# Embedding as delayed substitution

LING 252 · Ethan Poole · 6 January 2022

## 1 Introduction

- Standardly, embedding is taken to involve a clause merging directly with the embedding predicate and then subsequently building up the matrix clause:

(1) a. **Embed the clause**
[$_{\text{VP}}$ believe [$_{\text{CP}}$ that Björk ate the natto ] ]

b. **Build up the matrix clause**
[$_{v\text{P}}$ $v^0$ [$_{\text{VP}}$ believe [$_{\text{CP}}$ that Björk ate the natto ] ] ]
[$_{\text{TP}}$ Kate $\text{T}^0$ [$_{v\text{P}}$ $v^0$ [$_{\text{VP}}$ believe [$_{\text{CP}}$ that Björk ate the natto ] ] ] ]
[$_{\text{CP}}$ $\text{C}^0$ [$_{\text{TP}}$ Kate $\text{T}^0$ [$_{v\text{P}}$ $v^0$ [$_{\text{VP}}$ believe [$_{\text{CP}}$ that Björk ate the natto ] ] ] ] ]

⁕ This project explores a different take on embedding:

(i) embedding is SUBSTITUTION (Chomsky 1955, 1957)

(ii) this substitution is DELAYED (Williams 2003, 2013; Poole to appear)

(2) **XP-IN-XP CONDITION**
An XP can only be embedded in a structure that is also built up to an XP.
(≈ Williams's (2003) *Level Embedding Conjecture*)

(3) a. **Build the embedded clause**
[$_{\text{CP}}$ that Björk ate the natto ]

b. **Build the matrix clause**
[$_{\text{CP}}$ $\text{C}^0$ [$_{\text{TP}}$ Kate $\text{T}^0$ [$_{v\text{P}}$ $v^0$ [$_{\text{VP}}$ believe $\mathbb{CP}$ ] ] ] ]
($\mathbb{CP}$ = substitution node for CP)

c. **Embed the clause**
[$_{\text{CP}}$ $\text{C}^0$ [$_{\text{TP}}$ Kate $\text{T}^0$ [$_{v\text{P}}$ $v^0$ [$_{\text{VP}}$ believe $\underbrace{[_{\text{CP}} \text{ that Björk ate the natto }]}_{\text{substituted in for } \mathbb{CP}}$ ] ] ] ]

⇒ I will refer to this system as *Embedding as Delayed Substitution* (EDS).

- ***Parallel: Embedding in LSLT***[1]
  - In *LSLT* (and *SS*), PS-rules generate KERNEL sentences, which are then put together using GENERALIZED TRANSFORMATIONS:[2]

(4) a. **Kernel sentence A**
Kate believed it.

b. **Kernel sentence B**
Björk ate the natto.

c. **Substitute B into A**
Kate believed [ (that) Björk ate the natto ].

[1] Chomsky (1955, 1957)

[2] The two types of transformations:
GENERALIZED = two trees
SINGULARLY = one tree

  - In *Aspects*, Chomsky argues that singulary transformations apply to the embedded structure (4b) and the post-embedding matrix structure (4c), but they do not seem to apply to pre-embedding matrix structure (4a).[3]

[3] Chomsky (1965)

⇒ Thus, generalized transformations are abandoned, and recursion is added to the base, leading (eventually) to the canonical analysis of embedding.

- ***Reprise in MP***[4]

[4] Chomsky (1995)

  - There is (something like?) a reprise of the *LSLT* theory in *MP*:

    (5) "We now adopt (more or less) the assumptions of *LSLT*, with a single generalized transformation GT that takes a phrase marker $K^1$ and inserts it in a designated empty position ∅ in a phrase marker K, forming the new phrase marker $K^*$, which satisfies X-bar theory." [Chomsky 1995:173]

  - This approach is different from *LSLT* in that the matrix structure is not an entire clause, but rather an empty VP, NP, etc.
  - GT ≈ MERGE (Chomsky 2007:6)

- ***Parallel: TAG***[5]
There is an obvious parallel to Substitution in Tree Adjoining Grammar (TAG), which I intend to visit at some point this quarter.

[5] Joshi et al. (1975); Kroch and Joshi (1985)

⇒ What differentiates EDS from these similar theories is the XP-in-XP Condition, i.e. that embedding is delayed relative to the *fseq*-size of the embedded clause.

## 2 The Williams Cycle

⁎ The main motivation for EDS is the *Williams Cycle* (WC), a size-based locality constraint on (crossclausal) syntactic dependencies:[6]

(6) **WILLIAMS CYCLE**
Within the current XP, a syntactic operation may not target an element across YP, where Y is higher than X in the functional sequence.
[formulation from Poole to appear]

[6] Williams (1974, 2003, 2013); van Riemsdijk and Williams (1981)

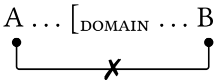
- Unless specified otherwise, we will assume a simple *fseq* for the sake of simplicity:

(7) *fseq* = ⟨C > T > $v$ > V⟩

- ***Locality under the WC***
  - ***Standard locality*** = ***Binary***
  Under standard conceptions of locality (e.g. phases, subjacency, islands), a given syntactic domain either allows *all* operations into it (TRANSPARENT) or *no* operations into it (OPAQUE):

(8) **Transparent**
[ ... A ... [$_{\text{DOMAIN}}$ ... B ... ] ]

(9) **Opaque**
[ ... A ... [$_{\text{DOMAIN}}$ ... B ... ] ]



⁎ ***Williams Cycle ⇝ Selective opacity***

Under the WC, a domain is SELECTIVELY OPAQUE to operations:[7]

(10) **Selectively opaque**

[ . . . A . . . B . . . [$_{\text{DOMAIN}}$ . . . C . . . ] ]

(A–C: ✓; B–C: ✗)

## 2.1 Movement

❶ ***Hyperraising***

– $\overline{\text{A}}$-movement may leave finite clauses, but A-movement may not:

(11) a. **Who** does it seem [$_{\text{CP}}$ ___ ate the natto ]? ($\overline{A}$-*mvt*)

b. *__Björk__ seems [$_{\text{CP}}$ ___ ate the natto ]. (*A-mvt*)

– But both $\overline{\text{A}}$-movement and A-movement are possible out of nonfinite clauses:

(12) a. **What** did Kate expect [$_{\text{TP}}$ Björk to eat ___ ]? ($\overline{A}$-*mvt*)

b. **Björk** is expected [$_{\text{TP}}$ ___ to eat the natto ]. (*A-mvt*)

– According to the WC, the relative heights of the launching and landing sites determine whether movement is possible:

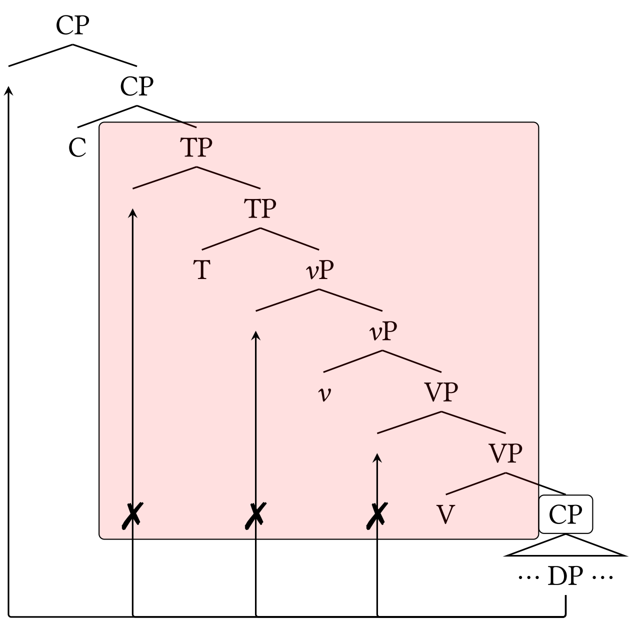
(11a): CP does not block movement to [Spec, CP] because C ≯ C ⇝ $\overline{\text{A}}$-movement possible

(11b): CP blocks movement to [Spec, TP] because C > T ⇝ A-movement not possible

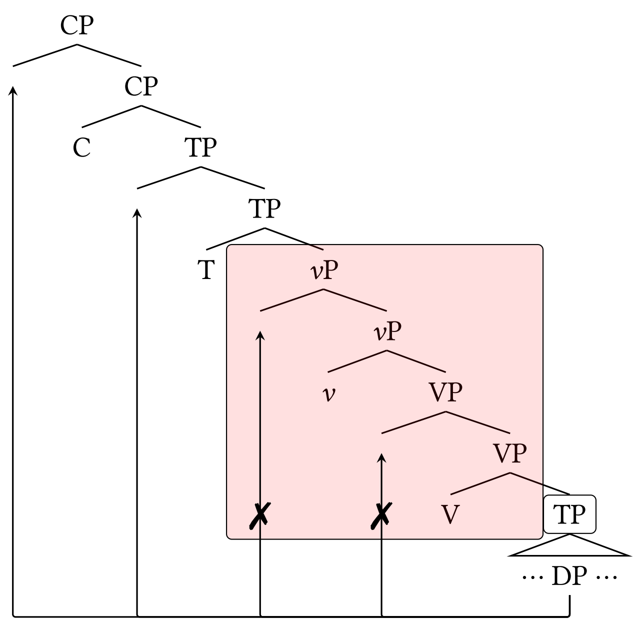
(12a): TP does not block movement to [Spec, CP] because T ≯ C ⇝ $\overline{\text{A}}$-movement possible

(12b): TP does not block movement to [Spec, TP] because T ≯ T ⇝ A-movement possible

(13) **Movement from CP cannot land lower than CP**




(14) **Movement from TP cannot land lower than TP**




[7] Terminology from Keine (2016, 2019, 2020).

### ❷ *German embedded V2*[8]

[8] Haider (1984)

– Embedded V2 clauses are transparent for *wh*-movement that lands in a higher V2 clause, but disallow *wh*-movement out of them that lands inside a higher V-final clause:

(15) a. ***Wh*-movement into V2 clause**
[$_{V2}$ **Wen**$_1$ meinst du [$_{V2}$ hat sie ___$_1$ getroffen ] ]?
who think you has she met
'Who do you think that she met?'

b. ***Wh*-movement into V-final clause**
*(Ich weiß nicht) [$_{V\text{-final}}$ **wen**$_1$ du meinst [$_{V2}$ hat sie ___$_1$
I know not who you think has she
getroffen ] ]?
met
*Intended:* '(I don't know) who you think that she met'

– Analysis in terms of the WC:

(16) a. V2 clause = ForceP
b. V-final clause = CP
c. Force > C

⇒ Force > C in *fseq* → ForceP blocks movement to [Spec, CP]

### ❸ *Clitic climbing in Spanish*[9]

[9] Aissen and Perlmutter (1976); data from Keine (2016)

– Finite clauses are transparent to *wh*-movement and topicalization:

(17) a. ***Wh*-movement**
**A quién**$_1$ piensa Juan [ que María ha visto ___$_1$ ]?
A who thinks Juan that María has seen
'Who does Juan think that María saw?'

b. **Topicalization**
**A Pedro**$_1$ piensa Juan [ que María ha visto ___$_1$ ]
A Pedro thinks Juan that María has seen
'Pedro, Juan thinks that María saw.'

– Clitics that cross-reference an object may appear on a higher verb, provided that the embedded clause is nonfinite and the higher verb is a restructuring verb; this is called CLITIC CLIMBING:

(18) a. Juan quiere [ ver **le** a Pedro ]
Juan wants see.INF CL.DAT.3SG A Pedro

b. Juan **le** quiere [ ver a Pedro ]
Juan CL.DAT.3SG wants see.INF A Pedro
'Juan wants to see Pedro'

– But clitic climbing is not possible out of finite clauses, even though these clauses allow *wh*-movement and topicalization out of them:

(19) a. Juan piensa [ que María **le** ha visto a Pedro ]
Juan thinks that María CL.DAT.3SG has seen A Pedro
'Juan think that María saw Pedro'

b. *Juan **le** piensa [ que María ha visto a Pedro ]
Juan CL.DAT.3SG thinks that María has seen A Pedro

– Analysis in terms of the WC:

(20) a. Finite clause = CP
b. *Wh*-movement and topicalization target [Spec, CP]
c. Clitic movement targets T

⇒ C > T in *fseq* → CP blocks clitic movement to T

- ***For more examples***
Williams (1974, 2003, 2013); Müller and Sternefeld (1993, 1996); Abels (2007, 2009, 2012a,b); Neeleman and van de Koot (2010); Müller (2014a,b); Keine (2016, 2020)

## 2.2 Agreement

- ***Hindi-Urdu agreement***

(21) Agree with the highest DP not bearing a case marker. If no such DP exists, use default agreement (masculine singular).

- ***Agreement into a nonfinite clause***
In Hindi-Urdu, it is possible for a matrix verb to agree with an embedded object across a nonfinite-clause boundary, provided that there is no closer eligible DP:[10]

(22) laṛkõ-ne [ **roṭii** khaa-nii ] caah-ii
boys-ERG bread.F eat-INF.F.SG want-PFV.F.SG
'The boys wanted to eat bread' [Keine 2019:17]

⇒ This phenomenon is known as LONG-DISTANCE AGREEMENT (LDA).[11]

- ***No agreement into a finite clause***
Crucially, LDA in Hindi-Urdu can never target a DP inside a finite clause, even when the DP occupies the edge position (i.e. [Spec, CP]):

(23) firoz-ne soc-aa/*-ii [ (**ghazal**) monaa-ne (**ghazal**)
Firoz-ERG think-PFV.M.SG/*-PFV.F.SG ghazal.F Monaa-ERG ghazal
gaa-yii th-ii ]
sing-PFV.F.SG be.PAST-F.SG
'Firoz thought that Mona had sung ghazal' [Keine 2019:25]

⁎ ***Analysis in terms of the WC***

(24) a. Finite clause = CP
b. Nonfinite clause = TP
c. φ-probe is on T

⇒ Because C > T in *fseq*, a probe on T can never look into CP, even its edge.

[10] Mahajan (1989); Bhatt (2005); Keine (2016, 2019, 2020)

[11] Confusingly, 'LDA' is also used to refer to long-distance anaphora.

## 2.3 Case

- ***Background: Dependent Case Theory***[12]
  - Whenever two DPs presently unvalued for case stand in a c–command relationship in the same local domain, assign one of the DPs DEPENDENT CASE (the exponence of which is determined at PF):

(25) [ DP$_{[\text{CASE: }\square]}$ ... [ ... DP$_{[\text{CASE: }\square]}$ ... ] ] →
[ DP$_{[\text{CASE: }\square]}$ ... [ ... **DP**$_{[\text{CASE: DEP}]}$ ... ] ]
—*or*—
[ **DP**$_{[\text{CASE: DEP}]}$ ... [ ... DP$_{[\text{CASE: }\square]}$ ... ] ]

  - Unvalued case features are realized as UNMARKED CASE at PF:

(26) [CASE: □] ↔ UNMARKED CASE

- ***Background: Finnish accusative is dependent case***[13]
  - In a simple transitive clause, the subject (= external argument) is nominative and the object (= internal argument) is accusative:

(27) **Pekka** osti **kirja-n** NOM–ACC
Pekka.NOM bought book-ACC
'Pekka bought the/a book'

  - Whenever the subject is absent, e.g. in a passive (28a) or in an imperative (28b), or the subject bears lexical case (28c), the object is nominative:

(28) a. **Kirja** oste-ttiin NOM
book.NOM buy-PASS.PAST
'The book was bought' / 'People bought the book'

b. Osta **kirja**! NOM
buy.IMP book.NOM
'Buy the/a book!'

c. **Minu-n** täytyy osta-a **kirja** GEN–NOM
I-GEN need buy-INF/TA book.NOM
'I have to buy the/a book'

  - Finnish also has structurally-case-marked adjuncts (durational, spatial, multiplicative) that behave in the same manner as ordinary subjects and objects:[14]

(29) a. **Minä** opiskelin [**vuode-n** ]$_{\text{ADJUNCT}}$ NOM–ACC
I.NOM studied year-ACC
'I studied for a year'

b. Opiskel-tiin [**vuosi** ]$_{\text{ADJUNCT}}$ NOM
study-PASS.PAST year.NOM
'People studied for a year' [Kiparsky 2001:323]

(30) a. **Subject → NOM, Durational → ACC, Multiplicative → ACC**
**Minä** luotin [Kekkose-en ]$_{\text{LEX}}$ [**yhde-n vuode-n** ] [**kolmanne-n kerra-n** ]
I.NOM trusted Kekkonen-ILL one-ACC year-ACC third-ACC time-ACC
'I trusted Kekkonen for a year for a third time'

[12] Marantz (1991); Bittner and Hale (1996); McFadden (2004); Preminger (2011, 2014); Baker (2015)

[13] Poole (2015); see also Maling (1993); Anttila and Kim (2011, 2017)

[14] Tuomikoski (1978); Heinämäki (1984); Maling (1993); Kiparsky (2001)

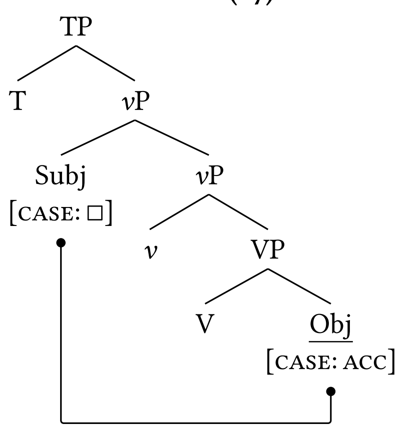
b. **Durational → NOM, Multiplicative → ACC**
[Kekkose-en ]$_{\text{LEX}}$ luote-ttiin [**yksi** **vuosi** ] [**kolmanne-n**
Kekkonen-ILL trust-PASS.PAST one.NOM year.NOM third-ACC
**kerra-n** ]
time-ACC
'Kekkonen was trusted for a year for a third time'

c. **Multiplicative → NOM**
[Kekkose-en ]$_{\text{LEX}}$ luote-ttiin [**kolmas** **kerta** ]
Kekkonen-ILL trust-PASS.PAST third.NOM time.NOM
'Kekkonen was trusted for a third time' [Maling 1993:59]

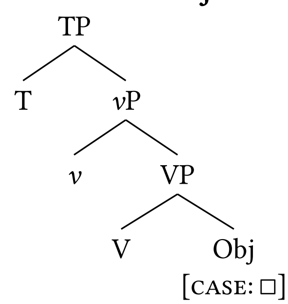
– These case patterns follow straightforwardly from a DCT analysis:

(31) **Finnish accusative-case rule**
If (i) $DP_1$ c–commands $DP_2$ in the same CP and (i) both $DP_1$ and $DP_2$ are unvalued for case, then assign $DP_2$ accusative.

(32) **Transitive clause (27)**




(33) **Nominative-object clause (28)**




- ***Terminological note***
I will refer to the higher DP ($DP_1$) in (31) as the LICENSOR of dependent case.

. . . . . . . . . . . . . . .

- Finnish has a number of nonfinite constructions.[15]

⇒ The nonfinite construction of interest here is the MA-infinitive (traditionally, the "third" infinitive).

[15] Vainikka (1989, 1995); Toivonen (1995); Koskinen (1998); also Hakulinen et al. (2004:§490)

- ***Properties of MA-infinitives***

❶ Clausal complements of certain verbs (taken from Vainikka 1989:330):
  - e.g. *mennä* 'go', *lähteä* 'leave', *oppia* 'learn', *kieltäytyä* 'refuse'
  - e.g. *pakottaa* 'force', *pyytää* 'ask', *kieltää* 'deny'

❷ The verb bears the infinitival morpheme *-mA* and an inner locative case marker:

(34) Minä autoin Jukka-a {[$_{\text{TP}}$ **kirjoitta-ma-an** Marja-lle ] /
I.NOM helped Jukka-PTV write-INF/MA-ILL Marja-ALL
**bussi-in** }
bus-ILL
'I helped Jukka { to write to Marja / onto the bus }'
[based on Koskinen 1998:329]

❸ Can only be modified by verbal modifiers:

(35) Minä autoin Jukka-a [TP *asettu-ma-an* {**mukavasti** /***mukava** }
I.NOM helped Jukka-PTV settle-INF/MA-ILL comfortably comfortable
päivätorkui-lle aurinko-on ]
afternoon.naps-ALL sun-ILL
'I helped Jukka to sleep comfortably in the sun' [based on Koskinen 1998:325]

❹ Transparent for movement (Toivonen 1995; Huhmarniemi 2012):

(36) **Mitä** Pekka näki Merja-n [TP *osta-ma-ssa* ___ ]?
what.PTV Pekka.NOM saw Merja-ACC buy-INF/MA-INE
'What did Pekka see Merja buying?' [Huhmarniemi 2012:197]

❺ TPs, possibly *v*Ps (Koskinen 1998).

- ***Matrix subject → Embedded object is accusative***
When the matrix clause has an ordinary nominative subject, the embedded object is marked with accusative:[16]

(37) **Hän** kävi [TP avaa-ma-ssa **ove-n** ] NOM–ACC
s/he.NOM went open-INF/MA-INE door-ACC
'S/he went to open the door'

[16] I only show imperatives here, but all of the data can be replicated for passives and constructions with lexically case-marked subjects.

- ***No matrix subject → Embedded object is nominative***
When the matrix subject is absent or bears a lexical case, the embedded object becomes nominative:

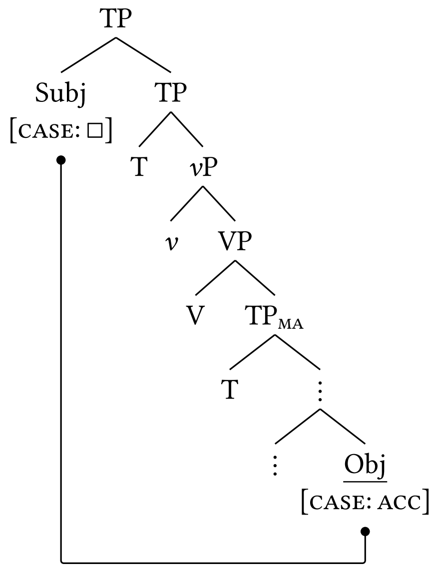
(38) Käy [TP avaa-ma-ssa **ovi** ]! NOM
go.IMP open-INF/MA-INE door.NOM
'Go open the door!'

⁕ ***Analysis***
This is the same pattern from monoclausal sentences discussed above. Accordingly, (37) and (38) can be straightforwardly accounted for under DCT:

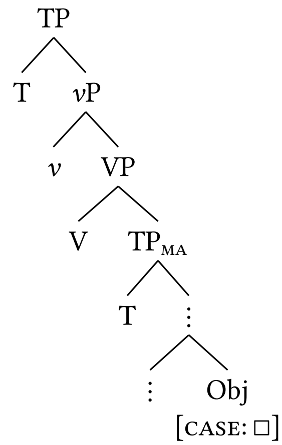
- CP is the relevant domain for dependent-case assignment.
- MA-infinitives are projections smaller than CP, namely TP.

⇒ Therefore, the matrix and embedded clauses constitute a single coextensive domain for dependent-case assignment.

(39) **With a matrix subject (37)**




(40) **Without a matrix subject (38)**




- ***On (the lack of) PRO in MA-infinitives***
  - In order for the makeup of the matrix clause to affect case in MA-infinitives, there must be no local dependent-case licensor in the nonfinite clause itself.

  ⇒ PRO would be such a licensor.

  - ***Option 1***
    There is *no* PRO subject in MA-infinitives.
  - ***Option 2***
    There is a PRO subject in MA-infinitives, but it is inert for the purposes of dependent-case assignment.

  ⇒ For the sake of simplicity, I will assume the first option: there is no PRO in MA-infinitives.

. . . . . . . . . . . . . . .

⇒ The crucial pattern emerges when the embedding predicate has its own object.

- ***Matrix subject → Both objects are accusative***
  As expected, when the matrix subject is present, both the matrix object and the embedded object are accusative:

(41) a. **Hän** pakotti **lapse-n** [$_{TP}$ avaa-ma-an **ove-n** ]
s/he.NOM forced child-ACC open-INF/MA-ILL door-ACC
'S/he forced the child to open the door' [Nelson 1998:238]

b. **Maija** pyysi **Juka-n** [$_{TP}$ luke-ma-an **kirja-n** ]
Maija.NOM asked Jukka-ACC read-INF/MA-ILL book-ACC
'Maija asked Jukka to read the book' [Vainikka 1989:267]

- Under DCT, the pattern in (41) could be modelled in one of two ways:

(42) **Covariance derivation**
[ Subj V Obj [$_{\text{TP}}$ V-MA Obj ] ]

(43) **Daisy-chain derivation**
[ Subj V Obj [$_{\text{TP}}$ V-MA Obj ] ]

∗ ***No matrix subject → Both objects are nominative***
In the absence of a matrix subject, *both the matrix and embedded objects surface with nominative*:

(44) a. Pakota {**lapsi** /***lapse-n**} [$_{\text{TP}}$ avaa-ma-an {**ovi** /***ove-n**} ]!
force.IMP child.NOM child-ACC open-INF/MA-ILL door.NOM door-ACC
'Force the child to open the door!' [Nelson 1998:238]

b. Pyydä {**Jukka** /***Juka-n**} [$_{\text{TP}}$ luke-ma-an {**kirja** /***kirja-n**} ]!
ask.IMP Jukka.NOM Jukka-ACC read-INF/MA-ILL book.NOM book-ACC
'Ask Jukka to read the book!' [Vainikka 1989:268]

- (44) rules out the daisy-chain derivation. Rather, the case of the matrix and embedded objects covaries with the presence of the matrix subject, as in (42).

- ***Matrix object c–commands the embedded object***
  - Finnish third-person possessive suffixes are subject to Condition A and thus must be bound by a c–commanding antecedent:

(45) **Poika**$_1$ myi marsu-**nsa**$_{1/*2}$
boy.NOM sold guinea.pig.ACC-3.POSS
'The boy$_1$ sold his$_{1/*2}$ guinea pig' [Nelson 1998:187]

  - Crucially, a third-person possessive suffix on the embedded object can be bound by the matrix object (and the matrix subject):

(46) **Maija**$_1$ pyysi **Peka-n**$_2$ [$_{\text{TP}}$ tuo-ma-an levy-**nsä**$_{1,2,*3}$ ]
Maija.NOM asked Pekka-ACC bring-INF/MA-ILL record.ACC-3.POSS
'Maija$_1$ asked Pekka$_2$ to bring her/his$_{1,2,*3}$ record' [Vainikka 1989:270]

⇒ Therefore, the matrix object does c–command the embedded object.

  - All else equal, the matrix object *should* then license dependent case on the embedded object. The fact that it does not thus needs to be explained.

- ***Adjuncts do not affect the case of the objects***
  - Structurally case-marked adjuncts in the matrix clause are also unable to license dependent case into MA-infinitives:

(47) Pyydä **Jukka** [kolmanne-n kerra-n] [$_{\text{TP}}$ luke-ma-an
ask.IMP Jukka.NOM third-ACC time-ACC read-INF/MA-ILL
**kirja** ]
book.NOM
'Ask Jukka for the third time to read the book!' [Maling 1993:69]

  - (47) also shows that the matrix object has the *ability* to license dependent case, because it does so on the adjunct.

⇒ Thus, the matrix object's *inability* to license dependent case on the embedded object is all the more striking.

– When the adjunct has embedded scope, the embedded object licenses dependent case on the adjunct in an ordinary local configuration:

(48) Pyydä **Jukka** [$_{TP}$ luke-ma-an **kirja** [**kolmanne-n** **kerra-n** ]]
ask.IMP Jukka.NOM read-INF/MA-ILL book.NOM third-ACC time-ACC
'Ask Jukka to read the book for the third time!' [Maling 1993:66]

∗ ***Case assignment in Finnish MA-infinitives***

(49) In Finnish, a matrix subject can license dependent case across an embedded TP boundary, but a matrix object and a matrix adjunct cannot.

(50) [ Subj V Obj [$_{TP}$ V-MA Obj ] ]

∗ ***Analysis in terms of the WC***

(51) a. MA-infinitives are TPs

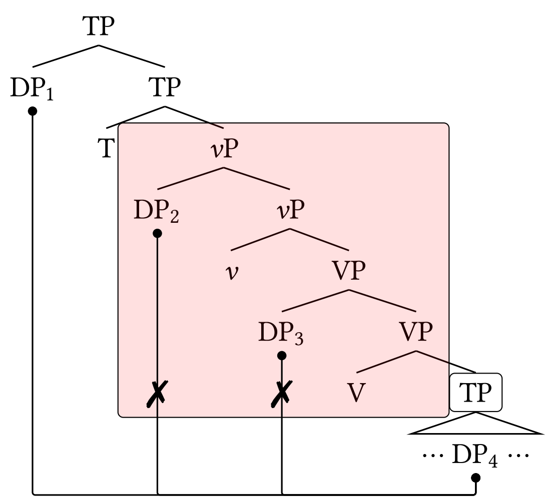
b. Subjects occupy [Spec, TP]

c. Objects and structurally-case-marked adjuncts occupy positions within *v*P

⇒ A DP in [Spec, TP] **can** license dependent case across TP because T ≯ T.

⇒ A DP in [Spec, *v*P] or lower **cannot** license dependent case across TP because T > *v*.

(52)




- ***Upshot***
There is nothing special about case in MA-infinitives. The same general case mechanism applies everywhere in the language as syntactic structure is built up—but this mechanism is constrained by the WC.

### 2.4 Interim summary

(53) **Williams Cycle**
Within the current XP, a syntactic operation may not target an element across YP, where Y is higher than X in the functional sequence.
[formulation from Poole to appear]

- ***Nonbinary locality***
The locality imposed by the WC is *nonbinary*, unlike the more standard conceptions of locality, e.g. phases and subjacency.

- ***Size matters***
Under the WC, size matters: A smaller clause is permeable to more operations than a larger clause, because the maximal projection of a smaller clause will be lower in *fseq* than the maximal projection of a larger clause.

- ***Domain-general***
WC effects have been observed in a variety of empirical domains:
  - movement (e.g. Williams 1974, 2003, 2013; Müller and Sternefeld 1993, 1996; Abels 2007, 2009, 2012a,b; Neeleman and van de Koot 2010; Müller 2014a,b)
  - agreement (Keine 2016, 2019, 2020)
  - case (Poole to appear)

## 3 Analysis

### 3.1 Proposal

⇒ ***TL;DR***
EDS + Strict Cycle condition ⇒ WC

- ***Review: The strict cycle***
  - Syntactic operations are subject to the strict cycle:[17]

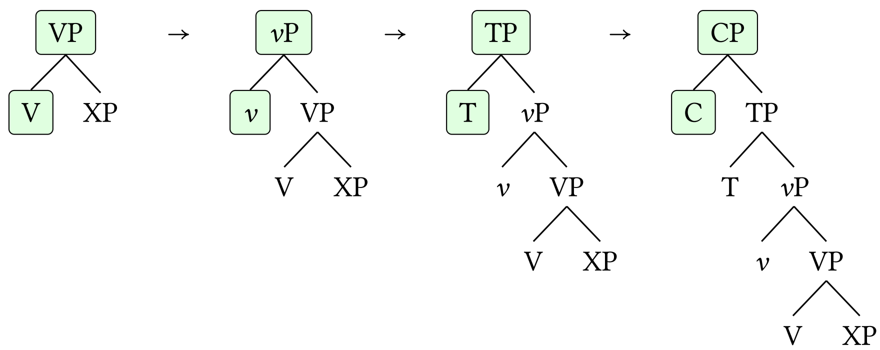
    (54) **Strict Cycle Condition**
    Within the current XP α, a syntactic operation may not exclusively target an item in the domain of another XP β if β is in the domain of α.
    [formulation from Müller 2017]

    (55) **Domain**
    The domain of a head X is the set of nodes dominated by XP that are distinct from and do not contain X.

  - The SCC rules out countercyclic operations: downwards movement, sidewards movement, retroactive movement, etc.

⇝ In essence, the strict cycle only allows syntactic operations that target the root of the structure (and potentially something else lower), which crucially changes as the structure is built up (boxed/green = accessible on the strict cycle):

[17] Chomsky (1973, 1995, 2001, 2008)

(56) 


⁕ ***Embedding as delayed substitution (EDS)***

(57) **XP-in-XP Condition**
An XP can only be embedded in a structure that is also built up to an XP.

- ***Substitution nodes***
  Let us assume that substitution targets SUBSTITUTION NODES, which are encoded for category; notated as $\mathbb{XP}$:

(58) Upon merging $X^0$ with YP, for every $\mathbb{XP}$ in YP, replace it with a built-up XP.

- There are at least two additional advantages to category-bearing substitution nodes:
  1. Selection can still be satisfied locally.
  2. The substitution node itself can move within the matrix clause prior to embedding, thereby allowing for short movement of clauses within *v*P.[18]

⇒ ***The basic idea***
Under EDS, a clause may get embedded too late for a given dependency to be established.

⁕ ***Deriving the WC***
A root XP containing an embedded YP (where Y > X) never exists in the course of a derivation:

(59) a. $^*[_{XP}\ X^0 \ldots [_{YP} \ldots$ (where Y > X and XP is the root node)

b. $[_{YP}\ Y^0 \ldots [_{XP} \ldots [_{YP} \ldots$ (where Y > X and YP is the root node)

- No operation that is triggered in XP—whether it be movement, agreement, or case—can look into a YP (where Y > X) because the relevant structure where X and [Spec, XP] would have access to YP within the strict cycle is simply not created by the grammar.

⇒ Under EDS, all of the WC effects are uniformly derived from the timing of embedding.

[18] Such movement has been argued for recently by Moulton (2015) and Bruening (2018), though see Williams (2013:104–107).

## 3.2 Application to hyperraising

(60) **Ban on Hyperraising**
A-movement may not leave a finite clause.

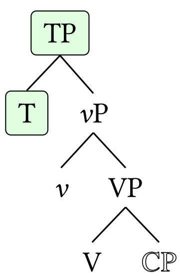
(61) a. **Who** does it seem [$_{CP}$ ___ ate the natto ]?
$\overline{A}$-*mvt*

b. *****Björk** seems [$_{CP}$ ___ ate the natto ].
*A-mvt*

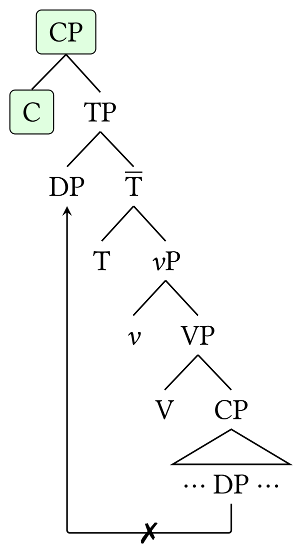
- Under EDS, at no point in the derivation is there a root TP that contains the embedded CP. Thus, an element in CP cannot move to [Spec, TP] while TP is the root node (62).

- The only point at which the embedded CP is embedded in the matrix clause is when both clauses are built up to the CP-level, at which point, movement to [Spec, TP] would violate the strict cycle (63).

(62) **Embedded CP not yet present**




(63) **Movement to TP not allowed**




⇒ Under EDS, the structure that would allow for violating the Ban on Hyperraising is simply never created by the grammar. Therefore, hyperraising is ungrammatical.

## 3.3 Application to Finnish

(64) In Finnish, a matrix subject can license dependent case across an embedded TP boundary, but a matrix object and a matrix adjunct cannot.

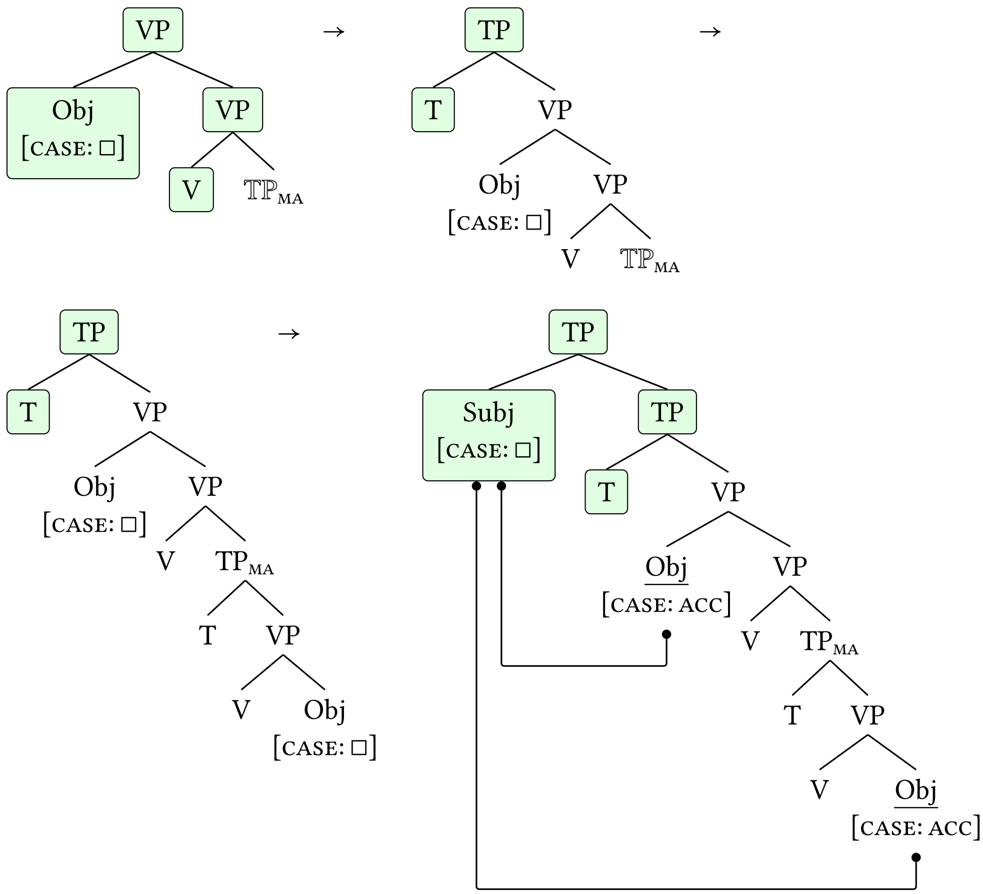
- Because MA-infinitives are TPs, they are embedded when the matrix clause has itself been built up to the TP level.

⇒ As a result, DPs lower than TP in the matrix clause are unable to license dependent case on a DP embedded in a MA-infinitive (i.e. a TP):
  - When they are accessible on the strict cycle, the MA-infinitive is not yet present.
  - When the MA-infinitive is present, they are no longer accessible on the strict cycle.

- ***Derivation: With a matrix subject***
  The matrix subject is located in [Spec, TP]. Thus, it enters the derivation *after* the MA-infinitive has been embedded, and licenses dependent case on both objects.[19]

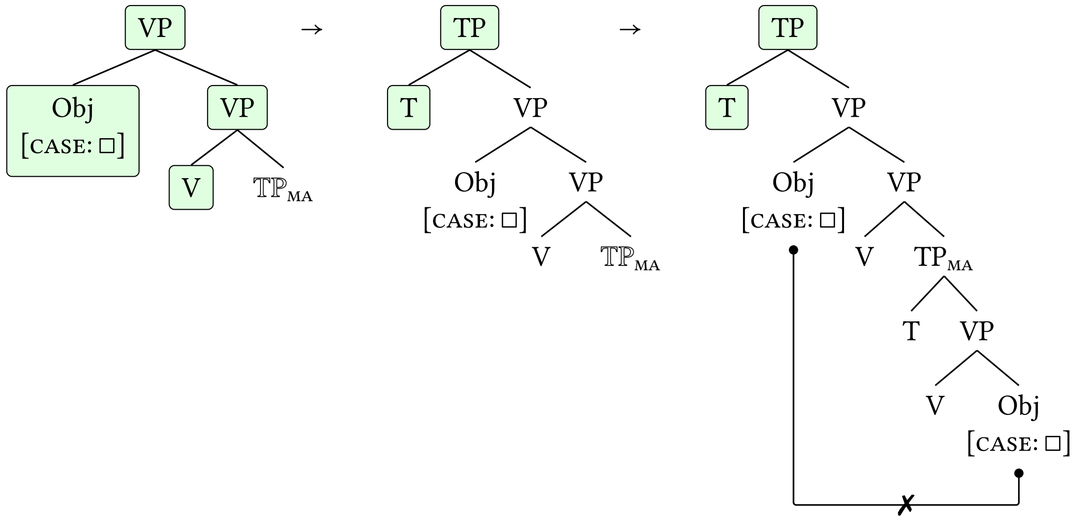
[19] For reasons of space, I have omitted the *v*P in the following trees.

(65) **Hän** pakotti **lapse-n** [$_{TP}$ avaa-ma-an **ove-n** ]
s/he.NOM forced child-ACC open-INF/MA-ILL door-ACC
'S/he forced the child to open the door' [Nelson 1998:238]

(66)



- ***Derivation: Without a matrix subject***
  - The matrix object is located below TP. Thus, it enters the derivation *before* the MA-infinitive has been embedded.
  - At the point when the MA-infinitive is embedded in the matrix clause, the matrix object cannot license dependent case given the strict cycle.
  - Therefore, both the matrix and embedded objects remain unvalued for case and are assigned nominative case at PF.

(67) Pakota **lapsi** [$_{TP}$ avaa-ma-an **ovi** ]!
force.IMP child.NOM open-INF/MA-ILL door.NOM
'Force the child to open the door!' [Nelson 1998:238]

(68) 

- ***Adjuncts***
  Assuming that durational, spatial-measure, and multiplicative adjuncts are merged below TP, they too are unable to license dependent case, following the same logic as for the matrix object.

## 4 Potential exceptions to the Williams Cycle

- Let us refer to our formulation of the WC as the STRONG WC:

  (69) **WILLIAMS CYCLE** *(strong version)*
  Within the current XP, a syntactic operation may not target an element across YP, where Y is higher than X in the functional sequence.
  [formulation from Poole to appear]

- Abels (2007, 2009) argues that the strong WC is empirically too restrictive because it rules out several purported movement dependencies.

  ⇒ This criticism extends to EDS, since it derives the strong WC.

- The recent, operation-specific analyses of WC effects have taken these purported exceptions at face value and gone on to develop analyses that derive weaker versions of the WC:
  - MERGE-based: Abels (2007, 2009), Müller (2014a,b)
  - AGREE-based: Keine (2016, 2019, 2020)

∗ ***What Poole (to appear) contends***
The purported exceptions to the strong WC should be revisited and reanalyzed.

- First, no AGREE-based implementations of DCT have been proposed in the literature. Thus, given the state-of-the-art, it is not presently possible to directly extend Keine's analysis to case.
- Second, Keine's analysis handles the exceptions largely through a stipulation. In a nutshell, some AGREE-probes are not subject to the WC.[20]
- In light of these two points, it is not at all certain that abandoning the strong WC is warranted based on a set of limited exceptions, especially given the importance of the strong WC's operation-generality.

[20] In his terms, they do not have a 'horizon'.

- At the very least, the introduction of WC effects for case into the empirical landscape warrants subjecting the purported exceptions to closer scrutiny.[21]

### 4.1 ECM/AcI

> ⁎ ***The problem***
>
> - In ECM infinitives, it is commonly assumed that the embedded subject moves from inside the embedded TP to a *v*P-internal position in the matrix clause:[22]
>
> (70) Alex believes [$_{vP}$ **Taylor** (with all her heart) [$_{TP}$ ___ to be guilty ] ].
>
> - According to the strong WC, TP should be a barrier for such movement because T > *v* in *fseq*.

- Note that under the WC, the matrix subject can establish a dependent-case relationship with matrix [Spec, *v*P] or embedded [Spec, TP], so the actual case in ECM is unproblematic.

❶ ***Alternative: Neeleman and Payne (2020)***

- On the basis of scope-freezing effects and adverb order, Neeleman and Payne argue that an ECM infinitive does not actually involve moving the embedded subject, but rather extraposing part of the embedded clause rightwards:

(71) Alex believes [$_{TP}$ **Taylor** ___ ] (with all her heart) [ to be guilty ].

⇒ If this analysis is on the right track, then ECM infinitives do not pose a problem for the strong WC after all.

❷ ***Alternative: Not TPs***

- Wurmbrand (2014) independently argues that English infinitives can be smaller than TP, e.g. *v*P.
- If ECM infinitives are (or can be) *v*Ps, then movement out of them to the matrix-object position does not violate the WC, because $v \not> v$.

### 4.2 Movement over complementizers

> ⁎ ***The problem***
>
> In some languages, movement that lands below a complementizer is able to cross that same complementizer to move to a higher clause. On the WC, this is contradiction.

- ***Illustration: English topicalization***
  - In an embedded clause, topicalization lands in a position below *that*:

(72) Alex thinks [$_{CP}$ **(that) Taylor (*that)** no one likes ___ ]
*topicalization*

⇒ C > Top in *fseq*

[21] WC effects for case = 'improper case'

[22] Postal (1974)

– Topicalization can cross an embedded finite clause boundary, moving over *that*:

(73) **Taylor**, Alex thinks [$_{CP}$ **that** no one likes ___ ].
*topicalization*

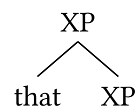
⇒ Top > C in *fseq*

❶ ***Alternative: Edge markers***

– Complementizers in these languages are edge markers that uniformly appear at the clause boundary, rather than real C heads.[23]

[23] Along the lines of Manetta's (2006, 2011) proposal for Hindi-Urdu *ki*.

– More concretely: These "complementizers" are elements that merge at the edge of a clause, but do not project, so that the category of the clause remains unchanged:

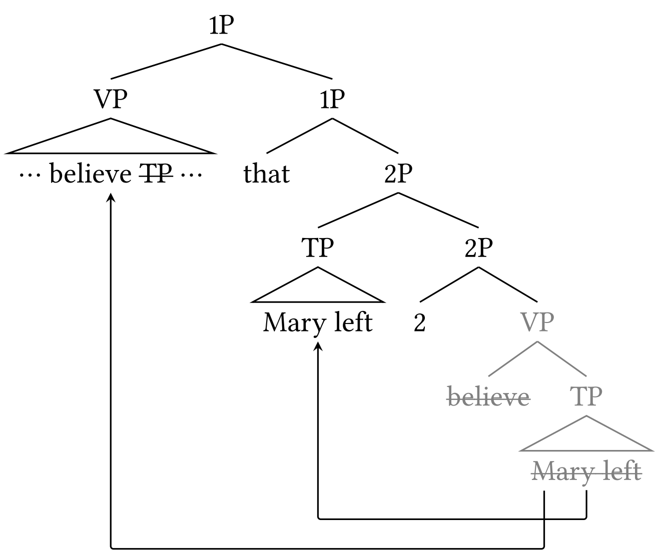
(74)



– Under such an analysis, a moved element appearing to the right of a complementizer would not entail that the complementizer corresponds to a projection higher than the landing site of movement.

– Therefore, it would not constitute a violation of the strong WC if that movement can also cross the complementizer.

❷ ***Alternative: Derived CPs***

– Angelopoulos (2019) argues that (at least some) CPs are *derived* constituents: the complementizer is actually merged in the matrix clause and triggers movement of the clause:

(75)



– On such an approach, complementizers are not indicative of a clause's *fseq*-size.

## 4.3 Hyperraising

⁎ ***The problem***

– Several languages have been claimed to allow hyperraising:[24]

(76) **Lubukusu (Bantu)**
**Babaandu**$_1$ ba-lolekhana [ (mbo) ___$_1$ ba-kwa ]
2.people 2SA-seem that 2SA.PAST-fall
'The people seem like they fell' [Carstens and Diercks 2013:100]

– Because the WC expressly prohibits hyperraising, if (76) is indeed hyperraising, it is problematic for the WC.

[24] Alexiadou and Anagnostopoulou (2002); Nunes (2008); Carstens (2011); Diercks (2012); Carstens and Diercks (2013); Halpert (2015, 2019)

- ***A closer look at Carstens and Diercks (2013)***
  - Carstens and Diercks report on three Bantu languages: Digo, Lubukusu, and Lusaamia.
  - Digo and Lusaamia crucially do *not* allow hyperraising over complementizers.
  - Some Lubukusu speakers allow hyperraising over complementizers, but only the complementizer *mbo* and not the agreeing complementizer *-li*.
  - They analyze this pattern as follows:

(77) a. CPs are generally barriers to hyperraising because they are phases.
b. Finite clauses without complementizers are TPs in Bantu, not CPs.
c. *mbo* in Lubukusu is special in that it is not a phase head, thereby projecting a nonphasal CP that is not a barrier to hyperraising.

- Under the WC, TP is not a barrier for movement to [Spec, TP], since T $\not\succ$ T in *fseq*, irrespective of whether the TP is considered finite or nonfinite.

⇒ On Carstens and Diercks's analysis then, hyperraising out of complementizer-less clauses is in fact compatible with the strong WC.

- This leaves *mbo*-clauses in Lubukusu, which might be analyzed using one of the solutions sketched above for movement-over-complementizers.

⇒ ***The question***
Can this reanalysis be applied to all of the purported cases of hyperraising?

## 4.4 LDA into finite clauses

⁎ ***The problem***

– There are several languages that have been reported to allow agreement between a matrix verb and a DP at the *edge* of an embedded finite clause.[25]

– This is problematic for the WC because CP should be a barrier to a φ-probe on $T^0$, because C ≻ T in *fseq*.

[25] Bruening (2001); Branigan and MacKenzie (2002); Polinsky and Potsdam (2001); see also Chung (1982, 1994); Chung and Georgopoulos (1988); Deal (2017)

**❶ *Alternative: Indirect LDA***

– These cases of LDA can be reanalyzed in a way compatible with the strong WC:[26]

(78) a. The embedded DP moves to embedded [Spec, CP].

b. The DP's features percolate up to CP via Spec–Head agreement.

c. Matrix $T^0$ agrees with the CP.

– Under EDS, matrix $T^0$ would agree with the CP before the full CP has been subbed in. Upon embedding the CP, the CP's features must be shared along (or match) its existing Agree-relations.

[26] This analysis is similar in spirit to Koopman's (2006) analysis of Tsez LDA, in that there is no direct crossclausal agreement.

**❷ *Alternative: Higher probe***

The φ-probe resides higher in the clause, i.e. on C, and thus can look into CP, because C $\not\succ$ C.

## 4.5 Sakha accusative subjects

✳ ***The problem***

– In Sakha, an embedded subject can be assigned dependent case (= accusative) iff the matrix clause has another DP.[27]

– Baker and Vinokurova analyze this pattern in terms of raising: the embedded subject is eligible to move to embedded [Spec, CP], where it may then enter into dependent-case relationships with DPs in the matrix clause.

(79) min **ehigi**(**-ni**)$_1$ [ bügün $\_\_\__1$ kyaj-yax-xyt dien ]
I.NOM you -ACC today win-FUT-2PL.SA that
erem-mit-im
hope-PAST-1SG.SA
'I hoped that you would win today' [Baker and Vinokurova 2010:615]

– This analysis is problematic for the strong WC because CP should be a barrier for DPs in the matrix clause.

[27] Baker and Vinokurova (2010); Baker (2015)

• ***Alternative: Prolepsis***

– Accusative subjects in Sakha are actually proleptic arguments: they are base-generated as an argument of the matrix clause and are indirectly linked to an embedded gap via resumption:[28]

(80) DP ... <u>DP</u>$_1$ ... [$_{CP}$ ... *pro*$_1$ ... ]

– This analysis is in the spirit of complex predicates in Den Dikken (2017, 2018).

– As an argument of the matrix clause, the proleptic DP participates in the dependent-case calculus in the matrix clause, and thus is sensitive to the DPs there.

– Under a prolepsis analysis, Sakha accusative subjects are not problematic for the strong WC—as no crossclausal syntactic dependencies are involved.

[28] I depict the resumptive as *pro* for the sake of simplicity. The syntax in the embedded clause might be more complicated, e.g. movement of a null operator.

# 5 Phases

- ***Question***
  What is the relationship between the WC and phases?

## 5.1 Problems with *v*P phases

❶ ***Movement from [Spec, CP] to [Spec, vP]***
Successive-cyclic movement from [Spec, CP] to [Spec, *v*P] violates the WC because C > *v* in *fseq*:

(81) $[_{\text{CP}}$ what Kate $[_{v\text{P}}$ ___ believe $[_{\text{CP}}$ ___ that Björk $[_{v\text{P}}$ ___ [ ate ___ ] ] ] ] ]

❷ ***Moving through [Spec, vP] neutralizes crucial distinctions***

– Consider hyperraising. Virtually any analysis of hyperraising needs to know if the moving DP is moving from a finite clause or from a nonfinite clause:

(82) a. $[_{\text{TP}}$ ___ $\text{T}^0$ … $[_{\text{nonfinite-clause/TP}}$ DP …

b. *$[_{\text{TP}}$ ___ $\text{T}^0$ … $[_{\text{finite-clause/CP}}$ DP …

– If movement proceeds successive-cyclically through [Spec, *v*P], at the point at which movement to [Spec, TP] occurs, the moving DP would be in [Spec, *v*P]:

(83) a. $[_{\text{TP}}$ ___ $\text{T}^0$ … $[_{v\text{P}}$ DP $v^0$ [ … $[_{\text{nonfinite-clause/TP}}$ ~~DP~~ …

b. $[_{\text{TP}}$ ___ $\text{T}^0$ … $[_{v\text{P}}$ DP $v^0$ [ … $[_{\text{finite-clause/CP}}$ ~~DP~~ …

⇒ To determine whether the DP moved out of a CP or a TP, it would be necessary to *backtrack* into the previous phase. Computing the locality of movement would thus have to be radically nonlocal.

– This problem generalizes to other WC effects involving movement.

## 5.2 Solution: Buffers

- Müller (2014a) proposes a technical solution to this problem that allows the locality of movement to be computed locally.

- First, each position that an element moves through is recorded in a BUFFER attached to that element.

- Second, at criterial positions, the buffer is evaluated against a constraint that essentially checks whether the movement chain obeys the WC.

- While this analysis provides an account for the WC with successive-cyclic movement through [Spec, *v*P], it does not extend to dependent-case assignment or AGREE, which also exhibit WC effects.

## 5.3 Solution: No *v*P phases

✳ ***The idea***

If *v*P is not a phase (contra Chomsky 2000, 2001), then phases are not a problem for the WC. The two would be mutually compatible.

❶ ***Finnish* MA*-infinitives (again)***

– Recall that in Finnish, a dependent-case relationship between two DPs can span across a nonfinite clause boundary:

(84) a. **Hän** kävi [ avaa-ma-ssa <u>**ove-n**</u> ]
3SG.NOM went open-INF/MA-INE door-ACC
'She/he/they$_{SG}$ went to open the door'

b. Käy [ avaa-ma-ssa **ovi** ]!
go.IMP open-INF/MA-INE door.NOM
'Go open the door!'

– The configuration in (84a) crucially involves a dependent-case relationship across *two v*Ps, which the weak and strong PIC alike predict to be impossible:

(85) $[_{\text{TP}}\ \text{DP}_{[\text{CASE:}\ \square]}\ \text{T}^0\ \boxed{[_{v\text{P}}}\ v^0\ [_{\text{VP}}\ \text{V}^0\ [_{\text{nonfinite-clause}}\ \boxed{[_{v\text{P}}}\ v^0\ [_{\text{VP}}\ \text{V}^0\ \underline{\text{DP}}_{[\text{CASE:}\ \square]}\ ]]]]]]$

– Could we delay Spellout even more, namely to the *next-next-highest* phase, essentially applying Chomsky's (2001) logic for positing the weak PIC?

– This solution would not work because the dependent-case relationship can span across multiple nonfinite clause boundaries:

(86) **Hän** halusi [ käy-dä [ avaa-ma-ssa <u>**ove-n**</u> ] ]
3SG.NOM wanted go-INF/TA open-INF/MA-INE door-ACC
'She/he/they$_{SG}$ wanted to go open the door'

⇒ In sum, dependent-case assignment can cross arbitrarily-many *v*P projections, contra the PIC.

❷ ***Agreement in Hindi-Urdu (Keine 2017)***

– In Hindi-Urdu, φ-agreement does not involve movement of the agreement controller:

(87) a. **Idiomatic objects can control agreement**
raam-ne bhains ke aage **biin** bajaa-**yii**
Ram-ERG buffalo in.front.of flute.F.SG play-PFV.F.SG
'Ram did something futile.' (*lit.* 'Ram played the flute in front of buffalo.')
[Keine 2017:178]

b. **Idiomatic objects resist movement**
#**biin**$_1$ raam-ne bhains ke aage ___$_1$ bajaa-**yii**
flute.F.SG Ram-ERG buffalo in.front.of play-PFV.F.SG
'The flute, Ram played in front of buffalo.' (*idiomatic reading deviant*)
[Keine 2017:179]

– As we saw above, Hindi-Urdu also allows LDA into nonfinite clauses. Idiomatic objects—which cannot move—can control LDA:

(88) raam-ne [ bhains ke aage **biin** bajaa-nii ] caah-**ii**
Ram-ERG buffalo in.front.of flute.F.SG play-INF.F.SG want-PFV.F.SG
'Ram wanted to do something futile.' (*idiomatic reading possible*)
[Keine 2017:179]

– The configuration in (88) crucially involves an AGREE-dependency across *two* *v*Ps, which the weak and strong PIC alike predict to be impossible:

(89) $[_{\text{TP}}\ \text{T}^0_{[*\varphi*]}\ \boxed{[_{v\text{P}}}\ v^0\ [_{\text{VP}}\ \text{V}^0\ [_{\text{nonfinite-clause}}\ \boxed{[_{v\text{P}}}\ v^0\ [_{\text{VP}}\ \text{V}^0\ \text{DP}_{[\varphi]}\ ]\,]\,]\,]\,]\,]$

– Like with dependent-case assignment, this AGREE-dependency can extend across multiple nonfinite clause boundaries:

(90) ?raam-ne [ [ bhains ke aage **biin** bajaa-nii ] shuruu
Ram-ERG buffalo in.front.of flute.F.SG play-INF.F.SG start
kar-nii ] caah-**ii**
do-INF.F.SG want-PFV.F.SG
'Ram wanted to start doing something futile.' (*idiomatic reading possible*)
[Keine 2017:180]

⇒ In sum, φ-agreement can cross arbitrarily-many *v*P projections, contra the PIC.

- ***Other in-situ dependencies***
The same line of argumentation can be applied to:
  – *Wh*-licensing (Keine 2017)
  – Negative concord (Keine and Zeijlstra 2021)

## 5.4 Solution: Phases as operational domains

⇒ While *v*P not being a phase would solve the two problems outlined above, there is, I think, perhaps some utility in having *v*P as a phase.

❶ ***Case domains***

– Baker (2015) demonstrates the usefulness of 'keying' different dependent-case rules to CP and *v*P both within a language and across languages.

– For example, a somewhat common setup is that dependent case assigned in *v*P is realized as "dative", and dependent case assigned in CP is realized as "accusative".

– He shows how this kind of parameterization straightforwardly accounts for a broad crosslinguistic typology of different case patterns.

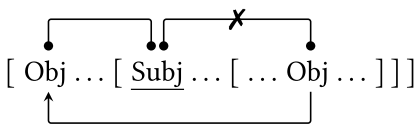
### ❷ *Timing of dependent-case assignment*

– Most of the potential complications concerning the timing of dependent-case assignment are avoided if dependent case is assigned as early as possible in the derivation:[29]

(91) **Earliness**
Upon (re)merging α into the structure, if α c–commands β and both α and β have unvalued case features, establish a dependent-case relationship between α and β. [Poole to appear]

– However, there are several case patterns documented in the literature that appear to involve dependent case being calculated *after* DPs in *v*P have rearranged themselves via movement, contra (91).

– For example, Yuan (2018, 2020) argues that in Inuit, the object must raise over the subject in order to license dependent ergative case on the subject in a downwards configuration:

(92)



– Similar case patterns:
  * ergative case in Koryak (Abramovitz 2020:27–30)
  * Nez Perce applicatives of unaccusatives (Deal 2019)
  * possibly all object-shift ergative languages (in the sense of Woolford 2015)

⇒ These case patterns can all be handled by assuming that dependent case is calculated at the *v*P-phase level, after DPs can have moved within *v*P.[30]

### ❸ *Adjunction*

– Zyman (to appear) observes that *exactly* in colloquial English can only be stranded at phase edges:

(93) a. What had she [$_{vP}$ {**exactly**} been {***exactly**} sent ___ ]?
b. What had she [$_{vP}$ {**exactly**} been {***exactly**} being {***exactly**} sent ___ ]?
c. What do you believe [$_{CP}$ {**exactly**} that {***exactly**} (,) for some reason, she devoured ___ on Sunday ]? [Zyman to appear:25, 29]

– He proposes that this pattern of stranding follows from adjuncts being obligatorily late-merged at the phase-level, after the *wh*-phrase has moved to the phase edge, thereby prohibiting their stranding in phase-internal positions.

⇒ ***Starting intuition***
The arguments for the utility of *v*P phases do not involve the PIC, but rather a point in the derivation of a clause when certain operations are triggered.

29 Poole (to appear)

30 It is also possible, I believe, to account for these case patterns in terms of case domains: in these languages, there is a dependent-case rule keyed to CP, but none to *v*P.

⁕ ***Proposal***

– Phases are OPERATIONAL DOMAINS: the inputs to certain syntactic operations, e.g. linearization and dependent-case assignment.

– There is no PIC. As such, phases are not locality domains per se. Successive-cyclic movement is enforced by cyclic linearization (Fox and Pesetsky 2005).

– Phase-level operations operate over whatever structure is present at the time of their application. Embedded clauses will thus "escape" a phase-level operation if they have not yet been subbed in.

- SPELLOUT = the application of phase-level operations

- ***Timing of embedding***

(94) Upon merging $X^0$ with YP, for every $\mathbb{XP}$ in YP, replace it with a built-up XP.

- ***Order of operations at the phase level***

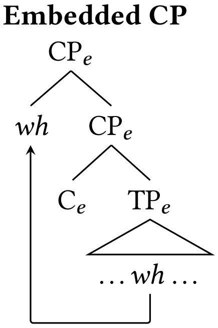
1. Merge in the phase head $H^0$.
2. Embed any HPs in accordance with (94).
3. Satisfy the features on $H^0$.
4. Spellout the entire HP phase.

- ***Illustration: Long wh-movement***

(95) An ordering statement of the form $\alpha < \beta$ is understood by PF as meaning that the last element dominated by $\alpha$ and not dominated by a trace precedes the first element dominated by $\beta$ and not dominated by a trace.

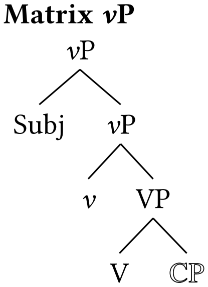
[Fox and Pesetsky 2005:10]

(96) a. **Embedded CP**



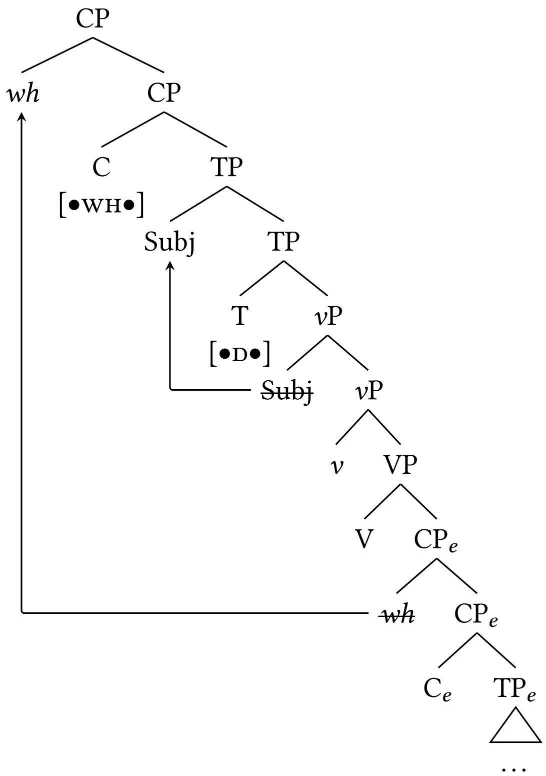

*Ordering statements:*
*wh* $< C_e < TP_e$

b. **Matrix *v*P**




*Ordering statements:*
Subj $< v <$ V ($< \mathbb{CP}$)

c. **Matrix CP after embedding $CP_e$**




*Existing ordering statements:*
*wh* < $C_e$ < $TP_e$
Subj < *v* < V (< $\mathbb{CP}$)

*New ordering statements:*
*wh* < C < Subj < T < *v* < V
V < $C_e$ < $TP_e$

d. **Resulting linearization**
*wh* C Subj T *v* V $C_e$ $TP_e$

- ***Linearizing substitution nodes***
  - ***Option 1:*** Linearize $\mathbb{XP}$ at matrix *v*P. Update the ordering statements involving $\mathbb{XP}$ at matrix CP, after XP has been embedded.
  - ***Option 2:*** Do not linearize $\mathbb{XP}$.
  - Deciding between these two options, I believe, depends on how we conceptualize substitution nodes: as the head of the embedded clause (Williams 2003) or as a specialized node (à la TAG).
- ***Problem: Case and agreement***
  - Because there is no PIC, there is nothing preventing Agree or dependent-case assignment from crossing arbitrarily-many *v*P projections.
  - The barrierhood of CP for case and agreement follows from the WC/EDS. As C > T, elements in matrix TP are unable to interact with elements in embedded CPs.
- ***Problem: vP-phasehood and the WC***
  - On this proposal, there is no movement from [Spec, CP] to [Spec, *v*P]. Thus, the problems that such movement creates simply do not arise.
  - All crossclausal movement proceeds directly from the embedded clause. Movement from TP and CP is thus not neutralized—as desired.
  - There is no need to resort to backtracking or nonlocal analyses of the locality of movement.

- ***Problem: vP phases are useful***
  - All of the "useful" properties of *v*P phases are maintained on this proposal, albeit only clause-internally.
  - As far as I can tell, this limitation is unproblematic for case, adjunction, and linearization. The use of *v*P phases in these domains has almost entirely been motivated on clause-bounded phenomena.

⇒ ***Consequence***
Clause-internal phases (i.e. *v*Ps) only affect clause-internal elements (modulo embedded *v*Ps), because clause-internal phases undergo Spellout *before* embedded clauses have been embedded.

- In particular, successive-cyclic movement only passes through [Spec, *v*P] in the *local clause*:

(97) $[_{CP}$ what Kate $[_{vP}$ believe $[_{CP}$ ___ that Björk $[_{vP}$ ___ [ ate ___ ] ] ] ] ]

---

⁎ ***Prediction***
In cases where movement triggers some reflex of successive cyclicity R, we should find two patterns:

1. ***The symmetric pattern***
   R manifests (in the same way) in each clause traversed ⇒ CP-phase effect
   - E.g. complementizer switch, auxiliary inversion
2. ***The asymmetric pattern***
   R manifests differently in the local clause than in the nonlocal clauses ⇒ *v*P-phase effect

---

- ***Subtype of the asymmetric pattern***
  R may manifest only in the local clause, but it may *not* manifest only in the nonlocal clauses.

## References


Abels, Klaus. 2007. Towards a restrictive theory of (remnant) movement. In *Linguistic Variation Yearbook 7*, eds. Jeroen van Craenenbroeck and Johan Rooryck, 53–120. Amsterdam: John Benjamins.

Abels, Klaus. 2009. Some implications of improper movement for cartography. In *Alternatives to Cartography*, ed. Jeroen van Craenenbroeck, 325–359. Berlin: de Gruyter.

Abels, Klaus. 2012a. The Italian left periphery: A view from locality. *Linguistic Inquiry* 43:229–254.

Abels, Klaus. 2012b. *Phases: An Essay on Cyclicity in Syntax*. Berlin: de Gruyter.

Abramovitz, Rafael. 2020. Successive-cyclic *wh*-movement feeds case competition in Koryak. Ms., MIT.

Aissen, Judith, and David Perlmutter. 1976. Clause reduction in Spanish. In *Proceedings of the 2nd Annual Meeting of the Berkeley Linguistics Society*. 1-30: Berkeley Linguistics Society.

Alexiadou, Artemis, and Elena Anagnostopoulou. 2002. Raising without infinitives and the nature of agreement. In *Dimensions of Movement: From Features to Remnants*, eds.

Artemis Alexiadou, Elena Anagnostopoulou, Sjef Barbiers, and Hans-Martin Gärtner, 17–30. Amsterdam: Benjamins.

Angelopoulos, Nikos. 2019. Complementizers and prepositions as probes: Insights from Greek. Ph.D. dissertation, University of California, Los Angeles.

Anttila, Arto, and Jong-Bok Kim. 2011. On structural case in Finnish and Korean. *Lingua* 121:100–127.

Anttila, Arto, and Jong-Bok Kim. 2017. Locality and variation in Finnish structural case. *Natural Language and Linguistic Theory* 35:581–634.

Baker, Mark. 2015. *Case*. Cambridge, UK: Cambridge University Press.

Baker, Mark, and Nadya Vinokurova. 2010. Two modalities of case assignment: Case in Sakha. *Natural Language and Linguistic Theory* 28:593–642.

Bhatt, Rajesh. 2005. Long distance agreement in Hindi-Urdu. *Natural Language and Linguistic Theory* 23:757–807.

Bittner, Maria, and Kenneth Hale. 1996. The structural determination of case and agreement. *Linguistic Inquiry* 27:1–68.

Branigan, Phil, and Marguerita MacKenzie. 2002. Altruism, A′-movement and object agreement in Innu-aimûn. *Linguistic Inquiry* 33:385–407.

Bruening, Benjamin. 2001. Syntax at the edge: Cross-clausal phenomena and the syntax of Passamaquoddy. Ph.D. dissertation, MIT, Cambridge, MA.

Bruening, Benjamin. 2018. CPs move rightward, not leftward. *Syntax* 21:362–401.

Carstens, Vicki. 2011. Hyperactivity and hyperagreement in Bantu. *Lingua* 121:721–741.

Carstens, Vicki, and Michael Diercks. 2013. Parameterizing case and activity: Hyperraising in Bantu. In *Proceedings of the 40th Meeting of the North East Linguistic Society (NELS 40)*, eds. Seda Kan, Claire Moore-Cantwell, and Robert Staubs, 99–118. Amherst, MA: GLSA.

Chomsky, Noam. 1955. The logical structure of linguistic theory. Ms., Harvard & MIT. Published in part by Plenum, New York, 1975.

Chomsky, Noam. 1957. *Syntactic Structures*. The Hague: Mouton.

Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1973. Conditions on transformations. In *A Festschrift for Morris Halle*, eds. Stephen Anderson and Paul Kiparsky, 232–286. New York: Academic Press.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, eds. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2007. Approaching UG from below. In *Interfaces + Recursion = Language?*, eds. Uli Sauerland and Hans-Martin Gärtner, 1–31. Berlin: Mouton de Gruyter.

Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, eds. Robert Freidin, Carlos Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.

Chung, Sandra. 1982. Unbounded dependencies in Chamorro grammar. *Linguistic Inquiry* 13:39–77.

Chung, Sandra. 1994. *Wh*-agreement and "referentiality" in Chamorro. *Linguistic Inquiry* 25:1–44.

Chung, Sandra, and Carol Georgopoulos. 1988. Agreement with gaps in Chamorro and Palauan. In *Agreement in Natural Language: Approaches, theories, description*, eds. Michael Barlow and Charles A. Ferguson, 251–267. Stanford, CA: CSLI Publications.

Deal, Amy Rose. 2017. Covert hyperraising to object. In *Proceedings of the 47th Meeting*

*of the North East Linguistic Society (NELS 47)*, eds. Andrew Lamont and Katie Tetzloff, 257–270. Amherst, MA: GLSA.
Deal, Amy Rose. 2019. Raising to ergative: Remarks on applicatives of unaccusatives. *Linguistic Inquiry* 50:388–415.
Diercks, Michael. 2012. Parameterizing case: Evidence from Bantu. *Syntax* 15:253–286.
den Dikken, Marcel. 2017. Predication in the syntax of hyperraising and copy raising. *Acta Linguistica Academica* 64:3–43.
den Dikken, Marcel. 2018. Secondary predication and the distribution of raising to object. *Acta Linguistica Academica* 65:87–117.
Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31:1–45.
Haider, Hubert. 1984. Topic, focus, and V-second. *Groninger Arbeiten zur Germanistischen Linguistik* 25:72–120.
Hakulinen, Auli, Maria Vilkuna, Riita Korhonen, Vesa Koivisto, Tarja Riita Heinonen, and Irja Alho. 2004. *Iso suomen kielioppi.* Helsinki: Suomalaisen Kirjallisuuden Seura.
Halpert, Claire. 2015. *Argument licensing and agreement*. Oxford: Oxford University Press.
Halpert, Claire. 2019. Raising, unphased. *Natural Language and Linguistic Theory* 37:123–165.
Heinämäki, Orvokki. 1984. Aspect in Finnish. In *Aspect bound: A voyage into the realm of Germanic, Slavonic and Finno-Ugrian aspectology*, 153–177. Dordrecht: Foris.
Huhmarniemi, Saara. 2012. Finnish A′-movement: Edges and islands. Ph.D. dissertation, University of Helsinki.
Joshi, Aravind K., Leon S. Levy, and Masako Takahashi. 1975. Tree adjunct grammars. *Journal of Computer and System Sciences* 10:136–163.
Keine, Stefan. 2016. Probes and their horizons. Ph.D. dissertation, University of Massachusetts, Amherst, MA.
Keine, Stefan. 2017. Agreement and *v*P phases. In *A Schrift to Fest Kyle Johnson*, eds. Nicholas LaCara, Keir Moulton, and Anne-Michelle Tessier, 177–185. Amherst, MA: Linguistics Open Access Publications.
Keine, Stefan. 2019. Selective opacity. *Linguistic Inquiry* 50:13–62.
Keine, Stefan. 2020. *Probes and Their Horizons.* Cambridge, MA: MIT Press.
Keine, Stefan, and Hedde Zeijlstra. 2021. Morphology of extraction: Reassessing *v*P phasehood. Ms., UCLA & Universität Göttingen.
Kiparsky, Paul. 2001. Structural case in Finnish. *Lingua* 111:315–376.
Koopman, Hilda. 2006. Agreement configurations: In defense of “Spec head”. In *Agreement systems*, ed. Cedric Boeckx, 159–199. Amsterdam: John Benjamins.
Koskinen, Päivi. 1998. Features and categories: Non-finite constructions in Finnish. Ph.D. dissertation, University of Toronto.
Kroch, Anthony, and Aravind K. Joshi. 1985. The linguistic relevance of Tree Adjoining Grammar. Technical Report MS-CIS-85-16, University of Pennsylvania.
Mahajan, Anoop. 1989. Agreement and agreement phrases. In *Functional heads and clause structure*, eds. Itziar Laka and Anoop Mahajan, volume 10 of *MIT Working Papers in Linguistics*, 217–252. Cambridge, MA: MITWPL.
Maling, Joan. 1993. Of nominative and accusative. In *Case and other functional categories in Finnish syntax*, eds. Anders Holmberg and Urpo Nikanne, 49–74. Berlin: Mouton de Gruyter.
Manetta, Emily. 2006. Peripheries in Kashmiri and Hindi-Urdu. Ph.D. dissertation, University of California, Santa Cruz, CA.
Manetta, Emily. 2011. *Peripheries in Kashmiri and Hindi-Urdu: The Syntax of Discourse-Driven Movement*. Amsterdam: John Benjamins.

Marantz, Alec. 1991. Case and licensing. In *Proceedings of the 8th Eastern States Conference on Linguistics (ESCOL 8)*, eds. German Westphal, Benjamin Ao, and Hee-Rahk Chae, 234–253. Ithaca, NY: CLC Publications.

McFadden, Thomas. 2004. The position of morphological case in the derivation: A study on the syntax-morphology interface. Ph.D. dissertation, University of Pennsylvania, Philadelphia, PA.

Moulton, Keir. 2015. CPs: Copies and compositionality. *Linguistic Inquiry* 46:305–342.

Müller, Gereon. 2014a. A local approach to the Williams Cycle. *Lingua* 140:117–136.

Müller, Gereon. 2014b. *Syntactic buffers*, volume 91 of *Linguistische Arbeitsberichte*. Universität Leipzig: Institut für Linguistik.

Müller, Gereon. 2017. Structure removal: An argument for feature-driven Merge. *Glossa* 2:1–35.

Müller, Gereon, and Wolfgang Sternefeld. 1993. Improper movement and unambiguous binding. *Linguistic Inquiry* 24:461–507.

Müller, Gereon, and Wolfgang Sternefeld. 1996. A-bar chain formation and economy of derivation. *Linguistic Inquiry* 27:480–511.

Neeleman, Ad, and Hans van de Koot. 2010. A local encoding of syntactic dependencies and its consequences for the theory of movement. *Syntax* 13:331–372.

Neeleman, Ad, and Amanda Payne. 2020. On matrix-clause intervention in accusative-and-infinitive constructions. *Syntax* 23:1–41.

Nelson, Diane. 1998. *Grammatical case assignment in Finnish*. New York: Garland.

Nunes, Jairo. 2008. Inherent case as a licensing condition for A-movement: The case of hyper-raising constructions in Brazilian Portuguese. *Journal of Portuguese Linguistics* 7:83–108.

Polinsky, Maria, and Eric Potsdam. 2001. Long-distance agreement and topic in Tsez. *Natural Language and Linguistic Theory* 19:583–646.

Poole, Ethan. 2015. A configurational account of Finnish case. In *Proceedings of the Penn Linguistics Conference 38 (PLC 38)*, ed. David Wilson. Philadelphia, PA: University of Pennsylvania.

Poole, Ethan. to appear. Improper case. *Natural Language and Linguistic Theory* .

Postal, Paul. 1974. *On Raising*. Cambridge, MA: MIT Press.

Preminger, Omer. 2011. Agreement as a fallible operation. Ph.D. dissertation, MIT, Cambridge, MA.

Preminger, Omer. 2014. *Agreement and its failures*. Cambridge, MA: MIT Press.

van Riemsdijk, Henk, and Edwin Williams. 1981. NP structure. *The Linguistic Review* 1:171–218.

Toivonen, Ida. 1995. A study of Finnish infinitives. Master's thesis, Brandeis University, Waltham, MA.

Tuomikoski, Risto. 1978. Objektinsijaisista määrän adverbiaalesita. *Virittäjä* 82:26–51.

Vainikka, Anne. 1989. Deriving syntactic representations in Finnish. Ph.D. dissertation, University of Massachusetts, Amherst, MA.

Vainikka, Anne. 1995. Functional projections in Finnish non-finite constructions. *University of Pennsylvania Working Papers in Linguistics* 2:141–146.

Williams, Edwin. 1974. Rule ordering in syntax. Ph.D. dissertation, MIT, Cambridge, MA.

Williams, Edwin. 2003. *Representation theory*. Cambridge, MA: MIT Press.

Williams, Edwin. 2013. Generative semantics, generative morphosyntax. *Syntax* 16:77–108.

Woolford, Ellen. 2015. Ergativity and transitivity. *Linguistic Inquiry* 46:489–531.

Wurmbrand, Susi. 2014. Tense and aspect in English infinitives. *Linguistic Inquiry* 45:403–447.

Yuan, Michelle. 2018. Dimensions of ergativity in Inuit: Theory and microvariation. Ph.D. dissertation, MIT, Cambridge, MA.
Yuan, Michelle. 2020. Ergativity and object shift across Inuit. Ms., UC San Diego.
Zyman, Erik. to appear. Phase-constrained obligatory late adjunction. *Syntax* .