Successive Cyclic Movement as Recursive Symmetry-Breaking

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1. Introduction

In this paper I argue in favor of a recent idea concerning how certain instances of syntactic movement are triggered. In particular, the idea is discussed that successive cyclic WH-movement comes about by iterated symmetrical structures of the form {XP, YP}, which cannot receive a label and thus force unbounded movement. Two devices of how movement comes to a halt are discussed.

2. Evidence

On the empirical side, semantic, morphological, syntactic and phonological evidence speaks in favor of a successive cyclic shape of long-distance Ā-dependencies (1) (cf. Chomsky 1973), rather than a one-fell swoop derivation as in (2):

(1)   [$_{CP}$ what$_i$ do you think [$_{CP}$ t$_i$ that Mary did t$_i$]]

(2)   [$_{CP}$ what$_i$ do you think that Mary did t$_i$]

For example, so called WH-copying in German (3), quantifier float in West Ulster English (4), intermediate Binding options in English (5), as well as complementizer alternations in Irish (6) that arise along with an Ā-dependency have consolidated the view for an underlying syntax as in (1); all of them would appear rather puzzling when one assumes a syntax as in (2), leaving aside problems for locality such a derivation gives rise to:

(3)   **Wen** denkst Du **wen** Maria gesehen hat?
         who think you who Mary seen   has
         'Who do you think Mary has seen?'

(4)   *Quantifier float* (West Ulster English, McCloskey 2000)
         a.   **What all** do you think that he'll say that we should buy?
         b.   **What** do you think **all** that he'll say that we should buy?
         c.   **What** do you think that he'll say **all** that we should buy?
         d.   **What** do you think that he'll say that we should buy **all**?

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(5)   *Intermediate Binding options* (Barss 1986)

    a.   Who said that John$_i$ thinks that Bill$_j$ bought pictures of himself$_{*i/j}$?

    b.   [Which pictures of himself$_{i/j}$] does John$_i$ think that Bill$_j$ bought?

(6)   *Complementizer alternations in Irish* (McCloskey 2002)

    a.   Creidim gu-r   inis sé bréag.

           I-believe **GO-[Past]** tell he lie

           'I believe that he told a lie.'

    b.   [an ghirseach]$_i$ a   ghoid na soga t$_i$

           the girl   **a**^{L} stole the fairies

           'the girl that the fairies stole away'

    c.   Aon bhliaim déag is   dóigh liom   a deireadh   m'athair a bhí sé nuair . . .

           one year   ten   a$^L_{COP}$ [Pres] I-think **a**^{L} say$_{Past-Habit}$ my father **a**^{L} was he when

           'It's eleven years old that I think my father used to say that he was when. . .'

This collection is rather arbitrary and inconclusive, and yet I take the successive cyclic nature of these dependencies to be firmly established and will not discuss its empirical validity[1]. The exact analyses of the surface effects of this syntactic dependency is an independent matter: without further argument, I assume most of them to be non-syntactic; as it is these phenomena where much of the cross-linguistic variation can be observed, it is tempting to conjecture that they result from the mapping to the sensorimotor interface (i.e. PF, cf. Berwick & Chomsky 2008).
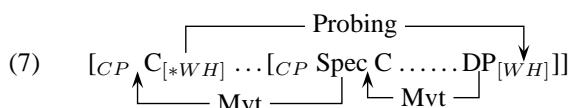
3. Extant Analyses

A major question for the syntax of successive cyclic Ā-movement is what triggers intermediate movement steps: The subordinate clause is not interrogative (or relative, or whatever Ā-dependency is established) and hence an analysis based on the checking of semantic features (WH or the like) lacks plausibility. Impressionistically, these movement steps appear like derivational accidents, rather than reflecting a syntactic relationship between intermediate C-heads and the moving element. Accordingly, it has been a commonplace assumption that these steps are driven by satisfaction of formal features: EPP-/OCC- or Edge Features as in Chomsky 2001, 2004, 2008. However, the nature of these features remains a mystery. Other analyses roughly fall into two categories: on the one hand, such of the indirect feature driven movement kind (cf. Chomsky 2000 for the general idea), placing the structural inadequacy that needs a remedy on the moving element itself (Bošković 2007 for a specific implementation for successive cyclic movement). On the other hand such that take successive cyclic movement to be a subtype of a feature-cheking variant of movement (cf. Takahashi 1994, Boeckx 2003); here, the most pressing task is to account for the piecemeal organization of this dependency. Here, I briefly discuss two influential analyses representing these views.

3.1. Terminal Head-Driven Approaches

Based on Takahashi (1994), Boeckx (2003) put forth an analysis in which no intermediate feature checking takes place; rather successive cyclic movement is feature driven only insofar as a strong WH-feature on the terminal C-head triggers movement of the WH-element, which checks the strong feature by moving; the successive cyclic pattern comes about as a side-effect of an extrinsic condition on movement, namely the Minimize Chain Links Condition, which dictates that chain links must be as short as possible. A schematic derivation is given in (7):

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[1] den Dikken (2009) concedes successive cyclicity only through intermediate v*P-edges on the way to the inherently terminal landing site Spec-CP. The question of the movement trigger is orthogonal to the question of the exact successive cyclic path taken: a trigger for intermediate touch-downs in Spec-v*P needs to exist just as for Spec-CP.

(7)
$$[_{CP} \text{C}_{[*WH]} \ldots [_{CP} \text{Spec C} \ldots \ldots \text{DP}_{[WH]}]]$$

with Probing arcs and Mvt arcs labeled.

Chain formation, according to Boeckx (2003), is subject to the Principle of Unambiguous Chains (PUC): a chain is unambiguous if it contains at most one "strong position" (feature-checking position). From this it follows that intermediate EPP-checking violates the PUC in that the moving element passes more than one strong position. To avoid this, he suggest that movement takes place only as the final C-head is Merged, triggering WH-movement; the successive cyclic pattern of the long distance dependency results from the above mentioned condition that limits the size of chain links.

An immediate problem (recognized by Boeckx 2003) of this analysis is that it involves a violation of the Extension Condition: intermediate steps of WH-movement do not extend the root node. Also, the representational character of the Minimize Chain Links condition is dubious and essentially descriptive.

3.2. Moving Element Driven Approaches

Bošković (2007) argues that an uninterpretable [uQ]-feature on a WH-Goal triggers successive cyclic movement: as AGREE is unidirectional, the [uQ] on the WH-Goal must eventually reach a position from which to c-command the [iQ]-feature on an interrogative C-head. Movement proceeds through phase edges until the configuration obtains, in which the Goal becomes inactive:

(8)
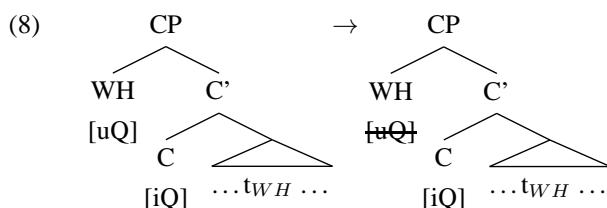
Bošković (2007) follows Chomsky (2001) in assuming that CP and v*P are phases; consequently successive cyclic movement of a Goal must proceed through phase edges – boxed in (9) – dictated by the Phase Imprenetrability Condition (10). (9-a)/(9-b) represent movement of the Goal to the edge of a phase PH1. The shaded areas in (9-b) indicates the material which gets Transferred to the interfaces when the lower phase is complete; this material is inaccessible for syntactic operations at the next phase level PH2. Thus if the Goal does not reach the phase edge of a phase head PH1 it gets irreparably lost in a domain impenetrable at a next higher phase (9-c):

(9)   a. $[\ \boxed{\text{Goal [PH1}}\ [_{domain} \ldots \langle\text{Goal}\rangle \ldots]]]$

      b. $[\text{PH2} \ldots [\ \boxed{\text{Goal [PH1}}\ [_{domain} \ldots \langle\text{Goal}\rangle \ldots]]]]$

      c. $[\text{PH2} \ldots \boxed{\ [\ \text{PH1}}\ [_{domain} \ldots \text{Goal} \ldots]]]$

(10)   PIC: The domain of H is not accessible to operations outside HP; only H and its edge are accessible to such operations. (cf. Chomsky 2001)

Successive cyclic movement must thus proceed from phase edge to phase edge (ignoring the v*P-phases here):

(11)   a.   did John say [_{CP} C=that Mary likes what]
             → **movement of *what* into the matrix clause is barred by the PIC**
       b.   (i)   [_{CP} what C=that Mary likes t_{what}]
             (ii)   did John say [_{CP} what C=that Mary likes t_{what}]
             → **movement of *what* into the matrix clause is fine**

Bošković's analysis solves the problem of the trigger of movement of the Goal to intermediate landing sites without resorting to the EPP or Edge Features (essentially Chomsky 2001, 2004, 2008's take): the Goal needs to move "in the hope" of finally establishing an AGREE-relation.

One fairly direct problem of this approach is that otherwise unmotivated property of features are built in to achieve the outcome of the derivation: Why is the Q-feature on the WH-element unvalued? Aside from the analogy in the A-movement domain, in which an unvalued Case feature on nominals renders these elements active, there is no independent motivation. Moreover – particularly pertinent from the perspective of the present paper –, the account implicitly but crucially relies on the following assumption: moving phrases as a whole are able to probe, i.e. heads must be able to project their features up to a maximal projection (and beyond, if pied piping is involved):

(12)   Whose pictures did you see?

The moving XP – i.e. the [uF] that percolates up to the highest node – must be able to probe for corresponding interpretable features. As (13-a) shows, the Probe [uQ] on the WHP is too deeply buried within XP to c-command [iQ]. Consequently, a mechanism as illustrated in (13-b) must be invoked allowing the Probe to "telescope":

(13)   a.

        b.
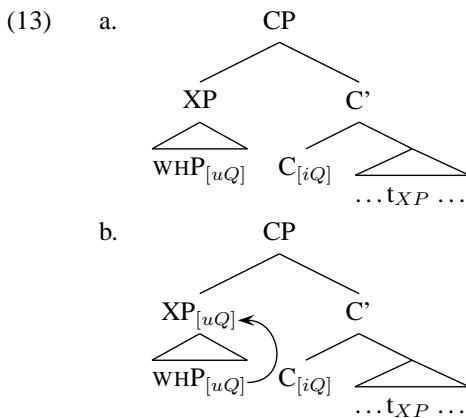
Feature percolation has been subjected to severe criticism (cf. Heck 2004), the most principled being that percolation is an additional mechanism in the grammar, irreducible to Merge and AGREE. Similar considerations, however, apply to projection in the conventional X̄-theoretic sense.

4. The Analysis

In this section I present the current analysis. In spirit it bears resemblance to the approaches by Heck & Müller (2000) and Bošković (2007) which, like the current one, treat intermediate movement steps as local repair strategies, proceeding cyclically phase by phase (cf. Chomsky 2001 *et seq*). However, the current view is simpler and more economical than the aforementioned ones in that forced movement derives from the independently needed desideratum to endow syntactic units with a label, i.e. the most prominend lexical item LI or feature on such an LI. In addition, it gets along without employing notions like the Numeration (as in Heck & Müller 2000) and without pre-encoding the derivational result in the feature content of the WH-element (as in Bošković 2007). After a brief explication of the theoretical assumptions, I demonstrate the analysis.

4.1. Merge

Chomsky (2007, 2008) dispenses with phrase structure rules and X̄-theory in favor of the set-forming operation Merge. This operation, in turn, yields binary sets and hierarchy. As often stressed by Chomsky, Merging X and Y logically implies to variants: either X is distinct from Y (14) or X is part of Y (15):

(14)   {X, Y}   *external Merge, EM*

(15)   {X, {Y, {... ⟨X⟩ ...}}}   *internal Merge, IM (movement)*
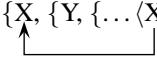
IM involves the creation of a discontinuous object, two copies of X or a chain with two occurences X (cf. Chomsky 2000:115; also Ott 2011:62 for an exposition).

4.2. Labels and Symmetry Breaking . . .

Recently, Chomsky (2010, in press) argues that if a unit formed by Merge participates in further syntactic operations (i.e. movement[2]) or gets semantically interpreted, a label needs to be identified at the phase level by *Minimal Search*[3]. In *On Phases*, this is captured by the following statements:

(16)   EM of XP and a lexical item (LI) yields {H, XP}; H is the label.

(17)   If α, contained in β, Merges with β, then the label of β is the label of {α, β}

Illustration of (16):

(18)   a.   { V, DP } = "VP"
        b.   { C, TP } = "CP"

(16) captures the idea that the labeling algorithm searches for the most prominent element in a given set in the domain of the phase head. As it is the LI in a given structure of the form {H, XP}(=α) that bears the grammatically relevant features, this LI, i.e. H, becomes the label of α. Probing for the LI which heads XP, by contrast, requires deeper search. Thus the algorithm identifies the most local "substantial" element in α as the label of α.

The workings of the statement (17) are illustrated below, a rendering of the traditional X̄-theoretic idea that the target of movement projects:

(19)   a.   { DP, { v*, ... ⟨DP⟩ ... }} = "v*P"
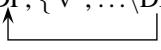
        b.   { DP, { C, ... ⟨DP⟩ ... }} = "CP"
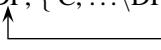
I will comment on (17) momentarily.

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[2] As evident from the examples discussed here, it cannot be the case that labeling is a prerequisite for EM; instead, a label is needed for interpretation at the interface and thus rendered visible at Transfer. Providing a label only if needed for interpretive reasons is arguably a reflection of optimal design. Cf. Boeckx (2010) for the idea that labels result from Transfer, although his implementation differs from the conception adopted here.

[3] Chomsky (2007:23): "Note that the notion 'label' is playing only an expository role here. In constructions of the form H-XP (H a head), minimal search conditions determine that H is the designated element (label) that enters into further operations. H will be the probe, and wherever selection enters - possibly only at the CI interface - H is the only functioning element, whether selecting or selected. Questions arise about labeling only for XP-YP constructions. For IM, with XP raised from YP with head Y, Y is the probe, and the simplest assumption is that it remains the probe, so that XP need not be searched for a new probe."

The output of EM(XP,YP)={XP, YP} leads to a failure of the application of (16) and (17) (Chomsky 2008:fn. 34) – no element is more prominent than the other. Adopting ideas of symmetry-breaking from Moro (2000) to the labeling context, Chomsky (2010, in press) argues that if such a "too symmetric" syntactic object must receive a label, one of the two members must raise at the phase level, such that an asymmetry is created, in which the chain of the moved element is not properly contained in the initial symmetric structure. (20) exemplifies this idea with EPP-raising:

(20)   EM of an external argument with v*(P); symmetry breaking movement (partially[4]) derives the EPP (cf. Chomsky 2010, in press)

   a.   EM(DP, v*P)= {DP, v*P} $\rightarrow$ *symmtetry-breaking movement when Merging C-T*
   b.   {C,{ DP, {T, {⟨DP⟩, v*P}}}} With DP discontinuous, v* is the only element for the
          labeling algorithm to see within the initial structure {DP, v*P}, because only the heads of chains are visible for syntactic operations (cf. Chomsky 2000).

4.2.1. ... and Previous Applications

Moro (2000), for example, observes that in Italian copular sentences one of the two postverbal DPs has to move ((21-a) to derive the canonical and (21-b) to derive the inverse copular sentence), while the insertion of pro yields an ungrammatical structure (21-c). He remarks that the insertion of *pro* in Spec-TP is fine as long as "pro is the head of a chain starting within the postverbal constituent" (Moro 2007 2, (22)) – thus there is no principled or independent reason to exclude *pro* from occuring in Spec-TP as in (21-c):

(21)   a.   [molte foto   del   muro]$_i$ sono [t$_i$ la causa della rivolta]
              many pictures of the wall   are   the cause of the riot
       b.   [la causa della rivolta]$_i$ sono [molte foto   del   muro t$_i$]
              the cause of the riot   are   many pictures of the wall
       c.   *pro* sono [molte foto   del   muro la causa della rivolta]
                     are   many pictures of the wall   the cause of the riot

(22)   *pro* è [t la causa della rivolta]
             is   the cause of the riot

Similarly, Ott (2011) argues at length that this mechanism naturally derives split topics in German:

(23)   a.   Maria hat [[$_{DP}$ drei   interessante *e*][$_{NP}$ Französische Bücher]] gelesen
              Mary has   three interesting   French   books   read
       b.   [$_{NP}$ Französische Bücher] hat Maria [[$_{DP}$ drei   interessante *e*] ⟨NP⟩] gelesen
                French   books   has Mary   three interesting   read
              'As for French books, Mary has read three interesting ones.'

4.3. Successive Cyclic Ā-Movement is Symmetry-Creating Movement

The statement (17) is stipulative as it cannot be derived from *Minimal Search* (cf. Richards 2010); it should therefore be dispensed with. This was also implicit in Chomsky (2010). Once we do this, we should ask: how *do* sets formed by IM receive a label? As for successive cyclic Ā-movement there is a simple answer that suggests itself: By breaking a symmetry that has been created by symmetry-breaking, i.e. symmetry-breaking can be recursive. Movement solves the labeling problem downstairs, but only to

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[4] Obvious questions remain. For example, how do grammatical subjects in English reach their surface position in passives/unaccusatives?

create a new one in the target. The principally infinite symmetry-destroying/symmetry-creating character of such derivations is the source, i.e. the trigger of intermediate steps of successive cyclic Ā-movement.

Suppose X is a phase head.

(24) a. { ZP, YP }
      b. {ZP, {X, ... { ⟨ZP⟩, YP }}}

The symmetry between ZP and YP needs to be broken because (16) fails to apply (24-a). IM of ZP at the phase level (24-b) achieves this. The structure that result from this symmetry-breaking movement result in a configuration that parallels the initial problematic/symmetric structure (compare (24-a) and (25)), and once (17) is given up, such an output does not automatically receive a label:

(25) {ZP, { X, ... { ⟨ZP⟩, YP }}}={ZP, XP}

Consequently, ZP must move further at the phase level in order to break the newly created symmetry:

(26) {ZP, { W, ... {⟨ZP⟩, { X, ... { ⟨ZP⟩, YP }}}}}

The unbounded character of successive cyclic Ā-movement follows:

(27) a. Who did Mary [$_{v*P}$⟨**who**⟩ say [$_{CP}$⟨**who**⟩ that John [$_{v*P}$⟨**who**⟩ saw ⟨who⟩]]]
      b. Who did Fred [$_{v*P}$⟨**who**⟩ claim [$_{CP}$⟨**who**⟩ that Mary [$_{v*P}$⟨**who**⟩ said [$_{CP}$⟨**who**⟩ that John [$_{v*P}$⟨**who**⟩ saw ⟨who⟩]]]]]
      c. ...

Examples like (27) force me to adopt the idea that WH-pronouns are XPs, not heads, otherwise no intermediate symmetries ensue (cf. Reinhart 1998:44 for this conclusion on independent grounds; for instance, for *who* she suggests the structure [*who* [$_N$ *e*]].).

What stops the movement? Evidently, WH-movement comes to an end in the WH-scope position:

(28) a. John wondered what Mary has read.
      b. *What did John wonder Mary has read?

It has been independently argued in Boeckx (2008b) that there is a tight correspondence between Probes and labels, i.e. it is the probing head that provides the label for the node immediately dominating the Probe, but also for any XP dominating the probes specifier, which has previously served as a Goal for that Probe:

(29) *Probe-Label Correspondence Axiom (PLCA)*:
      The label of $\{\alpha, \beta\}$ is whichever of α or β probes the other, where the Probe = Lexical Item whose uF gets valued.

My initial idea behind using (29) was that probe-goal relations are sufficiently asymmetric to determine the label of the structure resulting from moving the WH-Goal into Spec-Probe; crucially, there are no probe-goal relations in intermediate CP-configurations and hence (29) is not operative there, so that iterated – problematic – symmetries ensue, as desired.

(30)   a.   C[Q] ... {WH[Q], vP}   *Agree(C[Q], WH)*

         b.   {WH[Q], C[Q] ... {<WH>, vP}}   *movement to render v the label in {WH, vP}*

         c.   {WH[Q], CP[Q]}   *→ label C by (29)*

A problem of (29) is that it stipulates what needs to happen, but does not derive from *Minimal Search* or any other independently motivated property of the grammar; labeling comes about by *Minimal Search* up to the preterminal step, at which point, somewhat unnaturally, the extrinsic condition (29) kicks in – hence we have a non-uniform label determination. For such reasons I refrain from adopting (29).

    Joost Kremers (p.c.) and Chomsky (in press) suggest an alternative: WH and CP are both headed by Q. Leaving the WH-item in the sister position of interrogative CP is unproblematic in that the embedding predicate selects this structure and in that the labeling algorithm might be able to search both members for the label they share. The label of {WH, CP} is Q, effectively yielding an exocentric structure. Propagated problematic symmetries are thus halted at the point of selection by the interrogative-selecting predicate[5]:

(31)
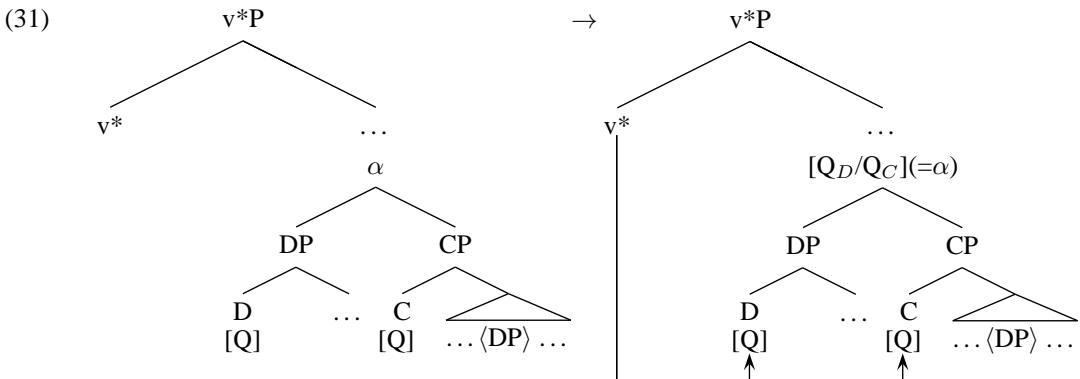
Clearly, a necessary condition for rendering (31) stable is that both members share a relevant feature. But this reason is not sufficient as the previously mentioned small clause cases indicate (cf. also den Dikken's personal communication in Chomsky in press). What is the criterion for deciding between repairing an XP-YP-structure in which X and Y share a feature, or leaving it unmodified (not moving either member)? I would like to venture the following hypothesis: in the small clause case the heads of each phrase in {XP, YP} share not just a prominent feature but arguably all features. Case (31), by contrast, exhibits a "healthy" balance between identity and difference with respect to the most prominent features of the LIs that head XP and YP in the symmetric structure (Q is identical on the heads of DP and CP, while the categorial features C and D obviously differ).

4.4. Arguments for Exocentric Phrases

    To my mind, one of the strongest arguments in favor of an exocentric, stable structure of the form (31) comes from Criterial Freezing (Rizzi 2006). The idea that phrases, once in a certain dedicated sentential position, are "arrested" in place, i.e. unable to undergo further movement, was poignantly formulated by Rizzi:

(32)   *Criterial Freezing* (Rizzi 2006:112)

        A phrase meeting a criterion is frozen in place.

Addressing the problem what the reason for (32) might be, Rizzi (2006) asks: "Is [(32)] an independent formal principle, or does it follow from other properties of syntactic computations or of the interface
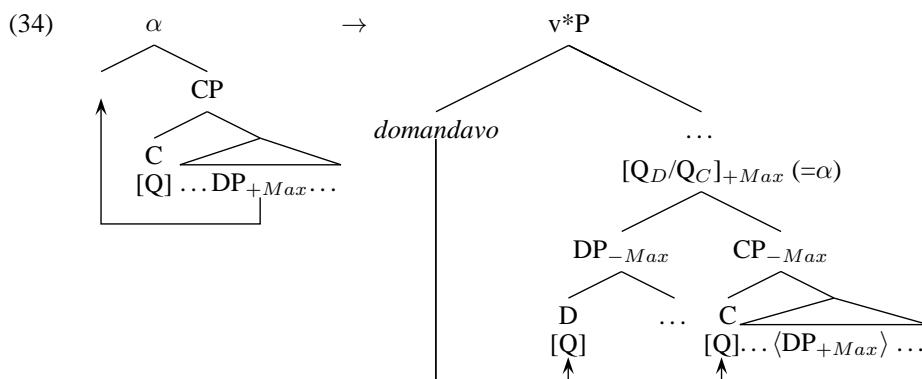
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systems?", and goes on to argue in favor of the former, although he later appears to follow the intuition that (32) might be the result of an economy-based regulation of the grammar: XPs meeting a criterion (i.e. fulfill their discourse functional role) do not undergo redundant operations (cf. Rizzi & Shlonsky 2007).

From the perspective of the current discussion, the source of (32) is a Third Factor (as also envisioned by Gallego & Uriagereka 2008), namely ultimately *Minimal Search*. In particular, (32) is the effect of "coprojection" of the moved element along with the category of the movement target (using the term "projection" here and subsequently only for expositional convenience): extraction of the moved element from a criterial position is effectively movement of an intermediate projection – illicit on independent grounds.

Consider why: As a matter of logic, if a phrase can be labelless within Narrow Syntax, talk of projection status of this phrase makes little sense up to the derivational point where its label gets determined (here: Transfer). However, once a syntactic unit gets labeled, I take it that projection status is concomitantly computed: an XP in need of a label is rendered [+Max] with respect to that computational cycle. However, this status may change in the next cycle (phase), namely if this XP projects further. Now consider the following violation of the WH-Criterion from Italian (33-b)(taken from Rizzi & Shlonsky 2007:117) and the trees corresponding to WH-movement into the sister position of the interrogative CP (34):

(33)   a.   Mi domandavo quale RAGAZZA avessero scelto, non quale ragazzo.
            I   wonder   which GIRL   they had chosen not which boy
        b.   *Quale RAGAZZA mi domandavo avessero scelto, non qale ragazzo

(34)

$\alpha \qquad\qquad \rightarrow \qquad$ v*P

CP   *domandavo*   . . .

C [Q]$\dots$DP$_{+Max}$... $[Q_D/Q_C]_{+Max}$ (=α)

DP$_{-Max}$ CP$_{-Max}$

D   . . .   C
[Q]   [Q]$\dots\langle$DP$_{+Max}\rangle \dots$

Within the CP-phase WH-DP *quale ragazza* is a [+Max]-category (see the left tree). IM of this unit to the sister of interrogative CP yields {DP, CP}=α, with the head of each member bearing [Q]; this is the structure that underlies (33-a). At the next phase level, LA probes both members of α in an effort to find a label for α, finding [Q] respectively (cf. Chomsky in press). As a consequence, α equals [Q$_D$/Q$_C$] and is rendered a [+Max] category. Crucially, this means that the WH-DP *quale ragazza* turns [-Max] at this derivational stage[6]; WH-extraction to yield (33-b) is out by the independently motivated ban on movement of intermediate projection (cf. Chomsky 1995:242).

The same mechanism extends to A-Movement, i.e. the Subject Criterion follows analogously from the exocentric structure which forms the output of EPP-raising: raising the external argument EA to the sister of TP yields {EA, TP}=β, each member bearing a set of ϕ-features, both of which, according to Chomsky (in press), derivationally become the label of β. After label detection, β equals [ϕ_D/ϕ_T] for interpretive purposes, cf. (35). In X̄-theoretic terms, both moved EA and TP respectively become *intermediate* projections – again derivationally – *and thus immobile* by the ban on moving intermediate

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[6] Note that the CP likewise becomes intermediate (and frozen).

categories[7]. Freezing of derived subjects thus boils down to label identification of the EA's relevant features by *Minimal Search* – the raised subject's "reprojection" in projectionist terms (again, without actual projection implied).

(35)
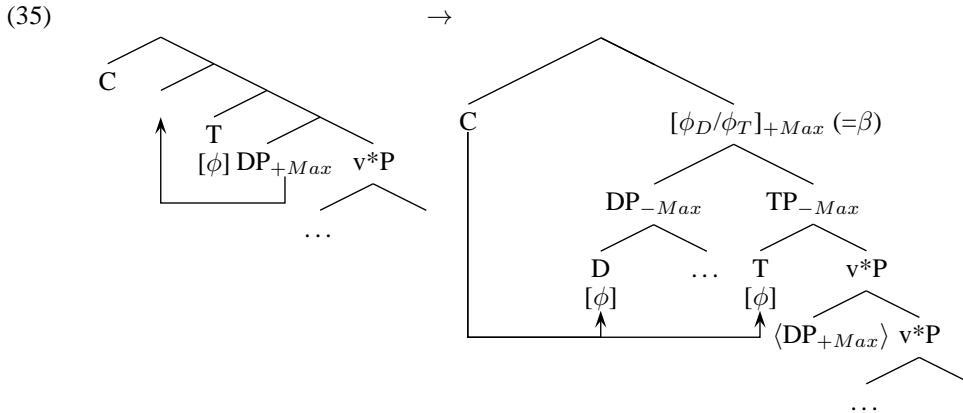
The impossibility of A-movement from finite clauses – Hyperraising – (cf. Lasnik & Boeckx 2006)(*modulo* improper movement via embedded CP) might reduce to this property:

(36)   Hyperraising
   a.   *John seems is smart
   b.   John seems [$_\beta$ ⟨John⟩ is smart]

In conclusion, to the extend that "coprojection" of a moved element is involved in creating an XP-YP-structure (considered here: WH-movement and EPP), Criterial Freezing is dispensible as an independent principle of UG.

5. Conclusion

In this paper I have proposed that intermediate steps of successive cyclic Ā-movement can be elegantly analyzed as the result of labeling failures of non-interrogative {WH, CP}-structures. I have discussed two analytical options to stop the movement and argued against the PLCA and in favor of the idea that interrogative {WH, CP} may remain untouched and labeled by the feature both members share (Q). Primarily, independent evidence comes from Criterial Freezing, which emerges as a theorem under the current view.

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[7] We can ask what hinders β to move. Along the same lines we can ask which specific conditions sometimes allow the output of Ā-movement – α in (34) above – to move: as Rizzi & Shlonsky (2007:117/118) show, there is indeed a marginally acceptable clausal pied-piping structure in Italian, say, when the WH-interrogative clause satisfies a [rel]-criterion in the matrix clause:

(i)   ?(?) Gianni [quanti   libri   del quale siano stati censurati] non è ancora stato chiarito
                    Gianni, how many books by whom have been censored not   is   been clarified
            'Gianni, how many books by whom have been censored it has not been clarified yet.'

For the sake of the argument, I stipulate that movement of β violates Anti-Locality (Abels 2003), the sources of which remain ill-understood. Cf. Boeckx (2008a) for attempts to derive the principle from the ensuing identity of (contextual) chain members – presumably a non-distinctness the interfaces fail to interpret as movement. As for clausal pied-piping, there appear to be language-specific or even dialect-specific factors that enter into this possibility. For instance, a topicalized element undergoing long-distance movement can pied-pipe a finite embedded complement clause or an adverbial clause in Bavarian German (cf. Mayr 2008, Grewendorf 2012), whereas this option is systematically deviant in standard German. One factor could be whether or not doubly filled comp-filter is operative or not, if this condition is understood as a surface structural constraint.

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