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The locality of dependent case

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1 Introduction: Dependent case

- ***Two theories of case***
  There are two predominant theories about morphological case assignment:
  1. **Dependent Case Theory (DCT)**
     Structural case marks a relationship between two DPs.

     (1) [DP . . . [. . . DP . . .] . . .]

⇒ E.g. Marantz (1991); Bittner & Hale (1996); McFadden (2004); Bobaljik (2008); Baker & Vinokurova (2010); Preminger (2011, 2014); Baker (2015); Levin (2015); Levin & Preminger (2015); Poole (2015a); also Yip et al. (1987)

  2. **Functional Head Case Theory (FHCT)**
     Structural case marks a relationship between a DP and a designated functional head.

     (2) [T^0 . . . [. . . DP . . . v^0 . . . [. . . DP . . .] . . .] . . .]

⇒ E.g. Chomsky (2000, 2001); Legate (2008)

- ***Dependent Case Theory in a nutshell***
  According to DCT, the calculus of morphological case follows the algorithm in Marantz's (1991) Disjunctive Case Hierarchy (DCH):

(3) **DISJUNCTIVE CASE HIERARCHY (DCH)**
lexical/inherent case → dependent case → unmarked case [Marantz 1991]

(4) **Case calculus in DCT**

1. Assign idiosyncratic lexical and inherent cases.
2. Take the remaining DPs. If DP_1 c-commands DP_2 within the same clause, assign dependent case either to DP_1 (= "ergative") or to DP_2 (= "accusative"). ⇝ *This directionality is parameterised.*
3. If a DP has not yet been assigned case by Spellout, assign it nominative, i.e. unmarked case.

(5) **An illustration of the case calculus in (4)**

a. [Mary [*gave* Sue the.rutabaga]]

b. [Mary [*gave* **Sue**$_{\text{DAT}}$ the.rutabaga]] (via 4.1)

c. [Mary [*gave* Sue$_{\text{DAT}}$ **the.rutabaga**$_{\text{DEP}}$]] —*or*—
[**Mary**$_{\text{DEP}}$ [*gave* Sue$_{\text{DAT}}$ the.rutabaga]] (via 4.2)

d. [**Mary**$_{\text{NOM}}$ [*gave* Sue$_{\text{DAT}}$ the.rutabaga$_{\text{DEP}}$]] —*or*—
[Mary$_{\text{DEP}}$ [*gave* Sue$_{\text{DAT}}$ **the.rutabaga**$_{\text{NOM}}$]] (via 4.3)

⇒ ***Arguments in favour of Dependent Case Theory***

1. **Empirical patterns**
   Various case patterns follow straightforwardly in DCT, but not in FHCT:
   – Sakha raising-to-accusative constructions (Baker & Vinokurova 2010), which will be discussed in the next section.
   – Finnish structurally case-marked adjuncts (Poole 2015a), which are briefly reviewed in the appendix.

2. **Ergative and accusative united at last**
Ergative and accusative are collapsed into the unified notion of DEPENDENT CASE. This allows us to make generalisations encompassing them both, e.g. reformulating Burzio's Generalisation (Bobaljik 2008).

3. **Agreement and movement accessibility**
Bobaljik (2008) shows that the DCH regulates argument accessibility for agreement. Also, Poole (2015b) argues that the varied "subjecthood" properties exhibited by quirky (nonnominative) subjects crosslinguistically results from A-movement being constrained in the same way.

4. **No overgeneration**
FHCT could in principle generate a plethora of unattested case patterns, e.g. every variant of v^0 assigns a different case to the internal argument. With fewer tools, DCT generates far fewer patterns and is a better typological fit.

- ***Disclaimer***
Therefore, I assume DCT throughout this presentation because of the reasons given above. However, most of what I will argue equally applies to FHCT.

⁎ ***Claims made in this talk***
This talk investigates the locality of dependent case assignment, in particular with respect to movement. I argue that:

– Clausematehood and other binary notions of locality, e.g. phases, are insufficient to capture the locality of dependent case.

(6) **Successive cyclicity: An edgy problem**

*[$_{vP}$ DP$_1$ … [$_{CP}$ *wh*-DP$_2$ C^0 ([$_{TP}$ … ⇝ *Not ruled out by the PIC*

phase complement

– Dependent case assignment must be constrained by a SIZE-BASED locality constraint in the spirit of the Williams Cycle (Williams 1974, 2003):

(7) BAN ON IMPROPER CASE
DP$_1$ that is sister to X cannot assign dependent case to DP$_2$ across a projection Y, where Y^0 is higher than X^0 in the functional sequence.

(8) **Illustration of (7)**
[$_{YP}$ Y^0 [$_{XP}$ DP$_1$ X^0 … [$_{YP}$ … DP$_2$ ✗ Y^0 > X^0

- ***Structure of this talk***

1. I outline the locality problem in DCT imposed by movement: (roughly) A-movement, but not $\overline{\text{A}}$-movement can feed dependent case assignment.

2. I show another locality problem for DCT, but one that does not involve movement: crossclausal case assignment in Finnish. I argue that this problem informs the movement problem.

3. To account for these two seemingly disparate locality problems, I propose that dependent case assignment is subject to the Ban on Improper Case (7).

4. This brings the locality of case into line with other empirical domains, namely movement and agreement. I conclude by discussing the ramifications of these parallels for the broader theory of locality.

2 Movement and locality in Dependent Case Theory

- ***Section overview***
This section shows that some movement can lead to dependent case assignment, but other movement must not. This dichotomy does not follow from standard conceptions of locality, e.g. phases, and thus presents a challenge for DCT.

2.1 Some movement can feed dependent case

- ***Raising-to-accusative constructions in Sakha***
Baker & Vinokurova (2010) show that raising-to-accusative constructions in Sakha (Turkic) can feed dependent case assignment on the raised subject.

– ***Raised subject → Accusative***
When the embedded subject undergoes object shift into the matrix clause, it can receive accusative:[1]

(9) min **ehigi(-ni)**$_1$ [bügün t_1 kyaj-yax-xyt dien]
I.NOM you -ACC today win-FUT-2PL.SUBJ that
erem-mit-im
hope-PAST-1SG.SUBJ
'I hoped that you would win today' [Baker & Vinokurova 2010:615]

[1] In the interest of time, I will not discuss the optionality of accusative case in Sakha.

- ***In-situ subject → Nominative***
  When the embedded subject remains in-situ, it receives nominative:

(10) min [sarsyn **ehigi(*-ni)** kel-iex-xit dien]
I tomorrow you -ACC come-FUT-2PL.SUBJ that
ihit-ti-m
hear-PAST-1SG.SUBJ
'I heard that tomorrow you will come' [Baker & Vinokurova 2010:616]

⇒ ***Analysis: Movement feeds case***
Raising the embedded subject places it in the same domain as another DP, i.e. the matrix subject, such that dependent case can be assigned to it:

(11) [DP_1 $\underline{DP_2}$ [~~DP_2~~ …]] *Raising-to-accusative in Sakha*

- Furthermore, Baker & Vinokurova (2010) argue against a base-generation, proleptic object account based on the fact that the raised subject can be an NPI that would only be licensed by negation in the embedded clause:

(12) a. min [**kim-i daqany** $]_1$ [t_1 kyaj-**<u>ba</u>**-ta dien]
I.NOM who-ACC PCL win-NEG-PAST.3SG.SUBJ that
eren-e-bin
hope-AOR-1SG.SUBJ
'I hope that nobody won'

b. **Embedded negation cannot take matrix scope**
*min [**kim-ŋe daqany**] [kel-**<u>bet</u>** dien]
I.NOM who-DAT PCL come-NEG.AOR.3SG.SUBJ that
et-ti-m
tell-PAST-1SG.SUBJ
Intended: 'I told no one to come' [Baker & Vinokurova 2010:616–617]

- ***A fatal problem for FHCT***
  Crucially, FHCT cannot account for this pattern because the matrix v^0 would have to feed accusative case assignment even if it were **unaccusative**:

(13) Masha **Misha-ny**$_1$ [t_1 yaldj-ya dien]
Masha.NOM Misha-ACC fall.sick-FUT.3SG.SUBJ that
<u>tönün-ne</u>
return-PAST.3SG.SUBJ
'Masha returned (for fear) that Misha would fall sick'
[Baker & Vinokurova 2010:618]

- The matrix verb in (13) belongs to a transitivity alternation: *tönün* 'return' ~ *tönnör* 'make return'. The intransitive member of this alternation does not allow its sole argument to bear accusative, as shown below for the verb corresponding to 'break':

(14) a. min **oloppoh-u** aldjat-ty-m *Transitive*
I.NOM chair-ACC break-PAST-1SG.SUBJ
'I broke the chair'

b. **caakky(*-ny)** aldjan-na *Intransitive*
cup -ACC break-PAST.3SG.SUBJ
'The cup broke' [Baker & Vinokurova 2010:608]

⁎ ***Generalisation I***
Some movement can feed dependent case assignment.

2.2 Some movement must not feed case

- While Sakha raising-to-accusative constructions show that some movement can feed dependent case, other movement must not do so. I illustrate this fact with *wh*-movement, for which the problem is most apparent. Let us take the problem in two steps.

2.2.1 Part 1: *Wh*-movement

- ***The problem***
  Dependent case cannot be assigned based on the surface string alone, e.g. (15a) with *wh*-movement must be mapped to (15b) and cannot be mapped to (15c):

(15) a. What$_1$ did John buy ~~what~~$_1$?

b. **What**$_{\text{DEP}}$ did **John**$_{\text{NOM}}$ buy? ✓

c. ***What**$_{\text{NOM}}$ did **John**$_{\text{DEP}}$ buy? ✗

- ***A solution in two parts***[2]

  1. ***Earliness***
     Assign dependent case as soon as possible in the derivation, which forces dependent case assignment to proceed *wh*-movement:

(16) a. **John** buy <u>**what**</u>$_{\text{DEP}}$? *Assign dependent case*

b. **What**$_{\text{DEP}}$ did John buy ~~**what**~~$_{\text{DEP}}$? *Wh-movement*

⇝ *Spellout*

c. What$_{\text{DEP}}$ did **John**$_{\text{NOM}}$ buy ~~what~~$_{\text{DEP}}$? *Assign unmarked case*

  2. ***Restricting dependent case assignment***
     It is also necessary to refine the case calculus such that only two DPs with unvalued case can enter into a dependent-case relationship:

(17) **What**$_{\text{DEP}}$ did <u>**John**</u> buy ~~what~~$_{\text{DEP}}$? (✗)

⇒ However, this solution is still not sufficient.

2.2.2 Part 2: Successive cyclic *wh*-movement

- ***The problem(s)***
  The solution in the previous subsection does not extend to successive cyclic *wh*-movement, where the moving element is itself unvalued for case:

(18) **Who** (***m**) did John say [$_{\text{CP}}$ ~~**who**~~ Mary believed [$_{\text{CP}}$ ~~**who**~~ saw Sue]]? (✗ ✗ ✗ ✗)

⇒ In (18), *who* successive cyclically *wh*-moves, but:

(19) Overwrite Problem
It does not have its own case altered from its intermediate landing sites, i.e. its case is never **overwritten** (or, in this case, valued).

(20) Licensor Problem
It does not itself alter the case of other DPs from its intermediate or final landing sites, i.e. it cannot **license** dependent case.

[2] The pieces of this solution for local *wh*-movement can be found in Preminger (2011, 2014).

- ***Phases provide no escape (hatch)***
  Phases cannot account for the problems in (18) because:
  – Phase edges remain accessible at the next highest phase
    ⇒ Does not solve the Overwrite Problem

(21) *[$_{vP}$ DP$_2$ … [$_{\text{CP}}$ *wh*-DP$_3$ C^0 ([$_{\text{TP}}$ … ⇝ *Not ruled out by the PIC*
phase complement

  – An element in [Spec, CP] is typically assumed to have access to that particular CP-phase ⇒ Does not solve the Licensor Problem

⁎ ***Generalisation II***
Some movement must not feed dependent case assignment.

2.3 Section summary

- ***Generalisations***
  I. Some movement can feed dependent case assignment.
  II. Some movement must not feed dependent case assignment.

- Because some movement affects case, it is insufficient to simply assert that DPs reconstruct to their base position for case assignment.

⇒ Rather, the dichotomy reflects the traditional A/$\overline{\text{A}}$-distinction:[3]

(22) Movement–Case Generalisation
A-movement can feed dependent case, but $\overline{\text{A}}$-movement cannot.

- However, in minimalist syntax, where there is a single primitive movement operation move (or re-merge), there is no principled way to distinguish A-movement and $\overline{\text{A}}$-movement (though see van Urk 2015 and Safir 2015).

⁎ **The goal of this presentation is to derive the locality constraint in (22).**

[3] (22) is distinct from the traditional GB definition of A-movement as movement to receive case because, in DCT, morphological case and DP licensing (i.e. abstract Case) are separate. This is motivated by clear instances of A-movement that do not involve case, e.g. the Icelandic passive (Zaenen et al. 1985).

- ***Dependent case must be in the syntax***
  A consequence of (22) and earliness is that dependent case must be **assigned in the narrow syntax** (pace McFadden 2004; Bobaljik 2008).
  - It is not clear how, in the morphology, (i) A-positions and $\overline{\text{A}}$-positions could be distinguished and (ii) earliness could be implemented.
  - However, both of these will fall out from the **syntactic case calculus** that I develop in section 4.
  - See Preminger (2011, 2014) for additional independent argumentation that case is assigned in the syntax, not the morphology.

- ***Looking ahead…***
  - In the next section, I show a pattern from Finnish crossclausal case assignment that also cannot follow from any binary notion of locality, e.g. phases.
  - Despite not involving movement, this pattern will be shown to parallel movement configurations that are accounted for under the Williams Cycle.
  - I will argue that adopting the Williams Cycle as a constraint on dependent case assignment accounts for crossclausal case assignment in Finnish, in addition to the Movement–Case Generalisation (22).

3 Finnish crossclausal case assignment

- ***MA-infinitives***
  Finnish has a handful of nonfinite constructions. The construction of interest here are MA-infinitives (traditionally called the "third infinitive"):
  - Complements of some verbs (taken from Vainikka 1989:330):
    - e.g. *mennä* 'go', *lähteä* 'leave', *oppia* 'learn', *kieltäytyä* 'refuse'
    - e.g. *pakottaa* 'force', *pyytää* 'ask', *kieltää* 'deny'
  - Inner locative case marker on the verb.
  - TPs, possibly *v*Ps (Koskinen 1998).
  - ⇝ Restructuring infinitives (in the sense of Wurmbrand 2001) with no PRO.[4]

[4] Finnish TA-infinitives also likely do not contain PRO because they exhibit the same alternation in (23) and (24). Alternatively, PRO does not factor into the dependent case assignment in Finnish.

- ***Matrix subject → Embedded object is accusative***
  A matrix subject can assign dependent case to an object embedded in a MA-infinitive across the nonfinite clause boundary:

(23) **Hän** läht-i [$_{TP}$ avaa-ma-an **ove-n**] NOM–ACC
s/he.NOM leave-PAST.3SG open-INF-ILL door-ACC
'S/he left to open the door'

- ***No matrix subject → Embedded object is nominative***
  In the absence of a matrix subject, e.g. in imperatives and passives, nothing assigns dependent case to the embedded object and it surfaces with nominative:[5]

(24) Lähde [$_{TP}$ avaa-ma-an **ovi**]! NOM
leave.IMP open-INF-ILL door.NOM
'Leave to/and open the door!'

- The pattern in (23) and (24) is what we expect in Finnish given standard DCT and the behaviour of monoclausal contexts (Poole 2015a):

(25) a. **Pekka** ost-i **kirja-n** NOM–ACC
Pekka.NOM buy-PAST.3SG book-ACC
'Pekka bought the/a book'

b. **Kirja** oste-ttiin NOM
book.NOM buy-PASS.PAST
'The book was bought' / 'People bought the book'

c. Osta **kirja**! NOM
buy.IMP book.NOM
'Buy the/a book!' [Poole 2015a:3]

[5] Finnish imperatives allow an overt nominative subject in the immediately postverbal position. Given that direct address is also nominative, imperative subjects have been considered to be marked with a special vocative case (Toivainen 1993; Csirmaz 2005). Nevertheless, it has no effect on the case marking, so I set aside the issue here. All of the data can be replicated for passives and necessives.

- ***Adding in a matrix object***
  The interesting pattern emerges when the matrix clause has its own object. As expected, the matrix subject is able to assign dependent case to both the matrix and embedded objects:

(26) a. **Hän** pakott-i **lapse-n** [$_{\text{TP}}$ avaa-ma-an **ove-n**]
s/he.NOM force-PAST.3SG child-ACC open-INF-ILL door-ACC
'S/he force the child to open the door' [Nelson 1998:238]

b. **Maija** pyys-i **Juka-n** [$_{\text{TP}}$ luke-ma-an **kirja-n**]
Maija.NOM ask-PAST.3SG Jukka-ACC read-INF-ILL book-ACC
'Maija asked Jukka to read the book' [Vainikka 1989:267]

(27) **Another possible derivation: Daisy chain**

[DP_1 V^0 $\underline{DP_2}$ [$_{\text{TP}}$ V^0-MA $\underline{DP_3}$]]

⇒ However, in the absence of a matrix subject, **both matrix and embedded objects surface with nominative**:

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

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

- (28) rules out the daisy chain derivation (27). Rather, the case of the matrix and embedded objects covaries with the presence of a matrix subject, as in (26).[6]

- ***Matrix object c-commands embedded object***
  – Finnish third-person possessive suffixes are subject to Condition A and hence must be bound by a c-commanding antecedent (e.g. Nelson 1998):

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

  – A third-person possessive suffix on the embedded object can be bound by the matrix object (and the matrix subject):

(30) **Maija**$_1$ pyys-i **Peka-n**$_2$ [$_{\text{TP}}$ tuo-ma-an levy-**nsä**$_{1,2,*3}$]
Maija.NOM asked-PAST.3SG Pekka-ACC bring-INF-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, even though it cannot assign it dependent case.

. . . .

⁎ This pattern in (26) and (28) is summarised in the following generalisation:

(31) FINNISH CASE PROBLEM
In Finnish, a matrix subject can assign dependent case across an embedded TP boundary, but a matrix object cannot.

⇒ Again, (31) does not involve movement. This will be an important point later.

⇒ ***A problem for binary locality***
  – According to standard notions of locality, e.g. phases, a domain is either opaque to all operations or transparent to all operations.
  – Thus, (31) is unexpected, a domain that is penetrable by a DP in one position, but not another.

- ***What makes Finnish special? (other than its morphophonology)***
  – Because all English nonfinite clauses contain PRO, case assignment is always determined maximally locally.
  – Finnish MA-infinitives are restructuring infinitives and lack PRO and therefore the case-assignment domain can span a clause boundary.
  – I predict potentially finding similar patterns in other languages with restructuring infinitives, which do not contain PRO.

[6] Vainikka (1989) argues for the same generalisation. In her analysis, accusative case can percolate downwards into an embedded nonfinite clause.

4 Applying the Williams Cycle to case

- ***Section overview***
  To account for the problems discussed in the previous two sections, I propose that dependent case is constrained by the Ban on Improper Case, a size-based locality constraint in the spirit of the Williams Cycle (Williams 1974, 2003):

(32) **Ban on Improper Case**
DP_1 that is sister to X cannot assign dependent case to DP_2 across a projection Y, where Y^0 is higher than X^0 in the functional sequence.

(33) $[_{YP}\ Y^0\ [_{XP}\ DP_1\ X^0 \ldots \boxed{[_{YP}} \ldots DP_2$ (✗) $\qquad Y^0 > X^0$

4.1 The Williams Cycle

- ***What is the Williams Cycle?***
  The Williams Cycle is a size-based constraint on operations spanning two clauses, going back to Williams (1974). The basic idea is that movement from a specific domain in an embedded clause may move to the **same kind** of domain or a **higher** domain in the matrix clause.

⁎ In Williams (2003), the Williams Cycle is formulated as the Generalised Ban on Improper Movement, where "higher domain" is defined in terms of the functional sequence. Later, we will see how he derives (34) in his analysis.

(34) **Generalised Ban on Improper Movement**
Given a functional sequence $\langle X_1 > X_2 > \cdots > X_n \rangle$ (where X_i takes $X_{i+1}P$ as its complement), movement from X_i to X_j is impossible, if $X_i > X_j$.

- Movement from a projection cannot land in a projection "lower" than it in *fseq*.

- ***Illustration: Improper movement (a.k.a. superraising)***
  As its name suggests, the Generalised Ban on Improper Movement (34) is designed to account for the ungrammaticality of improper movement, A-movement out of a finite clause (or $\bar{A}$-movement followed by A-movement):

(35) a. **Who** do you think [$_{CP}$ ~~**who**~~ [$_{TP}$ ~~**who**~~ ate the cookies]]? ($\bar{A}$, $\bar{A}$)

b. * **John** seems [$_{CP}$ ~~**John**~~ [$_{TP}$ ~~**John**~~ ate the cookies]] (A, $\bar{A}$)

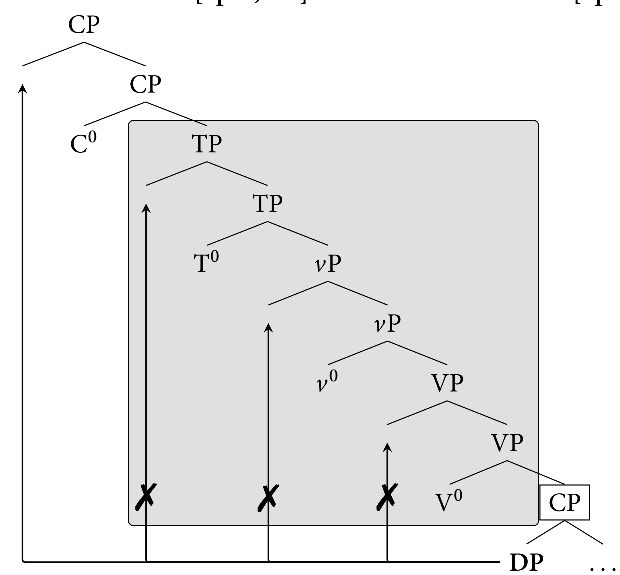
- For concreteness, I will assume the following simple functional sequence:

(36) $fseq = \langle C > T > v > V \rangle$

⇒ According to (34), the relative height of the launching and landing sites determine whether extraction is possible.

- In (35), finite clauses are CPs, and, therefore, movement out of a finite clause can land no lower than [Spec, CP]:

(37) **Movement from [Spec, CP] cannot land lower than [Spec, CP]**



- ***(35a):*** CP is not a barrier for movement to CP because C^0 is not higher than itself in the functional sequence. Therefore, $\bar{A}$-movement out of a finite clause is grammatical:

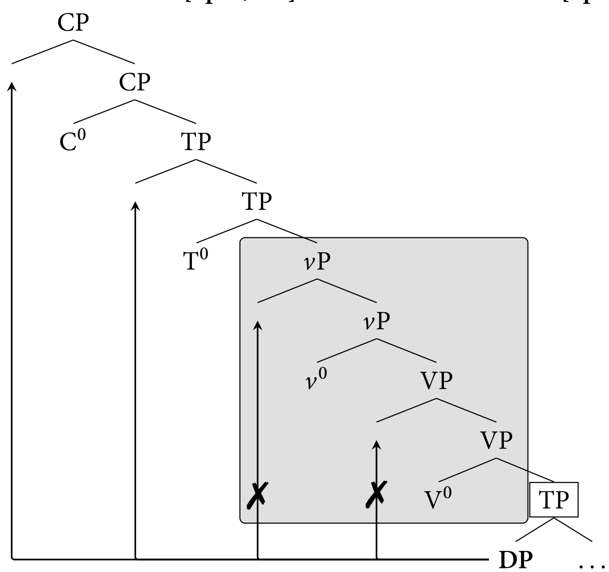
(38) $[_{CP}$ ___ $C^0 \ldots \boxed{[_{CP}}$ DP … (=35a)

- ***(35b)***: CP is a barrier for movement to TP because C^0 is higher than T^0 in the functional sequence. Thus, A-movement out of a finite clause is ungrammatical:

(39) $[_{TP}$ ___ $T^0 \ldots \boxed{[_{CP}}$ DP … (✗) (=35b)

- ***Movement out of a nonfinite clause***
On the other hand, if we consider movement out of a nonfinite clause, such movement can land in either [Spec, TP] or [Spec, CP], given (34):

(40) **Movement from [Spec, TP] cannot land lower than [Spec, TP]**



- Therefore, both A-movement and $\overline{\text{A}}$-movement are possible out of a nonfinite clause, unlike finite clauses.

- ***Beyond the A/$\overline{\text{A}}$-distinction***
Constraining movement in terms of clause size extends beyond the distinction between A-movement and $\overline{\text{A}}$-movement:
  - Embedded questions are opaque for *wh*-movement, but not topicalisation and relativisation (Williams 2013).
  - Infinitival clauses are opaque for extraposition, but not regular A-movement and $\overline{\text{A}}$-movement (Ross 1967; Baltin 1978).
  - In Hindi, finite clauses are opaque for A-scrambling, but not $\overline{\text{A}}$-scrambling (Mahajan 1990).
  - In German, (see Keine 2015 and references therein)
    * Embedded V2 clauses are opaque for movement into a verb-final clause, but not movement into a V2 clause.
    * Finite clauses are opaque for scrambling and relativisation, but not *wh*-movement or topicalisation.
    * Embedded clauses in which topicalisation has taken place are opaque for *wh*-movement, but not subsequent topicalisation.
    * Incoherent infinitives are opaque for scrambling, but not *wh*-movement and relativisation.

- In all of these cases, a domain is permeable to some operations, but not others. The Williams Cycle derives these asymmetries.

- For more discussion, see Williams (1974, 2003, 2013); Müller & Sternefeld (1993, 1996); Abels (2007, 2009, 2012a,b); Neeleman & van de Koot (2010); Müller (2014a,b); and Keine (2015).

4.2 Proposal

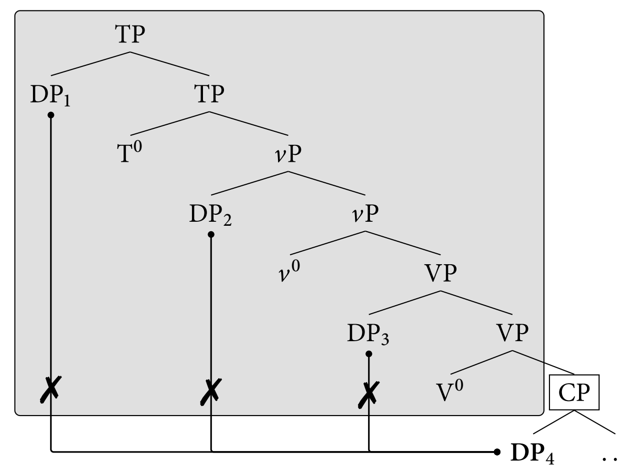
⇒ ***Drawing some parallels***
Crucially, there are parallels between some of our locality problems and the kinds of configurations ruled out by (34):

– ***Overwrite Problem***
A DP does not have its case altered from its intermediate landing sites.

⤳ A DP in [Spec, CP] does not have its case overwritten by other DPs in [Spec, TP], [Spec, νP], and [Spec, VP] in the higher clause.

⤳ $C^0 > T^0$, $C^0 > \nu^0$, $C^0 > V^0$

(41)

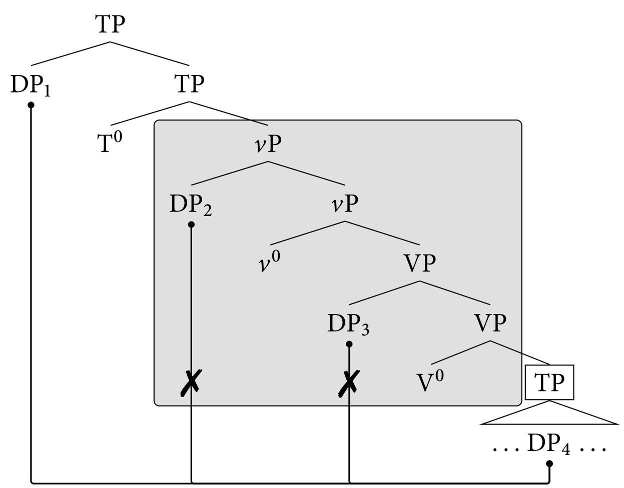


– ***Finnish Case Problem***
A matrix subject can assign dependent case across an embedded TP boundary, but a matrix object cannot.

⇝ A DP in [Spec, TP] can penetrate an embedded TP boundary, but a DP in [Spec, *v*P] or [Spec, VP] cannot.

⇝ $T^0 > v^0$, $T^0 > V^0$

(42)



⁎ **These parallels are the motivation for applying the Williams Cycle to dependent case assignment.**

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- ***A syntactic case calculus***
I adopt the syntactic implementation of DCT from Preminger (2011, 2014):
  - DPs enter the derivation with an unvalued [*u*-CASE] feature. This feature can be valued as either dependent case or a lexical case.
  - Lexical (and inherent) cases are assigned locally by lexical heads, e.g. P^0 and V^0, to their sister.
  - Dependent case is assigned whenever two DPs with unvalued [*u*-CASE] stand in a c-command relationship. The realisation as "accusative" or "ergative" is handled in the morphology.
  - If [*u*-CASE] remains unvalued at Spellout, it is realised as nominative case in the morphology.

- How dependent and unmarked case, the two structural cases, are assigned in this case calculus is illustrated below:

(43) a. $[\ DP_{[u\text{-CASE}]} \ldots [\ \ldots \underline{DP}_{[u\text{-CASE}]}\ ]]$

b. $\rightsquigarrow [\ DP_{[u\text{-CASE}]} \ldots [\ \ldots DP_{[\text{DEP-CASE}]}\ ]]$

c. $\rightsquigarrow_{\text{PF}}\ DP_{\text{NOM}} \ldots DP_{\text{ACC}}$

- The desirable consequence of this system is it derives the DCH as a consequence of how syntactic structure is built:
  - The structure containing a lexical head and its sister DP_1 will always be built before a structure containing DP_1 and a DP_2 that c-commands DP_1.
  - Therefore, lexical cases will be assigned before dependent case.
  - Unmarked (nominative) case is handled in the morphology, after both lexical and dependent cases.

⁎ ***The Proposal: Ban on Improper Case***
I propose that dependent case assignment is subject to the Ban on Improper Case in (44), which is a direct extension of the Williams Cycle:

(44) **Ban on Improper Case**
DP_1 that is sister to X cannot assign dependent case to DP_2 across a projection Y, where Y^0 is higher than X^0 in the functional sequence.

- The Ban on Improper Case (44) states barrierhood for dependent case assignment relative to the syntactic position of the higher DP in the pair, defined in terms of the functional sequence.

- For example, a DP in [Spec, TP] can assign dependent case past T^0, v^0, and V^0, all of which are lower or equal to T^0 in the functional sequence. But it cannot assign dependent case past C^0 because $C^0 > T^0$:

(45) $[_{\text{TP}}\ DP_1\ T^0\ [_{vP} \ldots \boxed{[_{\text{TP}}}\ \underline{DP}_2 \ldots$ $\qquad T^0 \not> T^0$

(46) $[_{\text{TP}}\ DP_1\ T^0\ [_{vP} \ldots \boxed{[_{\text{CP}}}\ \underline{DP}_2 \ldots$ (✗) $\qquad C^0 > T^0$

4.3 Application

⇒ ***Finnish Case Problem***
In Finnish, the matrix subject can penetrate an embedded TP because T^0 is not higher than itself in the functional sequence. Thus, it assigns dependent case to both the matrix and embedded objects:

(47) [$_{TP}$ DP_1 T^0 [$_{\nu P}$ $\underline{DP_2}$ ν^0 [$_{VP}$ V^0 [$_{TP}$ … $\underline{DP_3}$ … (=26)

- The matrix object from its *v*P-internal position cannot penetrate the embedded TP because T^0 is higher than ν^0 in the functional sequence.
- Therefore, in the absence of a matrix subject, the [*u*-case] feature on both matrix and embedded objects remains unvalued at Spellout and both are realised as nominative:

(48) [$_{TP}$ T^0 [$_{\nu P}$ $\underline{DP_1}$ ν^0 [$_{VP}$ V^0 [$_{TP}$ … $\underline{DP_2}$ … (=28)

⇒ ***Overwrite Problem***
With respect to movement, the Ban on Improper Case crucially prohibits a DP in [Spec, *v*P] or [Spec, TP] from assigning dependent case to a DP in [Spec, CP] because C^0 is higher than both T^0 and ν^0 in the functional sequence.

- This accounts for why a *wh*-element's case is not overwritten at its intermediate landing sites:

(49) [$_{TP}$ DP_1 … [$_{\nu P}$ DP_2 … [$_{CP}$ *wh*-DP_3 …

⇒ ***Sakha raising-to-accusative constructions***
In Sakha, object shift of the embedded subject into the matrix clause moves it to a position below the matrix subject such that dependent case can be assigned to it without violating the Ban on Improper Case:[7]

(50) [$_{TP}$ DP_1 … [$_{\nu P}$ DP_2 … [$_{CP}$ DP_2 … (=9)

[7] This movement from a finite clause to a *v*P-internal position itself violates the Generalised Ban on Improper Movement, but is admissible under Keine's (2015) Agree-barriers approach.

⁎ ***What about other possible approaches?***
Recall that the Finnish Case Problem does not involve movement:

- It is not amenable to a brute-force approach to the A/$\overline{\text{A}}$-distinction (e.g. van Urk 2015; Safir 2015), simply because there is no movement.
- Nevertheless, it shows the same structural configuration as predicted under the Williams Cycle: a TP is penetrable only by DPs in [Spec, TP] or higher.
- Thus, it provides independent evidence for the Williams Cycle constraining dependent case assignment. The Overwrite Problem then follows without further stipulation.

⇒ ***Licensor Problem***
There are two possible solutions to the Licensor Problem:

1. ***Spellout precedes dependent case***
   The phase complement undergoes Spellout at C^0 before dependent case assignment can probe the structure.
2. ***Insulation***
   Safir (2015) proposes that an "insulation" projection H^0 is countercyclically merged on top of an $\overline{\text{A}}$-moving element. This insulation shell could prohibit the moving DP to itself license dependent case.
   - Note that insulation would not solve the Overwrite Problem because the DP inside the shell must still be accessible from the outside for binding.
   - Perhaps H^0 is Cable's (2010) Q^0.

- It is worth reemphasising that the PIC **cannot** account for the Finnish Case Problem or the Overwrite Problem. We need the Williams Cycle to apply to dependent case assignment irrespective of our solution the Licensor problem.

. . . .

- ***What about vP phases?***
  Until now, I have assumed that successive cyclic movement only targets [Spec, CP]. It is standardly assumed, however, that successive cyclic movement targets [Spec, *v*P] as well (Chomsky 2000, 2001).
  - *v*P phases are a problem, in general, for accounting for improper movement because movement to [Spec, *v*P], in effect, neutralises movement from finite and nonfinite clauses.
  - Therefore, there is no way to locally determine whether movement to [Spec, CP] is possible without examining the history of the moving element.

– Müller's (2014b) solution to this problem does precisely this: Moving elements keep a record of where they have been, and locality constraints can check this record. Presumably, this analysis could be applied to case as well.

- However, Finnish crossclausal case assignment is an argument against *v*P phases because there should be two intervening *v*P phases blocking the necessary dependency with the matrix subject:

(51) **Hän** pakott-i **lapse-n** [$_{TP}$ avaa-ma-an **ove-n**]
s/he.NOM force-PAST.3SG child-ACC open-INF-ILL door-ACC
'S/he force the child to open the door' [Nelson 1998:238]

5 Locality, selective opacity, and beyond

- ***Interim summary***
In the previous sections, I argued that the Williams Cycle, a size-based locality constraint, constrains the assignment of dependent case, which I formulated as the Ban on Improper Case. Therefore, the Williams Cycle is operative in the domain of case.

⇒ ***Question***
Where else in the grammar is the Williams Cycle, or size-based locality in general, operative?

- ***Movement***
As mentioned earlier, it has been argued that the Williams Cycle accounts for a variety of movement asymmetries, which do not follow from binary notions of locality, e.g. phases:
  – Embedded questions are opaque for *wh*-movement, but not topicalisation and relativisation (Williams 2013).
  – Infinitival clauses are opaque for extraposition, but not regular A-movement and $\overline{\text{A}}$-movement (Ross 1967; Baltin 1978).
  – In Hindi, finite clauses are opaque for A-scrambling, but not $\overline{\text{A}}$-scrambling (Mahajan 1990).
  – In German, (see Keine 2015 and references therein)
    * Embedded V2 clauses are opaque for movement into a verb-final clause, but not movement into a V2 clause.
    * Finite clauses are opaque for scrambling and relativisation, but not *wh*-movement or topicalisation.
    * Embedded clauses in which topicalisation has taken place are opaque for *wh*-movement, but not subsequent topicalisation.
    * Incoherent infinitives are opaque for scrambling, but not *wh*-movement and relativisation.

- ***Agreement***
Keine (2015) argues that the Williams Cycle is also operative in the domain of φ-agreement based on evidence from long-distance agreement (LDA) in Hindi. He observes that LDA correlates with the size of the embedded clause:

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

(53) **Hindi LDA and clause size**

a. **Finite clause (CP) → LDA impossible**
firoz-ne soc-ā/*-ī [ki monā-ne **ghazal**
Firoz-ERG think-PFV.M.SG/*-PFT.F.SG that Mona-ERG ghazal.F
gā-yī thī]
sing-PFV.F.SG be.PAST.F.SG
'Firoz thought that Mona had sung ghazal.' [Bhatt 2005:776]

b. **Nonfinite clause (TP or *v*P) → LDA possible**
us-kī$_1$ mā̃-ne [[**har** **bacce-ko**]$_2$ **film**
3SG-GEN mother-ERG every child-DAT movie.F
dikhā-nī/-nā] cāh-ī/-ā
show-INF.F.SG/-INF.M.SG want-PFV.F.SG/-PFV.M.SG
'His$_1$ mother wanted to show a movie to every child$_2$.' [Keine 2015:7]

c. **Nonfinite clause with A-scrambling (*v*P) → LDA obligatory**
[**har** **bacce-ko**]$_1$ us-kī$_1$ mā̃-ne [t_1 **film**
every child-DAT 3SG-GEN mother-ERG movie.F
dikhā-nī/*-nā] cāh-ī/*-ā
show-INF.F.SG/*-INF.M.SG want-PFV.F.SG/*-PFV.M.SG
'For every child x, x's mother wanted to show x a movie.'
[Keine 2015:7]

- Keine argues that the behaviour of LDA in Hindi (53) follows from
  1. the φ-probe in Hindi being located on T^0 and
  2. a size-based locality constraint like the Williams Cycle.

⁎ ***Selective opacity***
For movement, agreement, and case, we find domains that are what Keine (2015) calls SELECTIVELY OPAQUE: A domain Δ that is permeable to one operation α, but not another operation β.

(54) [XP . . . [YP . . . [$_{\Delta}$ . . . ZP . . .]]]
(α: XP → ZP; β: YP ✗→ ZP)

- Crucially, selective opacity does not follow from binary notions of locality, e.g. phases, wherein a domain is either **opaque for all operations** or **transparent for all operations**.

⁎ ***The next question***
How do we account for selective opacity. In other words, how do we derive the Williams Cycle?

- ***Option 1: Level Embedding Conjecture***
Williams (2003) proposes that the Williams Cycle follows from how clauses are embedded, which he calls the Level Embedding Conjecture (LEC):

(55) LEVEL EMBEDDING CONJECTURE (LEC)
An XP can only be embedded in a structure that is also built up to an XP.

- Williams (2003) develops a new theory of syntax rather different from our standard theory, where a constraint like (55) follows more naturally.

- Nevertheless, the LEC can be translated into our standard theory. For example, consider a derivation of *that*-clause embedding:

(56) Mary thinks that John saw Sue

a. **Build up to the VP-level**
[$_{VP}$ thinks], [$_{VP}$ saw Sue]

b. **Build up to the TP-level**
[$_{TP}$ Mary thinks], [$_{TP}$ John saw Sue]

c. **Build the CP-level**
[$_{CP}$ Mary thinks], [$_{CP}$ that John saw Sue]

d. **Join the two CP-structures**
[$_{CP}$ Mary thinks] + [$_{CP}$ that John saw Sue] =
Mary thinks that John saw Sue

- The crucial consequence of the LEC is that a root TP containing an embedded CP never exists in the derivation. Thus, movement from [Spec, CP] to [Spec, TP] is impossible because the relevant structure cannot be created.

(57) *[$_{TP}$ . . . T^0 . . . [$_{CP}$ . . . C^0 . . .]] *Impossible given the LEC*

- ***Option 2: AGREE-barriers***
Keine (2015) proposes that individual AGREE-probes can specify a projection as a barrier:

(58) AGREE-BARRIERS
If a projection Π has an AGREE-barrier for probe π, then a π-initiated search terminates as Π. Π will thus be (selectively) opaque for π.
[Keine 2015:21]

- AGREE-barriers in conjunction with properties of the extended projection derive a limited set of possible barriers for any given probe as a function of its height in the functional sequence.

. . . .

⇒ The crucial difference between the LEC and AGREE-barriers is that AGREE-barriers account for a set of observed exceptions to the Generalised Ban on Improper Movement, e.g. subject-to-object raising in English or superraising in Bantu languages.

- However, neither the LEC nor AGREE-barriers extend to case in their current formulations:
  - The LEC would need to apply an equivalent of the Extension Condition for case, whose ramifications would need to be explored.
  - AGREE-barriers would need to formulate DCT in terms of AGREE.

- Therefore, the proper implementation of the Williams Cycle in a way that captures size-based locality effects for movement, agreement, and case remains an open problem.

6 Conclusion

- I showed two locality problems for Dependent Case Theory:
  1. A-movement, but not $\overline{\text{A}}$-movement can feed dependent case assignment.
  2. In Finnish, a matrix subject can penetrate an embedded TP boundary to assign dependent case, but a matrix object cannot.
- Based on parallels with improper-movement configurations, I proposed that dependent case assignment is subject to the Ban on Improper Case, a locality constraint in the spirit of the Williams Cycle.
- The Williams Cycle has also been shown to be operative in both movement and agreement. Therefore, this presentation contributes the novel observation that it is also operative in case assignment.
- Therefore, evidence from movement, agreement, and case provides converging evidence for a size-based locality constraint.
- This shows that improper movement is not about a constraint on movement proper, but the results of a more general size-based constraint (Keine 2015).
- Finally, this raises the question of the proper implementation of the Williams Cycle so as to capture its effects in movement, agreement, and case.

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Appendix A: Finnish structurally case-marked adjuncts

- In Finnish, durational adjuncts (e.g. *for an hour*), spatial measure adjuncts (e.g. *a kilometre*), and multiplicative adjuncts (e.g. *three times*) compete for nominative case, alongside the subject and object.

- By stacking these adjuncts, it can be seen that dependent case generalises in Finnish beyond the simple competition between the subject and the object:

(59) a. **Subject → NOM, Adjunct$_1$ → ACC, Adjunct$_2$ → ACC**

Tarja	luotti	[Kekkose-en]$_{LEX}$	[**yhde-n**	**vuode-n**]
Tarja.NOM	trusted	Kekkonen-ILL	one-ACC	year-ACC
[**kolmanne-n**	**kerra-n**]			
third-ACC	time-ACC			

'Tarja trusted Kekkonen for a year for a third time'

b. **Adjunct$_1$ → NOM, Adjunct$_2$ → ACC**

[Kekkose-en]$_{LEX}$	luote-ttiin	[**yksi**	**vuosi**]
Kekkonen-ILL	trust-PASS.PAST	one.NOM	year.NOM
[**kolmanne-n**	**kerra-n**]		
third-ACC	time-ACC		

'Kekkonen was trusted for a year for a third time'

c. **Adjunct$_2$ → NOM**

[Kekkose-en]$_{LEX}$	luote-ttiin	[**kolmas**	**kerta**]
Kekkonen-ILL	trust-PASS.PAST	third-NOM	time-NOM

'Kekkonen was trusted for a third time' [Maling 1993:59]

- The crucial data point is (59b) where dependent accusative case is assigned in a passive to an adjunct.

- According to FHCT, v^0_{PASS} would have to lack the ability to assign accusative to account for the standard case alternation in passives, e.g. (59c). This would in turn predict that no adjunct in (59b) should have accusative case.

- Therefore, FHCT would need to make an additional stipulation about the paradigm in (59). No such stipulation is needed in DCT, where the paradigm in (59) follows without further ado.

- See Poole (2015a) for additional discussion.