Prolegomenon to a cross-linguistic analysis of islands in Scandinavian and English

Terje Lohndal
Symposium on Syntactic Islands in Scandinavian and English
Aarhus University, June 11, 2019
Islands as a window onto the mind

- ‘Any formal theory of the human language capacity should express the fact that syntactic computations are local’ (Belletti 2019).
- Also interpretive relations like binding, control, agreement.
- Islands allow us to probe the relationship between **universality** and **variation** (cf. Stepanov 2007).
- Goal today: Investigate the variation in Mainland Scandinavian and consider its implications.
  - More weak islands than you (ever?) thought!
Collaborative project

Dave Kush

Jon Sprouse

Ingrid Bondevik
Outline

• Islands, universality and variation
• New tools and new experiments
• A typology of Mainland Scandinavian languages
• Consequences and implications
ISLANDS, UNIVERSALITY, AND VARIATION
Universality

• Strong island constraints: Argued to be universal, starting with Chomsky (1964) and Ross (1967).
• Implications for learnability: Constraints did not have to be learned. Absence of negative data.
• There should be no variability, islands should be observed across all languages.
• Two views of constraints (cf. Phillips 2013):
  – Constraints on structure generation (derivational)
  – Filters on generated structures (representational)
Local and restricted

Filler-gap relations are *local* and they are *restricted*

- ‘50 years or so of investigation on locality in formal generative syntax have shown that, despite its potentially very distant realization, syntactic displacement is in fact a local process. The audible position in which a moved constituent is pronounced and the position of its copy inside the clause can be far from each other. However, the long-distance dependency is split into steps through iterated applications of short movements, so that any dependency holding between two occurrences of the same constituent is in fact very local’ (Belletti 2019).
Two major types of islands

- **Strong/absolute islands**: No extraction is allowed (constructions with an appropriate resumptive pronoun may be allowed)
  - Ross’ (1967) island constraints
  - Chomsky’s (1973) Subjacency Condition
  - Huang’s (1982) Condition on Extraction Domain
  - Chomsky’s (1986) Barriers framework
  - Phase-based conceptions of locality (Chomsky 2008, Müller 2011)

- **Weak/selective islands**: Some phrases can extract, others cannot.
  - Chomsky’s (1964) A-over-A Principle
  - Chomsky’s (1973) Superiority Condition
  - Rizzi’s (1990, 2004) Relativized Minimality
  - Chomsky’s (1995) Minimal Link Condition

Examples from den Dikken & Lahne (2013: 656)
What about adjuncts?

- Adjuncts have always been treated differently than other cases of extraction.

  - **Condition on Extraction Domain** (paraphrased)
    A phrase A may be extracted out of a domain B only if B is a complement

- Stepanov (2007): Subject island effects dissociable from adjunct island effects, as many languages allow extraction out of subjects.
What about variation?

<table>
<thead>
<tr>
<th></th>
<th>WH</th>
<th>Complex NP</th>
<th>Subject</th>
<th>Adjunct</th>
<th>Relative Clause</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Italian</td>
<td>-</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Spanish</td>
<td>-</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Portuguese</td>
<td>-</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>French</td>
<td>?</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>German</td>
<td>*</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Scandinavian</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>*</td>
</tr>
<tr>
<td>Hungarian</td>
<td>?</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* = island effect  
- = no island effect  
? = variable island effect  

Sprouse & Hornstein (2013: 4)
Scandinavian variation

• Mainland Scandinavian languages have been reported to be unusually permissive when it comes to extracting from domains that are typically considered to be islands.

<table>
<thead>
<tr>
<th>Type</th>
<th>Representative research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded questions</td>
<td>Engdahl 1982, Erteschik-Shir 1982</td>
</tr>
</tbody>
</table>

• Icelandic and Faroese are reported to not allow extraction from relative clauses and adjunct clauses (Maling & Zaenen 1982, Zaenen 1985, Thráinsson 1994, Thráinsson et al. 2004).
Relative clause extraction

(6) [De blommorna]₁ känner jag [en man som säljer t₁]
those flowers know I a man who sells
‘I know a man who sells those flowers’ (Swedish, Allwood 1982: 24)

(7) [Dette bildet]₁ kjenner eg [den målaren som har måla t₁]
that picture know I the painter who has painted
‘I know the painter who has painted this picture.’
(Norwegian, Faarlund et al. 1997: 1099)

(8) Suppe₁ kender jeg [mange der kan lide t₁]
soup know I many who can like
‘I know many people who like soup’ (Danish, Erteschik-Shir 1973: 67)
Complex NP extraction

(9) Nobelpriset₁ hörde jag [ett rykte att han hade fått t₁]
Nobel.Prize heard I a rumor that he had received
‘I heard a rumor that he had received the Nobel Prize’

                 (Swedish, Anward 1982: 73)

(10) [Denne bilen]₁ har vi hørt [rykter om at du skal kjøpe t₁]
this car have we heard rumors about that you will buy
‘We have heard rumors that you are going to buy this car.’

                 (Norwegian, Faarlund et al. 1997: 1100)
Adjunct clause extraction

(11) Sportspegeln₁ somnar jag [om/när jag ser t₁] sports.program fall.asleep I if/when I watch ‘I fall asleep if/when I watch the sports program.’
(Swedish, Anward 1982: 74)

(12) [Den saka]₁ ventar vi her [mens de ordnar t₁] this issue wait we here while they fix ‘We are waiting here while they fix this issue’
(Norwegian, Faarlund 1992: 117)

(13) [Den vase]₁ får du ballade [hvis du taber t₁] this vase get you trouble if you drop ‘You are in trouble if you drop this vase.’
(Danish, Hansen & Heltoft 2011: 1814)
How general?

• This kind of island-insensitivity has the potential to motivate a drastic revision in our understanding of islands.
• However, it is actually **unclear how general and systematic (cf. Phillips 2013) the phenomenon is!**
• Not all complex NPs or RCs allow extraction (Taraldsen 1982; Engdahl 1997; Lindahl, 2017).

(14) *Rødsprit, slipper vi ingen [ som har drukket \( t_i \)] inn 
Red.spirit let we no.one in that has drunk`Red-spirit, we don’t let anyone in who has drunk.’

(15) Rødsprit, slipper vi ingen [ som har drukket \( t_i \)] inn 
Red.spirit let we no.one that has drunk in

→ More rigorous investigations needed!
NEW TOOLS AND NEW EXPERIMENTS
# MSc back in the spotlight

<table>
<thead>
<tr>
<th></th>
<th>Danish</th>
<th>Norwegian</th>
<th>Swedish</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>wh</em></td>
<td>Christensen et al. 2013a, b, Nyvad et al. 2017</td>
<td>[Kush et al. 2018, in press]</td>
<td></td>
</tr>
<tr>
<td>relative clause</td>
<td>Christensen et al. 2013a, b, Christensen &amp; Nyvad 2014</td>
<td>Kush et al. 2018, in press</td>
<td>Lindahl 2017, Tutunjian et al. 2017</td>
</tr>
<tr>
<td>subject</td>
<td></td>
<td>Kush et al. 2018, in press</td>
<td></td>
</tr>
</tbody>
</table>
Factorial definition of islands

- Factorial design can help isolate and quantify grammatical island effects, distinct from processing effects. (Sprouse, 2011; Sprouse, Wagers & Phillips, 2012, et seq.)

- **Starting Point**: Processing models often identify two factors that influence sentence acceptability:
  - **Dependency Length**: Shorter dependencies are more acceptable than long ones.
  - **Syntactic Complexity**: Simpler structures are more acceptable than more complex ones

- An **island effect** can be defined as the amount of unacceptability associated with movement from an island *once simple effects of length and complexity have been factored out.*
A factorial definition of islands

DependencyLength × Structure
(ShortDistance, LongDistance) × (NoIsland, Island)

Adapted from Sprouse (2011), Sprouse, Wagers & Phillips (2012)

**SHORT NOISLAND**  Which man ___ said [ that Tor liked cheese?

**SHORT ISLAND**  Which man ___ wondered [ whether Tor liked cheese?

**LONG NOISLAND**  Which cheese did the man say [ that Tor liked ___?

**LONG ISLAND**  Which cheese did the wonder [ whether Tor liked ___?
A factorial definition of islands

Quantifying island effects:

Differences-in-Differences Score:

ShortNoIsland – ShortIsland = ComplexityEffect
ShortNoIsland – LongNoIsland = DistanceEffect

Size of island effect

- Differences-in-Differences (DD) score
- DD score > 0 = “Island Effect”
Sprouse, Wagers & Phillips (2012)

- Tested the acceptability of *wh*-extraction from 4 islands.
- Observed significant Length x Structure interactions for all 4.
- Participants consistently rejected island violating sentences, rating them at the bottom of the judgment scale.
- Also used on Japanese (Sprouse et al. 2011) and Italian (Sprouse et al. 2016).

Figure 6. Experiment 2, interaction plots for each island type (*N* = 173).
• Just how different are island judgments in Norwegian?

• Adapted items for 4 islands from Sprouse et al. (2012):
  – Whether
  – Subject
  – Complex NP (CNP)
  – Conditional adjuncts ("if")

• Added RC Islands

• Tested acceptability of:
  – Bare wh-extraction ’who/what’ (Experiment 1, N=92)
  – Complex wh-extraction ’which man/book’ (Experiment 2, N =51)
KLS18 findings

• Large subject and adjunct island effects
  – Expected (and they align very closely with the cross-linguistic norm, cp. English (Sprouse et al. 2012, 2016) and Italian (Sprouse et al. 2016)).

• Large RC and Complex NP island effects
  – *Unexpected* if past accounts are to be believed
  – Participants almost always rejected RC and NP island violations
What about embedded questions?

Small *whether*-island effect:

- Driven by *rejections on small subset of trials*
- Variability
  - Most participants accepted extraction from *whether EQs*
  - Some participants inconsistent
- Probabilistic effects due to:
  - Occasional misparse (requires two available parses)?
  - Semantic/pragmatic infelicity?
- Not trivial to provide a formal analysis of the *inter-speaker variability*.
  - Following Szabolcsi & Zwarts (1993), one may suggest that consistent accepters always chose to interpret argument *wh*-phrases as ranging over individuals, while inconsistent accepters occasionally interpret them as ranging over properties.
Different dependencies?

• Why no signs of RC- and CNP-island insensitivity?
• Most, if not all, natural island violations feature *topicalization or relativization*, not *wh-movement*.

(16) [Det språket]_{i} finns det många [som talar ___i].
That language exist it many that speak
’That language, there are many that speak.’

(17) [De blomstene]_{i} kjenner jeg en man [som selger ___i].
The flowers know I a man that sells
’Those flowers, I know a guy who sells.’
Topicalization with context

• Tested the sensitivity of topicalization to the same islands as in KLS (2018).

• Expectations:
  – Subject and adjunct Island violations \(\rightarrow\) large island effects
  – Small *whether*-island effects
  – If RC and CNP island effects in KLS (2018) were syntactic:
    • Large RC and CNP island effects with topicalization
  – Else:
    • Possibly smaller effects, or more variation in judgments
An example

RC island item

(18) *The agent knows that the album is a success with the public,*

...but he believes that many musicians hate the first single.
...but he knows many musicians [RC that hate the first single].

...but the first single he believes that many musicians hate __ .
...but the first single he knows many musicians [RC that hate __ ].
Findings for topicalization

• No reliable *whether*-island effects.
• Generally reliable CNP island effect
• Bimodal judgments of RC island items:
  – Participants judged them relatively acceptable, or rejected them (cf. Lindahl 2017)
  – Participant variation: Some participants showed no RC Island effect, others strong
• No island effect for conditional adjuncts
  – Most participants consistently judged adjunct island violations acceptable.
  – Distribution of judgments roughly parallel to topicalization from *whether*-islands.
Differentiating adjuncts

• Ingrid Bondevik (MA, NTNU 2018)

• Tested three different adjunct types using topicalization:
  – Conditional ("if")
  – Temporal ("when")
  – Reason ("because")

• Also tested whether and subject as points of comparison.
Bondevik (2018) results

Because

When

If

Subject

Whether

\( DD = 1.032 \quad P < 0.001 \)

\( DD = 0.485 \quad P < 0.001 \)

\( DD = 0.397 \quad P < 0.001 \)

\( DD = 1.375 \quad P < 0.001 \)

\( DD = 0.375 \quad P < 0.001 \)
Bondevik (2018) findings

Because Island Violations mostly rejected

When adjunct violations are bimodal.

Condition Adjunct Violations mostly accepted

Subject Island Violations consistently rejected

Whether Island: Violations mostly accepted

Because

When

If

Subject

Whether

Subject Island

Violations consistently rejected

Because Island

Violations mostly rejected

When adjunct violations are bimodal.

Because

When

If

Subject

Whether

Subject Island

Violations consistently rejected

Because Island

Violations mostly rejected

When adjunct violations are bimodal.
KLS - empirical summary Norwegian

- Partial confirmation of previous claims re: island sensitivity.
- Acceptability of *(some)* island violations seems to vary as a function of dependency.
- Smaller average island effects primarily reflect a *mixture* of *relatively categorical* judgments.
  - Not compatible with a gradient approach.
  - Inspect judgments distributions!

<table>
<thead>
<tr>
<th></th>
<th>Wh-Mvt</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whether</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RC</td>
<td>X</td>
<td>✓?</td>
</tr>
<tr>
<td>If-Adjunct</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Temporal Adjunct</td>
<td>--</td>
<td>✓?</td>
</tr>
<tr>
<td>Reason Adjunct</td>
<td>--</td>
<td>X</td>
</tr>
<tr>
<td>CNP</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Subject</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Swedish

- Lindahl (2017): Swedish relative clauses put some constraints on the nature of the extracted element: Certain adjuncts and certain *wh*-phrases in question formation are more difficult to extract than others.
  - Swedish relative clauses a species of weak islands.
  - CP recursion analysis in Nyvad et al. (2017) and Vikner (2017) accounts for the possibility to extract from relative clauses
  - Weak island effects observed in Swedish due to pragmatic or semantic factors.

- Tutunjian et al. (2017): Eye-tracking study showing that Swedish relative clause extractions pattern in between extraction from non-islands and extraction from uncontroversial strong islands (see also Wiklund et al. 2017).
Swedish – adjunct islands

Müller (2019) PhD thesis:

• ‘The suggestion that some types of weak islands may be “stronger”, i.e. more selective islands than other weak islands, also implies that different types of islands possibly occupy various points on a scale of ‘island strength’ (rather than falling into a binary distinction between strong and weak islands), as also implied by the analysis in Lindahl (2017) and Tutunjian et al. (2017)’ (p. 189, my emphasis).
Typology of adjunct clause extraction

Table 7.1: Classification of languages by factors related to acceptability of adjunct clause extraction

<table>
<thead>
<tr>
<th>Factors</th>
<th>Exemplar Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strong Adjunct Condition</strong></td>
<td>French, Dutch, Greek</td>
</tr>
<tr>
<td>Languages in which adjuncts are always strong islands. We do not expect to find coherence effects.</td>
<td></td>
</tr>
<tr>
<td><strong>Weak Adjunct Condition</strong></td>
<td>Swedish, English</td>
</tr>
<tr>
<td>Languages in which adjuncts can be strong (PACs) or weak islands (CACs). We find coherence effects in CACs; coherence facilitates extraction.</td>
<td></td>
</tr>
<tr>
<td>This group can be further sub-classified into languages being subject to:</td>
<td></td>
</tr>
<tr>
<td><em>Finite condition</em></td>
<td>English</td>
</tr>
<tr>
<td>Finiteness affects acceptability and processing of central adjunct clause extraction sentences.</td>
<td></td>
</tr>
<tr>
<td><em>No finite condition</em></td>
<td>Swedish</td>
</tr>
<tr>
<td>Finiteness does not affect acceptability and processing of central adjunct clause extraction sentences.</td>
<td></td>
</tr>
</tbody>
</table>

Müller (2019: 199)
Danish

• Christensen et al. (2013a, b), Christensen & Nyvad (2014), Nyvad et al. (2017): Extraction allowed from relative clauses, *wh*-islands, and adjunct clauses.

• The degraded acceptability observed is due to the relative processing complexity of the structures in question (Christensen et al. 2013a, Christensen & Nyvad 2014, Nyvad et al. 2017).
Summary

• Comparisons across the MSc languages is made difficult by the use of different methods and different empirical areas being investigated.

• Nevertheless, it seems clear that at least in some areas, the MSc languages are more permissible than languages like English:
  – relative clauses
  – adjuncts

• Notably, MSc languages are also more permissible than Insular MSc languages.
Discrepancies

- Many scholars have argued that embedded questions, RCs, and CNPs are never syntactic islands in Mainland Scandinavian languages (Allwood 1982, Maling & Zaenen 1982, Engdahl 1982, 1997, a.o.).
- The few formal acceptability judgment studies that have systematically tested movement from these domains have largely failed to support these claims.
- Why the discrepancies? (Kush et al. 2018, in press)
  - String-ambiguity between island and non-island parses
  - Unacceptability may be due to extra-syntactic grounds (i.e., semantic, discourse-pragmatic, or processing).
Why is Scandinavian exceptional?

• The locus of variability?
  – The presence of an extended left periphery (next slide)
CP recursion parameter

  - cP: employed in comp-stacking and extraction contexts
  - CP: V2, disallows extraction

\[(19)\]

\[
\begin{array}{c}
a. \quad \text{C} \quad \text{P} \\
\text{t}_{\text{wh}} \quad \text{c}' \\
\text{c}^0 \quad \text{WH/OP} \\
\text{[OCC]} \\
\end{array}
\begin{array}{c}
b. \quad \text{C} \quad \text{P} \\
\text{c}^0 \\
\text{at} \quad \text{TOPIC} \\
\text{CP} \\
\text{C}' \\
\end{array}
\]
RC ambiguities (Sichel 2018)

• Licit extraction from RCs in Hebrew is allowed with raising RCs, where the RC is not a complement/adjunct to N (Bianchi 1999).

  (20) I know \([_{DP} \text{many} \; _{CP} \text{psychologists}_i \; _{C'} \; \text{that} \; _{TP} \; t_i \; \text{would recommend them}](20)

• No NP layer above CP, as in a matching analysis (Sauerland 1998, Bianchi 1999):

  (21) I know \([_{DP} \text{many} \; _{NP} \text{psychologists}_i \; _{CP} \text{psychologists}_i \; _{C'} \; \text{that} \; _{TP} \; t_i \; \text{would recommend them}](21)

• Extraction is blocked by the NP layer above CP.
A Sichelian analysis for MSc

• Prediction: CNPs should be islands, since a raising analysis is not available.
• Sichel shows that this prediction is born out.
• Applied to Norwegian (and other MSc languages) would conform with the generalization that CNPs appear to be islands, but movement from embedded questions and RCs is at times acceptable.
• The parser faces a choice between a structure that allows movement and a structure that blocks movement – different probabilities in terms of dependency type.
• Caveat: Our experiments were not designed to specifically test the predictions of this analysis. We need to test whether RC island effects are toggled on or off according to the availability of a raising/matching analysis.
Extra-syntactic conditions?

• It may be that participants freely generate the structure that allows movement, allowing free A-bar movement in the syntax.

• If so, island effects would have to be excluded on extra-syntactic grounds, e.g., as violations of semantic constraints or pragmatic felicity conditions.
  – Kush et al. (2018): Semantic explanations for certain weak island effects, though unclear how these constraints generalize beyond wh-movement or embedded questions.
  – Accounts invoking concepts such as backgroundedness, presupposition or other information-structural concepts (e.g., Erteschik-Shir 1973, 1982, Engdahl 1982, Ambridge & Goldberg 2008, Löwenadler 2015) remain to be formalized.
Adjuncts again

• Manipulating only the internal syntax of transparent adjuncts would not have any ameliorative effects on CED violations.
• The explanation would, most likely, be non-syntactic (cf. Müller 2019 on Swedish).
• The Single Event Condition (Truswell 2007, 2011: 38)
  – An instance of wh-movement is legitimate only if the minimal constituent containing the head and the foot of the chain can be construed as describing a single event.
• One macroevent:
  (22) *Who did John go home [after talking to who]*?
• Contingency: *Causation* or *enablement*
A Truswellian analysis?

• Müller (2019) extends Truswell’s account to Swedish.
• She distinguishes between peripheral and central adverbial clauses, following Haegeman (2004, 2012).
• Proposes that contingency is replaced by *coherence*
  – cover term, includes contingency but also extends to prevention and concessive relations.
• Two unresolved issues:
  – We still need to explain why extraction appears freer in MSc languages compared to other languages
  – The account does not provide an explanation for why we should observe differences between *wh*-movement and topicalization (in Norwegian).
Weak islands (almost) everywhere!

• ‘Up until the late 1980s nothing much beyond wh-islands had been thought to be weak (selective) islands. Beginning with Relativized Minimality, however, an ever-growing range of WIs has been recognized. Thus, theories of WIs have mushroomed, each coming with a significant set of new data and important new connections to other domains’ (Szabolcsi & Lohndal 2017: 3)

• We can now add several dependency types from Mainland Scandinavian languages to this ever growing list and typology of weak islands.
Implications

• ‘[E]xtraction possibilities might vary for different types of extraction dependencies such as topicalization, question formation, and relativization or cleft formation’ (Müller 2019: 107)

• We need a more refined view of islands – movement operations do not cluster the way much previous research has suggested (e.g., A-bar vs. A-mvt.).

• Some kind of ‘dependency’ relativization necessary (e.g., topicalization vs. wh-movement)

• Islands provide fertile ground for comparative grammar!
Future work

• Do other languages exhibit differences in island-sensitivity across dependency types?

• When extraction from adjuncts is allowed in a language, is it the same set of adjuncts?

• In languages where movement from adjuncts is allowed, what evidence do children get in the input that such movement is possible?
Islands ahead!

- More work testing the same dependencies across the same languages in the same way – in particular across the Mainland Scandinavian languages
- Fine-grained formal acceptability studies of other languages
- Better understand the issue of inter-speaker variation in Norwegian and beyond
- Better formal models of typological variation when it comes to extraction out of islands
Thanks!