Operator Islands and the Intermediate Step Corollary

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1. Overview

Claim:
Marianau (Georgi, Heck & Müller (2009), Georgi (2000, 37)) derives the selective nature of certain operator islands (= A-bar islands; wh-islands, topic islands) without recourse to a constraint like Relativized Minimality (RM; Rizzi (1990)) or the Minimal Link Condition (MLC; Chomsky (2001)).

Proposal:
Wh-islands and topic islands do not instantiate an intervention effect; neither does the operator block an escape hatch (Chomsky (1977; 1986)). Rather, the item that is to be long-distance moved marauds the set of A-bar-related features on C before C can attract a wh-phrase or topic that would erect the island. The option for such a maraudage arises under an approach in which intermediate steps of successive-cyclic movement do not target the outermost specifier of C; this follows from the theory of locality in Müller (2008), more specifically, the Intermediate Step Corollary.

Intermediate Step Corollary
Intermediate movement steps to specifiers of X (as required by the PIC) must take place before a final specifier is merged in XP.

2. Background

2.1 Wh-Islands: The Problem

(2) Wh-Islands
a. *[John gave t1 t2] to whom [What book do you wonder [CP [PP whom t1 t2] ?]

Standard accounts

(i) RM accounts for the illformedness of (2-ab) because movement of XP1 crosses an intervening XP2 that occupies a position of the same structural type (A-bar).
(ii) The MLC can account for wh-island effects if it is assumed that the wh-item in the embedded SpecC position (i.e., the position that creates the island) still has a feature [wh] that may block attraction of the lower wh-phrase by the matrix interrogative C head even though this feature has been checked in the final landing site.

Problems for MLC/RM analyses:

(i) There is no reason to limit the number of specifiers of a head to one.
(ii) Given the PIC, successive-cyclic movement must systematically be able to target specifiers of phase heads, even if there is already another specifier around.
(iii) Under a multiple specifier/PIC approach, there is no obvious reason why an intermediate movement step of a wh-phrase to an outer specifier of an interrogative C (with another wh-phrase acting as an inner specifier) should be blocked: The former wh-phrase that is on its way out of the CP does not want to see a [wh] feature (yet); it just wants to see what all items want to see that leave the clause, viz., an edge feature.

(3) Simple cases of successive-cyclic movement via an additional SpecC:
a. (I wonder) [CP what t1 C [TP whom t2] T] [CP [wh t2 said T] T]
b. (Ich frage mich) [CP was C [TP [wh t1 T] T] Fritz [CP t1 t2 | denkt v T] T] I wonder what Fritz thinks

An ad hoc solution:
(i) One can stipulate that an edge feature cannot be inserted on an interrogative C.
(ii) This would then make it possible to derive wh-island effects under both an MLC and a RM account.

Conceptual problems (Müller (2000, ch. 2)):
(i) MLC/RM approaches typically require additional concepts like equidistance.
(ii) MLC/RM approaches require massive search space in derivations; however, in a local derivational approach, search space should be minimized. Something is wrong with the very idea of intervention from this perspective.

2.2 Previous Structural Approaches Without Intervention

Distant relatives:

• The Tree Adjoining Grammar approach to wh-islands developed in Kroch (1989) and Frank (2002) is a structural analysis that does not rely on the idea of intervention.
• The optimality-theoretic approach to wh-islands in Legendre, Smolensky & Wilson (1998) is another structural analysis that does not rely on the idea of intervention.

2.2.1 Tree Adjoining Grammar


Assumption:
All long-distance dependencies must be brought about by (counter-cyclic) insertion of so-called auxiliary trees that pump up the local tree structure generated thus far (‘elementary trees’); e.g., (4-a) is derived by inserting (4-b) (where think subcategorizes for a C’ category) into the C’ node of (4-c), which only has local movement to the minimal SpecC position.

(4) Long-distance movement in Tree Adjoining Grammar:
a. Who1 do you think she likes t1?
b. [CP do you think C’] (auxiliary tree)
c. \([\text{CP} \; \text{who}_1 \; [C' \; C \; \text{she likes} \; t_1]]\)  
   (elementary tree)

Consequence:
A wh-island construction like (5-a) would require inserting ('adjoining') an auxiliary tree like (5-b) into the elementary tree (5-c); and the problem is that a non-multiple-wh-movement language like English does not permit trees of the type in (5-c) that would be required to feed a wh-island construction.

(5) *Wh-Islands in Tree Adjoining Grammar:
   a. ?What book did John ask whom you had given t_1 ?
   b. \([C' \; \text{did John ask} \; C']\)
   c. ?[\text{CP} \; \text{what book}_1 \; [C' \; \text{whom}_2 \; C' \; \text{you had given} \; t_2 \; t_1 ]\)

2.2.2 *Optimality Theory


Assumption:
(i) All instances of extraction from a CP (even a complement CP) are assumed to violate locality constraints (most phrases are local domains), but such constraint violation is possible if it is (a) minimal, and (b) forced by higher-ranked constraints.
(ii) The constraint that forces wh-movement (e.g., Wh-CHR) cannot play this role: It is ranked lower than the locality constraint (Loc) that an item (more precisely, an adjunct) violates when it undergoes extraction from an object CP.
(iii) However, a third constraint (Sel) that is highest-ranked (in effect: inviolable) demands that (lexically determined) selection requirements are respected. One such requirement is that a V that selects an interrogative CP finds a wh-phrase in the embedded SpecC (or C) position.

(6) *Wh-Islands: Optimality Theory
   a. How do you think [\text{CP} \; \text{Mary fixed the car} \; t_1 ] ?
   b. *How does she know [\text{CP} \; [\text{DP}_2 \; \text{which car}\; \text{Mary fixed} \; t_2 \; t_1 ] ?

Consequence:
(i) Extraction of the adjunct violates locality constraints on movement (Loc) in exactly the same way in (6-a) and (6-b): There is no intervention effect induced by \textit{which car} in (6-b).
(ii) (6-b) is ungrammatical because it blocked by a competing candidate with a better constraint profile: (7) violates the constraint that would normally trigger wh-movement to the matrix clause (Wh-CHR), but since this constraint is ranked lower than the locality constraint violated with extraction from all CPs (Loc), (7) is the optimal candidate.

(7) Optimal candidate blocking wh-movement from wh-island:
   She knows [\text{CP} \; \text{how}_1 \; [\text{DP} \; \text{which car}_2 \; \text{Mary fixed} \; t_2 \; t_1 ])

Problem:
(7) does not look like a well-formed English sentence.

Solution:
Given the copy theory of movement, wh-in situ may involve multiple wh-movement with selective PF realization of copies, such that one of the traces (rather than its antecedent) is PF-realized in English (Posetsky (2000), Fanselow & Čavar (2001), Grevenendorf (2001)).

Problem:
Why is (6-a) possible after all?

Solution:
The matrix verb in (6-a) selects a declarative CP complement, and not an interrogative CP complement; but if the wh-phrase \textit{how stays} in the embedded SpecC position, the embedded clause will have to be interpreted as a wh-clause. This would violate highest-ranking SEL.

Conclusion:
Structural accounts of wh-island effects that do not rely on intervention are available, but they are not compatible with basic minimalist assumptions.


3.1 Context

Question:
How can the effects of the Condition on Extraction Domain (CED; Huang (1982), Chomsky (1995; 2008), Cinque (1995), Manzini (1992)) be made to follow in the minimalist program?

Claim (Müller (2009, ch. 2)):
(i) The CED itself is not compatible with basic minimalist tenets.

Background:
Chomsky (2000; 2008; 2001): PIC forces successive-cyclic movement via phase edges; such movement is possible because edge features that drive it can be inserted.

(8) Phase Impenetrability Condition (PIC):
   The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations (where edge of X = specifier(s) of X).

Claim:
CED effects can be derived from the PIC if the following four assumptions are made:
1. All syntactic operations are driven by features of lexical items.
2. These features are ordered on lexical items.
3. All phrases are phrases.
4. Edge features that trigger intermediate movement steps can be added only as long as the phase head is still active.

(9) **Condition on Extraction Domain** (to be derived from the PIC):
   a. Movement must not cross a barrier.
   b. $\alpha$ is a barrier if the operation that has merged $\alpha$ in a phase $\Gamma$ is the final operation in $\Gamma$.

3.2 **Assumptions**

(i) **All syntactic operations are feature-driven**

(10) **Two types of features that drive operations**:
   a. Structure-building features (edge features, subcategorization features) trigger (external or internal) Merge: $\{*F*\}$
   b. Probe features trigger Agree: $\{*F*\}$.

(ii) **Features on lexical items are ordered**

(11) a. $\Theta$-roles: $\Theta_1 \gg \Theta_2 \gg \Theta_3$  
     **(AGENT $\gg$ THEME $\gg$ GOAL)**
   b. **Subcategorization features**: $\{*F*\}_1 > \{*D*\}_2 > \{*D*\}_3$

(12) **Last Resort** (LR, revised):
   a. Every syntactic operation must discharge (and delete) either $\{*F*\}$ or $\{*F*\}$.
   b. Only features on the top of a feature list are accessible.

(iii) **All phrases are phrases**

(13) **Phase**:
   All phrases are phrases.

Consequence:
Wh-movement must proceed via every XP edge domain on its way to its ultimate target position (the $C_{wh}$ node that attracts it), given the PIC.

Note:
This is actually not relevant in the present context since we are only concerned with CP.

(iv) **Edge feature insertion**

(14) **Edge Feature Condition (EFC)**:
   An edge feature $\{*X*\}$ can be assigned to the head $\gamma$ of a phase only if (a) and (b) hold:
   a. $\gamma$ has not yet discharged all its structure-building or probe features.
   b. $\{*X*\}$ ends up on top of $\gamma$'s list of structure-building features.

3.3 **Deriving the Condition on Extraction Domain**

3.3.1 **Analysis: Merge**

**Deriving the CED**:

1. If an edge feature $\{*X*\}$ is to be inserted on a phase head $\gamma$, it must go to the top of $\gamma$'s list of structure-building features. (EFC)
2. $\gamma$ must contain at least one other feature at this point (otherwise it is inert). (EFC)
3. But then, $\{*X*\}$ is discharged again immediately (last-in/first-out). (LR)
4. Thus, it is impossible to insert an edge feature for a category $\alpha$ that is merged in $\Gamma$ as the last operation taking place in $\Gamma$. (EFC)
5. Therefore, a moved item in the edge domain of an $\alpha$ merged last in $\Gamma$ is not accessible anymore outside $\Gamma$ (assuming a non-recursive notion of edge). (PIC)
6. Consequently, extraction from $\alpha$ is predicted to be impossible. (PIC)
7. Given that (outer) specifiers are last-merged in their projections, they are thus barriers for movement. (CED derived)

(15) **Why specifiers are barriers**:
   $\alpha_i$ is a specifier that is last-merged in its phase.
   a. Edge feature insertion follows specifier feature discharge:
      $$\begin{array}{c}
      \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot]\end{array}$$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   ~ violates (14-a)
   
   b. Edge feature insertion precedes specifier feature discharge, version 1:
      $$\begin{array}{c}
      \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot]\end{array}$$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   ~ violates (14-b)
   
   c. Edge feature insertion precedes specifier feature discharge, version 2:
      $$\begin{array}{c}
      \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot] \\
      \rightarrow \gamma: [\cdot]\end{array}$$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   ~ does not help because of (12-b)

Conclusion:
Specifiers are barriers because of the PIC: There is no way to carry out an intermediate movement step from a last-merged specifier to the specifier of the minimal phase above it.

(16) **Why complements do not have to be barriers**:
   $$\begin{array}{c}
   \gamma: [\cdot] \\
   \rightarrow \gamma: [\cdot] \\
   \rightarrow \gamma: [\cdot] \\
   \rightarrow \gamma: [\cdot]
   \end{array}$$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   $\rightarrow \gamma: [\cdot]$  
   ~ violates nothing

5 6
(16) Edge feature insertion precedes complement feature discharge, version 1:
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
(16) Edge feature insertion precedes complement feature discharge, version 2:
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]
\[
\begin{array}{c|c|c}
\gamma: \emptyset & \emptyset & \emptyset \\
\delta: \emptyset & \emptyset & \emptyset \\
\end{array}
\]

Conclusion:
Movement out of complements can respect the PIC: There is a stage in the derivation where the complement feature has already been discharged (so that subsequent edge feature insertion can attract an item within the complement), but the specifier feature has not yet been discharged.

Note:
Under this approach, intermediate movement steps to phase edges must take place before a final specifier is merged. This results in structures that look like (inherently acyclic) tucking in (Richards (2001)) has applied; but it hasn’t: All movement steps extend the tree.

(17) Intermediate movement steps

Let us call this property the Intermediate Step Corollary; it will become relevant later.

(18) Intermediate Step Corollary
Intermediate movement steps to specifiers of X (as required by the PIC) must take place before a final specifier is merged in XP.

Consequences
- Subjects are barriers (both SpecV and SpecT).
- Adjuncts are barriers (assuming that they are last-merged specifiers of special functional projections).
- Indirect objects bearing dative are barriers (assuming that they are last-merged in SPECV).

3.3.2 Analysis: Agree

Problem:
So far, the prediction is that a complement can avoid becoming a barrier in a phase XP only if there is something else (a specifier) that is merged later. This prediction is not borne out; see (19-ab) (examples from German).

(19) Bridge vs. non-bridge verbs:

a. Wen1 denkt du [\(\text{cp} \text{ dass sie } t\_1 \text{ getroffen hat} \) ?
whom think you that she met has

b. *Wen1 weißt du [\(\text{cp} \text{ dass sie } t\_1 \text{ getroffen hat} \) ?
whom know you that she met has

Analysis
- Extraction from a sole complement is possible only if the next higher head undergoes abstract incorporation with the complement’s head (Müller (1991)).
- Abstract incorporation is an instance of Agree: Two heads share a feature [\(s\_s\)/\(\text{f}\)].
- Agree requires c-command.
- A bridge verb undergoes Agree (with respect to [\(s\_s\)/\(\text{f}\)] with C of its complement; a non-bridge verb does not.

(20) Abstract incorporation as *\(f^*\)/\(f\) Agree:

a. \(\text{vp } V_{[s\_s]} [\text{cp } [c\_c \text{C}[f]] \ldots ]] \)
think that

b. \(\text{vp } V_{[s\_s]} [\text{cp } [c\_c \text{C}[f]] \ldots ]] \)
know that

Note:
This implies that either the PIC is relaxed for Agree, or that Agree can be success-cyclic. Something to this effect is required independently, under many versions of the PIC (cf., e.g., agreement of T with nominative objects in Icelandic; and the analysis of long-distance agreement in general).

Observation:
Probe features on a phase head can never remove barrier status from a last-merged specifier:

1. A probe feature cannot carry out Agree with (some item in) its specifier (Chomsky (2001; 2008)).
2. A probe feature cannot carry out Agree with (some item in) its complement after a specifier has been merged. (For instance, Agree(v, o in VP) (for accusative case
(21) **Strict Cycle Condition** (SCC):
Within the current domain \( \alpha \), a syntactic operation may not exclusively apply to positions that are included within another domain \( \beta \) that is dominated by \( \alpha \).

**Consequences:**
(i) Last-merged specifiers continue to be barriers.
(ii) Non-last-merged specifiers and complements are not barriers (incl. *melting*).
(iii) Last-merged complements are not barriers if the phase head has an additional probe feature for Agree with/into the complement.

(22) *Why last-merged complements do not have to be barriers:* 
\( \gamma \) (e.g., V) is merged with \( \alpha \) (e.g., DP) and has thereby discharged all its structure-building features.

a. Edge feature insertion follows complement feature discharge, no probe feature:

\[
\begin{align*}
\gamma: & [\mathbf{\ast}] \\
\gamma: & [\mathbf{\ast}] \\
\gamma: & \emptyset \\
\gamma: & \emptyset \\
\end{align*}
\]

\( \sim \) violates (H-a)

b. Edge feature insertion follows complement feature discharge, with probe feature:

\[
\begin{align*}
\gamma: & [\mathbf{\ast}] \\
\gamma: & [\mathbf{\ast}] \\
\gamma: & [\mathbf{\ast}] \\
\gamma: & [\mathbf{\ast}] \\
\end{align*}
\]

\( \sim \) violates nothing

**Note:**
To avoid a SCC violation (as it would occur with specifiers), the probe feature must be discharged before the structure-building edge feature in (22-b) (this is unproblematic given that the two features are on different stacks).

**Clausal heads**
(i) A clausal head (V, v, T, C, ...) **status-governs** (Bech (1955/1957)) the head of its verbal complement.
(ii) This can be viewed as co-indexing of heads (abstract incorporation, hence Agree in the present approach); Sternefeld (1991).
(iii) Consequently, clausal projections are not barriers, even if there is no specifier present (and the projection is thus last-merged).

A further question (Hans van de Koot & Arnim von Stechow (p.c.)):
How can the very first step in the course of successive-cyclic extraction not *from*, but *of* a complement be brought about in cases where there is no second item that is merged in the same projection as a consequence of the phase head’s inherent structure-building features?

An answer (cf. Müller (2009, ch. 4) for alternatives):
- Heads typically undergo various kinds of Agree relations with their complements.
- This accounts for the fact that (last-merged) complements are typically mobile.
- Still, in some cases, where such an Agree relation between a head and its (last-merged) complement might not hold, the complement might in fact be precluded from moving.
- This would amount to a version of a requirement of *lexical government* in a (conjunctive) ECP.

4. **Maraudage**

(23) **Maraudage** (Georgi, Heck & Müller (2009), Georgi (2009); also see Abels (2003)):
Certain goal features of Agree or Merge operations (among them [person] and [animate]) are checked if the structural conditions for checking are met.

**Pattern:**
(i) When a head H serves two arguments DP\(_1\) and DP\(_2\), it sometimes happens that the first-merged DP\(_1\) exceeds the feature set that H provides for it.
(ii) In order to satisfy its needs, DP\(_1\) can then access features that H originally provided for DP\(_2\). Thus, DP\(_1\) “marauds” the feature set of DP\(_2\).

**Relevant phenomena:**
(i) *Ergative displacement in Basque* (cf. Béjar & Řezač (2009)):
v provides \( \phi \)-features for DP\(_{int}\) and DP\(_{ext}\), but only 3.pers. for DP\(_{int}\); DP\(_{int}\) is merged first and, if it is local (1./2.) person, marauds v’s feature set for DP\(_{ext}\); consequently, a new person feature must be inserted on v (in minimal violation of the Inclusiveness condition), which is spelled out by a special suffixal exponent.
(ii) *Global case splits in Yurok* (cf. Silverstein (1976)):
v provides case features for DP\(_{int}\) and DP\(_{ext}\) that are based on \( \phi \)-features for these arguments; an unusual (local person) DP\(_{int}\) marauds the case features reserved for DP\(_{ext}\) (as an instance of differential object marking), which implies that v has fewer features left for DP\(_{ext}\); hence, DP\(_{ext}\) can only be 3.pers.

5. **Wh-Islands and Topic Islands**

5.1 An Asymmetry

**Observation** (Fanesello (1987), Müller & Sternefeld (1993)):
(i) *Wh-islands* block *wh*-movement but not (argument) topicalization in German.
(ii) *Topic islands* block *wh*-movement and topicalization in German.
(24) Wh-islands in Italian: relativization vs. topicalization from (Rizzi (1982)):  
   a. Tuo fratello [CP₁ [PP₁ a cui] mi domando [CP₂ [DP₂ che storie] 
      your brother to whom myself I ask which stories 
      abbia narrato è t₂ t₁ era molto preoccupato 
      have told was very worried 
   b. *[DP₁ Chi] ti domandi [CP₂ [DP₂ chi t₂ ha incontrato t₁] ? 
      who yourself you ask who has met 

(25) Wh-islands in German: wh-movement vs. topicalization:  
   a. *Welches Radio₁ weist du nicht [CP wie₂ C [TP man t₁ t₂ reparieren] ? 
      which radio know you not how one fixes 
   b. ?Radios₁ weis ich nicht [CP wie₂ C [TP man t₁ t₂ reparieren] 
      radios know I not how one fixes 

(26) Topic islands in German: wh-movement and topicalization:  
   a. *Welches Radio₁ glaubst du [CP der Maria₂ [C hat [TP er t₂ t₂ gegeben] ? 
      which book think you the Mary has he given 
   b. *Radios₁ glaube ich [CP der Maria₂ [C hat [TP er t₂ t₂ gegeben] 
      radios think I the Mary has he given 

Note: The fact that there is an asymmetry between movement types in (25), and no asymmetry in (26), poses problems for a Relativized Minimality (RM) type approach.  
(i) A standard RM approach (like Rizzi (1990; 2001)) distinguishes three kinds of interveners: Head, A, A-bar. This would uniformly rule out all sentences in (25) and (26) (given that the moved items are subject to RM).  
(ii) A more fine-grained RM approach (like Rizzi (2004): argumental (person, number, gender, case) vs. quantificational (wh, neg, measure, focus) vs. modifier vs. topical) that distinguishes between different kinds of A-bar interveners (topic vs. wh in the case at hand) would wrongly predict both (25-b) and (26-a) to be well formed. Thus, if RM is to account for the 3/4 pattern in (25) and (26), further assumptions will be required (see Starke (2001)).  

5.2 Analysis: Operator Islands as Maraudage  
Observation: Given the Intermediate Step Corollary in (18), the order of rule application with extractions from a wh-island and from a topic island must look as in (27-ab), respectively, with the intermediate movement step taking place prior to the one that would create the operator island.  

(27) a. Wh-island  
   b. Topic island  

Hypothesis: Given that the item that undergoes the intermediate movement step reaches the domain of a C head before the item that is supposed to ultimately check the [\textit{\dagger}] of C in this position, it may mandauc C’s stack of structure-building features, making regular specifier placement impossible. Thus, wh-island and topic island effects are due not to wh-islands or topic islands, but to the fact that the wh-island/topic island cannot be generated in the first place.  

Assumption: Variation in maraudage can be accounted for by postulating a more fine-grained system of A-bar related features (see Starke (2001), Rizzi (2004), Lahne (2007)). Suppose that topicalization (in German) is bare operator movement (cf. its multi-functionality), and wh-movement is movement of a certain kind of operator (viz., a wh-operator)....
5.2.1 Wh-Movement from a Wh-Island
Observation:
Wh-phrases have many operator features; therefore, they accomplish full maraudage in a SpecC\textsubscript{[wh]} position that they use as an escape hatch in a CP phase, thereby blocking subsequent regular wh-movement.

(30) Wh-movement from a wh-island

*Welches Radio 1 weisst du nicht [CP wie 2 C TP man t\textsubscript{1} t\textsubscript{2} repariert]] ?
which radio know you not how one fixes

(31) Wh-movement from a wh-island: complete maraudage
(i) C: [\textit{op. wh\textbullet\textbullet}] (→ edge feature insertion)
(ii) C: [\textit{X} \textit{X}] (→ movement of wh-phrase)
(iii) C: [\textit{X} \textit{X}] (→ movement of topic)
(iv) C: [\textit{op. wh\textbullet\textbullet}] (→ edge feature discharge)
(v) C: [\textit{op. wh\textbullet\textbullet}] (→ edge feature discharge)
(vi) C: [\textit{op. wh\textbullet\textbullet}] (→ edge feature discharge)
(vii) C: \emptyset (two items in edge domain)

Consequence:
There is no way to get the remaining XP\textsubscript{2[op, wh]} (the item we would expect to create the wh-island) to the edge domain of the embedded CP (C is now inert, which precludes further edge feature insertion). Depending on assumptions about criterial freezing (see Rizzi (2006; 2007)), it may or may not be possible now for the wh-phrase to move on into the matrix clause (to satisfy the demands of another C\textsubscript{[wh]}). But this would still violate a visibility requirement for the embedded wh-clause; cf. (32). In any case, the prediction is that wh-islands are characterized by the property that the wh-island cannot be erected.

(32) A violation of criterial freezing

*Welches Radio 1 fragst du dich [CP t\textsubscript{1} (dass) TP man t\textsubscript{1} wie repariert]] ?
which radio ask yourself that one how fixes

(33) The decisive stage of the derivation - wh-extraction from wh-island:

5.2.2 Topicalization from a Wh-Island
Observation:
Topics have fewer operator features; therefore, they do not accomplish full maraudage in a SpecC\textsubscript{[wh]} position that they use as an escape hatch in a CP phase. Consequently, regular wh-movement (may be more marked, but) is not blocked.

(34) Topicalization from a wh-island

?Radio\textsubscript{1} weis ich nicht [CP wie 2 C TP man t\textsubscript{1} t\textsubscript{2} repariert]]
radios know I not how one fixes

(35) Topicalization from a wh-island: minor maraudage
(i) C: [\textit{op. wh\textbullet\textbullet}] (→ edge feature insertion)
(ii) C: [\textit{X} \textit{X}] (→ movement of topic)
(iii) C: [\textit{X} \textit{X}] (→ movement of topic)
(iv) C: [\textit{op. wh\textbullet\textbullet}] (→ minimal maraudage)
(v) C: [\textit{op. wh\textbullet\textbullet}] (→ movement of wh-phrase)
(vi) C: [\textit{op. wh\textbullet\textbullet}] (→ discharge)
(vii) C: \emptyset (two items in edge domain)

Note:
A-bar-related (operator) goal features on items can ultimately be left unchecked, in contrast to A-related features (see Geogri et al. (2009)).

(36) The decisive stage of the derivation - topicalization from wh-island:

5.2.3 Wh-Movement from a Topic Island
Observation:
Wh-phrases are perfect marauders in a SpecC\textsubscript{[top]} positions; consequently, it does not come as a surprise that they are just as successful in SpecC\textsubscript{[top]} positions, where C is characterized by a proper subset of structure-building features.
(37) *Welches Radio glaubst du [CP der Maria hat [TP er t_2 t_1 gegeben]]? which book think you the Mary has he given

(38) *Welches Radio glaubst du [CP der Maria hat [TP er t_2 t_1 gegeben]]? which book think you the Mary has he given

(39) *Welches Radio glaubst du [CP t'_1 [C hat] [TP er der Maria t_1 gegeben]]? which book think you the Mary has he given

Note: The standard analysis of extraction from verb-second clauses in German requires a weakening (or abandonment) of criterial freezing anyway. A declarative verb-second C head triggers topicalization, and the topicalized item may then move on into the matrix clause, exactly as in (39). Thus, if we just implement standard assumptions about extraction from verb-second clauses in the present approach to movement, extraction from verb-second clauses looks almost exactly as sketched in (38). Differences: (i) An edge feature does not have to be inserted for the w/phrase because the w/phrase, by assumption, is also a topic. (ii) There does not have to be another item around that would act as a topic, so that discharge of the [op] feature by the w/phrase would not technically count as an instance of maraudage. I leave open the question of whether this might actually be an option (given that the same string can be generated in a simpler way, without maraudage). Questions of input optimization arise (see Prince & Smolensky (2004)).

(40) The decisive stage of the derivation - wh-extraction from topic island:

5.2.4 Topicalization from a Topic Island

Observation: Topics have only one operator feature: [op]. However, this suffices to block subsequent topicalization if a topic undergoes movement to an intermediate SpecC position on its way to the left periphery of the matrix clause.

(41) Topicalization from a topic island:

(42) Topicalization from a topic island: complete maraudage

Consequence: A topic island cannot be created. The same issues arise with respect to criterial freezing and input optimization as before.

(43) Undetectable criterial freezing:

Radios glaub ich [CP t'_1 [C hat] [TP er der Maria t_1 gegeben]]
radios think I the Mary has he given
(44) The decisive stage of the derivation – topicalization from topic island:

\[ \text{XP} \xrightarrow{\text{[op]}} C' \]

\[ C: [X, \text{op}] \]

\[ \text{TP} \]

\[ C: \]
\[ t_1 \text{ XP}_2 \text{[op]} \]

6. Conclusion, Consequences, and Extensions

6.1 Conclusion

To sum up:
The present approach to wh-islands and topic islands works without the idea that
wh-elements or topics create islands. More generally, there is no minimality/intervention
condition on movement. Rather, an item undergoing long-distance movement targets the
same domain and marauds the inventory of movement-inducing features of C before the
items that are supposed to show up in Spec C permanently have had a chance to get there.
Thus, the crucial factor is timing. Which item arrives first in the C domain? Interestingly,
the answer needed to derive wh-island and topic island effects is one that follows automatically,
given the approach to CED effects in Müller (2008); cf. the Intermediate Step Corollary.
Intermediate movement steps to specifiers of X (as required by the PIC) must
take place before a final specifier is merged in XP.

6.2 Consequences

6.2.1 ‘Whether‘-Clauses

Claim (Chomsky (1986, 50)):
“Whether yields a much weaker wh-island effect than moved wh-phrases.”

Prediction of the present analysis:
There will be no effect at all if whether is the lexical realization of an interrogative C.

Assumption:
At least for adjuncts (and arguably also for arguments), a wh-island effect can be detected
with extraction from whether clauses.

Consequence:
Whether is never base-generated in the position in which it shows up, but undergoes
movement to a C[wh] head just like other wh-items; principles of semantic interpretation
will then ensure that there can be no multiple wh-questions involving both whether and
and a regular wh-phrase. (Movement of whether is in fact proposed in Chomsky (1986), if
only for the covert component of LF.)

Additional evidence:
In a language like Dutch, of can co-occur with an uncontroversial complementizer dat
(see, e.g., Zwart (1993, 265)), which, under present assumptions, suggests an approach in
terms of whether-movement from within TP to Spec C.

Open questions:
(i) Where exactly is whether externally merged?
(ii) Why can whether not undergo long-distance movement?

6.2.2 Underspecification and Overspecification

Prediction:
(i) Given that topics are specified as [op], and wh-phrases as [op, wh], it follows that a topic
can never discharge all the A-bar-related features of interrogative C[wh]; Therefore, a
moved topic can never eventually satisfy the demands of an interrogative C.
(ii) The case might be different with wh-phrases. A wh-phrase bearing the features [op, wh] in the specifier of a topic C[wh]
can discharge all of C's features. This means that it might be possible for a wh-phrase to ultimately show up in the specifier domain of
a non-interrogative C. If there is no other interrogative C head around in the sentence,
such a configuration will most likely lead to semantic uninterpretability. However, suppose that the wh-phrase has undergone regular, feature-driven wh-movement to a specifier of an interrogative C head first. Then, depending (again) on assumptions about criterial freezing, it might or might not be an option for the wh-phrase to move on, and discharge a non-interrogative C head’s [op] feature in a higher clause. Examples of wh-topicalization in German (Reis & Rosengren (1992)) suggest that this option does exist.

(45) Wh-imperatives in German:

a. [CP - Stell dir vor [CP wen t (dass) ich t getroffen habe]]
   imagine who that I met have
b. [CP Wen, stell dir vor [CP t dass ich t getroffen habe]]
   who imagine that I met have

6.3 Extensions

6.3 General implications:

a. The more A-bar-related (goal) features a moved item is equipped with, the more
likely it is that it cannot cross an operator island (i.e., the “operator island”
cannot be created in the first place).
b. The fewer A-bar-related (structure-building) features a head is equipped with,
the more likely it is that it creates an operator island that cannot be crossed.

**Hypothesis 1:**
(46-a) offers a new outlook on argument/adjunct asymmetries with extraction from islands (weak islands; see, e.g., Koopman & Sportiche (1986) on Vata).

**Deriving an argument/adjunct asymmetry with extraction from wh-islands:**
- Moved adjuncts are inherently characterized by more A-bar-related features than moved arguments.
- As operators, adjuncts mirror the feature structure of a C head whose domain they enter in the course of successive-cyclicity (edge feature-driven) movement more drastically than arguments.
- An intermediately moved argument may leave further structure-building features on a C head; an intermediately moved adjunct “eats up” all structure-building features, and thus makes the regular movement operation to be carried out for this head impossible.

**Generalization (for many languages):**
There is a split between “referential” and “non-referential” adjuncts (when, where vs. how, why; Aoun (1986, 125); also Harbert & Pet (1988) on alan ‘where’ vs. halika ‘how’ in Arawak).

**Situation in German:**
- Topic islands are strict throughout.
- Wh-islands are transparent if the moved item is
  (i) a topic; and
  (ii) not a non-referential adjunct.

(47) **Topicalization from wh-islands in German:**
a. *Deshalb* weiß ich nicht mehr [CP wer C t2 t1 gekommen ist] therefore know I not anymore who came
b. ??In Hannover weiß ich nicht [CP wie C |TP man t2 t1 das sagt] in Hannover know I not how one that says

**Analysis:**
All wh-phrases and non-referential topics bear the feature [wh] in addition to [op].

**A problem?**
Non-referential adjunct topics do not morphologically look like wh-phrases, and behave differently in the syntax.

**Solution:**
- The primitive [wh] feature is not the same as the standard wh-feature; given that, say, topics can behave “wh-like” in at least certain respects (see Chomsky (1977)), this is straightforwardly captured by postulating features that are common to both but not other categories – i.e., by postulating a natural class via shared features (Bierwisch (1967)).
- As for differences between non-referential adjunct topics and wh-phrases, this is then captured by assuming additional features that distinguish between the two types of categories; again, a standard procedure in feature-based approaches.
- Alternatively, one may postulate a feature like [nonref] instead of [wh] (wh-phrases are inherently non-referential).

**Situation in English (simplified):**
- Topic islands are strict throughout (but cf. Culicover (1991)).
- Wh-islands are transparent if the moved item is an argument.

**Analysis:**
- Interrogative C has two A-bar-related structure-building features (e.g., [·(op, wh)]).
- Topic C has only one A-bar-related structure-building feature (e.g., [·(op)])
- All adjuncts (topics and wh-phrases) have the complete set of A-bar-related features (e.g., [·(op, wh)]).
- All arguments have only one (e.g., either [op] or [wh]).

**Hypothesis 2:**
(46-b) offers a new outlook on the variable effects incurred by different types of intervening C heads.

**Movement type asymmetries:**
- Topic vs. wh-islands: An interrogative C is equipped with more features than a declarative C that triggers topicalization.
- In the same way, other asymmetries between movement types can be addressed (see, e.g., Bayer & Sakmann (2000) on the different behaviour of relativization in comparison to other movement types, and Müller & Sternefeld (1993) on asymmetries between topicalization, wh-movement, and scrambling.
- A further extension: finite/non-finite asymmetries in extraction.

**Note:**
This analysis leaves sufficient room for parametrization.
(i) Particular types of moved items (arguments, adjuncts, wh-phrases, topics, etc.) may not be characterized by exactly the same kinds of A-bar-related features in different languages.
(ii) Particular movement operations (topicalization, wh-movement, relativization, scrambling) might also not be cross-linguistically homogeneous as far as the A-bar-related features that are involved in them are concerned.