János Egressy (UCLA)
egressyjanos@gmail.com

Williams Cycle effects and successive cyclicity unified

Under standard Phase Theory, the locality constraint deriving *successive cyclicity* is PIC in (1) (Chomsky 2001). For example, a CP phase can only be escaped via Spec,CP. The *Williams Cycle* (henceforth, WC) in (2) (Williams 2003; Poole 2022) generalizes *selective opacity*, a different kind of locality: It is αP's *relative size* that makes it opaque to probes that are not sufficiently high in the next lowest clause. For example, probes on C but not on T can search into CP because C>T in *fseq*. Most accounts of selective opacity (Keine 2020) or WC effects (Meadows 2023) handle successive cyclicity and WC effects as *independent phenomena*. That is, a CP may independently necessitate successive cyclicity because it's a phase and exhibit WC effects because it's too large. **This paper provides a unified account that derives successive cyclicity and WC effects**.

(1) **PIC:** If αP is a phase, only its *edge* but not its complement is accessible by external probes.

(2) **WC:** Movement to Spec,βP cannot proceed from Spec,αP or across αP, if $\alpha > \beta$ in *fseq*.

A unified constraint: Since the PIC in (1) without further assumptions cannot derive WC effects and selective opacity (e.g. Keine 2019), I propose the new locality constraint Probe Along *Fseq* Fragments (PAFF) in (3), extending on Egressy's (2023) work on Hungarian. PAFF is based on the intuition that operations must be internal to extended projections (Chomsky 1977; Bošković 2014). In Example (4), the probe [•F•] on C or T can reach the goal XP because the heads c-commanded by [•F•] and c-commanding XP form a sub-sequence of the clausal *fseq* V-*v*-T-C. In contrast, if [•F•] is on some CP-external head α in (4), XP cannot leave the CP in one step because the V-*v*-T-**C-V**...α sequence is not an *fseq*-fragment because V is not above C in *fseq*. In (5), XP cannot leave the TP-sized clause along V-*v*-**T-V-...**α because V is not above T in *fseq*.

(3)**PAFF:** The heads between the probe and its goal must make up a well-formed *fseq*-fragment.

(4) [× $\alpha_{[\bullet F\bullet]}$...[$_{VP}$V [$_{CP}$✓ C$_{[\bullet F\bullet]}$[$_{TP}$✓ T$_{[\bullet F\bullet]}$[$_{vP}$*v*[$_{VP}$V ~~XP~~...

(5) [× $\alpha_{[\bullet F\bullet]}$...[$_{VP}$V [$_{TP}$T [$_{vP}$*v*[$_{VP}$V ~~XP~~...

Successive cyclicity obviates WC-violations: Successive cyclicity arises from clauses with an *edge*, a specifier where operators are not *criterially frozen* (Rizzi 1997). In (6), *wh*-phrase moves from a CP to matrix Spec,CP via Spec,CP. ***Any* movement to the matrix clause is PAFF-compliant if it proceeds via the edge** because the embedded Spec,CP is above all embedded heads and below all matrix heads: Movement to Spec,CP proceeds along a sub-sequence of the embedded V-*v*-T-C heads; movement from Spec,CP proceeds along a sub-sequence of the matrix V-*v*-T-C heads. Therefore, **PAFF predicts that while hyperraising to Spec,*v*P from CP would violate the WC because C>*v* in *fseq*, this violation in (6) is obviated by successive cyclicity**.

(6) [✓ C$_{[\bullet WH\bullet]}$...V [$_{CP}$*wh* [C[$_{TP}$T[$_{vP}$*v*[$_{VP}$V ~~*wh*~~...

(7) [$_{vP}$✓ *v*$_{[\bullet D\bullet]}$ [$_{VP}$V [$_{CP}$ DP [C[$_{TP}$ ~~DP~~...

For example, the P'urhepecha CP has an edge, which enables successive cyclic WC-obviation. In (8), the subject of the embedded CP moves to the matrix Spec,*v*P, violating WC in the fashion of (7) (Zyman 2017:p.4). (9) shows that hyperaising proceeds via Spec,CP: Since the embedded CP has one edge, which is used by the *wh*-phrase, the embedded subject cannot leave the CP (Zyman 2017:p.4). Similar successive cyclic hyperraising occurs in Mongolian (Fong 2019).

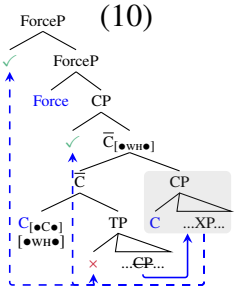
(8) Emilia uekasïndi[$_{vP}$ Xumoni$_1$ mintsitani jingoni [$_{CP}$ –1 eska –1 jaruataaka pauani]].
Emily want.IND3 Xumo.ACC heart.ACC with that help..SBJV tomorrow
'Emily wants Xumo with all her heart to help her tomorrow.'

(9) ¿Ambe$_1$ uetarinchasïnga[$_{vP}$ ⟨??Emiliani⟩$_2$ [$_{CP}$ –2 –1 eska ⟨Emilia⟩$_2$ k'uanatsintaaka$_{-1}$]]?
what need.INT.pS Emily.ACC that Emily buy.SBJV
'What do they need Emily to buy?'

Clausal movement and WC effects: Whether a clause has an escapable edge is specific to the clause-type and the language. No successive cyclicity can arise from a clause if all of its move-

ment features criterially freeze its specifiers. Instead, the clause's movement to an equal-sized matrix projection can enable sub-extraction: In (10), the criterial [•C•] on the matrix C moves the embedded CP along the V-*v*-T-C sequence, i.e. the CP-CP merger obeys PAFF. If the criterial [•WH•] is ordered after [•C•], the sub-extraction of the *wh*-phrase to matrix Spec,CP is PAFF-compliant because it proceeds along a sub-sequence of the V-*v*-T-C sequence. The moved CP is also transparent to movement to a higher matrix positions. Thus, sub-extraction to Spec,ForceP is also possible if Force is the next highest head above C in *fseq* because it proceeds along a sub-sequence of clausal V-*v*-T-C-Force. **Sub-extraction prior to the CP-movement is impossible, i.e. WC-violating movement to Spec,αP such that C> α in *fseq* (e.g. to Spec,TP or Spec,*v*P) is ruled out**, just as it was in (4).

(10)



I propose that the German CP exemplifies (10). From a CP that has been moved to matrix CP in (11), the *wh*-phrase can move to matrix Spec,CP. That CP-movement lands above TP-adjuncts but below CP-adjuncts is shown by Müller (2020:Ex.3 and 4). In contrast, the *in-situ* CP in (12) is opaque to *wh*-movement (Müller 1999). Similarly, topic sub-extraction to Spec,ForceP can proceed from moved but not *in-situ* CPs (Müller 1999:Ex.45b). The movement of CPs leads to criterial freezing: Only non-remerged and hence opaque CPs can be topicalized; no CP can be topicalized after movement and *wh*-sub-extraction (Müller 1999:Ex.29c). As expected under (10), German CPs exhibit WC effects (Müller 2014a,b): Scrambling, which lands in Spec,TP (Keine 2020), can proceed from *v*Ps but not from CPs (Müller 2014b:Ex.1b) as C>T in *fseq*.

(11) Ich wusste nicht [$_{CP}$ wen$_1$ er $_{-2}$ gesagt hat [$_{CP}$ dass Uli $_{-1}$ liebt]$_2$]
I knew.1SG not who.ACC he said have.3SG that Uli love.3SG
'I did not know who he said that Uli loves.'

(12)*Ich wusste nicht[$_{CP}$wen$_1$ er [$_{CP}$ dass Uli $_{-1}$ liebt] gesagt hat]
I knew.1SG not who.ACC he that Uli love.3SG said have.3SG
Intended: 'I did not know who Uli loves.'

Similarly, the English CP has no edge but CP-movement enables sub-extraction. Prior to *wh*-sub-extraction in (13), the CP must first move to the matrix CP (Stowell 1981), as shown by its position after the matrix TP-adjunct *today*. (Without *wh*-extraction in (13), the CP can precede *today*, native speakers report.) CPs not moved to other CPs are opaque: In (14), the *wh*-phrase cannot move to Spec,CP from the subject CP in Spec,TP (Ross 1967) because it would move along the ill-formed V-*v*-T-**C-C** sequence. The English CP exhibits WC effects (Williams 2003): The CP in (15) is opaque to hyperraising to Spec,TP because C>T in *fseq* (Chomsky 1973).

(13) [$_{CP}$ Who$_1$ did Ed say ⟨today⟩ [$_{CP}$ Al saw $_{-1}$ yesterday] ⟨*today⟩]?

(14)*[$_{CP}$ Who$_1$ was [$_{TP}$ [$_{CP}$ that Al saw $_{-1}$] surprising]]? (15)*[$_{TP}$ Ed$_1$ seems [$_{CP}$ $_{-1}$ is sad]].

For similar examples of transparency-upon-movement in Hungarian, see Egressy (2023; 2025).

Discussion: Under my account, how sub-extraction can proceed from an αP clause can be reduced to the features of α heads in the language. Successive cyclicity arises via the Spec,αP edge iff α has an *edge feature* [•EF•] (Georgi 2017); [•EF•] on α obviates to *all* WC-violations. Hence, unlike Keine (2020), I predict that if a C has [•EF•] and the language has raising to both Spec,TP and Spec,*v*P, these should both be able to proceed from CPs (as in Zulu; Halpert and Zeller 2015; Halpert 2019). If α has no [•EF•] but only a criterial [•α•], αPs must move to higher αPs prior to sub-extraction, which *uniformly* obeys the WC (e.g. German CPs). If a head α in a language has neither [•EF•] nor [•α•], no sub-extraction can proceed from αPs (see e.g. the Tzes CP; Polinsky and Potsdam 2001). Since I predict that no αP with [•EF•] exhibits WC effects, reflexes of successive cyclicity (a.o. Georgi 2017) in WC-obeying αPs need new explanations.

References:

Bošković, Željko. 2014. Now I'm a Phase, Now I'm Not a Phase: On the Variability of Phases with Extraction and Ellipsis. *Linguistic Inquiry* 45:27–89.

Chomsky, Noam. 1973. Conditions on transformations. In *In A Festschrift for Morris Halle*, eds. Stephen Anderson and Paul Kiparsky, volume In A Festschrift for Morris Halle, 232–286. New York, holt, rinehart and winston edition.

Chomsky, Noam. 1977. On wh-movement. In *Formal syntax*, eds. Peter W Culicover, Thomas Wasow, and Adrian Akmajian, 71–132. New York: Academic Press.

Chomsky, Noam. 2001. *Derivation by Phase*. MIT, Department of Linguistics.

Egressy, János. 2023. Size- and position-dependent opacity in Hungarian. Master's thesis, University of California, Los Angeles.

Egressy, János. 2025. Williams Cycle effects in Hungarian. *Journal of Uralic Linguistics* 4:51–78.

Fong, Suzana. 2019. Proper movement through Spec-CP: An argument from hyperraising in Mongolian. *Glossa: a journal of general linguistics* 4.

Georgi, Doreen. 2017. Patterns of Movement Reflexes as the Result of the Order of Merge and Agree. *Linguistic Inquiry* 48:585–626.

Halpert, Claire. 2019. Raising, unphased. *Natural Language & Linguistic Theory* 37:123–165.

Halpert, Claire, and Jochen Zeller. 2015. Right dislocation and raising-to-object in Zulu. *The Linguistic Review* 32.

Keine, Stefan. 2019. Selective Opacity. *Linguistic Inquiry* 50:13–62.

Keine, Stefan. 2020. *Probes and Their Horizons*. MIT Press.

Meadows, Tom. 2023. Size matters: clause structure and locality constraints in Swahili relatives. PhD Thesis, Queen Mary University of London, London.

Müller, Gereon. 1999. Imperfect checking. *The Linguistic Review* 16:359–404.

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

Müller, Gereon. 2014b. *Syntactic buffers: A local-derivational approach to improper movement, remnant movement, and resumptive movement*. Number 91 in Linguistische Arbeits Berichte. Leipzig: Institut für Linguistik.

Müller, Gereon. 2020. Rethinking restructuring. *Syntactic architecture and its consequences II: Between syntax and morphology* 10:149–190.

Polinsky, Maria, and Eric Potsdam. 2001. Long-Distance Agreement And Topic In Tsez. *Natural Language & Linguistic Theory* 19:583–646.

Poole, Ethan. 2022. Improper case. *Natural Language & Linguistic Theory* 41:347–397.

Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In *Elements of Grammar: Handbook in Generative Syntax*, ed. Liliane Haegeman, Kluwer International Handbooks of Linguistics, 281–337. Dordrecht: Springer Netherlands.

Ross, John Robert. 1967. Constraints on variables in syntax. PhD Thesis, Massachusetts Institute of Technology.

Stowell, Timothy Angus. 1981. Origins of phrase structure. Thesis, Massachusetts Institute of Technology.

Williams, Edwin. 2003. *Representation Theory*. MIT Press.

Zyman, Erik. 2017. P'urhepecha hyperraising to object: An argument for purely altruistic movement. *Proceedings of the Linguistic Society of America* 2:53.