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Williams Cycle effects and successive cyclicity unified

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1 Introduction

- **The Williams Cycle generalization** (Williams 1974, 2003, 2013) in (1) captures **the attested patterns of *selective opacity*** (term from Keine 2016, 2019, 2020).

(1) **Williams Cycle:** Movement to Spec,βP cannot proceed from Spec,αP or across αP, if α is higher than β in some functional sequence.
(based on Williams 2003; Poole 2023)

– For example, the English CPs is not an island, *wh*-movement can proceed from it and land in matrix Spec,CP:

(2) [$_{CP}$ Who$_1$ did you think [$_{CP}$ __$_1$ has eaten an apple]]?.

– Raising to Spec,TP in English can proceed from TPs:

(3) [$_{TP}$ John$_1$ seems [$_{TP}$ __$_1$ to have eaten an apple]].

– However, the Williams Cycle in (1) correctly predicts that since C>T in the *f*(unctional) *seq*(uence), raising to Spec,TP cannot proceed from CPs (i.e. English CPs are opaque to *hyperraising*; Chomsky 1973):

(4) *[$_{TP}$ John$_1$ seems [$_{CP}$ __$_1$ has eaten an apple]]

- Besides English, the **Williams Cycle effects have been been attested in a number of languages**, e.g. German (Müller 2014a,b), Hindi (Keine 2016, 2019, 2020), Swahili (Meadows 2023), Georgian (Bondarenko 2024), Mandarin Chinese (Meadows and Yan 2024), and Hungarian (Egressy 2023, 2025, 2026).

– Terminological clarification: If a language follows (1), it exhibits *Williams Cycle effects*, if it does not, the Williams Cycle effects are obviated.

- **Williams Cycle effects or selective opacity in general cannot be derived from Standard Phase Theory** (Chomsky 2000, 2001), which is currently the standard explanation behind *successive cyclic* movement:

– Under Phase theory, certain categories are *phasal*, e.g. a CP or a DP can be a *phase* (Svenonius 2004).

– **The complement of phase heads is inaccessible for *all* external probes, whereas the edge of phases is accessible for *all* external probes.**

– For example, if something moves to Spec,CP, Phase Theory itself predicts that it can continue its movement to any matrix position (e.g. either Spec,TP or Spec,CP).

– That is, Phase Theory *by itself* is not capable of deriving selective opacity (Keine 2016, 2019, 2020).

- Previous accounts derive **Williams Cycle effects (selective opacity) and successive cyclicity from *different mechanisms***, for example:

– Accounts building on the Ban on Improper movement (Chomsky 1973), need to add to Phase Theory that we have A-movement and $\overline{\text{A}}$-movement, and only the latter can proceed from Spec,CP (for a more general movement-type based account, see Abels 2007).

– In Keine's (2016; 2019; 2020) account, phases deriving successive cyclicity co-exist with *horizons*, a probe-constraining mechanism deriving selective opacity (e.g. the raising probe is blocked by Cs but the *wh*-probe is not).

– In the *size-dependent substitution/adjunction* account by Meadows (2023), the derivation of successive cyclicity still comes from phases.

- Under these accounts, a certain constituent can be opaque for two reasons: a) it is a phase; b) it is too large.

- I propose that **Williams Cycle effects and successive cyclicity can be derived in a *unified way***.
  - In particular, I argue that Williams Cycle effects and successive cylicity can be derived from **a single constraint, the *Probe Along Fseq-Fragments* (PAFF)**.
  - **Williams Cycle effects arise when a certain clause cannot be escaped successive cyclically but only after clausal movement to an equal-sized matrix projection**.
  - In contrast, **successive cyclic movement obviates Williams Cycle effects**.
  - That is, **Williams Cycle effects and successive cyclicity never co-occur**.
  - This theory gives the right cut between clause types obeying and not obeying the Williams Cycle while keeping the set of predicted patterns highly restricted.
- The presentation is structured as follows:
  - Section 2 introduces PAFF, the unified constraint.
  - Section 3 discusses how successive cyclic movement is an escape strategy under PAFF; the relevant examples will come from English, P'urhepecha and Mongolian.
  - Section 4 introduces clause movement as an alternative strategy; the examples here will be from German, English, Hindi, and Hungarian.
  - Section 5 introduces data from Tsez, where I discuss what happens if neither successive cyclicity nor clausal movement is available.

2 Probe Along *Fseq*-Fragments

- Standard **Phase Theory** (Chomsky 2000, 2001) **can derive successive cyclicity**, but without further assumptions, it **cannot derive Williams Cycle effects**.
  - The PIC in (5) claims that there are certain categories (e.g. C) which are associated with phasehood.
  - **Successive cyclic movement is derived** under the PIC **because any probe external to CPs can only see the *edge* of CP, which is Spec,CP**.

(5) **Phase-Impenetrability Condition (PIC)**: The domain of H is not accessible to operations outside HP; only H and its edge are accessible to such operations. (Chomsky 2000:p.13).

[× … [HP phase ✓ [H [… XP …]]]] [✓ … [HP phase XP [H […]]]]

  - The PIC in (5) cannot derive Williams Cycle effects (repeated in (7)): **A phase's edge is generally accessible for higher probes; a phase head's complement is generally inaccessible; i.e. opacity is never selective**.
  - For example, if a DP moves to Spec,CP, Phase Theory itself does not exclude its movement to Spec,TP although this is ruled out in English. (Notice that the A vs. $\overline{\text{A}}$ distinction and the Ban on Improper Movement are non-trivial additions.)

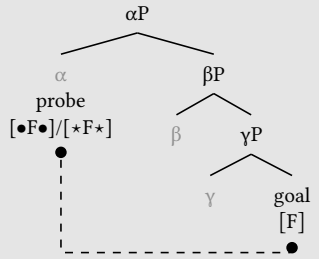
(6) [TP ✓ … [CP DP [C [… ~~DP~~ …]]]]

(7) **Williams Cycle:** Movement to Spec,βP cannot proceed from Spec,αP or across αP, if α is higher than β in some functional sequence.
(based on Williams 2003; Poole 2023)

- In this enterprise, I propose that we do not have to add a second mechanism/concept/type of locality to the PIC-based theory to derive selective opacity (for such accounts, see Keine 2016, 2019, 2020; Meadows 2023).
- Rather, I propose that we can **replace the PIC with a single locality constraint**: ***Probe Along Fseq-Fragments* (PAFF)**, which is defined in (8).
  - In a configuration like (9), **the heads c-commanded by the probes [•F•]/[⋆F⋆] and c-commanding the goal are α, β, and γ** (notation from Heck and Müller 2007: [⋆F⋆] is Agree, [•F•] is Merge).
  - In (9), **the probes [•F•]/[⋆F⋆] can reach its goal iff there is an *fseq*-fragment such that α >β> γ and no further heads occur between these heads in the *fseq*** (i.e. α,β, and γ are *adjacent* in the *fseq*).

(8) **Probe Along *Fseq*-Fragments (PAFF):** Starting with the head that the probe is located on, the heads c-commanding goal must make up a well-formed functional sequence fragment. (based on Egressy 2023)

(9)



- I assume that *fseq*s are always complete within clauses, e.g. the head below C is always T, it cannot be *v*.
- PAFF is based on the intuition by Bošković (2014), who proposes that **extended projections and *fseq*s should be the basic units of syntactic computation** (rather than constituents of a certain size).
- Unlike Bošković (2014), **PAFF does not make reference to *phases*** (similar to accounts like Keine and Zeijlstra 2023; Halpert and Zeijlstra 2024).
- PAFF reflects the intuition, originally in Chomsky (1977), that by default operations must be internal to clauses, more generally, to extended projections.
  - (10) depicts movement within and from within a CP; the clausal *fseq* is assumed to be C>T>*v*>V.
  - **Clause-internal movement of XP is always PAFF-compliant**: From a V-complement position, [•F•] on C can reach XP along the well-formed C-T-*v*-V sequence.
  - Similarly, [•F•] on T can reach XP along the T-*v*-V sequence.

(10) $[_{VP} V\ [_{CP} \checkmark C_{[\bullet F\bullet]} [_{TP} \checkmark T_{[\bullet F\bullet]} [_{vP}\, v [_{VP} V \cancel{XP}$...

- In contrast, **[•F•] on some matrix head α cannot reach XP if it occurs in an embedded clause**.
  - With a CP-sized clause in (11), XP cannot be reached by [•F•] on the matrix α because the probing would happen along the the *α-...-V-C... sequence, which is ill-formed because V is not the next lowest head above C in *fseq*.
  - With TP-sized clause, as in (12), TP becomes uncrossable: [•F•] on some matrix head α cannot reach XP becuase the probing happens along the α-...-V-T... sequence, which is ill-formed because V is not above T in *fseq*.

(11) $[\times\ \alpha_{[\bullet F\bullet]}$...$[_{VP} V\ [_{CP} C [_{TP} T [_{vP}\, v [_{VP} V \cancel{XP}$...

(12) $[\times\ \alpha_{[\bullet F\bullet]}$...$[_{VP} V\ [_{TP} T\ [_{vP}\, v [_{VP} V \cancel{XP}$...

  - That is, following Bošković (2014), PAFF derives that it is always the maximal projection of an extended projection that is the "uncrossable barrier".
- Following the intuition in (Chomsky 1977), **operations crossing multiple extended projections will be made possible via various strategies**.
- Which of these strategies is used depends on the features of **the *individual categories in individual languages***.
- Each head α in any language has in principle the following options:

(13)

	Edge feature	Moving clauses	Williams Cycle?
Option 1	✓	(irrelevant)	No
Option 2	×	✓	Yes
Option 3	×	×	(no subextraxtion)

  1. **If an α head has an *edge feature* [•EF•], αP can be left successive cyclic movement**.
     - Examples: English TPs, P'urhepecha CPs, Mongolian CPs
  2. **If all of α's features induce *criterial freezing* (Rizzi 2004), sub-extraction can happen from αP if it merges with an equal-sized αP**.
     - Examples: German CPs ,English CPs, Hungarian finite clauses, Hindi CPs
  3. **If neither 1. nor 2. is available, αP is opaque**.
     - Example: Tzez embedded clauses.
- Sub-extraction from αP **obeys the Williams Cycle iff it happens via clausal movement** (Option 2); **successive cyclic movement** (Option 1) **obviates Williams Cycle effects**.

3 Successive cyclicity obviates Williams Cycle effects

3.1 How does successive cyclic movement work?

- Building on the intuitions of Rizzi (2004), Chomsky (2013), Georgi (2014, 2017), I distinguish between *edge features* and features that induce *criterial freezing*.
  - **Any movement feature is either a criterial feature (defined in (14)) or an edge feature (defined in (14))**.
  - Edge features can move anything that is not criterially frozen; i.e. they are categorially unspecified (a.o. Georgi 2014, 2017).
  - For example, edge features can move DPs but also *wh*-phrases.[1]

[1] How we exclude moving constituents that are not attracted later is a general question in the literature (e.g.

- Unlike criterial features, **edge features leave open the possibility of subsequent movement** (or [•EF•] can only move XP if XP gets affected later Chomsky 1995).

(14) **Criterial features**: After [◎F◎] on α attracts an XP bearing [F], XP cannot leave Spec,αP.

(15) **Edge features**: [•EF•] on α can attract any XP to Spec,αP that is not criterially frozen; [•EF•] does not freeze constituents in Spec,αP.

- **Whether a head α in some language has [•EF•] is lexically determined**; if α has [•EF•] in a language, it always has it.
- E.g. as we will see, the English T or the Mongolian C has [•EF•] but the English C or German C do not.
- **If a head α has [•EF•], PAFF permits successive cyclic movement via Spec,αP** (i.e. the edge status is preserved from):
  - In (16), the embedded C has a [•EF•], which can reach the V-complement *wh* along the well-formed C-T-*v*-V sequence (i.e. via clause-internal probing)
  - If there is a [◎WH◎] on the matrix C, it can reach the embedded Spec,CP along the well-formed C-T-*v*-V sequence.
  - That is, this ***wh*-probing is clause-internal under PAFF-based locality**.
  - Since [◎EF◎] does not freeze *wh* in the embedded Spec,CP, *wh* can move to matrix Spec,CP.

(16) $[_{CP}\checkmark C_{[◎WH◎]}\,[_{TP}\,T\,[_{vP}\,v\,[_{VP}\,V\,[_{CP}\,wh\,[C_{[•EF•]}\,[_{TP}\,T\,[_{vP}\,v\,[_{VP}\,V\,\sout{wh}\ldots$

- Importantly, the PAFF-based theory predicts that movement from an edge position can proceed to any matrix position:
  - For example, if a DP moves to Spec,CP and XP is frozen there, the [◎D◎] on *v* can reach the DP along the well-formed *v*-V sequence.
  - That is, PAFF allows successive cyclic hyperraising.

(17) $[_{vP}\checkmark v_{[◎D◎]}\,[_{VP}\,V\,[_{CP}\,DP\,[C_{[•EF•]}\,[_{TP}\,\sout{DP}\ldots$

- In general, **I predict that successive cyclicty obviates the violations of the Williams Cycle**, repeated in (18).
  - In particular, given that a a language has a certain set of cross-clausal operations, and some head α has [•EF•], successive cyclic movement will allow any of these operations from αP.
  - For example, given that a language has raising to subject (Spec,TP) and raising to object (Spec,*v*P) and C has [•EF•], hyperraising to subject and object will be allowed from CPs in this language.
  - Importantly, these **hyperraising constructions do not fit the Williams Cycle pattern (the *fseq* is C>T>*v*) but are attested**.

(18) **Williams Cycle for probing:** A probe on γ cannot search into βP if β is higher than γ in some functional sequence.
(based on Williams 2003; Poole 2023; Egressy 2025)

- In the following sections, I will bring examples from various languages in which successive cyclic movement obviates Williams Cycle effects.

3.2 Successive cyclic Williams Cycle-obviation in English TPs

- As shown in (19) (Halpert and Zeijlstra 2024:p.14), **raising to Spec,TP proceeds successive cyclically via Spec,TP in English**.
  - Baltin (1995) notes that the quantifier floating of *all* indicates subject raising to Spec,TP proceeds from TPs via the embedded Spec,TP (subjects are assumed generated in Spec,*v*P).
  - In my terms, **the English T has an [•EF•]**, which allows successive cyclic movement via Spec,TP.

(19) $[_{TP}\,[\text{The students}]_1$ seemed $[_{TP}\,\textit{all}\ \_\__1$ to have $\_\__1$ win the race$]]$

  - The successive cyclic subject raising is PAFF-compliant: [•EF•] probes along the T sequence, the matrix T's D probes along the T-*v*-V sequence.

Chomsky 1995; Fox and Pesetsky 2005; Heck and Müller 2007). One general intuition, which I will also follow here, is that only those constituents can be attracted to the edge that get later affected (Chomsky 1995; Heck and Müller 2000; Bošković 2007; Chomsky 2013). I will also assume that there is no superiority with respect to [•EF•], i.e. if there are two eligible goals, it can move either independently of their relative height.

- Under PAFF-based theory, we expect that **since TP allows successive cyclic sub-extraction, operations across TP are not constrained by the Williams Cycle**; this is borne out:
  - *Raising to object* can proceed from English TPs, as shown in (20) (modified version of Johnson 1991:p.595)
  - That *George* leaves the embedded clause is shown by the fact that it precedes the particle *out*.[2]
  - Assuming that the particle *out* does not leave the matrix VP, the verb *makes* ends up in *v*, and *to* is a T head, *George* lands in a Spec,βP such that T>*v*> β >V in *fseq*.
  - **While movement from TP to Spec,β violates the Williams Cycle in (21) (T> β in *fseq*), this violation is obviated under PAFF because the [◎D◎] probe on β probes along the well-formed β-V sequence**.

(20) Mikey [$_{TP}$ will [$_{vP}$ make [$_{\beta P}$ George$_1$ [$_{VP}$ out [$_{TP}$ __$_1$ to be a liar]]]].

(21) **Williams Cycle for probing:** A probe on γ cannot search into βP if β is higher than γ in some functional sequence.
(based on Williams 2003; Poole 2023; Egressy 2025)

- In general, previous Williams Cycle accounts (Williams 2003; Poole 2023) have a difficulty with actually attested patterns not exhibiting Williams Cycle effects like (20).

3.3 Successive cyclicity via a single edge: P'urhepecha CPs

- The P'urhepecha CP is transparent to three different movement types:
  - Firstly, *wh*-movement, whose landing site I will call Spec,CP, can proceed from CPs introduced by *eska* 'that' (Zyman 2017:p.4; Erik Zyman, p.c.):

(22) [$_{CP}$ ✓C$_{[◎WH◎]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ *wh* [C$_{[•EF•]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V ~~*wh*~~...

¿Ambe$_1$ uetarincha-sïn-∅-ga=ni [$_{CP}$ __$_1$ eska Emilia k'uanatsinta-a-∅-ka
what need-HAB-PRS-INT=pS that Emily buy-FUT-PRS-SBJV
__$_1$]?

'What do they need Emily to buy?' (interrogative mood)

(23) [$_{CP}$ ✓C$_{[◎WH◎]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ *wh* [C$_{[•EF•]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V ~~*wh*~~...

[Naki takukat-eecha-ni]$_1$ xarara-sïn-∅-gi [$_{CP}$ __$_1$ eska
which book-PL-ACC seem-HAB-PRS-INT that
jorhenguararíri-cha k'amaku-∅-∅-ka=sï __$_1$ ia]?
student-PL finish-PFV-PRS-SJ=3pS already
'Which books does it seem that the students have already finished?'

  - Secondly, subject raising can proceed from CPs (Erik Zyman, p. c.); for simplicity, I will analyze the landing site as Spec,TP:[3]

(24) [$_{TP}$ ✓T$_{[◎D◎]}$ [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ DP [C$_{[•EF•]}$ [$_{TP}$ ~~DP~~...

Ts'ïma uaripeku-eecha$_1$ xarara-sïn-∅-di=sï [$_{CP}$ eska __$_1$
those war-PL seem-HAB-PRS-IND3=3pS that
k'amara-∅-∅-ka=sï ia]
end-PFV-PRS-SBJV=3pS already
'Those wars seem to have ended already.'

  - Finally, CPs are transparent to object raising, which lands in Spec,*v*P (Zyman 2017:p.4):

(25) [$_{vP}$ ✓*v*$_{[◎D◎]}$ [$_{VP}$ V [$_{CP}$ DP [C$_{[•EF•]}$ [$_{TP}$ ~~DP~~...

Emilia ueka-sïn-∅-di Xumo-ni$_1$ mintsita-ni jingoni [$_{CP}$ __$_1$ eska
Emily want-HAB-PRS-IND3 Xumo-ACC heart-ACC with that
__$_1$ jaruata-a-∅-ka pauani]
help-FUT-PRS-SBJV tomorrow
'Emily wants Xumo with all her heart to help her tomorrow.'

  - Notice that **the last two do not fit the Williams Cycle pattern in (21) because C is higher than T or *v* in *fseq***.

- P'urhepecha provides another way to see that all of these movement types proceed via Spec,CP:
  - Assume that *wh*-movement is obligatory in P'urhepecha; in contrast, hyperraising to subject and object are optional (Zyman 2017, 2018)
  - That is, if [◎WH◎] does not get satisfied, the derivation crashes, if [◎D◎] on T or *v* does not get satisfied, the derivation does not crash.

[2] Further arguments for genuine sub-extraction have been brought by Postal (1974) and Lasnik and Saito (1999).

[3] According to Zyman (2018), the landing site of subject raising can vary but it is always a βP such that C> β ≥*v*.

– Zyman (2017, 2018) **argues that P'urhepecha CPs have a signle edge psoition**.

– In my terminology, **[•EF•] can probe only once**; e.g. in (22) and (23), the *wh*-phrase is moved by the [•EF•] feature, so even if *v* or T had a [◎D◎], these cannot reach their goal because probing needs to happen the (T-)*v*-V-C sequence:

(26) $[_{CP}\checkmark C_{[◎WH◎]}[_{TP} \times T_{[◎D◎]}[_{vP} \times v_{[◎D◎]}[_{VP} V\ [_{CP}\ wh\ [C_{[•EF•]}[_{TP} DP T[_{vP}\ v[_{VP} V\ \sout{wh}...$

– Correspondingly, in (27) and (24) (Zyman 2017:p.4 and Erik Zyman, p.c., respectively), **object- and subject-raising cannot proceed in addition to *wh*-movement**.

(27) $[_{CP}\times C_{[◎WH◎]}[_{TP} T[_{vP} DP\ v_{[◎D◎]}[_{VP} V\ [_{CP}\ \sout{DP}\ [C_{[•EF•]}[_{TP} T\ \sout{DP}\ [_{vP}\ v[_{VP} V\ wh...$

?? ¿Ambe$_1$ uetarincha-sïn-Ø-ga Emilia-ni$_2$ [$_{CP}$ __$_2$ eska __$_2$
what need-HAB-PRS-INT=pS Emily-ni that
k'uanatsinta-a-Ø-ka __$_1$]?
buy-FUT-PRS-SBJV
'What do they need Emily to buy?' (interrogative mood)

(28) $[_{CP}\times C_{[◎WH◎]}[_{TP} DP T_{[◎D◎]}[_{vP}\ v[_{VP} V\ [_{CP}\ \sout{DP}\ [C_{[•EF•]}[_{TP} T\ \sout{DP}\ [_{vP}\ v[_{VP} V\ \sout{wh}...$

?? [Naki takukat-eecha-ni]$_1$ xarara-sïn-Ø-gi jorhenguarariri-cha$_2$ [$_{CP}$
which book-PL-ACC seem-HAB-PRS-INT stduent-PL
__$_2$ eska __$_2$ k'amaku-Ø-Ø-ka=sï __$_1$ ia]?
that finish-PFV-PRS-SJ=3pS already
'Which books does it seem that the students have already finished?'

– To turn it around, if the [•EF•] probe attracts the embedded subject to feed subject raising or object raising, the [◎WH◎] feature on matrix C needs to probe along the ill-formed C-T-*v*-V-C sequence.

– **These examples also show that raising to subject and object involves genuine movement from the embedded CP**; otherwise we would not expect any interaction with long *wh*-movement.

- Examples like (27) and (28) indicate that the [•EF•] on the P'urhepecha C can only probe once, it can only move one constituent.

  – [•EF•] cannot raise the *wh and* a DP to Spec,CP, i.e. it is similar to the English [◎WH◎] feature, which only allows the movement of a single *wh*.

  – This is a property independent of PAFF: One-by-one, the movement types can proceed from CPs via Spec,CP.

  – It does not hold for all [•EF•] probes that they can probe once; this will be discussed in the next section [4]

- I make the general prediction that **given that a certain language has a certain set of movement types, and α in this language has [•EF•], all the movement types should be able to proceed from this αP in this language**.

  – For example, I expect that languages having movement to subject and object and exhibiting successive cyclicity via Spec,CP will be like P'urhepecha, allowing both hyperraising to subject and hyperraising to object from CPs (another example is the Zulu CP, see Halpert and Zeller 2015; Halpert 2019).

3.4 Interim summary

- So far, we have seen examples in which sub-extraction proceeded via the highest specifier of some constituent.
- I proposed that this was possible if the highest head of the constituent lexically had [•EF•], which could move one or more constituents to the edge.
- Under PAFF, constituents moving to the edge could be reached by any matrix heads irrespectively of height in the clause, that is, successive cyclicity obviated Williams Cycle effects.
- For another example of a projection whose highest head has [•EF•], see the Mongolian CP in the appendix.

[4] In a similar way, the English's T's [•EF•] can move the embedded subject and a *wh*-phrase:

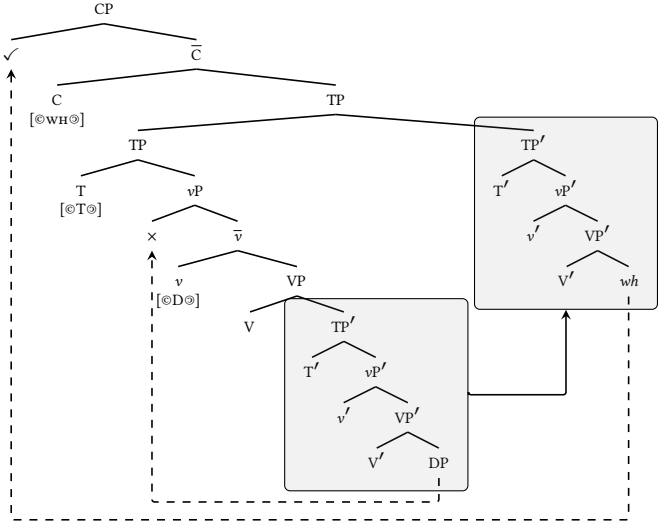
(i) Who$_1$ did Mikey [$_{TP}$ [$_{vP}$ make [$_{βP}$ George$_2$ [$_{VP}$ out [$_{TP}$ __$_2$ __$_1$ to have __$_2$ killed __$_1$]]]]]?

4 Clausal movement and Williams Cycle effects

4.1 Clausal movement as an alternative strategy

- **If the highest head of some constituent does not have an edge feature [•EF•], successive cyclic movement cannot proceed from it.**
  - In (29), the embedded TP is base-generated in the matrix VP.
  - Given that it has no [•EF•], no XP can leave TP via Spec,TP.
  - **"One-fell-swoop" movement from TP to Spec,TP is ruled out as before**: Under PAFF, probing is impossible along the **v*-**V-T**-*v*-V sequence.

(29)



- I propose that **PAFF-compliant derivation can still proceed from it if the *entire clause* undergoes movement to an equal-sized matrix projection**.
  - If **Ts can have [◎T◎] in a language, clausal movement makes sub-extraction PAFF-compliant** in (29).

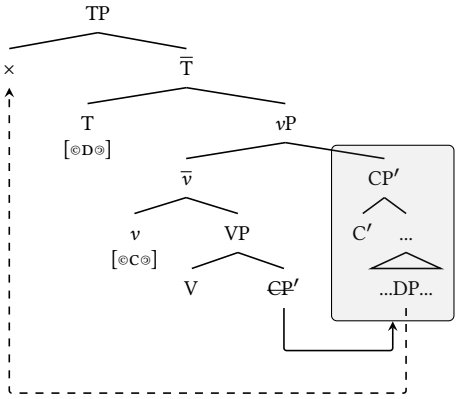
  (30) **Probe Along *Fseq*-Fragments (PAFF):** Starting with the head that the probe is located on, the heads c-commanding goal must make up a well-formed functional sequence fragment. (based on Egressy 2023)

  - The [◎T◎] on the matrix T finds the embedded T and moves to TP; clause-internal probing happens along the well-formed T-*v*-V sequence.
  - **Once the embedded TP has merged with a matrix TP projection, the sequence of embedded heads are continued in the matrix clause**.
  - For example, **[◎WH◎] on C can reach XP along the well-formed C-T-*v*-V sequence**; i.e. *wh*-movement can proceed from the extraposed TP.
- **This derives the Williams Cycle in (31): once an embedded clause merged with an equal-sized matrix projection** (e.g. CP with CP, TP with TP, *v*P with *v*P), **they are transparent for matrix probes**.
  - Essentially, **only the matrix probes c-commanding the equal-sized merger site can probe into the embedded clause**.
  - In contrast, embedded clauses are opaque before they move.
  - That is, if there is a probe on γ (e.g. on *v*), it cannot search into βP (e.g. TP) such that β > γ because βP has not merged with the matrix βP; this is in line with (31).

  (31) **Williams Cycle for probing:** A probe on γ cannot search into βP if β is higher than γ in some functional sequence.
  (based on Williams 2003; Poole 2023; Egressy 2025)

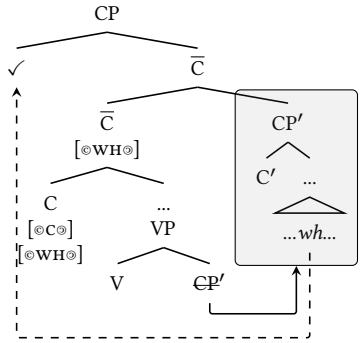
- Under PAFF, **clauses moving to a non-equal-projection do not get transparent**:
  - For example, a CP cannot merger with a projeciton of *v*P and be transparent to probing by T.
  - The [◎D◎] would have to probe along the T-C-T-*v*-T sequence, which is ill-formed.

(32)



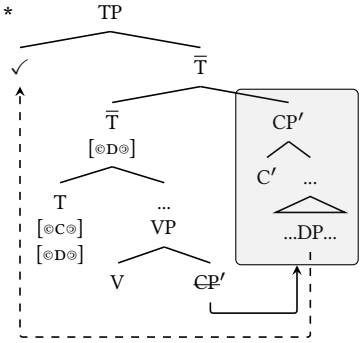
- **Whether movement can land within the projection of the clause's landing site depends on *feature ordering*** (also applied in Georgi 2014, 2017)
  - In (33), the [◎C◎] on the matrix C makes the embedded CP to merge with a matrix CP projection (i.e. with an equal-sized projection).
  - In (33), **[◎C◎] is explicitly ordered before [◎WH◎]; that is, upon the movement of CP *feeds wh*-sub-extraction.**
  - *wh*-probing is PAFF compliant because **the probing happens along only embedded heads**: C-T-*v*-V.

(33)



- Finally, I need to exclude configurations like (34).
  - Here the the T head has a [◎C◎], which is capable of moving CP.
  - The problem is that unlike in (32), the long-moving DP does not cross any matrix head, i.e. its movement would be PAFF complaint to Spec,TP from a CP.

(34) *



- For now, I will simply stipulate the constraint in (35); I will derive it in the next section.[5]

(35) **Move to the same category:** A functional head α can internally merge with a c-commanded βP such that α and β belong to the same *fseq* iff α = β.

- **If a head α does not have an [•EF•] feature, αP can be still escaped if α has [◎α◎].**
  - However, this will mean that **αP is only transparent only upon merger with a matrix αP**.
  - That **probes c-commanded by the merger-site of αP cannot probe into αP gives us the Williams Cycle**.
  - In the following sections, I will show some projections that achieve transparency via extraposition, and correspondingly exhibit Williams Cycle effects.

4.2 German CPs

- **German *dass*-clauses exhibit an OV order, but clauses can/must be extraposed to the right**.
  - In the CP (36), the object *einen Apfel* 'an apple' precedes the verb *aß* 'ate'.

(36) Maria sag-te, dass Hans ein-en Apfel aß
Maria said-PST.3SG that Hans.NOM an-ACC apple eat.PST.3SG
'Maria said that John ate an apple'

  - That CP-objects are generated in the same position is shown by the fact that at least some CPs can remain in their original pre-verbal position (Müller 1999:p.17):

(37) ...dass er [CP dass der Fritz Claudia lieb-t] gesagt ha-t.
that he that the Fritz.NOM Claudia.ACC love-3SG say.PTCP have-3SG
'that he said that Fritz loves Claudia.'

[5] The theory developed here only explores those cases in which an α head has only one movement probe that does not carry the category of the *fseq* in which α. Whether non-category based movement (e.g. *wh*-movement) can feed-sub-extraction is an open question. If we want to rule out this possibility we need to stipulate that if an [•F•]/[◎F◎] operator feature occurs on α, [F] is incompatible with any head that belongs to the *fseq* of α but is different from α. At the same time, we may not want to rule out this possibility: Pied-piping with inversion may exhibit exactly this setup: A larger constituent undergoes movement to a lower specifier, and we sub-extract from it to a higher specifier within the same projection.

– At the same time, CPs can/must extraposed to the right, to a post-verbal position (Müller 1999:p.17; when extraposition is obligatory is not discussed here):

(38) dass er $\_\__1$ gesagt ha-t $[_{CP}$ dass der Fritz Claudia
that he say.PTCP have-3SG that the Fritz.NOM Claudia.ACC
lieb-t$]_1$.
love-3SG
'that he said that Fritz loves Claudia.'

- **That the probe driving extraposition is on C is shown by the landing site of extraposition relative to TP-adjuncts and CP-adjuncts**.

  – On the one hand TP-adjunct *als*-clauses ('when'-clauses) precede the extraposition site of CPs (Stefan Keine, p.c., but also see Müller 2020):

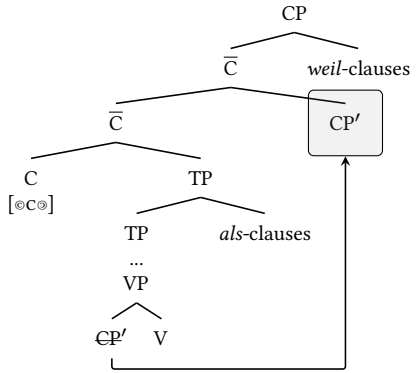
(39) Peter ha-t $\_\__1$ gesagt [als er Maria gesehen
Peter.NOM have-3SG say.PTCP when he.NOM Maria.ACC see.PTCP
ha-t] $[_{CP}$ dass er jetzt losgeh-en muss$]_1$.
have-3SG that he.NOM now away.go-INF must.3SG
'When he saw Maria, Peter said he must leave now.'

  – On the other hand, CP-adjunct *weil*-clauses ('because'-clauses) must follow the CP's extraposition site (Stefan Keine, p.c., but also see Müller 2020):

(40) Peter ha-t $\_\__1$ gesagt ⟨?? weil er Maria
Peter.NOM have-3SG say.PTCP because he.NOM Maria.ACC
gesehen ha-t⟩ $[_{CP}$ dass er jetzt losgehen muss$]_1$ ⟨
see.PTCP have-3SG that he.NOM now away.go-INF must.3SG
weil er Maria gesehen ha-t⟩.
because he.NOM Maria.ACC see.PTCP have-3SG
'Because he saw Maria, Peter said that he must leave now.'

  – **From these "above TP-adjuncts but below CP-adjuncts" setup, I infer that the [◎C◎] probe must be on C**, as in (41).

(41)



- Now that we have seen that the German C has [◎C◎], I motivate the constraint repeated in (42), i.e. no other head can have [◎C◎].

(42) **Move to the same category:** A functional head α can internally merge with a c-commanded βP such that α and β belong to the same *fseq* iff α = β.

- Firstly, **that some β cannot bear [◎α◎] if α > β in *fseq* can be excluded based on the architecture of extended projections**:

  – According to Grimshaw (2000), a functional sequence is an ordered sequence of functional heads with a lexical core/lowest element (e.g. C, T, *v* are functional heads; V is a lexical head)

  – Extended projections are build up as a sequence of local category selections:

    * *v* selects for VP via [•V•];
    * T selects for *v*P via [•*v*•];
    * C selects for TP via [•T•].

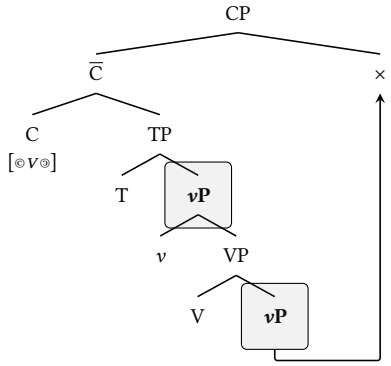
  – **It seems to be reasonble to assume (43): No head can select for a higher *fseq*-category**, e.g. T cannot bear [•C•], *v* cannot bear [•T•].[6]

(43) **Do not select for larger:** A functional head γ cannot wear [◎β◎] or [•β•] if β > γ in some functional sequence.

[6] It is a good question how sentential subjects are selected by Ts. At the same time, Hartman (2012) argues that sentential subjects always occur within DPs. Notice that (43) does not hold for V because it is lexical, so it can select for any size of a complement clause.

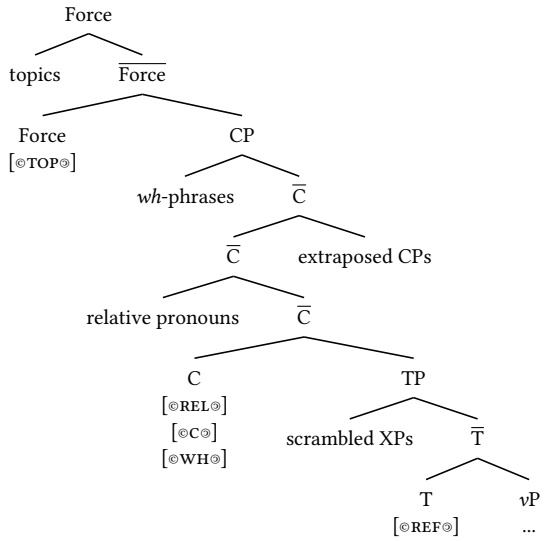
- **The movement of smaller clauses to larger clauses is ruled out by A-over-A**:
  - It follows from the nature of extended projections that **if a head α has a category [•β•] or [◎β◎] such that α > β in *fseq*, this feature will first find the clause-internal βP first and hence block the movement of lower βPs** (i.e.we have A-over-A).
  - In (44), the clause-internal *v*P will be closer to the matrix C, so the lower *v*P cannot move.

(44)



- The an overview of various probes and positions of the German clausal domain is shown in (41) (along the lines of Keine 2016, 2019, 2020).
  - The highest position is the position of topics, this is analyzed as Spec,ForceP and **the probe driving topicalization is [◎TOP◎] on Force**.
  - The second highest specifier is Spec,CP, this is the landing site of **two different movement types, these probes are on C**:
    - *wh*-movement, whose probe is [◎WH◎].
    - **Relativization**, whose probe is [◎REL◎]
  - Finally, **scrambling lands in Spec,TP and its probe is [◎REF◎]**.

(45)



- ***Wh*-movement and topicalization can both proceed from CPs, but only from extraposed CPs**.
  - Firstly, consider *wh*-extraction in (46) (Müller 1999:p.18).
  - **While extraposed CPs are transparent to *wh*-movement to Spec,CP, CPs that remain pre-verbal are opaque**.

(46) Ich weiss nicht [$_{CP}$ wen$_1$ er ⟨$_{CP}$* dass Fritz __$_1$ liebt⟩$_2$ gesagt
I knew.1SG not who.ACC he that Fritz love.3SG said
hat ⟨$_{CP}$ dass Fritz __$_1$ liebt⟩$_2$]
have.3SG that Fritz love.3SG
'I did not know who he said that Fritz loves.'

  - Topicalization shows the same pattern, as shown in (47) (Müller 1999:p.38).
  - In (47), **topicalization can only proceed from an extraposed clause; pre-verbal clauses are opaque to topicalization**.

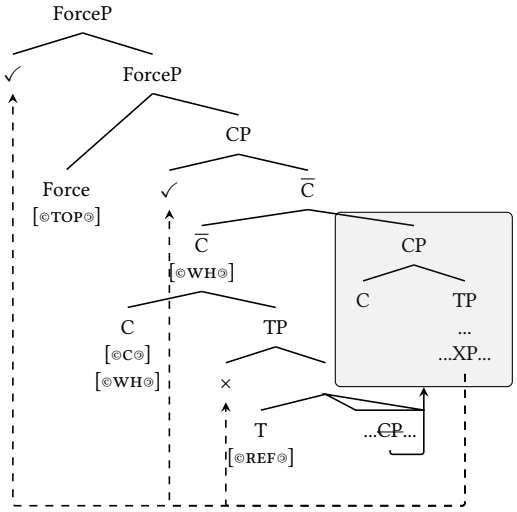
(47) [Die Maria]$_1$ hab-e ich ⟨$_{CP}$* dass der Fritz __$_1$ lieb-t⟩
the Maria.ACC have-1SG I that the Fritz.NOM love-3SG
gedacht ⟨$_{CP}$ dass der Fritz __$_1$ lieb-t⟩.
think.PTCP that the Fritz.NOM love-3SG
'Maria, I thought that Fritz loves.'

- The sub-extraction-only-upon extraposition fits the theory introduced in Section 4.1.
  - **As long as the embedded CP is internal to the VP, no sub-extraction can proceed from it** because in the absence of [•EF•]/successive cyclicity the matrix probes need to probe along both matrix heads and embedded heads:

(48)[× $\alpha_{[\bullet F \bullet]}$...[VP V [CP C[TP T[*v*P *v*[VP V ~~XP~~...

  - In contrast, **once the embedded CP merges lands in the matrix CP, as in (49), sub-extraction is possible.**
    - The [◎TOP◎] feature on Force probes along the Force-C-T-*v*-V sequence.
    - The [◎WH◎] feature on C probes only along embedded heads (C-T-*v*-V), which is always a well-formed *fseq*-fragment.

(49)



- **My theory correctly predicts that German CPs exhibit Williams Cycle effects, e.g. movement to Spec, TP is impossible** (Müller 2014a,b).
  - German scrambling lands in Spec,TP, and can proceed from infinitival clauses (Keine 2020:p.213; the alternative landing site would be *v*P).

(50) [TP ✓ …[VP …[*v*P …XP …]]]

weil [TP [den Wagen]$_1$ jemand [*v*P $\_\__1$ zu reparieren]
because the car.ACC someone.NOM to repair.INF
verucht ha-t]
try.PTCP have-3SG
'because someone tried to repair the car'

  - However, it cannot proceed from CPs even if they are extraposed, as in (51) (Müller 2014a:p.117).
  - This follows from the theory presented here: the movement of CPs cannot happen early enough to facilitate sub-extraction to Spec,TP, as in (49).
  - **Prior to extraposition the CP is opaque, the [◎REF◎] probe on T would probe along the ill-formed T-*v*-V-C-T-*v*-V sequence**.

(51)[TP × …[VP …[CP [… XP …]]]]

dass[TP ⟨*das Buch⟩$_1$ Karl $\_\__2$ glaub-t [CP dass [TP ⟨das Buch⟩$_1$
that the book Karl.ACC think-3SG that the book.ACC
keiner $\_\__1$ lies-t]$_2$]
no.one.NOM read-3SG
'that Karl thinks that Peter reads the book.'

- **Relativization lands in the same projection as *wh*-movement, yet the two have different locality restrictions** Keine (2016, 2020).
  - In (52), German relativization proceeds from an infinitival clause and lands in Spec,CP (Keine 2020:p.214).

(52) [CP ✓ …[VP …[TP …relative pronoun …]]]

der Wagen [CP den$_1$ er [TP $\_\__1$ zu reparieren] abgelehnt
the car which.ACC he to repair.INF refuse.PTCP
ha-t]
have-3SG
'the car which he refused to repair'

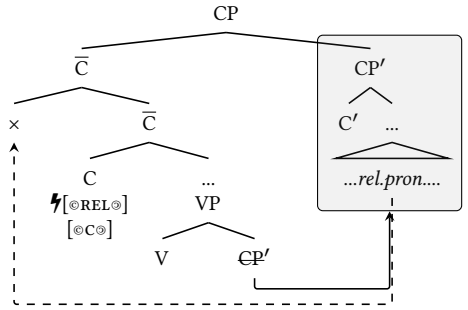
  - In contrast, **relativization cannot proceed from CPs**, even though they are extraposed (Keine 2020:p.219).

(53) $[_{CP} \times \ldots [_{VP} \ldots [_{CP} \ldots \text{relative pronoun} \ldots]]]$

?? der Junge [CP den$_1$ sie $\_\__2$ glaub-t [CP dass der Peter $\_\__1$
the boy who.ACC she believe-3SG that the Peter
getroffen ha-t]$_2$]
meet.PTCP have-3SG
Intended: 'The boy that she believes that Peter has met.'

- **My theory derives the difference between *wh*-movement and relativization from *explicit probe ordering*** (Georgi 2014, 2017): While the [◎WH◎] probe was ordered after the [◎C◎] probe (see (49)), **the relative probe [◎REL◎] is ordered before the [◎C◎] probe**, as in (54).
  - Therefore, **[◎REL◎] tries to find its goal in the embedded CP before that moves**.
  - This is unsuccessful because probing happens along the ill-formed C-T-*v*-V-C-T-*v*-V sequence.
  - That is, while extraposition can feed *wh*-movement, it cannot feed relativization because of probe-ordering.[7]

(54)



[7] Interestingly, there is a dialectal variation among German or more generally Western Germanic speakers with respect to *wh*-movement and relativization; this can be derived by probe ordering. Keine (2020) mentions that certain German speakers do not accept long *wh*-movement to Spec,CP from CPs. The linguistic knowledge of these speakers can be characterized as follows: both [◎WH◎] and [◎REL◎] are ordered on C before [◎C◎]. In contrast, at least certain Dutch and German speakers accept *wh*-movement *and* relativization from CPs (Hedde Zeijlstra and Melle Groen, p.c.;e.g. Boef 2013; Bader and Koukouloti 2024). For these speakers, we can say that [◎REL◎] and [◎WH◎] are ordered *after* [◎C◎] on the C head. Essentially, I do not know of any Western Germanic dialects in which cross-clausal scrambling is grammatical.

- For probes ordered before the clause-moving probe, I derive the *Strict Williams Cycle* in (55), a more restrictive pattern, which was attested in Hungarian (Egressy 2025) (e.g. movement from CP to CP is ruled out).

(55) **Strict Williams Cycle:** A probe on γ cannot search into βP if β ≥ γ in some functional sequence.
(based on Egressy 2025)

- In general, I predict that...
  - If on some head α (which has no [•EF•]), **all other probes are ordered after after [◎α◎], αP exhibits the classic Williams Cycle effects** (e.g. Poole 2023; Meadows 2023).
  - If all, **if all other probes are ordered before [◎α◎], αP exhibits Strict Williams Cycle effects** (Egressy 2025).
  - Finally, **the locality of two probes on the same head α can only differ with respect to an αP**, e.g. probes on C can differ whether they can probe into CP but cannot differ whether they can probe into TP (this is a prediction that is not made by Keine 2016, 2019, 2020).
- Finally, it needs to be highlighted that **the movement of embedded clauses is crtierial**, i.e. C has [◎C◎], not [•C•].
  - As argued above, only extraposed CPs are transparent to movement to Spec,CP or Spec,ForceP.
  - However, as shown in (56), after a CP got extraposed and *wh*-movement has proceeded from it, it cannot be topicalized (Müller 1999:p.34), even though German CPs can be topicalized.

(56) *[CP Dass Fritz $\_\__1$ liebt]$_2$ weiss ich nicht [CP wen$_1$ er $\_\__2$
that Fritz love.3SG know.1SG I not who.ACC he
gesagt hat $\_\__2$]
said have.3SG
Intended: 'I do not know who he said that Fritz loves.'

4.3 A speculative case: English CPs

- **Unlike the English TP, the English CP exhibits Williams Cycle effects** (Williams 2003, 2013).
  - As discussed in the Introduction, English CPs are transparent to *wh*-movement, which lands in Spec,CP, but opaque to object raising, which lands in Spec,TP (a.m.o. Chomsky 1973):

(57) [$_{CP}$ Who$_1$ did you think [$_{CP}$ __$_1$ has eaten an apple]]?.

(58) *[$_{TP}$ John$_1$ seems [$_{CP}$ __$_1$ has eaten an apple]]

  - Section 3.2 discussed that English *does* have raising to object, which lands in some Spec,βP such that *v*> β >V in *fseq*.
  - While this movement type can proceed from CPs, it cannot proceed from TPs:

(59) * Mikey [$_{vP}$ made [$_{βP}$ George$_1$ [$_{VP}$ out [$_{CP}$ (that) __$_1$ is a liar]]]].

  - If the *fseq* is C>T>*v*> β >V, the English CP exhibits Williams Cycle effects as probes on β and T cannot probe into it, whereas the *wh*-probe on C can.

- **On the basis of this, we expect that English CPs need to merge with a matrix CP projection in order to be transparent**; this is borne out:
  - English CPs can occur before temporal adjuncts like *yesterday*:

(60) Jill said ⟨$_{CP}$ that she was flying to Paris next week⟩
yesterday ⟨$_{CP}$ that she was flying to Paris next week⟩.

  - However, *wh*-extraction can only proceed from them if they occur *after* temporal adjuncts (Tim Stowell, Ethan Poole, Michelle Yuan p.c.):

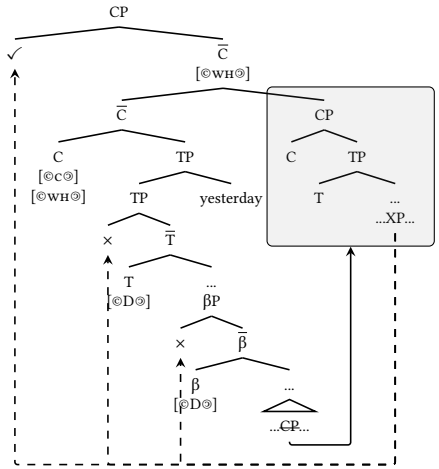
(61) Where$_1$ did Jill say __$_2$ yesterday [$_{CP}$ that she was flying __$_1$ next week]$_2$?

(62) *Where$_1$ did Jill say [$_{CP}$ that she was flying __$_1$ next week] yesterday?

(63) Who$_1$ did Jill say ⟨yesterday⟩ [__$_1$ will win] ⟨??yesterday⟩?

- I propose that the data in (61), (62), and (63) shows that English CPs work like German CPs.
  - As in (64), I assume that *yesterday* is a temporal adverb so it adjoins to TP; it is feasible to analyze the CP's landing site as a position within the matrix CP.
  - As long as the CP is internal to the matrix VP, no probe can "see through" it under PAFF; once the embedded CP is moved by [◎C◎] on the matrix C, its internal structure becomes accessible for matrix probes.
  - Since the [◎WH◎] probe in English is ordered after [◎C◎], *wh*-extraction can proceed from the CP.
  - However, since the [◎D◎] probes on T and β are asymmetrically c-commanded by the extraposition site, extraposition cannot feed raising to subject and object.[8]

(64)



[8] One possible criticism may be that it has been claimed that in English, phrases undergoing *wh*-movement phrases can reconstruct into a position between the matrix subject and the embedded subject in sentences like (i) (Heycock 1995; Poole 2017:p.193). While the original analyses have been discussed this as an argument for an intermediate stop in Spec,CP, my analysis claims that the English C only has edge features. At the same time, I argued in Section 2.2 that the English T has an [•EF•], i.e. the intermediate stop between the matrix subject and the embedded subject can be re-analyzed as an intermediate TP. One potential problem may arise with respect to interaction with intervening *wh*-phrases, because these block reconstruction in the intermediate position (Poole 2017).

(i) [Which pictures of herself$_{2/3}$]$_1$ does Sophia$_2$ think [$_{CP}$ that [$_{TP}$ __$_1$ Blanche$_3$ admired __$_1$]]?

- **The contrast between English CP and English TP shows that escape strategies should be specified for individual projections rather than entire languages**.
  - While the English T head has [•EF•] and allows successive cyclic sub-extraction, the English C head has no [•EF•] feature.
  - Instead, the English C has a [◎C◎] feature, which moves the CP and makes sub-extraction possible.
  - Zulu is set up the other way around (Halpert and Zeller 2015; Halpert 2019):
    * CPs are transparent to $\overline{\text{A}}$-movement, raising to Spec,TP, and Spec,*v*P; in my analysis, sub-extraction can proceed successive cyclically via an [•EF•] feature.
    * TPs are transparent to *wh*-movement but not to raising to Spec,TP and Spec,TP; in my analysis, they have no [•EF•] feature but a [◎T◎] feature.

4.4 Clausal movement and Williams Cycle effects in Hungarian

- In my work (Egressy 2023, 2025, 2026), **I have been arguing that similar to Hindi CPs, German CPs, and the English CPs, clauses of various sizes in Hungarian exhibit Williams Cycle effects**.
  - Hungarian finite clauses come in various sizes, e.g. they are TPs, FocPs, RelPs etc. (I propose that there is no dedicated CP projection in Hungarian.)
  - The various operation types (particle movement, focusing, relative movement, SOT-deletion) exhibit various locality restrictions depending on their probe's height.
- **Hungarian embedded clauses must leave the matrix VP** (É. Kiss 2002).
  - As shown in (65), the matrix adverbs/PPs 'in the part' and 'yesterday' must precede the embedded clause (Egressy 2023).

(65) [[[$_{\text{VP}}$ V [*hogy* …]] adjuncts] ✓]

[$_{\text{FOC}}$ Csak $\text{ő}_{i/*j}$] mond-t-a $\_\__1$ ⟨ **tegnap**⟩ ⟨ **egy buli-ban**⟩, [
only she refer-pst-3sg.indf yesterday a party-in
hogy Mari$_j$ alsz-ik]$_1$ ⟨* **tegnap**⟩ ⟨* **egy buliban**⟩.
that Mari sleep-3sg.indf yesterday a party-in
'Only she$_{i/*j}$ referred (to the fact) yesterday in a party that Mari$_j$ was sleeping'

  - What is special about Hungarian that **the movement of the clause can happen to the left; in such cases**, it has a topic interpretation, as in (66) (Egressy 2023).
  - Importantly, in such cases, the embedded clause still originates in the matrix VP, as it is shown by reconstruction for Principle C.

(66) [$_{\text{TOP}}$ Hogy Mari$_j$ ismer-t-e Péter-t]$_1$ [$_{\text{FOC}}$ csak $\text{ő}_{i/??j}$]
that Mari know-pst-1sg.def Péter-acc only she
mond-t-a $\_\__1$.
say-pst-3sg.def
'As for that Mari$_j$ had known Péter, she$_{i/??j}$ did not tell it.'

- Where Hungarian can show us something special compared to the languages so far is that **the movement of the clause can land in the same periphery where sub-extraction can land**; so we see relative heights:
  - The relative position of preposed clauses is shown in (67): **In the left-periphery preposed clauses precede foci but follow relative pronouns.**
  - Following Egressy (2025), I will refer to the position of relative pronouns as RelP, the position of foci as FocP.
  - For simplicity, here I will assume that **preposed clauses land in some βP such that Rel> β >Foc in the *fseq***.

(67) [$_{\text{RelP}}$relative pronouns [$_{\beta\text{P}}$preposed clauses [$_{\text{FocP}}$foci…
A fiú, [$_{\text{REL}}$ aki] [$_{\text{TOP}}$ hogy Mari$_j$ ismer-t-e Péter-t]$_1$ [$_{\text{FOC}}$
the boy who that Mari know-pst-1sg.def Péter-acc
hangos-an] mond-t-a [$_{\text{DP}}$ pro $\_\__1$]
loud-adv say-pst-3sg.def pro.acc
'The boy who said loudly that Mari knows Peter.'

  - As shown in (68), **since relative pronouns land above the landing site of the preposed clause, relativization can proceed from preposed clauses**:

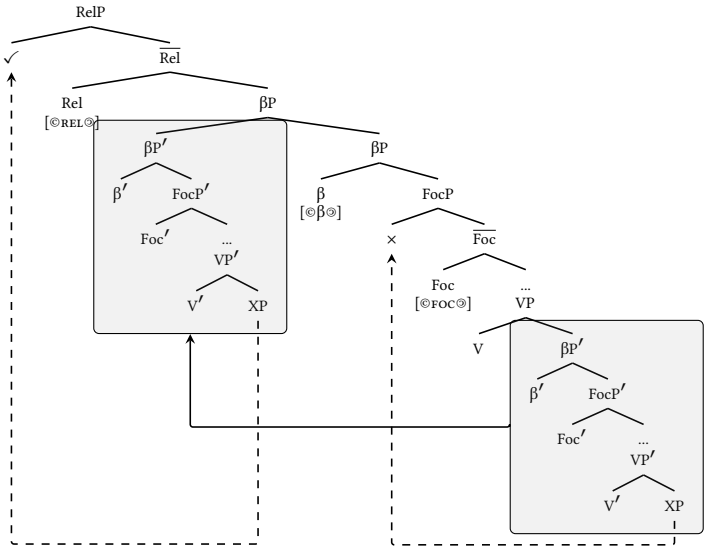
(68) A város, [$_{\text{REL}}$ amelyik-en]$_2$ [$_{\text{TOP}}$ hogy keresztül fut-ott-am $\_\__2$]$_1$
the city which-sup that across run-pst-1sg.indf
mindenki hall-ott-a$___1$.
everyone hear-pst-3sg.def
'The city, which, that we ran across it, everyone heard it.'

– In contrast, **preposed clauses are opaque to focus extraction, which lands in Spec,FocP**:

(69) *[$_{\text{TOP}}$ Hogy keresztül fut-ott-am __$_2$]$_1$ mindenki [$_{\text{FOC}}$ CSAK A
that across run-PST-1SG.INDF everyone only the
VÁROS-ON]$_2$ hall-ott-a __$_1$
city-SUP hear-PST-3SG.DEF
Intended: 'That I ran across ONLY THE CITY, everyone heard it.'

- The opacity of Hungarian preposed clauses fits the picture if we assume that **preposed clauses are βPs**.
  - Assume that the Hungarian ***fseq* is Rel**> β >**Foc**>...>**V and that the Hungarian β head has no [•EF•]**.
  - In (70), **the embedded βP is opaque to sub-extraction when it is in VP**; e.g. the [◎FOC◎] cannot probe along the ill-formed *Foc-...-V-β-Foc-... sequence.
  - However, the embedded βP can move in the matrix clause because the [◎β◎] feature can probe clause-internally along the β-Foc-...-V sequence.
  - **Upon landing within the matrix βP, the embedded βP is transparent to sub-extraction to Spec,RelP:** [◎REL◎] can probe along the well-formed Rel-β-Foc... sequence.

(70)



5 No movement but LDA in Tsez

- So far, I discussed projections which could be made transparent to sub-extraction *in some way*.
  - In a β head had [•EF•], movement from βP could proceed successive cyclically and Williams Cycle effects were obviated.
  - In contrast, if β had no [•EF•] but had a [◎β◎] feature, βP could move and become transparent to cross-clausal opertions; these operations obeyed the Williams Cycle.
  - **The third logical possibility is that a β head has neither [•EF•] and [◎β◎]; this is when no matrix probe can probe past the β head.**
  - At the same time, Spec,βP is still acessible for outside probes even if the phrases there are criterially frozen.
  - This will be exemplified by Tsez.
- **In Tsez, embedded clauses are opaque to any movement operation:**
  - In Tsez, **topicalization can happen within clauses**, e.g. in (71), the absolutive topic can be moved across the ergative argument (Polinsky and Potsdam 2001:p.597).

(71) ⟨bikori-n⟩ už-ā ⟨bikori-n⟩ bexursi
snake.ABS-TOP boy-ERG snake.ABS-TOP killed
'The snake, the boy killed.'

  - **Topicalization cannot be cross-clausal**, as shown in (72) (Polinsky and Potsdam 2001:p.600).

(72) *k'et'u-n$_1$ kid [už-ā iškolaɣor __$_1$ begā-ru-ɬi] božizi
cat-TOP girl.ABS boy-ERG to.school send-PSTPRT-NMLZ believe
yoq-xo
be-PRES
Intended: 'The cat, the girl believes that the boy sent to the school.'

  - Polinsky and Potsdam (2001) claim that the same holds for scrambling and *wh*-movement: They can proceed within clauses but not across clauses.

- **The lack of cross-clausal movement in Tsez can be accounted for if it holds for the highest β head of clauses that they lack [•EF•] or [⍟β⍟]** (if there are multiple clause-sizes, this should hold for all)[9]
  - That is, Tzes clauses are like pre-verbal/non-extraposed CPs in German.
- However, **Long Distance Agree can target the highest specifier of clauses**:
  - Tsez verbs agree with **those absolutive arguments which are topic-marked** (Polinsky and Potsdam 2001).
  - **If the embedded absolutive argument is either overtly or covertly topicalized to the edge of its clause, the matrix verb can agree with it** (the default is Class IV agreement; 'the boy' belongs to Class I) (Polinsky and Potsdam 2001:p.605-606):

(73) eni-r [uži$_{\text{TOP}}$ ∅-āy-ru-ɬi] {∅-/ -r}-iy-xo
mother-DAT boy.I.ABS I-arrive-PSTPRT-NMLZ.IV I- IV-know-PRES
'The mother knows the boy arrived.'

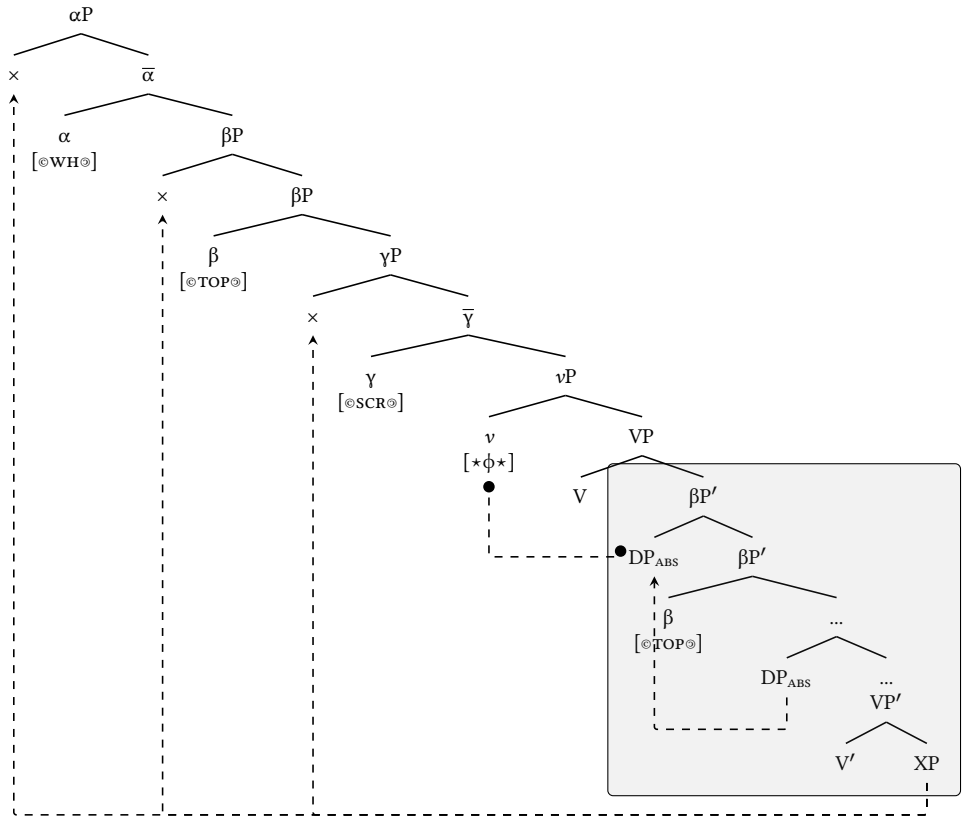
  - (Polinsky and Potsdam (2001) discuss that topicalization can be covert, but I set this aside.)
- The current theory can derive this setup, as represented in (75).
  - The movement probes [⍟WH⍟], [⍟TOP⍟], [⍟SCR⍟] in (75) occur on various matrix heads (here I call them α, β, γ).
  - **These probes cannot probe into the embedded βP clause because probing needs to cross the ...-V-β-... sequence which is ruled out if β >V in *fseq*.**
  - Clause-internal (overt or covert) **topicalization is possible to Spec,βP but given that this is a criterial movement, the topicalized DP cannot further move to the matrix clause**.
  - At the same time, what is possible that **the matrix *v* has a ϕ probe that probes along the well-formed *v*-V sequence and finds the topicalized DP**.
  - Essentially, as soon as **we "hide" the absolutive topic in another clause, the agreement probe cannot find it** because probing needs to cross both matrix and embedded heads (here the topic of the deepest clause is 'the bread', which is Class III)(Polinsky and Potsdam 2001:p.618):

[9] While Polinsky and Potsdam (2001) mention certain rightward movement for clauses, it is possible that this does not happen to an equal-sized matrix projection.

(74) * [$_{vP}$ … $v_{[\star\phi\star]}$ [$_{VP}$ … V [$_{\beta P}$ β … DP$_{\text{ABS}}$ …
babir [eni-r [už-ā magalu$_{\text{TOP}}$ bāc'-ru-ɬi]
father mother-ERG boy-ERG bread.ABS.III eat-PSTPRT-NMLZ.IV
b-iyxosi-ɬi] {r/ *b-}iyxo
III-know–NMLZ IV/ III-know
'The father know that the mother knows that the boy ate bread.'

- Remember that no cross-clausal movement can help LDA in Tsez.
- Interestingly, this restricted LDA does not follow the Williams Cycle pattern given that β >*v* in *fseq*.

(75)



6 Conclusion

- The **ingredients** of my proposal were the following:
  - **What criterial and edge features features a certain head has is lexically determined for individual languages.**
    - This is a pre-existing assumption, sometimes known as the Borer-Chomsky Conjecture (Chomsky 1995).
  - **A functional head α can internally merge with a c-commanded βP such that α and β belong to the same *fseq* if** α = β (e.g. [◎C◎] occurs on C, [◎T◎] occurs on T)
    - This was derived from the A-over-A constraint and the general architecture of extended projections.
  - **Probing is constrained by PAFF, which prescribes that probing must proceed along well-formed *fseq*-fragments.**
- Under this theory, any β head in any language exhibits one of the following options depending on its features:

(76)

	[•EF•]	[◎β◎]	Williams Cycle?
Option 1	✓	(irrelevant)	No
Option 2	×	✓	Yes
Option 3	×	×	(no subextraxtion)

  - **If a head β has an [•EF•] feature, movement can proceed from βP successive cyclically and Williams Cycle effects are obviated**.
    - See e.g. the English TP, P'urhepecha CP, or Mongolian CP.
  - **If a head β has no [•EF•] but has a [◎β◎] feature, an embedded βP becomes transparent upon merging with a projection in the matrix βP; in this case, Williams Cycle is obeyed.**[10]
    - See e.g. German CP, English CP, Hindi CP, various clause-sizes in Hungarian.
  - **It is also possible that β has neither [•EF•] nor [◎β◎]; in this case, no movement can proceed from βP** and agreement is only possible with Spec,βP
    - See, e.g. embedded clauses in Tsez.

[10] Movement to an equal-sized projection can be characterized as "size-dependent unlocking". Other unlocking accounts have been proposed by Rackowski and Richards (2005) and Van Urk and Richards (2015).

  - The empirical **predictions** are the following:
    - **Successive cyclic movement and Williams Cycle effects are in a complementary distribution.**
    - S**elective opacity is always Williams Cycle-like** (lower probes cannot, higher probes can look into a constituent); **where variation lies is whether we have Strict or Weak Williams Cycle patterns**.
    - **If two probes occur in the same head α, αP is the only phrase into which one but not the other may be able to look into**.
      - E.g. two probes on C can differ in whether they can look into CPs but not in whether they can look into TPs or ForcePs.
    - **The absence of Williams Cycle effects always corresponds to complete transparency**: Every probe can reach its goal within the constituent.

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7 One more C with [•EF•]: Successive cyclicity in Mongolian CPs

- Mongolian is similar to P'urhepecha in that allows successive cyclic Williams Cycle obviation, but unlike P'urhepecha, it allows multiple operations from a single clause
- So we need alternative methods to detect successive cyclicity.
- Scrambling can proceed from Mongolian CPs, reconstruction shows that it happens in a successive cyclic manner:
  - In (77), the embedded object leaves the CP and lands in a pre-subject position (Jurkhaichin 2025:p.10), which I will analyze as Spec,CP.
  - That scrambling originates in the embedded clause is indicated by the fact that the embedded subject can bind the anaphor in the scrambled object.
  - That scrambling proceeds via Spec,CP is shown by the fact that the matrix subject can also bind the anaphor in the scrambled object.

(77) [$_{CP}$ ✓ C$_{[•TOP•]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ XP [C$_{[•EF•]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V ~~XP~~...

Eej-iig-ee$_{1i/j}$	Hadaa$_j$	[$_{CP}$	__$_1$	margaash	Nairsag$_i$	__$_1$
mother-ACC-REFL.POSS	Hadaa			tomorrow	Nairsag	
tos-no	gej	]	khel-sen.			
pick.up-NPST	COMP		say-PST			

'Self's$_{i/j}$ mother, Hadaa$_j$ said that Nairsag$_i$ will pick up tomorrow.'

- Since the Mongolian C has [•EF•], I predict that Williams Cycle effects are obviated if there is a movement type that lands in a lower specifier.
- This is borne out; Mongolian CPs are transparent to hyperraising to object.
  - As shown in (78), the embedded subject can undergo movement to the matrix clause (Fong 2019:p.17).
  - The matrix landing site is higher than some VP-modifying adverbs but lower than the matrix subject; here I will analyze it for simplicity as Spec,*v*P.
  - Raising to Spec,*v*P from a CP is a violation of the Williams Cycle because C>*v* in *fseq*.
  - That this Williams Cycle effect is obviated by successive cyclic movement is shown by the fact that the moving subject can remain in a Spec,CP position, where it can still get accusative case from the matrix *v* (Fong 2019).[11]
  - Notice that case assignment along the *v*-V sequence is PAFF-compliant.

(78) [$_{vP}$ ✓ *v*$_{[©D©]}$ [$_{VP}$ V [$_{CP}$ DP [C$_{[•EF•]}$ [$_{TP}$ ~~DP~~...

Bat	⟨nokhoi-g⟩$_1$	chang-aar	[$_{CP}$	⟨nokhoi-g⟩$_1$	__$_1$	gailkhal-tai	gej	]
Bat	dog-ACC	loud-INSTR		dog-ACC		wonder-with	COMP	
khel-sen.								
say-PST								

'Bat said loudly that dogs are wonderful.'

- Unlike [•EF•] on the P'urhepecha C, [•EF•] on the Mongolian C can probe multiple times (i.e. it is more similar to the Bulgiarian *wh-movement*)
  - In (79), two operations happen through Spec,CP (Jurkhaichin 2025:p.13).
  - On the one hand, scrambling proceeds via Spec,CP.
  - On the other, in order to get accusative case, the embedded subject also needs to move to Spec,CP (at least).

[11] Mongolian lacks raising to subject, but this seems to follow from an independent property: In Mongolian, any nominative leaving the embedded clause must be turned into accusative, even if they are scrambled (Ogloo Jurkhaichin, p.c; Lim 2025:p.271):

(i)

Önöödör	[$_{CP}$	ochigdör	Bilgüün	hural-d	yav-san	gej	]	nadad sons-ogd-son.
today		yesterday	Bilgüün	meeting-DAT	go-PST	COMP		1SG.BY hear-PASS-PST

'Today it was heard by me that Bilgüüm went to a meeting yesterday.'

(ii)

*Bilgüün$_1$	önöödör	[$_{CP}$	ochigdör	__$_1$	hural-d	yav-san	gej	] nadad sons-ogd-son.
Bilgüün	today		yesterday		meeting-DAT	go-PST	COMP	1SG.BY hear-PASS-PST

Intended: 'Today it was heard by me that Bilgüüm went to a meeting yesterday.'

(79) [$_{CP}$ *wh*C$_{[\circledcirc WH \circledcirc]}$ [$_{TP}$ T [$_{vP}$ DP $v_{[\circledcirc D \circledcirc]}$ [$_{VP}$ V [$_{CP}$ ~~DP~~ ~~*wh*~~ [C$_{[\bullet EF \bullet]}$ [$_{TP}$ T ~~DP~~ [$_{vP}$ v [$_{VP}$ V ~~*wh*~~...

Shuleg bur-iig$_{1i}$ zohiogch ni$_1$ ⟨Bat-iig⟩ [$_{CP}$ __$_1$ ⟨Bat-iig⟩$_2$ __$_2$
poem every-ACC author 3.POSS Bat-ACC Bat-ACC
tseejil-sen gej] khel-sen.
memorize-PST COMP say-PST
'Every poem$_i$, its$_i$ author said that Bat memorized.'

8 Another case of clausal movement and Williams Cycle effects: Hindi CPs

- Without going into details, Hindi CPs exhibit Williams Cycle effects (for data and the motivation of probe-locations, see Keine 2016, 2019, 2020):
  - The probe of $\overline{\text{A}}$-movement is on C; Hindi $\overline{\text{A}}$-movement can proceed from CPs.
  - The probe of Hindi *wh*-licensing is on C; *wh*-licensing cannot probe past the C head.
  - The probe of Hindi ϕ-agreement is on T; ϕ-agreement cannot probe past the C head.
  - The probe of Hindi A-movement is on T; A-movement cannot probe past the C head.
- The Hindi CP must be extraposed to the right:
  - Hindi is an OV language, i.e. the base generated position of objects is before the verb.
  - However, Hindi CPs must be extraposed(Mahajan 1990:p.127):

(80) raam-ne __$_1$ socaa thaa [$_{CP}$ ki mohan hoSiyaar he]$_1$
Ram-ERG thought be.PST.M that Mohan smaert is
'Ram had thought that Mohan is smart.'

- The Hindi CP can be analyzed as follows:
  - Since the Hindi C has no [•EF•] feature but a [$\circledcirc$C$\circledcirc$] feature, it exhibits Williams Cycle effects.
  - Since the probes on T are asymmetrically c-commanded by the extraposition site of CPs, extraposition cannot help these probes to find their goals.
  - The [$\circledcirc$C$\circledcirc$] probe is ordered on C after the *wh*-licensing probe but after the probe of $\overline{\text{A}}$-movement.