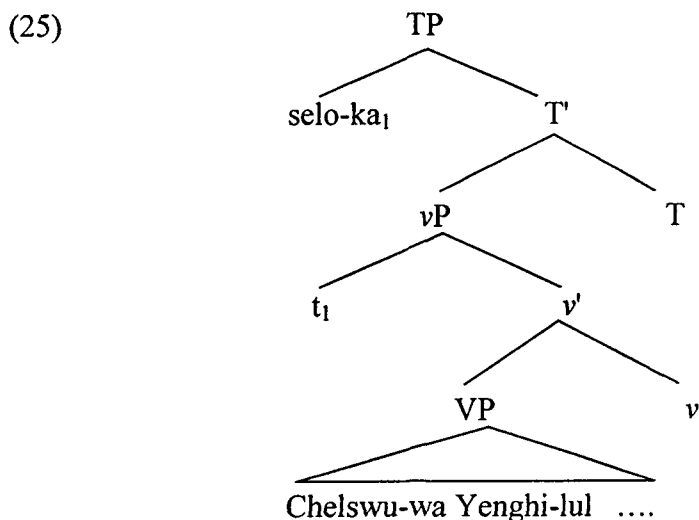
3.4 LF Repair: Evidence from Binding

Some economy conditions (say, fewest steps) are representational in that they can be repaired by interface strategies. We have seen repair strategies at PF. What about at LF?

Binding asymmetry: Anaphors in fragmental utterances do not pattern with ones in their sentential counterparts regarding Binding condition (see Ahn & Cho 2006c for full discussion).

- (24) a. Nwu-ka Chelswu-wa Yenghi-lul_i piphanhayss-ni?
 Who-Nom Chelswu-and Yeunghi-Acc criticized-Q
 'Who criticized Chelswu and Yenghi?'
- b. Selo-ka_i.
 each other-Nom
 'Each other.'
- c. *Selo-ka_i Chelswu-wa Yenghi-lul_i piphanhayssta.
 each other-Nom Chelswu-and Yenghi-Acc criticized
 'Lit. Each other criticized Chelswu and Yenghi.' (Ahn & Cho 2006c: 126)

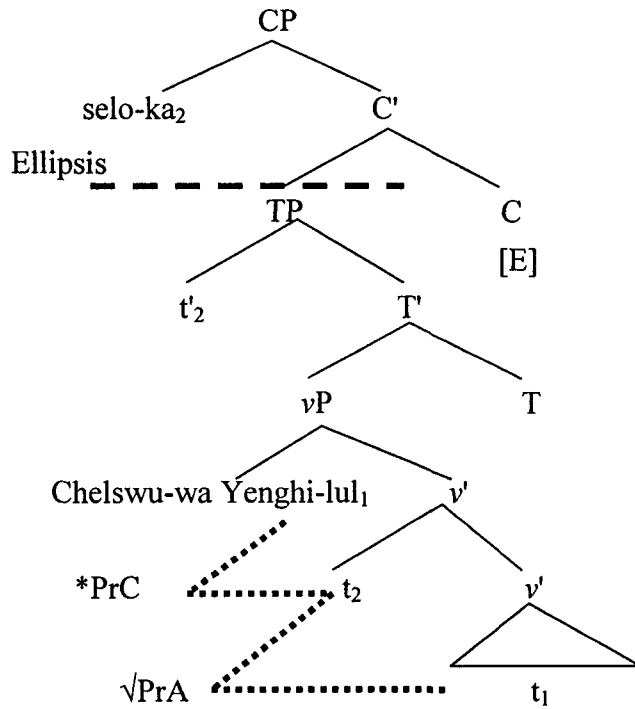
(24c) is ruled out by the standard Binding A and C, as shown in the following representation.



Binding Principle A is not satisfied and Binding Principle C is violated because *selo-ka* and its trace binds the R-expression *Chelswu-wa Yenghi-lul*.

The derivation of (24b), by contrast, can be represented as (26) where object scrambling alters Binding Principle A possibility. Since *Chelswu-wa Yenghi-lul* c-commands *t₂*, Binding principle A is satisfied.

(26)



Puzzle #6: Another problem arises as to the consequence that *t'₂* seems to bind the R-expression *Chelswu-wa Yenghi-lul*. In other words, how could (26) avoid violating Binding Principle C?

Proposal #6: The amelioration of Binding Principle C in fragments is attributed to the so-called "Vehicle Change" effects in ellipsis contexts.

Merchant (2004:682) advances the analysis of Vehicle Change effects in ellipsis to fragment answers in English.³

- (27) a. Who did you tell *t* about Bill₁'s raise?
b. Him₁.
c. *I told him₁ about Bill₁'s raise.

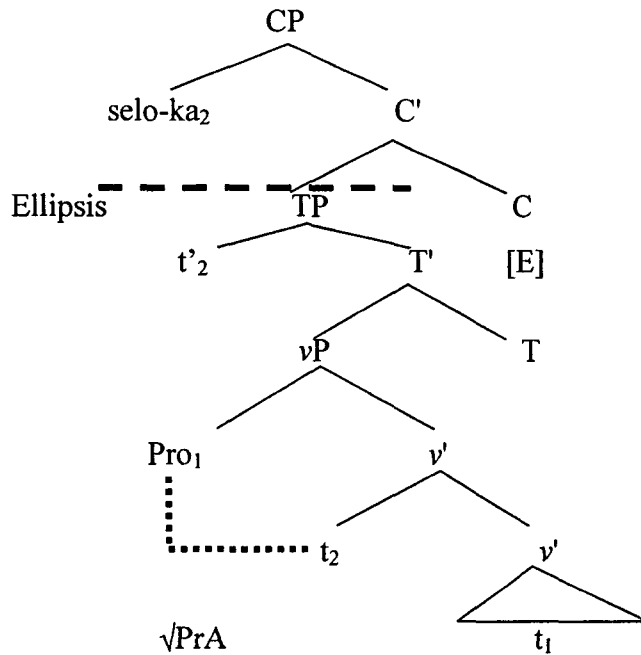
The semantic structure of (27b) is like (28) where the correlate possessive "name" is interpreted as a "pronoun," hence, no Condition C violation occurs.

(28) I told him₁ about his₁ raise.

Similarly, we claim that the elided clause contains a [+pronominal] empty category (EC), *Pro*, that corresponds to the R-expression *Chelswu-wa Yenghi-lul* in the antecedent clause, as shown in (29).⁴

³ Merchant (2001, 2004), in fact, attempts to derive vehicle change effects from the semantic theory of identity condition on ellipsis licensing.

(29)



In (29), Binding Principle A is satisfied because *Pro* binds t_2 . Binding Principle C violation doesn't occur because there is no R-expression due to Vehicle Change

4. Conclusion

In this paper, we have shown the following:

- i) Exploration of the tie between landing site of movement and scope reconstruction provides an elegant account for the apparent scope puzzles that may otherwise be problematic under an ellipsis approach of fragments.
- ii) Movements to edge-C do not reconstruct, whereas movements to edge- v and non-Phase edges (like edge-T) can.
- iii) Parallel movement approach predicts scope facts correctly. But successive cyclic movement approach doesn't.
- iv) Some syntactic conditions whose nature are representational (e.g. Ban on Vacuous Scrambling, Principle C violation) can be repaired by interface strategies like ellipsis at PF and Vehicle Change at LF.

⁴ Huang (1989, 1991) puts forward that the *PRO/pro* distinction is unnecessary, and he postulates only one pure pronominal EC *Pro*.

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