

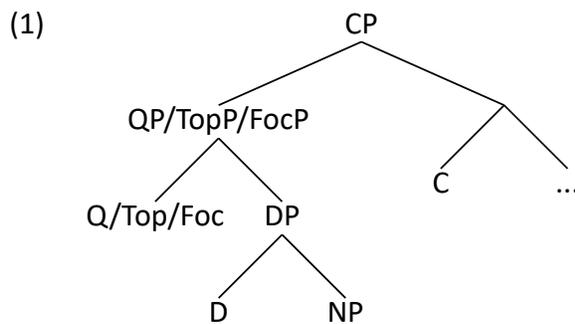
A layering theory of the A/ \bar{A} -distinction*

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1 Overview

- DPs need to do different kinds of things in A vs. \bar{A} contexts.
 - **A-operations:** selected by heads, enter into case/agreement relations.
 - **\bar{A} -operations:** serve as the restrictor for e.g. Q(uestion), Top(ic), Foc(us) heads (henceforth *QTF elements*), following (Cable, 2007).



- What happens when a DP needs to do both of these things?
 - **Common view:** QTF elements are present at the beginning of the derivation.
⇒ They must be transparent for selection, case, agreement, etc.
- **Problem:** if QP/TopP/FocP is an eligible target for A-operations, **why not after \bar{A} -movement?**
 - The Ban on Improper Movement.
 - Same kind of object before and after \bar{A} -movement.
- Alternative view: **QTF elements are intervenors for selection, case and agreement.**
 - They disrupt the sisterhood relation needed for selection of DP (modifying a proposal of Cable, 2007).
 - QTF elements are **phase heads**, making their complement DPs opaque to A-operations.

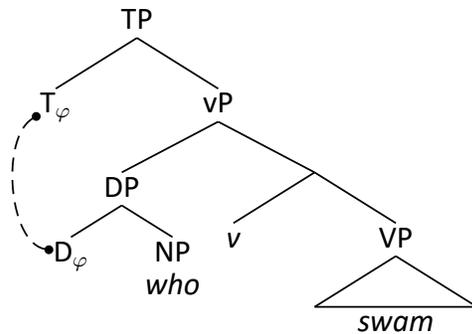
*Many thanks to David Pesetsky, Norvin Richards, Danny Fox, Dmitry Privoznov, and Colin Davis for helpful comments and suggestions.

- Necessitates a different kind of derivation for QTF elements.
 - I propose that they are added countercyclically, in what Thoms (2019) calls a *layering derivation*.¹

1.1 Layering

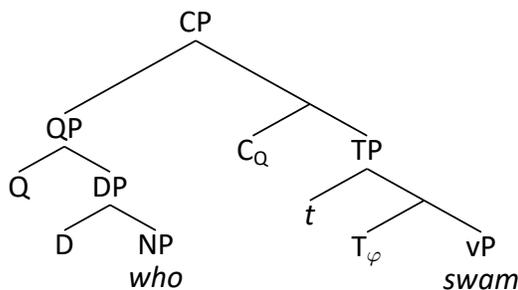
- DP present in first merge position, satisfying selectional requirements.
 - Other A-dependencies, like case/agreement, also apply to DP.

(2) *DP projected, enters into A-dependencies*



- DP **externally remerges with Q** in the specifier of \bar{A} -landing site, in this case spec-CP.
 - An instance of *sideward movement*.

(3) *Movement to spec-CP, layering of of Q*



⇒ **Different kind of object before/after \bar{A} -movement.**

- Can we derive the properties of the A/ \bar{A} -distinction from the properties of QP/FocP/TopP vs. DP?

1.2 Cyclicity

- Layering violates the Extension Condition (Chomsky, 1993).
 - Head movement and tucking-in effects suggest that the Extension Condition is too strong.
- Richards (1999) adapts a proposal from Chomsky (1995), that he calls *Featural Cyclicity*, informally characterized in (4).
 - Rules out a great deal of countercyclicity, but rules in head movement, tucking-in.

¹See also Sportiche (2005), Iatridou and Sichel (2011), Johnson (2012) and Fox and Johnson (2016) for related proposals.

(4) **Featural Cyclicity:** pay attention to the needs of the currently projecting head.

- **Implicit assumption:** there is only one currently projecting head.

- If we relax this assumption, we get:

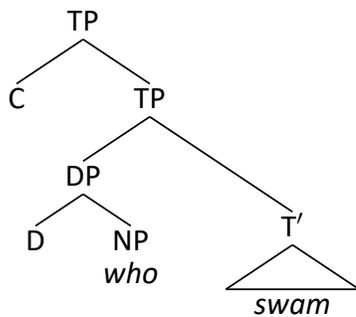
(5) **Featural Cyclicity 2.0:** pay attention to the needs of *any* currently projecting head.

- In the following tree, the original Featural Cyclicity allows either an Agree relation initiated by C, or Merge (internal or external) with C.

- Featural Cyclicity 2.0 merely extends these possibilities to D, including the possibility of externally merging with a QTF element.

- Only a mild increase in the number of possible operations.

(6)



- The plan:

- §2 The puzzle posed by the A/ \bar{A} -distinction.

- §3 Selection and pied-piping, the QP-Intervention Condition.

- §4 The Ban on Improper Movement, surfing and diving paths.

- §5 Reconstruction for Principle C, Featural Cyclicity.

2 A/ \bar{A} -properties

- In this section: **the relevant properties, and why they are a puzzle.**

(7)

A-properties

- ▶ Local
- ▶ Restricted to nominals
- ▶ No reconstruction for Principle C
- ▶ No Weak Crossover
- ▶ New antecedents for anaphors
- ▶ No parasitic gap licensing
- ▶ Case assignment at landing site
- ▶ Agreement at landing site
- ▶ Can feed \bar{A} -movement

\bar{A} -properties

- ▶ Long-distance
- ▶ Not restricted to nominals
- ▶ Reconstruction for Principle C
- ▶ Weak Crossover
- ▶ No new antecedents for anaphors
- ▶ Parasitic gap licensing
- ▶ No case assignment at landing site
- ▶ No agreement at landing site
- ▶ Cannot feed A-movement.

- A-movement is (usually²) more local than \bar{A} -movement:

(8) a. Who₁ did Avon say that Marlo thinks that Sergey should talk to t_1 ?

b. *[This person]₁ was said that Marlo thinks that Sergey should talk to t_1 .

- \bar{A} -movement can target non-nominals, such as AdvPs (9a) and PPs (9b). A-movements, however, do not target non-nominals (9c).³

(9) a. [_{AP} How soon]₁ was it obvious to Beadie t_1 that Jimmy was irresponsible?

b. [_{PP} To whom]₁ was it obvious t_1 that Jimmy was irresponsible?

c. * [_{PP} To Beadie]₁ was obvious t_1 that Jimmy was irresponsible.

- Material inside an \bar{A} -moved constituent obligatorily reconstructs for Principle C.⁴ Material inside an A-moved constituent does not.

(10) a. *[Which aspect of Lester₁] does he_{*1/2} find t_1 most admirable?

b. [This aspect of Lester₁] seemed to him_{1/2} t_1 to be most admirable.

- \bar{A} -movement is subject to Weak Crossover (WCO) effects, while A-movement is not.

²But some languages have hyperraising (Ura, 1994), an A-movement that can escape finite clauses.

³Apparent exceptions, such as clausal subjects, arguably involve nominal structure (Davies & Dubinsky, 2001).

⁴Adjoined material is a notable exception to this generalization (Riemsdijk & Williams, 1981; Freidin, 1986), a possibility often explained by the availability of Late Merge (Lebeaux, 1988) to adjuncts.

- (11) a. * [Her₁ partner] was kind to [every woman]₁.
 b. * Who₁ was [her₁ partner] kind to t₁?
 c. [Every woman]₁ seemed to [her₁ partner] t₁ to be kind.
- \bar{A} -movement is unable to feed binding of anaphors, while A-movement can.
- (12) a. * [Which bosses]₁ did [each other₁'s] employees say t₁ were incompetent.
 b. [These bosses]₁ seem to [each other₁'s] employees t₁ to be incompetent.
- \bar{A} -movement can license a parasitic gap, A-movement cannot.
- (13) a. This is the guy [*Op*₁ Bunk chased after t₁], [despite having some affection for *pg*].
 b. * [This guy]₁ was chased after t₁, [despite Bunk having some affection for *pg*].
- \bar{A} -movement fails to feed case assignment or agreement,⁵ while A-movement systematically does so.
- (14) a. * I can't imagine whom₁ thought [_{CP} t₁ promoting Bill was a good idea].
 b. He₁ was expected [_{TP} t₁ to be promoted in exchange for his silence].
- (15) a. [Which tactics]₁ is/*are it clear that Russell considers t₁ necessary?
 b. [These tactics]₁ *seems/seem to Russell t₁ to be necessary.
- Finally, A/ \bar{A} -movements differ in their ability to feed one another. While A-movement is able to feed \bar{A} -movement, \bar{A} -movement cannot feed A-movement.
 - Known as the Ban on Improper Movement (BOIM).
- (16) a. [Which people]₁ were considered t₁ by Kima t₁ to be likely t₁ to be helpful?
 b. * [These people]₁ were considered t₁ by Kima to be likely t₁ that t₁ will be helpful.
- **Puzzle: why is there an apparent binary split of movement types?**
 - Sits uneasily with the proposal that there is only structure-building operation, Merge (Chomsky, 2004).
 - **Why these properties, and not others?**
 - Not obvious why the ability to feed binding relations should correlate with case/agreement.
 - Task of a theory of the A/ \bar{A} -distinction is to explain these effects, without stipulating two different kinds of movement.

⁵There are notable exceptions to this, for example *wh*-agreement in Chamorro (Chung, 1994; Watanabe, 1996).

3 Selection, Pied-piping and the QP-Intervention Condition

- In this section:
 - Some problems for Cable's (2007) theory of pied-piping, and how layering can help.
- Cable (2007) gives a theory in which pied-piping is really a misnomer.
- \bar{A} -movement is driven by QTF elements, which can **merge in different positions**:
 - If Q merges between P and DP, preposition stranding.
 - If Q takes P as a sister, (the appearance of) pied-piping.

- (17) a. [QP Q [DP which department]] does Rhonda work [PP in t]?
b. [QP Q [PP in which department]] does Rhonda work t?

⇒ **A theory of pied-piping needs a theory of the distribution of QTF elements.**

- Cable's proposal (emphasis mine):

(18) **The QP-Intervention Condition (Cable, 2007)**

A QP cannot intervene between a functional head F and a phrase selected by F.

- Plausible assumption: **selection requires sisterhood**.
- Explains a number of restrictions on the distribution of Q, which is overt in Tlingit:

(19) *Sá cannot appear between a postposition and its complement*

- a. Aadóo teen sá yeegoot?
who with Q you.went
'Who did you go with?'
- b. *Aadóo sá teen yeegoot?
who Q with you.went

(20) *Sá cannot appear between a determiner and its complement*

- a. Daakw keitl sá Aisha?
which dog Q it.barks
'Which dog is barking?'
- b. *Daakw sá keitl asháa?
which Q dog it.barks

(21) *Sá cannot appear between a Possessor and a Possessed NP*

a. Aadóo yaagú sá sateen?
who boat Q you.saw.it

'Whose boat did you see'

b. *Aadóo sá yaagú ysiteen?
who Q boat you.saw.it

(22) *Sá cannot appear between to the right of a matrix predicate*

a. Daa sá iyatéen?
what Q you.can.see.it

'What can you see?'

b. Daa iyatéen sá?
what you.can.see.it Q

- Problem: there are many apparent violations of the QP-Intervention Condition.
 - Many languages allow *Left Branch Extraction*, such as \bar{A} -movement of possessors.⁶
 - P-stranding is rare but attested.
 - VP/vP can undergo topic/focus movement in many languages.

(23) lenakot et ha-xacer, nidme li še-Rina amra še-Gil kvar nika.
to-clean ACC the-yard seems to-me that-Rina said that-Gil already cleaned

'As for cleaning the yard, it seems to me that Rina said that Gil had already cleaned.'

(Hebrew, Landau, 2006)

- **Why does the QP-Intervention Condition only cover functional heads?**
 - If Q intervened between e.g. V and DP, object *wh*-movement would be ruled out.
- Cable: lexical heads never c-select their arguments.
 - They only s-select for semantic type.
- See Merchant (2019) for many examples of (non-semantic) selection by lexical heads:
 - *Desire* selects for a DP complement.
 - Clearly not s-selection, since nominal and adjectival *desire* select (different) PP complements.

⁶Cable argues that this only occurs in NP-languages, where extracted elements are argued to be NP-adjuncts (Bošković, 2005), and therefore don't violate the QP-Intervention Condition. But possessor extraction is also found in languages which clearly project DP, such as Hungarian (Szabolcsi, 1983) and even many speakers' colloquial English (Davis, 2019).

(24) a. I desire (*for) chocolate.

b. My desire for chocolate knows no bounds.

c. I am desirous of chocolate.

(Merchant, 2019)

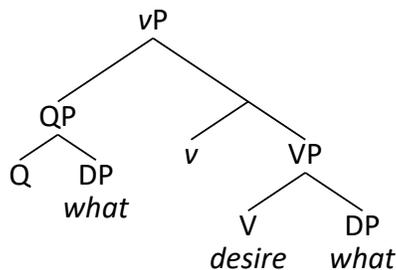
- But: we don't have to throw out the QP-Intervention condition. We can strengthen it.
 - QTF elements **always intervene for selection**.

(25) **QTF-Intervention Condition, 2.0**

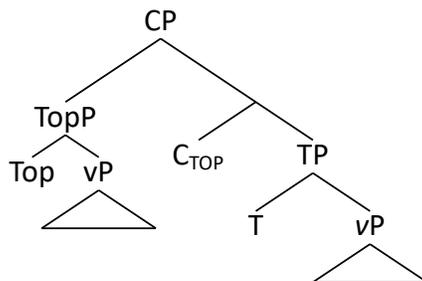
QTF elements cannot intervene between **any** head F and a phrase selected by F.

- Layering allows selection to take place before the addition of QTF elements.

(26) *Verb c-selects DP, QTF-layering in landing site of \bar{A} -movement*



(27) *T selects vP, QTF-layering in landing site of \bar{A} -movement*



- Creation of QP/TopP/FocP is available only when **movement** is available.
 - Availability of possessor extraction, adposition stranding, etc subject to constraints such as anti-locality (Abels, 2003; Bošković, 2005) and order preservation (Ko, 2007; Davis, 2019).
 - Explains why restrictions on distribution of Q in Tlingit resemble crosslinguistic restrictions on movement.

4 Ban on Improper Movement

- In this section: consequences of layering derivations for the Ban on Improper Movement (BOIM, 28).

(28) **Ban on Improper Movement**

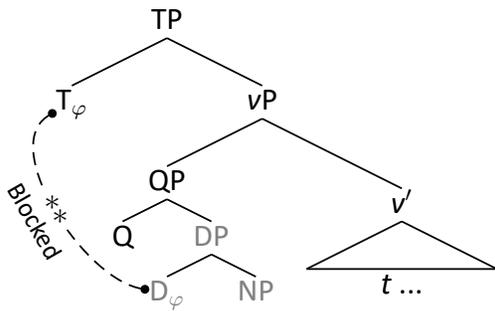
A constituent that undergoes \bar{A} -movement cannot subsequently undergo A-movement.

- We also saw that \bar{A} -movement is unable to feed case and agreement:
 - These should be given a unified treatment, if φ -Probes are what drives A-movement.
- All that we need is the following assumption:

(29) **QTF Phasehood:** QTF elements are phase heads.⁷

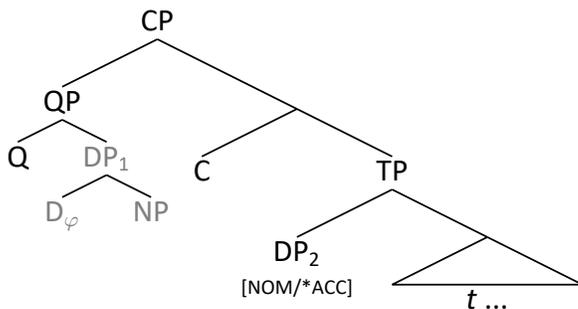
- The BOIM immediately follows:
 - First step of \bar{A} -movement results in layering of a QTF element.
 - DP is spelled out, bleeding agreement with a higher φ -Probe.
 - **A-movement after \bar{A} -movement is ruled out.**

(30) *Q triggers spellout of DP, blocking φ -agreement*



- In an Agree-based theory of case, nothing further needs to be said.
 - Also follows straightforwardly for a dependent case theory (Marantz, 2000; McFadden, 2004, among others).
 - After layering, an \bar{A} -moved DP does not c-command any other DPs.

(31) *DP₁ does not c-command DP₂, no dependent case*

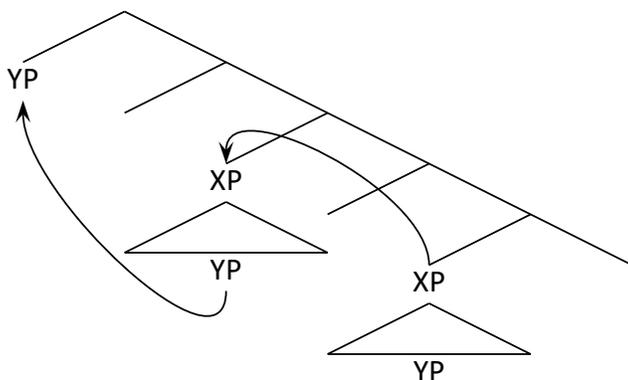


⁷This could follow independently from the proposal that the highest head in an extended projection is a phase (Bobaljik & Wurmbrand, 2005; Wurmbrand, 2013; Bošković, 2014; Harwood, 2014).

4.1 Surfing and Diving paths

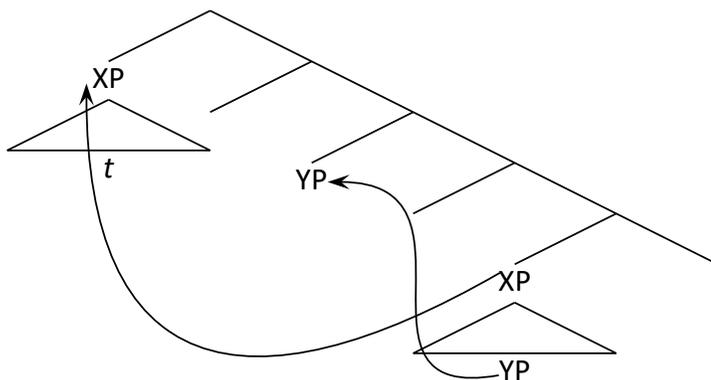
- A number of researchers have argued that Improper Movement extends beyond cases involving a single constituent (Grewendorf, 2003; Williams, 2003; Abels, 2007, 2009; Keine, 2020).
 - Also need to account for ‘improper’ surfing and diving paths.
- **Surfing paths** involve movement out of a moved constituent:

(32) *Surfing path: XP moves first, YP moves out of XP*



- In **diving paths**—often called remnant movement—YP first moves out of XP, followed by movement of the vacated XP.

(33) *Diving path: YP moves out of XP, remnant XP moves*



- Abels (2007, 2009) argues that the BOIM needs to cover surfing and diving paths too.
- \bar{A} -movement out of an A-moved constituent is possible (34b).
 - The opposite ordering—A-movement of an \bar{A} -moved constituent—is completely impossible.

(34) a. ?Which movie do you think that the [first part of *t*] is likely *t* to create a big scandal?
 b. *Oscar is known [how likely *t* to win] it was *t*.

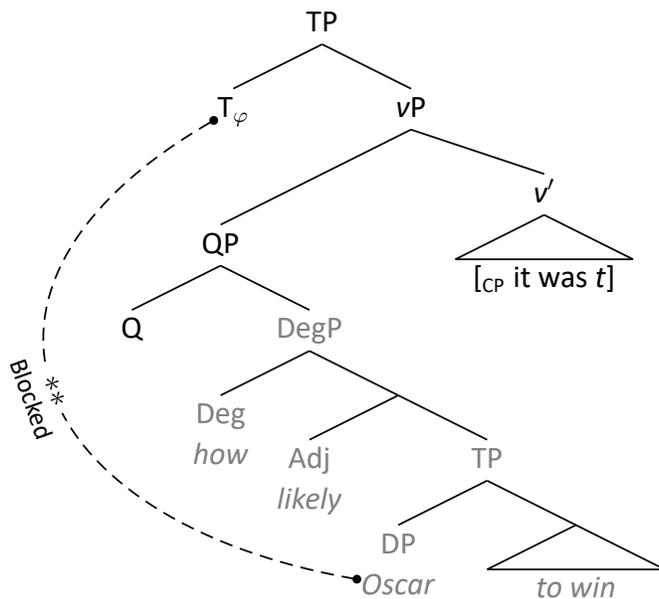
- Same pattern for for diving paths.

- A-movement can be followed by remnant \bar{A} -movement (35a).
- Abels argues that \bar{A} -movement cannot be followed by remnant A-movement (35b).⁸

- (35) a. It is known [how likely *t* to win] Oscar is *t*.
 b. *[A picture of *t*] is known which king to have been sold *t*.

- These patterns are problematic for many theories of the BOIM.
 - QTF layering makes the correct predictions.
- Take a surfing path like (34b).
 - \bar{A} -movement of the DegP results in QTF layering.
 - Because Q is a phase head, an **A-Probe cannot access anything inside it.**⁹

(36) *Q triggers spellout of DegP, blocking A-movement out of it*

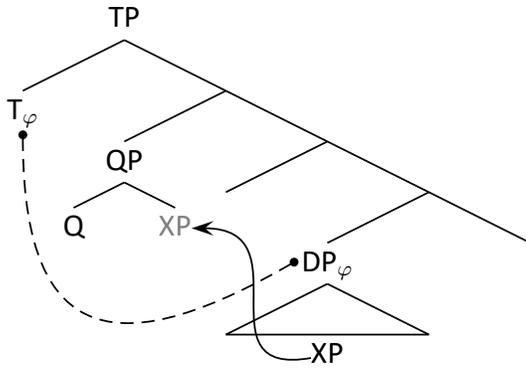


- With diving paths, the predictions are different.
 - \bar{A} -movement out of a DP results in QTF layering outside of a DP.
 - **Remnant movement of DP should then be possible.**

⁸Abels acknowledges that independent constraints have been proposed for some of these cases. But since the paradigm appears to be systematic, he suggests that they should be given a unified account.

⁹ \bar{A} -extraction from an \bar{A} -moved phrase is, however, marginally possible (Rizzi, 2006). This is predicted by Richards' (1998) Principle of Minimal Compliance, which proposes that, once a Probe agrees with a phase, that Probe can ignore the phase boundary for the rest of the derivation. Thus, an \bar{A} -Probe can 'unlock' a QTF phase via Agree, enabling the \bar{A} -Probe to subextract from it. Since A-Probes cannot agree with a QTF phase, this ability to 'unlock' a phase will be restricted to \bar{A} -Probes.

(37) QTF layering takes place outside of DP, DP can be target of A-operations



- This is correct:
 - In (38), \bar{A} -movement out of DP has occurred, licensing a parasitic gap.
 - Low (ν P) conjunction ensures that this happens below the surface position of the subject.
 - This means that **A-movement to spec-TP takes place after \bar{A} -extraction**.
 - Conclusion: A-movement of a remnant created by \bar{A} -movement is possible.

(38) This is a painting that [any owner of *t*] will laugh [after buying *pg*] (and [cry after selling *pg*]).

- Similar argument from those English speakers who allow possessor extraction.¹⁰
 - Possessor extraction licenses a parasitic gap in the embedded ν P.
 - Remnant DP—containing the stranded Saxon genitive—A-moves to spec-TP.

(39) This is the cat that I said [_{DP} *t*'s purring] increased [after I petted *pg*].

- This offers crucial support for the layering theory.
 - Layering rules out 'improper' surfing paths, but allows 'improper' diving paths.
 - Other approaches to the A/ \bar{A} -distinction either rule them both in, or rule them both out.

5 Principle C, Wholesale Late Merger

- Finally, consider Principle C reconstruction.
 - Obligatory in \bar{A} -movement, but not A-movement.

(40) a. * [Which aspect of Lester₁] does he₁ find *t* most admirable?

b. [This aspect of Lester₁] seemed to him₁ to be most admirable.

- **Exception: adjuncts within an \bar{A} -moved constituent do not have to reconstruct.**

¹⁰Thanks to Colin Davis for helping me construct this example.

- Often attributed to the ability of adjuncts to undergo Late Merge (Lebeaux, 1988; Chomsky, 1995).

* Adjunct is introduced after movement, hence never c-commanded by pronoun.

(41) [Which promises that Tommy₁ made] was he₁ never likely [~~which promises~~] to keep?

- Why can A-movement bleed Principle C?

- Takahashi and Hulse (2009) extend the Late Merge approach to NP complements of determiners (*Wholesale Late Merger*, WLM).

(42) [This aspect of Lester₁] seemed to him₁ [~~this~~] to be most admirable.

- Why is this restricted to A-movement?

- **NPs are subject to the Case Filter.**

⇒ WLM only available in case positions.

- What about possessors?

- As DPs, they allow WLM of their complement NPs after A-movement (43a).
- Why can't they do so after \bar{A} -movement (43b)?
- **Cannot be attributed to Case Filter:** possessors get case *internal* to the moving element.

(43) a. [_{DP} Dee₁'s mother]₂ seems to him₁ to *t*₂ be selfish.

b. [Dee₁'s book]₃, he*_{1/2} thinks *t*₃ is insightful.

- Mongolian displays the inverse problem: Principle C obviation occurs *after* case assignment.

- Fong (2019) shows that **hyperraising of accusative subjects bleeds Principle C.**

- Crucially, case assignment occurs prior to movement into the matrix clause.¹¹
- Movement to a non-case position should *not* bleed Principle C, if WLM is regulated by the Case Filter.

(44) a. Bi Bat(-iig)₁ sain khün gej tüün-d*_{1/2} khel-sen.
1SG.NOM Bat(-ACC) good person COMP 3SG-DAT say-PST

'I told her/him that Bat is a good person.'

b. Bat-iin₁ eej-iig bi [t sain khün gej] tüün-d₁
Bat-GEN mother-ACC 1SG.NOM good person COMP 3SG-

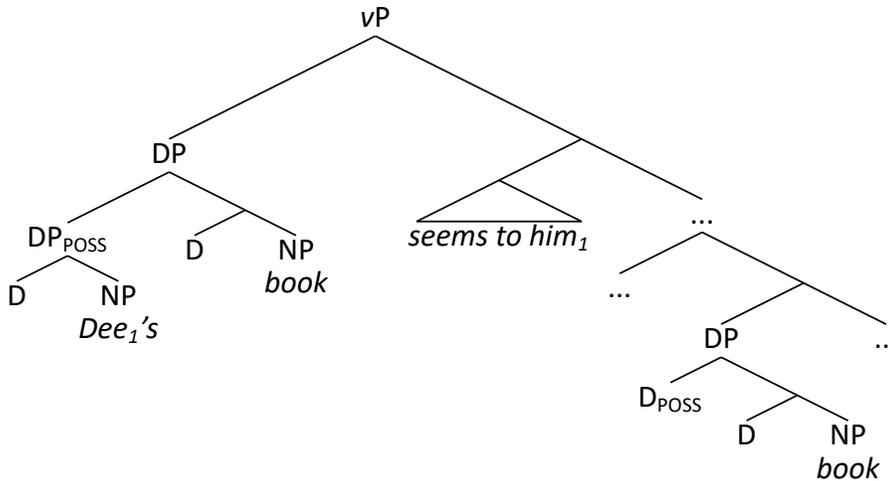
'I told her/him that Bat's mother is a good person.'

- Layering—in conjunction with Featural Cyclicity—makes the right predictions.

¹¹This is already evident from (44a), since an accusative subject is subject to Principle C. Fong (2019) also shows that accusative subjects can follow embedded adverbs.

- (Featural Cyclicity- pay attention to the needs of any currently projecting head.)
- Possessors: in A-movement, Featural Cyclicity is obeyed, since WLM of the possessor NP targets D, a projecting head.

(45) *WLM in spec-DP permitted by Featural Cyclicity*

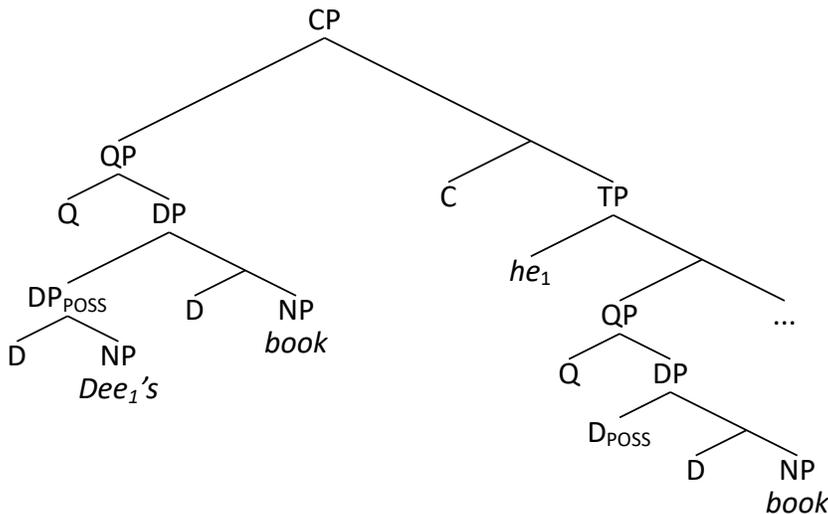


- In \bar{A} -movement, QTF layering has taken place.

- D is no longer projecting.

⇒ **WLM is barred after \bar{A} -movement.**

(46) *WLM in spec-DP ruled out by Featural Cyclicity*



- Meanwhile, in Mongolian:

- Fong (2019) shows that hyperraising is A-movement, hence no QTF layering.

⇒ **WLM does not violate Featural Cyclicity.**

- Conclusion: QTF layering—constrained by Featural Cyclicity—gives the right account of the distribution of Principle C obviation.

6 Conclusion

- DPs have dual functions:
 - Target of selectional, case/agreement relations.
 - Serve as sister to QTF elements in \bar{A} -contexts.
- Layering derivation for QTF elements prevents them from ‘getting in the way’ of selection, case/agreement.
- Some appealing consequences for:
 - The theory of pied-piping.
 - The Ban on Improper Movement, including surfing and diving paths.
 - The inability of \bar{A} -movement to feed case/agreement.
 - The distribution of Principle C reconstruction.
- Offers a plausible way forward for other properties.
 - The binding profile of \bar{A} -movement, for example, could follow from lack of c-command by DP in the landing site.

Appendix: Comparison to Keine (2020)

- In recent work, Keine (2020) offers a locality-based explanation of the Ban on Improper Movement (as well as other cases of selective opacity).
- Probes come with *horizons*, which specify depth of search.
 - E.g. if a Probe has a horizon of C, anything inside CP is inaccessible (a variety of defective intervention).
- In conjunction with a particular theory of labelling, derives the following generalizations:

(47) a. *Height-Locality Connection (HLC)*

Movement types differ in their landing sites. The higher the landing site of a movement type is in the clausal structure, the more kinds of structures are transparent to this movement type.

b. *Upward Entailment*

If a clause of a certain structural size is opaque to an operation, then clauses that are structurally larger are also opaque to this operation.

- A-movement will always be more local than \bar{A} -movement, if A-Probes are lower than \bar{A} -Probes.
- The ban on hyperraising in a language like English:
 - A-Probe on T has a horizon of C, so it cannot access anything in spec-CP.
 - Spec-CP is only accessible to a higher \bar{A} -Probe in C.
- This account crucially relies on the absence of intermediate \bar{A} -movement.

- If \bar{A} -movement passed through spec-*vP*, **it would be within the locality domain of an A-Probe in T.**
- Keine's response: *vP* is not a phase.
- Denying *vP* phasehood doesn't solve the problem, however.
 - **Even if movement to spec-*vP* is not obligatory, it is still optional.**
 - \bar{A} -movement to spec-*vP* can license a parasitic gap, for example.¹²

(48) [This couch]₁, they left *t*₁ in the courtyard [after years of sitting on *pg*]

- Should then be possible to license a parasitic gap in spec-*vP*, then A-move to spec-TP, contrary to fact.

(49) * [Which van]₁ was sent by its₁ owner's enemies *t* to New Orleans [after stealing *pg*]?

- Similar considerations apply to long-distance (cross-clausal) scrambling in Russian.
 - Long-distance scrambling can target a low position in the matrix clause.¹³
 - This brings them within the locality domain of the A-Probe on T.
 - But again, **long-distance scrambling cannot feed A-operations in the matrix clause.**
 - * Cannot promote to subject in the passive, or A-scramble to obviate WCO effect.

(50) *Long-distance scrambling to a low position cannot feed passive or local scrambling*

- Volodj-a Nadj-u₁ skaza-l chto ja uvide-l *t*₁.
Volodya-SG.NOM Nadya-SG.ACC say.PFV-PST.M that I see.PFV-PST.M
'Volodya said that I saw Nadya.'
- * Nadj-a₁ *t*₁ by-l-a skaza-n-a chto ja uvide-l *t*₁.
Nadya-SG.NOM be-PST-F say-PTCP-F that I see.PFV-PST.M
'It was said that I saw Nadya.'
- * [Kazhd-uju devochk-u]₁ eë-₁ mam-a skaza-l-a chto ja uvide-l *t*₁.
every-SG.ACC girl-SG.ACC her mother-SG.NOM say.PFV-PST-F that I see.PFV-PST.M
'Her_{*1/2} mother said that I saw every girl₁.'

- Conclusion: **the BOIM does not reduce to locality.**
 - We need a theory of why \bar{A} -movement cannot feed A-movement, even when within the locality domain of an A-Probe.

¹²See Nissenbaum (2000) for extensive evidence that parasitic gap licensing movements target spec-*vP*.

¹³Judgements are from Dmitry Privoznov, (p.c). See Glushan (2006) for many cases in which long-distance scrambling targets a low position.

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