

Agreement Spreading, Long-Distance Scrambling, and the A/A-bar Distinction in Korean

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Agreement Spreading in Korean

Observation:

Korean lacks regular agreement (abstracting away from honorific agreement). However, Korean has agreement spreading with respect to the feature plural on a DP argument (Kim (1994), Sells (1995), Park & Sohn (1993), Yim (2003), Koopman (2005), Hwang (2012)).

(2) Agreement spreading in Korean

- a. haksayng-tul-i tosekwon-eyse yelsimhi-tul kongpwuha-ko iss-ta
 student-PL-NOM library-LOC hard-PL study-COMP be-DEC
 '(The) students are studying hard in the library.'
- b. haksayng-tul-i tosekwon-eyse-tul yelsimhi kongpwuha-ko iss-ta
 student-PL-NOM library-LOC-PL hard study-COMP be-DEC
 '(The) students are studying hard in the library.'

The Mechanism of Agreement Spreading

(3) Approaches to agreement spreading

- a. **Direct agreement:**
X agrees with Z directly.
- b. **Indirect agreement:**
X agrees with Y; Y undergoes standard agreement with Z.
- c. **Feature movement:**
Features move from X to Y (or vice versa).
- d. **Incorporation:**
X incorporates into the verb Y; only Y agrees with Z.
- e. **Concord:**
X realizes a Z-controlled feature that is present on all nodes in a certain local domain (as has been suggested for concord in the nominal domain).

An argument against indirect agreement spreading (Marquardt (2021)):

An agreement target X agrees with an agreement controller Z even though the item Y that would be required as an intermediary agrees with some other controller W.

(4) Against indirect agreement spreading in Gujarati:

e aa gito saar-AA gaay che
 he these songs.N.PL well.N.PL sing.3.SG be.3.SG
 'He sings these songs well.'

Indirect agreement spreading in Korean?

Observation:

An adverbial expression in Korean as in (2) would require a cyclic Agree operation controlled by the subject DP that is mediated by the verb which does not show the agreement itself.

Possible solution:

Non-final movement steps to phase edges already require postulating inert intermediaries; this could in principle be extended to agreement spreading.

(5) What₁ do you [_{VP} t₁^{'''} think [_{CP} t₁^{''} that Mary [_{VP} t₁['] likes t₁]]] ?

Possible Targets, Possible Controllers

Possible agreement controllers:

The controllers of agreement spreading are also the ones that participate in regular agreement.

Possible agreement targets:

The picture that emerges is not entirely clear, even if one restricts the investigation to adverbs.

- Marquardt (forthcoming): It is not possible to identify the group of adverbs that qualify as possible targets for agreement spreading in any given language that exhibits the phenomenon.
- Polinsky (2016): The option of agreement spreading to adverbs in Archi correlates with the status of the adverb as high or low; only low adverbs permit agreement spreading in Archi.
- High (sentential) adverbs in Korean (like **fortunately**) can in principle allow for agreement spreading in Korean as long as the subject NP precedes the adverb in the same clause.

Morphological Realization

Options:

- ① Null hypothesis: The realization of some feature (or feature bundle) F takes place in exactly the same way that it does with standard agreement in the language, both as regards the **form** of the exponent, and as regards its **position** in the word.
- ② The morphological realization of F is highly specific.
- ③ The form differs, but the position is as one would expect.
- ④ The form is identical, but the position may be different.

Outlook:

The fourth option is the one that can be found in Korean.

Interactions

Main question:

What are possible **interactions** between **agreement spreading** and other syntactic operations, particularly **movement** operations?

Feeding:

Movement creates an environment in which agreement spreading is possible because it applies early.

Bleeding:

Movement destroys an environment in which agreement spreading is possible because it applies early.

Counter-Feeding:

Movement would create an environment in which agreement spreading is possible but fails to do so because it applies too late.

Counter-Bleeding:

Movement would destroy an environment in which agreement spreading is possible but fails to do so because it applies too late.

Plural Marking

(6) **Regular plural marking:**

ai-tul-i hakkyo-ey ka-ss-ta
 child-PL-NOM school-to go-past-dec
 '(The) children went to school.'

(7) **Optional plural marking:**

- a. Mina-nun ecey haksayng-ul manna-ss-ta
 Mina-TOP yesterday student-ACC meet-PAST-DEC
 'Mina met (a/the) student(s) yesterday.'
- b. Mina-nun ecey haksayng-tul-ul manna-ss-ta
 Mina-TOP yesterday student-PL-ACC meet-past-dec
 'Mina met (the) students yesterday.'

Targets of Plural Spreading

(8) Agreement spreading to adverb, locative phrase, VP, CP:

- a. haksayng-tul-i tosekwan-eyse yelsimhi-**tul** kongpwuha-ko iss-ta
 student-PL-NOM library-LOC hard-PL study-COMP be-DEC
 '(The) students are studying hard in the library.'
- b. haksayng-tul-i tosekwan-eyse-**tul** yelsimhi kongpwuha-ko iss-ta
 student-PL-NOM library-LOC-PL hard study-COMP be-DEC
 '(The) students are studying hard in the library.'
- c. haksayng-tul-i tosekwan-eyse yelsimhi kongpwuha-ko-**tul** iss-ta
 student-PL-NOM library-LOC hard study-COMP-PL be-DEC
 '(The) students are studying hard in the library.'
- d. haksayng-tul-i [_{CP} onul nalssi-ka cham coh-ta-ko]-**tul** malha-ess-ta
 student-PL-NOM today weather-NOM really be.nice-DEC-C-PL say-PAST-DEC
 '(The) students said that today's weather is really nice.'

(9) Multiple agreement spreading:

- ai-tul-i sensayngnim-kkey-**tul** yelsimhi-**tul** cilmwun-ul ha-ko-**tul** iss-ta
 child-PL-NOM teacher-DAT-PL intently-PL question-ACC do-COMP-PL be-DEC
 'The children are intently asking the teacher questions.'

Controllers of Plural Spreading

(10) **No plural spreading from singular subjects:**

*Mina-ka tosekwan-eyse yelsimhi-tul kongpwuha-ko iss-ta
 Mina-NOM library-LOC hard-PL study-COMP-PL be-DEC
 'Mina is studying hard in the library.'

Note: Plural spreading cannot simply be copying of a plural exponent.

(11) **Zero pro controllers of plural spreading:**

- a. **pro** ku ai-eykey-tul chayk-ul cwu-ess-ni ?
 you.PL the child-DAT-PL book-ACC give-PAST-INT
 'Did you(pl) each give a book/books to the child?'
- b. **pro** haksaying-tul-eykey-tul mwul-e po-si-eyo
 you.PL student-PL-DAT-PL ask-COMP try-HON-IMP
 'Ask the students!' (to a plural addressee: 'You each ask the students!')

(12) **Zero PRO controllers of plural spreading** (Kim (1994), Yim (2003)):

Mina-ka haksaying-tul-ul₁ [_{CP} PRO₁ cip-ey-tul ka-tolok] seltukha-ess-ta
 Mina-NOM student-PL-ACC house-to-PL go-C persuade-PAST-DEC
 'Mina persuaded the students to go home.'

Controllers Cont'd

(13) **Direct and indirect objects as controllers of plural spreading** (Park & Sohn (1993), Yim (2003), Kim (2008), Lee (2013)):

- a. sensayngnim-i ai-tul-ul Seoul-ey-**tul** ponay-ss-ta
 teacher-NOM child-PL-ACC Seoul-to-PL send-PAST-DEC
 'A/the teacher sent children to Seoul.'
- b. han yehaksayng-i ai-tul-eykey thaykpay-lo-**tul** senmwul-ul ponay
 one female.student-NOM child-PL-DAT delivery.service-with-PL present-ACC send
 cwu-ess-ta
 give-PAST-DEC
 'A female student sent children a present by delivery service.'

Locality

Restrictions:

- The controlling DP must c-command the target.
- The two items must be part of the same local domain (Choe (1988), Lee (2013)).

(14) Violations of locality:

a. ?*han namhaksayng-un [CP ku yehaksayng-tul-i cengcikha-ta-ko]-tul
 one male.student-TOP that female.student-PL-NOM be.honest-DEC-C-PL
 mit-nun-ta
 believe-PRES-DEC

'A male-student believes that those female students are honest.'

b. *kica-tul-i [CP Mary-ka John-eykey-tul ton-ul cwu-ess-ta-ko]
 reporter-PL-NOM Mary-NOM John-DAT-PL money-ACC give-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC

'The reporters believed that Mary had given John the money.'

Morphological Realization

Morphological realization:

- ① The **shape** of the plural exponent licensed by agreement spreading in Korean is exactly the same as that of the plural exponent realizing an intrinsic plural feature on a noun: **tul**.
- ② The **position** of the morphological exponent **tul** is different in the two environments.
 - ① An intrinsic plural exponent **tul** signalling plural interpretation is closer to the noun root than case exponents:
haksayng-tul-ul ('students-PL-ACC'), **ai-tul-i** ('child-PL-nom')
 - ② A **tul** exponent resulting from agreement spreading to a DP shows up outside of case (and other intrinsic) exponents, at the right edge of the word:
sensayngnim-kkey-tul ('teacher-DAT-PL'), **ai-eykey-tul** ('child-DAT-PL').
 - ③ When the two kinds of **tul** co-occur, one will be close to the root, and the other one will show up at the very end of the word:
haksayng-tul-eykey-tul ('student-PL-DAT-PL')

Semantic Interpretation

Semantic Interpretation:

- ① Unlike standard instances of agreement, plural spreading in Korean has a **semantic effect** (which implies that it takes place in the syntax).
- ② It triggers a **distributive reading** with respect to events, activities, or qualities (Kim (1994), Song (1997)).
- ③ The effect is a **subtractive** one because the distributive interpretation is also available, next to a collective interpretation, in the absence of agreement spreading.

(15) Agreement spreading and distributive readings:

- a. salam-tul-i ku ai-eykey kong-ul cwu-ess-ta
 person-PL-NOM the child-DAT ball-ACC give-PAST-DEC
 'People gave the child a ball/balls.'
- b. salam-tul-i ku ai-eykey-**tul** kong-ul cwu-ess-ta
 person-PL-NOM the child-DAT-PL ball-ACC give-PAST-DEC
 'People **each** gave the child a ball/balls.'

Movement Types

Observation:

Various different movement types exist in Korean, with differences related to the trigger, the landing site, A/A-bar status, and many other properties (Ko (2018)).

Movement types:

- ① short scrambling (to a specifier of VP)
- ② intermediate scrambling (to a specifier of vP)
- ③ long-distance scrambling (to a specifier of matrix CP)
- ④ pre-topic long-distance scrambling (to a specifier of matrix TopP)
- ⑤ raising to object (to a specifier of matrix vP)
- ⑥ right dislocation (to a right-peripheral specifier of CP)

Goal:

We address the interaction between agreement spreading and the first four different kinds of movement in Korean ('scrambling').

Notation:

- Z = controller of agreement spreading (goal); X = target of agreement spreading (probe).
- [pl] = intrinsic plural feature on goal (realized as "tul" if morphologically overt); **tul** = realization of the optional probe on categories that are targets of agreement spreading

Short Scrambling: Movement of Target

Assumptions:

- Short scrambling is movement to a specifier of VP (Cho (1994)).
- Base order: indirect objects bearing dative c-command direct objects bearing accusative (Choi (1999), Ko (2018)); directional, instrumental, and other kinds of low adverbial phrases show up even closer to the verb.

(16) Short scrambling of probe: bleeding of spreading by movement:

- $[_{VP} \dots Z_{[P]} [_{V'} \dots X\text{-tul} \dots]]$
- $*[_{VP} \dots X\text{-tul}_1 \dots [_{V'} Z_{[P]} [_{V'} \dots t_1 \dots]]]$

(17) Short scrambling of locative PP across direct object:

- sensayngnim-i ai-tul-ul Seoul-ey-tul ponay-ss-ta
teacher-NOM child-PL-ACC Seoul-to-PL send-PAST-DEC
'A/the teacher sent children to Seoul.'
- *sensayngnim-i Seoul-ey-tul₁ ai-tul-ul t₁ ponay-ss-ta
teacher-NOM Seoul-to-PL child-PL-ACC send-PAST-DEC
'A/the teacher sent children to Seoul.'

(18) Short scrambling of direct object across indirect object:

- Mina-ka ai-tul-eykey ton-ul-tul cwu-ess-ta
Mina-NOM child-PL-DAT money-ACC-PL give-PAST-DEC
'Mina gave money to the children.'
- *Mina-ka ton-ul-tul₁ ai-tul-eykey t₁ cwu-ess-ta
Mina-NOM money-ACC-PL child-PL-DAT give-PAST-DEC
'Mina gave money to the children.'

Short Scrambling: Movement of Controller

(19) Short scrambling of goal: feeding of spreading by movement

- a. $*[_{VP} \dots X\text{-tul} [_{V'} \dots Z_{[pl]} \dots]]$
 b. $[_{VP} \dots Z_{[pl]}1 \dots [_{V'} X\text{-tul} [_{V'} \dots t_1 \dots]]]$

(20) Short scrambling of direct object across indirect object:

- a. *Mina-ka Kim kyoswunim-eykey-tul ku haksayng-tul-ul ponay-ess-ta
 Mina-NOM Kim professor-DAT-PL that student-PL-ACC send-PAST-DEC
 'Mina sent those students to Prof. Kim.'
- b. Mina-ka ku haksayng-tul-ul₁ Kim kyoswunim-eykey-tul t₁ ponay-ess-ta
 Mina-NOM that student-PL-ACC Kim professor-DAT-PL send-PAST-DEC
 'Mina sent those students to Prof. Kim.'

Intermediate Scrambling: Movement of Target

Assumptions:

- ① Intermediate scrambling is movement to a specifier of vP.
- ② Subjects are base-generated in Specv, and there is no obligatory EPP-driven movement to SpecT in Korean (Yoon (2007)).

(21) Intermediate scrambling of probe: bleeding of spreading by movement:

- a. $[_{vP} Z_{[pl]} [_{v'} v [_{VP} \dots X\text{-tul} \dots]]]$
- b. $*[_{vP} X\text{-tul}_1 [_{v'} Z_{[pl]} [_{v'} v [_{VP} \dots t_1 \dots]]]]$

(22) Intermediate scrambling of locative (and manner) adverb across subject:

- a. haksayng-tul-i tosekwan-eyse-tul yelsimhi-tul kongpwuha-ko iss-ess-ta
 student-PL-NOM library-LOC-PL hard-PL study-COMP be-PAST-DEC
 'The students were studying hard in the library.'
- b. ?*tosekwan-eyse-tul₁ haksayng-tul-i t₁ yelsimhi-tul kongpwuha-ko iss-ess-ta
 library-LOC-PL student-PL-NOM hard-PL study-COMP be-PAST-DEC
 'The students were studying hard in the library.'
- c. tosekwan-eyse₁ haksayng-tul-i t₁ yelsimhi-tul kongpwuha-ko iss-ess-ta
 library-LOC student-PL-NOM hard-PL study-COMP be-PAST-DEC
 'The students were studying hard in the library.'

(23) Intermediate scrambling of indirect object across subject:

- a. salam-tul-i ku ai-eykey-tul kong-ul cwu-ess-ta
 person-PL-NOM the child-DAT-PL ball-ACC give-PAST-DEC
 'People each gave the child a ball.'
- b. ?*ku ai-eykey-tul₁ salam-tul-i t₁ kong-ul cwu-ess-ta
 the child-DAT-PL person-PL-NOM ball-ACC give-PAST-DEC

Intermediate Scrambling: Movement of Target Cont'd

(24) Apparent intermediate scrambling of sentential adverb:

- a. ai-tul-i tahayng~~hi~~-**tu**l mwusahi cip-ey tochakha-ess-ta
 child-PL-NOM fortunately-PL safely house-LOC arrive-PAST-DEC
 'Fortunately, the children arrived home safely.'
- b. *tahayng~~hi~~-**tu**l ai-tul-i mwusahi cip-ey tochakha-ess-ta
 fortunately-PL child-PL-NOM safely house-to arrive-PAST-DEC
 'Fortunately, the children arrived home safely.'
- c. tahayng~~hi~~ ai-tul-i mwusahi cip-ey tochakha-ess-ta
 fortunately child-PL-NOM safely house-to arrive-PAST-DEC
 'Fortunately, the children arrived home safely.'
- d. ai-tul-i tahayng~~hi~~ mwusahi cip-ey tochakha-ess-ta
 child-PL-NOM fortunately safely house-to arrive-PAST-DEC
 'Fortunately, the children arrived home safely.'

Question:

What does this mean for the base position of sentential adverbs, which should be above the base position of subjects?

Intermediate Scrambling: Movement of Controller

(25) Intermediate scrambling of goal: counter-feeding of spreading by movement:

- a. * $[_{VP} X\text{-tul} [_{v'} v [_{VP} \dots Z_{[PL]} \dots]]]$
 b. * $[_{VP} Z_{[PL]} t_1 [_{v'} X\text{-tul} [_{v'} v [_{VP} \dots t_1 \dots]]]]$

(26) Intermediate scrambling of direct object across subject:

- a. *Kim kyoswunim-kkeyse-tul haksayng-tul-ul moim-ey chotayha-si-ess-ta
 Kim professor-NOM_{hon}-PL student-PL-ACC meeting-to invite-HON-PAST-DEC
 'Prof. Kim invited students to the meeting.'
- b. *haksayng-tul-ul₁ Kim kyoswunim-kkeyse-tul t₁ moim-ey chotayha-si-ess-ta
 student-PL-ACC Kim professor-NOM_{hon}-PL meeting-to invite-HON-PAST-DEC
 'Prof. Kim invited students to the meeting.'

Long-Distance Scrambling: Movement of Clause-Mate Target

Assumption:

Long-distance scrambling is movement to a specifier of a matrix CP.

- (27) Long-distance scrambling of probe with clause-mate goal: counter-bleeding of spreading by movement

- a. $[_{CP} \dots [_{VP} \dots [_{CP} \dots Z_{[p]}] \dots [\dots X\text{-}t_{1} \dots]] V]]$
 b. $[_{CP} \dots X\text{-}t_{1} \dots [_{VP} \dots [_{CP} \dots Z_{[p]}] \dots [\dots t_{1} \dots]] V]]$

- (28) Long-distance scrambling of indirect object:

- a. Mary-ka $[_{CP}$ kica-tul-i John-eykey-tul ton-ul cwu-ess-ta-ko]
 Mary-Nom reporter-PL-NOM John-DAT-PL money-ACC give-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC
 'Mary believed that the reporters had given John the money.'
- b. John-eykey-tul₁ Mary-ka $[_{CP}$ kica-tul-i t₁ ton-ul cwu-ess-ta-ko]
 John-DAT-PL Mary-NOM reporter-PL-NOM money-ACC give-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC
 'To John₁, Mary believed that the reporters had given the money t₁.'

Long-Distance Scrambling: Movement of Clause-Mate Controller

- (29) Long-distance scrambling of goal with clause-mate probe: counter-bleeding of spreading by movement:

- a. [CP ... [VP ... [CP ... Z_[p]2 ... [... X-tul ...]] V]]
 b. [CP ... Z_[p]2 ... [VP ... [CP ... t₂ ... [... X-tul ...]] V]]

- (30) Long-distance scrambling of direct object:

- a. Mary-ka [CP John-i haksayng-tul-ul Seoul-ey-tul ponay-ss-ta-ko]
 Mary-NOM John-NOM student-PL-ACC Seoul-to-PL send-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC
 'Mary believed that John had sent the students to Seoul.'
- b. haksayng-tul-ul₁ Mary-ka [CP John-i t₁ Seoul-ey-tul ponay-ss-ta-ko]
 student-PL-ACC Mary-NOM John-NOM Seoul-to-PL send-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC
 'The students₁, Mary believed that John had sent t₁ to Seoul.'

Long-Distance Scrambling: Movement of Non-Clause-Mate Target

- (31) Long-distance scrambling of probe with non-clause-mate goal: counter-feeding of spreading by movement

- a. * $[_{CP} \dots Z_{[p]} \dots [_{VP} \dots [_{CP} \dots X\text{-tul}_1 \dots] V]]$
 b. * $[_{CP} \dots X\text{-tul}_1 \dots [\dots Z_{[p]} \dots (t'_1) \dots [_{VP} \dots [_{CP} (t'_1) \dots t_1 \dots] V]]]$

- (32) Long-distance scrambling of indirect object:

- a. *kica-tul-i $[_{CP}$ Mary-ka John-eykey-tul ton-ul cwu-ess-ta-ko]
 reporter-PL-NOM Mary-NOM John-DAT-PL money-ACC give-PAST-DEC-C
 mit-ess-ta
 believe-PAST-DEC
 'The reporters believed that Mary had given John the money.'
- b. *John-eykey-tul₁ kica-tul-i (t'₁) $[_{CP}$ (t'₁) Mary-ka t₁ ton-ul
 John-DAT-PL reporter-PL-NOM Mary-NOM money-ACC
 cwu-ess-ta-ko] mit-ess-ta
 give-PAST-DEC-C believe-PAST-DEC
 'To John₁, the reporters believed that Mary had given t₁ the money.'

Long-Distance Scrambling: Movement of Non-Clause-Mate Controller

(33) Long-distance scrambling of goal with non-clause-mate probe: counter-feeding of spreading by movement

- a. * $[_{CP} \dots X\text{-tul} \dots [_{VP} \dots [_{CP} \dots Z_{[p]} \dots] V]]$
 b. * $[_{CP} \dots Z_{[p]}1 \dots [\dots X\text{-tul}_1 \dots t'_1 \dots [_{VP} \dots [_{CP} \dots t_1 \dots] V]]]]$

(34) Long-distance scrambling of direct object:

- a. *tahayng^{hi}-tul Mina-ka $[_{CP}$ John-i haksayng-tul-ul chotayha-ess-ta-ko]
 fortunately-PL Mina-NOM John-NOM student-PL-ACC invite-PAST-DEC-C
 sayngkakha-ess-ta
 think-PAST-DEC
 'Fortunately, Mina thought that John had invited the students.'
- b. *haksayng-tul-ul₁ tahayng^{hi}-tul Mina-ka $[_{CP}$ John-i t₁ chotayha-ess-ta-ko]
 student-PL-ACC fortunately-PL Mina-NOM John-NOM invite-PAST-DEC-C
 sayngkakha-ess-ta
 think-PAST-DEC
 'The students₁, fortunately Mina thought that John had invited t₁.'

Pre-Topic Long-Distance Scrambling: Movement of Clause-Mate Target or Controller

Observation (Ko (2018)):

Long-distance scrambling to a position preceding a topic-marked DP behaves differently from other kinds of long-distance scrambling in a number of respects; it exclusively shows A-bar properties. Assumption: Pre-topic long-distance scrambling is movement to SpecTop.

(35) **Pre-topic long-distance scrambling of clause-mate goal or probe: counter-bleeding of spreading by movement:**

- a. $[_{TopP} X\text{-tul}_1 [_{Top'} DP_{top} \dots [VP \dots [CP \dots Z_{[p]}] \dots [\dots t_1 \dots]] V]]]$
 b. $[_{TopP} Z_{[p]}2 [_{Top'} DP_{top} \dots [VP \dots [CP \dots t_2 \dots [\dots X\text{-tul} \dots]] V]]]$

(36) **Pre-topic long-distance scrambling of indirect or direct object:**

- a. John-eykey-tul₁ Mina-nun [_{CP} (t'₁) kica-tul-i t₁ ton-ul cwu-ess-ta-ko]
 John-DAT-PL Mina-TOP reporter-PL-NOM money-ACC give-PAST-DEC-C
 sayngkakha-n-ta
 think-PRES-DEC
 'To John₁, Mina thinks that the reporters gave the money t₁.'
- b. haksayng-tul-ul₁ Mina-nun [_{CP} John-i t₁ Seoul-ey-tul ponay-ss-ta-ko]
 student-PL-ACC Mina-TOP John-NOM Seoul-to-PL send-PAST-DEC-C
 sayngkakha-n-ta
 think-PRES-DEC
 'The students₁, Mina thinks that John sent t₁ to Seoul.'

Pre-Topic Long-Distance Scrambling: Movement of Non-Clause-Mate Target or Controller

- (37) Pre-topic long-distance scrambling of non-clause-mate goal or probe: counter-feeding of spreading by movement

- a. *_[TOPP] X-tul₁ [_{TOP'} DP_{TOP} ... [... Z_[P]] ... (t'₁) ... [_{CP} ... t₁ ...] V]]]
- b. *_[TOPP] Z_[P] [_{TOP'} DP_{TOP} ... [... (t'₁) ... X-tul₁ ... [_{CP} ... t₁ ...] V]]]

- (38) Pre-topic long-distance scrambling of locative PP or direct object:

- a. *Seoul-ey-tul₁ Mina-nun ai-tul-eykey [_{CP} John-i Mary-lul t₁ ponay-ss-ta-ko]
 Seoul-to-PL Mina-TOP child-PL-DAT John-NOM Mary-ACC send-PAST-DEC-C
 malha-ess-ta
 tell-PAST-DEC
 'To Seoul₁, Mina told the children that John sent Mary t₁.'
- b. *haksayng-tul-ul₁ Mina-nun ku ai-tul-eykey-tul [_{CP} John-i t₁ Seoul-ey
 student-PL-ACC Mina-TOP that child-PL-DAT-PL John-NOM Seoul-to
 ponay-ss-ta-ko] malha-ess-ta
 send-PAST-DEC-C tell-PAST-DEC
 'The students₁, Mina told the children that John sent t₁ to Seoul.'

A New Approach to the A/A-bar Distinction Based on the Order of Operations

Background:

In many cases, there is an **indeterminacy of application** with different operations that could in principle all apply in a given cyclic domain; these indeterminacies (typically) need to be resolved in some form.

Claim (Müller (2025)):

- Suppose that there are two operations that could in principle be applied in a given domain, (a) Move (external Merge) and (b) Agree.
- If Move takes place before Agree, Move will potentially **feed** and **bleed** the Agree operation. This produces effects of A-movement.
- If Agree takes place before Move, Move will potentially **counter-feed** and **counter-bleed** the Agree operation. This produces effects of A-bar movement.

Two strategies to derive the order of operations:

- ① **intrinsic** determination of order, e.g., by feature-based economy concepts (Chomsky (1995, 2001), Pesetsky & Torrego (2001), Urk & Richards (2015), Amato (2023), Newman (2024))
- ② **extrinsic** determination of order, e.g., by feature lists on lexical items (Kobebe (2006), Müller (2009), Assmann et al. (2015), Georgi (2017), Murphy & Puškar (2018), Fritzsche (2023)), or optimality-theoretic ranking of Earliness constraints (Heck & Müller (2013))

Predecessors

First Merge vs. Non-First Merge (Kobele (2010)):

- A position is an **A position** if it is derived by first Merge (or Discharge) of some item (i.e., A-movement of α **precedes** first Merge of α).
- A position in an **A-bar position** if it is derived by non-first Merge of some item.
- A version of **improper movement** follows without further ado: A movement (which presupposes that the “moved” item is not part of the structure yet) cannot follow A-bar movement.
- Other effects do not follow; and the approach cannot be extended to agreement spreading.

NP-Structure (Riemsdijk & Williams (1981)):

- NP-structure is a level of representation between D-structure and S-structure.
- Movement **before NP-structure** has **A properties**.
- Movement **after NP-structure** has **A-bar properties**.
- Postulating a designated additional level of representation is incompatible with minimalist tenets.
- Evidence for mixed patterns with movement, and for variation among speakers, remains unaccounted for.

(39) [_{DP₁} John] T [_{VP} t₁ wondered [_{CP} [_{DP₃} which picture of himself_{1,2}] C_[+wh] [_{DP₂} Bill] T [_{VP} t₂ saw t₃]]]

Features and Operations

Assumption:

All operations are feature-driven.

Feature-driven operations:

- **Move** (internal Merge) is feature-driven, triggered by designated [**•F•**] features that look for a matching [F] category.
(Adger (2003), Collins (2002), Heck (2004), Sternefeld (2006), Pesetsky & Torrego (2006), Di Sciullo & Isac (2008), Müller (2011), Abels (2012), Heck & Müller (2013), Georgi (2014, 2017), Stabler (2013), Assmann et al. (2015), Collins & Stabler (2016), Zyman (2018), Longenbaugh (2019), Šereikaitė (2021), Newman (2024))
- **Agree** is feature-driven.
 - ① Agree is triggered by designated probe features [***F:□***] that look for a matching goal providing a value for the probe.
 - ② Agree can be either upward or downward (Baker (2008), Himmelreich (2017), Murphy & Puškar (2018), Bány & van der Wal (2022), Schwarzer (2021)).
 - ③ Agree underlies anaphoric binding and bound variable pronoun licensing (Reuland (2001), Fischer (2006), Hicks (2009), Murugesan (2022)); these Agree operations are upward.
 - ④ Probe/goal relations can involve XPs (Clem (2022)).

Earliness (Pesetsky & Torrego (2001)):

All operations (Move (internal Merge), Agree, and external Merge) obey **Earliness** requirements which demand immediate application if the context is given.

The Derivational Clock

Claim:

Canonical clusterings of effects associated with A and A-bar movement are derived by the Derivational Clock.

- (40) **Derivational Clock** (Williams (2011)):
The higher a target position for movement is in the clausal spine, the later it is reached.
- (41) **Derivational Clock** (more specific implementation via Earliness requirements):
Move([\bullet F \bullet]_V) \gg Move([\bullet F \bullet]_v) \gg Move([\bullet F \bullet]_T) \gg Move([\bullet F \bullet]_C)
- (42) **Conflicting Earliness requirements**:
Agree[*X:\square*] \gg Agree[*Y:\square*]

Note:

The approach presupposes **iterated, cyclic optimization** ('harmonic serialism'; McCarthy (2016), Heck & Müller (2013)). ("At any given point of the derivation, what is the best next step?")

- (43) **Resolution via Optimality-Theoretic Ranking** (Prince & Smolensky (2004); Heck & Müller (2013, 2016)):
- a. Agree[*X:\square*] \gg Agree[*Y:\square*] \gg Agree[*Z:\square*] \gg Move([\bullet F \bullet]_V) \gg Move([\bullet F \bullet]_v) \gg Move([\bullet F \bullet]_T) \gg Move([\bullet F \bullet]_C)

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 - Move([\bullet F \bullet]_V) ≫ Move([\bullet F \bullet]_v) ≫ Move([\bullet F \bullet]_T) ≫ Move([\bullet F \bullet]_C) ≫ Agree[*X:□*] ≫ Agree[*Y:□*] ≫ Agree[*Z:□*]

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 - $\text{Move}([\bullet\mathbf{F}\bullet]_V) \gg \text{Agree}_{[*X:\square*]} \gg \text{Move}([\bullet\mathbf{F}\bullet]_v) \gg \text{Move}([\bullet\mathbf{F}\bullet]_T) \gg \text{Agree}_{[*Y:\square*]} \gg \text{Move}([\bullet\mathbf{F}\bullet]_C) \gg \text{Agree}_{[*Z:\square*]}$

Non-Final Movement Steps

Assumption (Chomsky (2001)):

Movement proceeds via phase edges (specifiers of vP and CP).

Status of intermediate positions:

Non-final positions of movement behave exactly like the eventual target positions with respect to A/A-bar properties.

Analysis (McCloskey (2002), Abels (2012), Georgi (2014), Deal (2014)):

- The edge feature assigned to the head of a phase is of exactly the same type as the movement-inducing feature for which it is assigned.
- This information from the numeration is locally available, given the concept of balanced phases (Heck & Müller (2003), Müller (2011)).

Consequence:

Movement to Specv will apply early if this is the final landing site, later if the final landing site is SpecT, and yet later if the final landing site is SpecC.

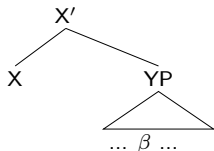
A Movement: Feeding

Early movement of α feeds β -operations in the same domain that require c-command of β by α :

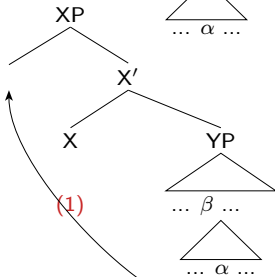
- reflexive binding of β by α
- licensing of a bound variable pronoun β by a quantified DP α (no weak crossover)

(44) A Movement: Feeding

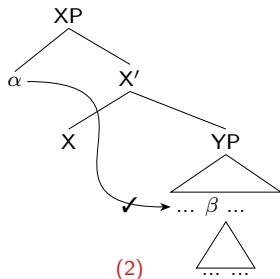
a.



b.



c.



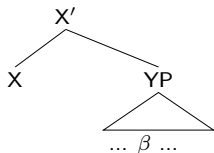
A Movement: Bleeding

Early movement of α bleeds β -operations in the same domain that require c-command of α by β :

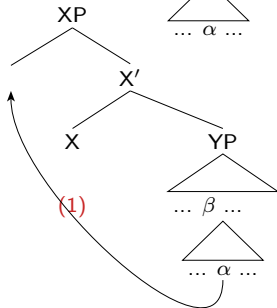
- anti-reconstruction of binding

(45) A Movement: Bleeding

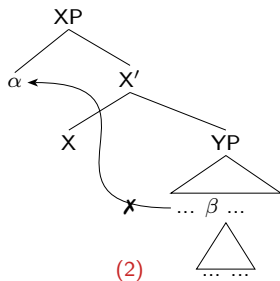
a.



b.



c.



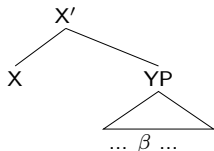
A-bar Movement: Counter-Feeding

Late movement of α counter-feeds β -operations in the same domain that require c-command of β by α :

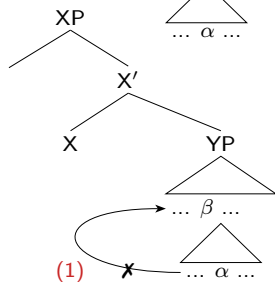
- no reflexive binding of β by α , no weak crossover circumvention

(46) A-bar Movement: Counter-Feeding

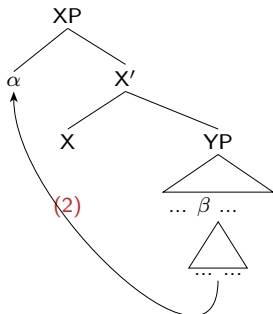
a.



b.



c.



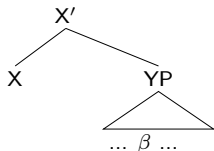
A-bar Movement: Counter-Bleeding

Late movement of α counter-bleeds β -operations in the same domain that require c-command of α by β :

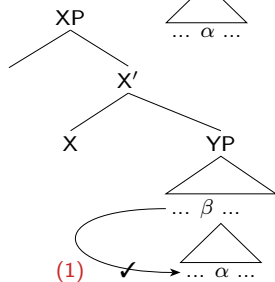
- reconstruction of reflexive binding and disjoint reference

(47) A-bar Movement: Counter-Bleeding

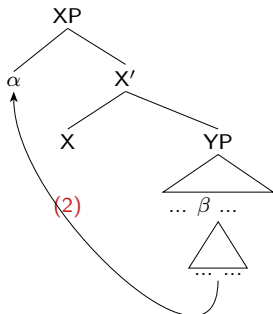
a.



b.



c.



Analysis: Agreement Spreading

Premise:

tul-licensing is an instance of probe-driven Agree.

(48) tul-Licensing:

- a. A [$*\#:\square*$] probe is optionally instantiated on some XP.
- b. Upward Agree: This probe must find a c-commanding DP goal in the same phase.
- c. Nominals in Korean have the structure N- $\#$ -Case; the [$*\#:\square*$] probe is optionally added after this structure has been built, so it must attach at the outside (given the Strict Cycle Condition).

Assumption:

There is an Earliness requirement for $\text{Agree}_{[*\#:\square*]}$.

(49) $\text{Agree}_{[*\#:\square*]}$:

An XP must value its [$*\#:\square*$] probe in the same phase if there is a DP with a matching [$\# : p$] feature.

Analysis: Movement Types

Premise:

- All movement operations are driven by [\bullet F \bullet]-features.
- The Derivational Clock imposes Earliness requirements on Move operations.

- (50) a. $\text{Move}([\bullet\Sigma\bullet]_V)$:
 $V_{[\bullet\Sigma\bullet]}$ must have a $\text{DP}_{[\Sigma]}$ specifier.
- b. $\text{Move}([\bullet\Sigma\bullet]_v)$:
 $v_{[\bullet\Sigma\bullet]}$ must have a $\text{DP}_{[\Sigma]}$ specifier.
- c. $\text{Move}([\bullet\Sigma\bullet]_C)$:
 $C_{[\bullet\Sigma\bullet]}$ must have a $\text{DP}_{[\Sigma]}$ specifier.
- d. $\text{Move}([\bullet\Sigma\bullet]_{\text{Top}})$:
 $\text{Top}_{[\bullet\Sigma\bullet]}$ must have a $\text{DP}_{[\Sigma]}$ specifier.

Short Scrambling

Order of Earliness requirements:

Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#: \square*]}$

(51) Short scrambling of probe: bleeding of spreading by movement:

- a. $[_{VP} \dots Z_{[p]} [_{V'} \dots X\text{-tul} \dots]]$
- b. $*[_{VP} \dots X\text{-tul}_1 \dots [_{V'} Z_{[p]} [_{V'} \dots t_1 \dots]]]$

(52) Short scrambling of goal: feeding of spreading by movement

- a. $*[_{VP} \dots X\text{-tul} [_{V'} \dots Z_{[p]} \dots]]$
- b. $[_{VP} \dots Z_{[p]}_1 \dots [_{V'} X\text{-tul} [_{V'} \dots t_1 \dots]]]$

Intermediate Scrambling

Order of Earliness requirements (preliminary):

Move($[\bullet\Sigma\bullet]_V$) \gg Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square*]}$

(53) **Intermediate scrambling of probe: bleeding of spreading by movement:**

a. $[_{VP} Z_{[P]}] [_{V'} V [_{VP} \dots X\text{-tul} \dots]]]$

b. $*[_{VP} X\text{-tul}_1 [_{V'} Z_{[P]}] [_{V'} V [_{VP} t_1 \dots]]]]$

Note:

This does not yet account for the illformedness of (54-b).

(54) **Intermediate scrambling of goal: counter-feeding of spreading by movement:**

a. $*[_{VP} X\text{-tul} [_{V'} V [_{VP} \dots Z_{[P]}] \dots]]]$

b. $*[_{VP} Z_{[P]}]_1 [_{V'} X\text{-tul} [_{V'} V [_{VP} \dots t_1 \dots]]]]$

Assumption:

Agree $_{[*\#:\square*]}$ is split up into two constraints: High probes (phase-domain probes) obey a stricter Earliness requirement than low probes (non-phase domain probes).

Order of Earliness requirements (final):

Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square*]/h}$ \gg Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square*]}$

Long-Distance Scrambling

Order of Earliness requirements:

Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square^*]/h}$ \gg Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square^*]/1}$ \gg Move($[\bullet\Sigma\bullet]_C$)

(55) Long-distance scrambling of probe with clause-mate goal: counter-bleeding of spreading by movement

- a. $[_{CP} \dots [_{VP} \dots [_{CP} \dots Z_{[p]}] \dots [\dots X\text{-tul}_1 \dots]] V]]$
 b. $[_{CP} \dots X\text{-tul}_1 \dots [_{VP} \dots [_{CP} \dots Z_{[p]}] \dots [\dots t_1 \dots]] V]]$

(56) Long-distance scrambling of goal with clause-mate probe: counter-bleeding of spreading by movement:

- a. $[_{CP} \dots [_{VP} \dots [_{CP} \dots Z_{[p]}]_2 \dots [\dots X\text{-tul} \dots]] V]]$
 b. $[_{CP} \dots Z_{[p]}]_2 \dots [_{VP} \dots [_{CP} \dots t_2 \dots [\dots X\text{-tul} \dots]] V]]$

(57) Long-distance scrambling of probe with non-clause-mate goal: counter-feeding of spreading by movement

- a. $*[_{CP} \dots Z_{[p]}] \dots [_{VP} \dots [_{CP} \dots X\text{-tul}_1 \dots] V]]$
 b. $*[_{CP} \dots X\text{-tul}_1 \dots [\dots Z_{[p]}] \dots (t'_1) \dots [_{VP} \dots [_{CP} (t'_1) \dots t_1 \dots] V]]]$

Note: Counter-feeding in (57-b) does not yet follow from the order of operations. It follows from whatever accounts for the absence of Barss effects (Barss (1986)) with wh-movement and reflexivization in a number of languages (some probes need to be valued within the minimal CP).

(58) Long-distance scrambling of goal with non-clause-mate probe: counter-feeding of spreading by movement

- a. $*[_{CP} \dots X\text{-tul} \dots [_{VP} \dots [_{CP} \dots Z_{[p]}] \dots] V]]$
 b. $*[_{CP} \dots Z_{[p]}]_1 \dots [\dots X\text{-tul}_1 \dots t'_1 \dots [_{VP} \dots [_{CP} \dots t_1 \dots] V]]]$

Pre-Topic Long-Distance Scrambling

Order of Earliness requirements:

$$\text{Move}([\bullet\Sigma\bullet]_V) \gg \text{Agree}_{[*\#:\square^*]/h} \gg \text{Move}([\bullet\Sigma\bullet]_V) \gg \text{Agree}_{[*\#:\square^*]/1} \\ \gg \text{Move}([\bullet\Sigma\bullet]_C) \gg \text{Move}([\bullet\Sigma\bullet]_{\text{Top}})$$

(59) Pre-topic long-distance scrambling of clause-mate goal or probe: counter-bleeding of spreading by movement:

- a. $[_{\text{TopP}} \text{X-tul}_1 [_{\text{Top}'} \text{DP}_{\text{top}} \dots [_{\text{VP}} \dots [_{\text{CP}} \dots \text{Z}_{[\text{pl}]} \dots [\dots \text{t}_1 \dots]] \text{V}]]]]$
 b. $[_{\text{TopP}} \text{Z}_{[\text{pl}]}2 [_{\text{Top}'} \text{DP}_{\text{top}} \dots [_{\text{VP}} \dots [_{\text{CP}} \dots \text{t}_2 \dots [\dots \text{X-tul} \dots]] \text{V}]]]]$

(60) Pre-topic long-distance scrambling of non-clause-mate goal or probe: counter-feeding of spreading by movement

- a. $*[_{\text{TopP}} \text{X-tul}_1 [_{\text{Top}'} \text{DP}_{\text{top}} \dots [\dots \text{Z}_{[\text{pl}]} \dots (\text{t}'_1) \dots [_{\text{CP}} \dots \text{t}_1 \dots] \text{V}]]]]$
 b. $*[_{\text{TopP}} \text{Z}_{[\text{pl}]} [_{\text{Top}'} \text{DP}_{\text{top}} \dots [\dots (\text{t}'_1) \dots \text{X-tul}_1 \dots [_{\text{CP}} \dots \text{t}_1 \dots] \text{V}]]]]$

Scrambling and Weak Crossover

- (61) **Agree_[*BI:n*]** (upward; Reinhart (1983), Mahajan (1990), Heim & Kratzer (1998)):
A bound variable pronoun must check its binding index probe if there is a quantified DP with the same index.

Observation (Cho (1994), Ko (2018)):

Short, intermediate, and regular long-distance scrambling can avoid weak crossover (and satisfy Principle A); for many speakers, pre-topic long-distance scrambling does not do so.

- (62) **Short and long-distance scrambling of goal: Feeding of bound variable pronoun licensing**

- a. John-i [DP₁ nwukwu-lul] [DP₂ ku-uy₁ sensayngnim-eykey] t₁ sokayhayss-ni ?
John-NOM who-ACC he-GEN teacher-DAT introduced-Q
'Who did John introduce to his father?'
- b. [DP₁ nwukwu-lul] [DP₂ ku-uy₁ apeci-ka] [CP John-i t₁ ttaylyessta-ko]
who-ACC he-GEN father-NOM John-NOM hit-C said-Q
malhayss-ni ?
'Who did his father say that John hit?'

- (63) **Pre-topic long-distance scrambling of goal: counter-feeding of bvp licensing**

- ?*[DP₁ nwukwu-lul] [DP₂ ku-uy₁ apeci-nun] [CP John-i t₁ ttaylyessta-ko]
who-ACC he-GEN father-TOP John-NOM hit-C said-Q
malhayss-ni ?
'Who did his father say that John hit?'

- Bound variable pronouns in topics may suggest a contrastive topic interpretation to be acceptable to begin with.
- The pattern does not change if the bound variable pronoun is part of a further dative object in the matrix clause.
- Pre-topic scrambling behaves identically if it is clause-bound.

Long-Distance Scrambling: Agreement Spreading vs. Weak Crossover

Order of Earliness requirements (simplified):

Move($[\bullet\Sigma\bullet]_V$) \gg Agree $_{[*\#:\square*]}$ \gg Move($[\bullet\Sigma\bullet]_C$) \gg Agree $_{[*BI:n*]}$ \gg Move($[\bullet\Sigma\bullet]_{Top}$)

Note:

- **Short scrambling to SpecV** uniformly shows A properties (for bound variable licensing and agreement spreading).
- **Pre-topic long-distance scrambling to SpecTop** uniformly shows A-bar properties (for bound variable licensing and agreement spreading).
- **Long-distance scrambling to SpecC** shows A properties for bound variable licensing and A-bar properties for agreement spreading. (See Weibelhuth's Paradox (Weibelhuth (1992)) for a similar role of scrambling in German.)

Established Approaches to the A/A-bar Distinction: Composite Probes

Assumptions (van Urk (2015)):

- Specifiers of heads with ϕ -features are A positions.
- Specifiers of heads with operator features are A-bar positions.
- Specifiers of heads with both kinds of features are mixed A/A-bar positions.

(64) LF translation rules (Sauerland (1998)):

- If β is in α and α is an A position, β is interpreted at LF via quantification over **individuals** (\rightsquigarrow bound variable pronouns).
- If β is in α and α is an A-bar position, β is interpreted at LF via quantification over **choice functions** (\rightsquigarrow parasitic gaps).

Extensions (Lohninger (2024)):

- $[\bullet A' \bullet / \phi]$ \rightsquigarrow A-bar movement.
- $[A' / \bullet \phi \bullet]$ \rightsquigarrow A movement.
- Properties determined by the **dominant** feature: anaphor binding, bound variable pronoun licensing, parasitic gap licensing, reconstruction.
- Properties determined by **both** features: information-structural consequences, ϕ -agreement, minimality, a restriction to nominals.

Problem:

- The non-uniform nature of long-distance scrambling to SpecC requires a composite $[A' / \bullet \phi \bullet]$ feature.
- $[A' / \bullet \phi \bullet]$ permits bound variable pronoun licensing (although there is **no** ϕ -agreement involved here, and some more general concept is minimally required; Miyagawa (2010)).
- It is unclear what can block agreement spreading on this view (especially given that agreement spreading as such shows that ϕ -features **are** in fact available).

Established Approaches to the A/A-bar Distinction: Shells

Assumption (Safir (2019), Bošković (2024), Hewett (2024)):

- The A/A-bar distinction is reduced to the question of whether c-command is possible.
- A-bar movement effects are due to additional shell structure on top of the moved item that is acquired in the course of movement ('insulation'), and that blocks c-command.

Side remark:

This approach requires counter-cyclic structure-building; it violates both the Strict Cycle Condition (Chomsky (1973, 1995), Pullum (1992), Collins & Stabler (2016)) and the Cyclic Principle (Chomsky (1965), Richards (1999, 2001), Pesetsky & Torrego (2001)).

Problem:

- It is unclear how one and the same movement operation (viz., long-distance scrambling to SpecC) can trigger insulation for one process (agreement spreading) but not for another one (bound variable pronoun licensing).

Conclusion

Main results:

- ① We have established **agreement spreading** as a further process that interacts with movement against the background of the A/A-bar distinction, like reflexivization, binding of variable pronouns (weak crossover avoidance), reconstruction, parasitic gaps, etc.
- ② We have derived the interactions in a new approach to **A/A-bar** movement where these properties follow from **derivational timing** against the background of the **derivational clock**, and concepts like “A” and “A-bar” have no ontological status (“A”: low \rightsquigarrow early, “A-bar”: high \rightsquigarrow late).
- ③ We have shown that **established theories of the A/A-bar distinction** cannot straightforwardly capture the mixed patterns of Move/Agree interactions with long-distance scrambling in Korean (bound variable pronoun licensing vs. agreement spreading).

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