

Variation in finite adverbial clauses: evidence from island effects

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NTNU ForEST Society - Formal
Explorations of Structural Topics



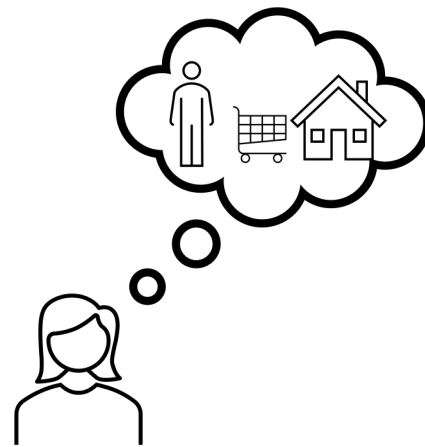
AcQVA
Acquisition Variation Attrition

Islands

- Natural languages allow long-distance filler-gap dependency formation (→ movement)

(1) John bought a house.

- a. *Which house* does Mary think that John bought _ ?
- b. I like the house that Mary thinks that John bought _.
- c. This house, I am worried that Mary thinks that John bought _.



Islands

- *Islands* (Ross 1967): domains that block filler-gap dependency formation
 - (2) Complex Noun Phrase → island
 - a. Mary believes [the rumour that John bought the house].
 - b. **What* does Mary believe [the rumour that John bought _]?
 - Compare with:**
 - c. Mary believes that John bought the house.
 - d. *What* does Mary believe that John bought _?

Adjunct islands

- Adjuncts are islands since Huang 1982

(3) **Who* did Mary cry [after John hit _]? (Huang, 1982: 503)

Condition on Extraction Domains

A phrase A may be extracted out of a domain B only if B is properly governed. (Huang 1982: 505)

- Under Government and Binding, neither subjects nor adjuncts are properly governed (Chomsky 1986)

→ Complements vs. non-complements

Adjunct islands 2.0



- Minimalist (post-government) assumptions:
 - Adjuncts are merged later ⌚
 - Late-merge (Stepanov 2001)
 - Adjuncts are merged in a different dimension 🌐
 - Pair-Merge vs. Set-Merge (Chomsky 2000)
- Prediction:
 - All adjuncts are islands → No filler-gap dependency can be formed into an adjunct clause

Contradictory evidence

- Finite vs. non-finite (Truswell 2007, 2011)
- (4) What did John drive Mary crazy [whistling _]?
(English; Truswell, 2011: 30)
- (5) Quale ragazza Gianni è partito [senza salutare _]?
which girl Gianni is left without greeting
'Which girl did John leave without greeting?'
(Italian; Dal Farra 2020: 53)

Contradictory evidence

- Even finite adjuncts can allow extraction

(6) %This is the watch that I got upset [when I lost _]
(English; Truswell, 2011: 175, fn. 1)

(7) The person who I would kill myself [if I couldn't marry _]
is Jane. (English; Deane, 1991: 29)

(8) *Sportspegeln somnar jag [om /när jag ser _].*
Sports.program.DEF fall-asleep I if /when I see.

'The sports program I fall asleep if/when I see'
(Swedish; Anward, 1982: 74)

Contradictory evidence: Norwegian

(9) a. *Denne bilen trudde eg du meinte at ho ville bli glad*
This car.DEF thought I you meant that she would be happy
[om eg kjøpte _]. (Faarlund, 1992)
if I bought

‘This car, I though you meant that she would be happy if I bought’

b. **Bilen ble jeg sint på deg [fordi du kjøpte _]*.
car.DEF became I angry at you because you bought

‘The car I got angry with you because you bought’

(Bermingrud, 1979)

Ambiguous evidence

- Further ambiguous evidence:

(10) **Det blir han sint når jeg sier*
(Bokmål: Bermingrud 1979: 80)

(11) *Det blir han sint når eg seier*
(Nynorsk: Faarlund 1992: 115)

that becomes he angry when I say

‘That he gets angry when I say.’

(i.e., ‘He gets angry when I say that.’)

Further ambiguities

- Kush et al. (2019) find that finite adjunct clauses in Norwegian are not islands in topicalization dependencies
 - Does this mean that all finite adjunct clauses are not islands in Norwegian?
 - Kush et al. (2018, 2019) find variation between dependencies
 - Adjuncts *are* islands in *wh*-dependencies
- ➔ Is there variation between dependency types in Norwegian?

Moving on

- Norwegian provides a good case study
 - Allows extraction from finite adjunct clauses to a large extent
- Ambiguous evidence
 - One way forward is rigorous experimental work

Research questions:

- (i) *Do different adjunct clause types behave in the same way with respect to long-distance A'-dependencies in Norwegian?*
- (ii) *How can the observed extraction patterns be analyzed formally?*

Case study on Norwegian

Investigating three finite adjunct clause types (conditional *om* ‘if’, causal *fordi* ‘because’ and habitual *når* ‘when’) in **formal acceptability experiments**

Formal acceptability judgment study

- A series of formal acceptability judgment experiments
 - “Sprouse-design”
 - 2x2 factorial design – looking for an *island effect*
 - The negative effect on acceptability an island violation has
 - Acceptability judgment data, 1-7 Likert Scale
- Adjunct clause types:
 - conditional *om* ‘if’, causal *fordi* ‘because’, and habitual *når* ‘when’
- A'-dependency types:
 - Relativization (n = 130), topicalization (n = 170)



2x2 factorial design

- What is an island effect?
 - Decrease in acceptability when there is:
 - 1: Long-distance movement
 - 2: A domain identified as an island
 - Two factors:
 - Distance
 - *short vs. long*
 - Construction
 - *no-island vs. island*
 - **Here:** *no-adjunct vs. adjunct*

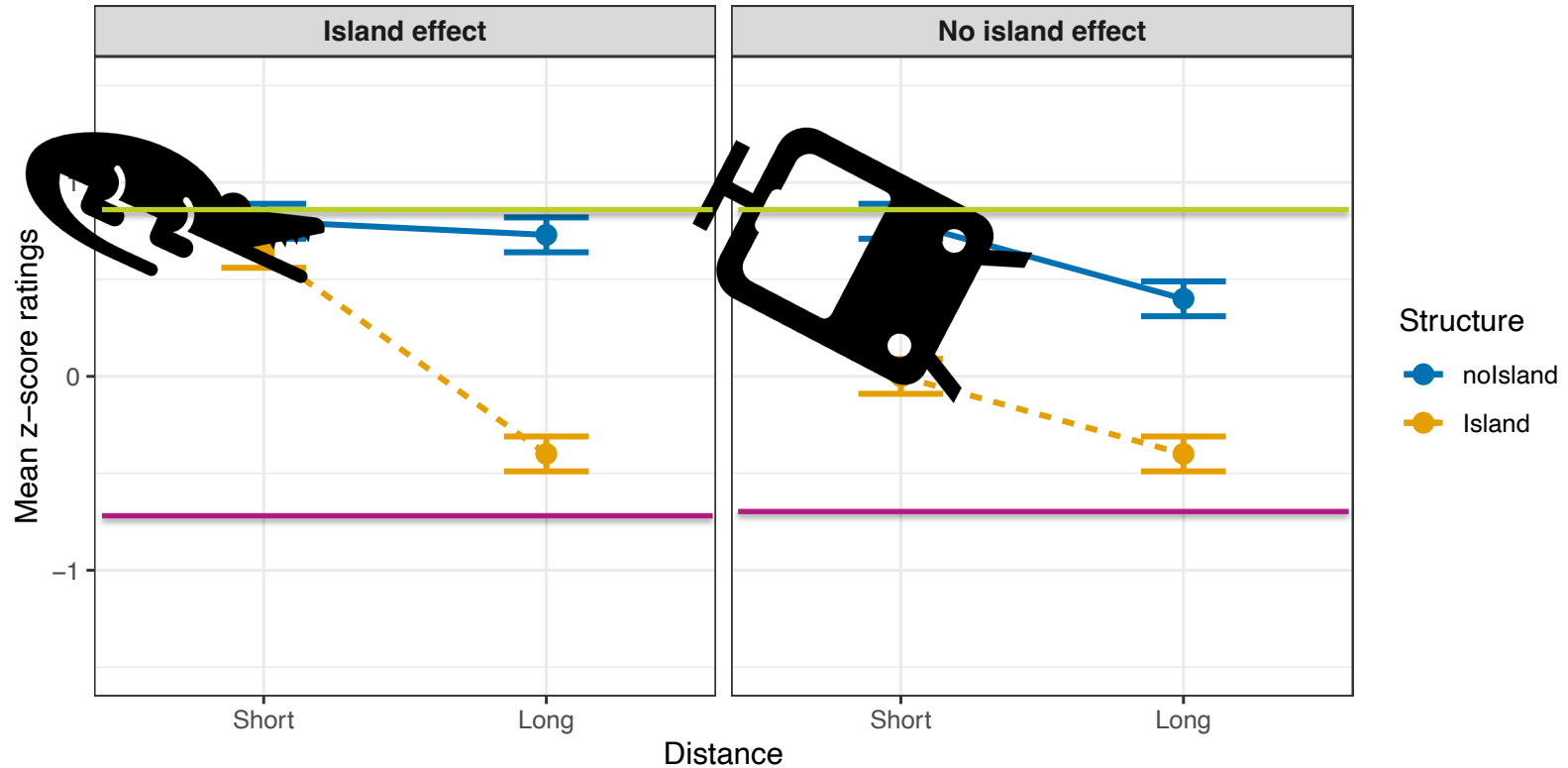
		Distance	
		<i>short [0]</i>	<i>long [1]</i>
Construction	<i>No-adjunct [0]</i>	0	1
	<i>adjunct [1]</i>	1	2

Distance

Construction

	short	long
no-adjunct	<p>De erter fotballspilleren they tease football.player.DEF som __ misliker at de nevner who __ dislikes that they mention selvmålet. own.goal.DEF</p>	<p>De diskuterer selvmålet they discuss own.goal.DEF som fotballspilleren misliker at that football.player.DEF dislikes that de nevner __. they mention __.</p>
adjunct	<p>De erter fotballspilleren they tease football.player.DEF som __ blir flau who __ gets embarrassed om de nevner selvmålet. if they mention own.goal.DEF</p>	<p>De diskuterer selvmålet som they discuss own.goal.DEF that fotballspilleren blir football.player.DEF gets flau om de nevner __. embarrassed if they mention __.</p>

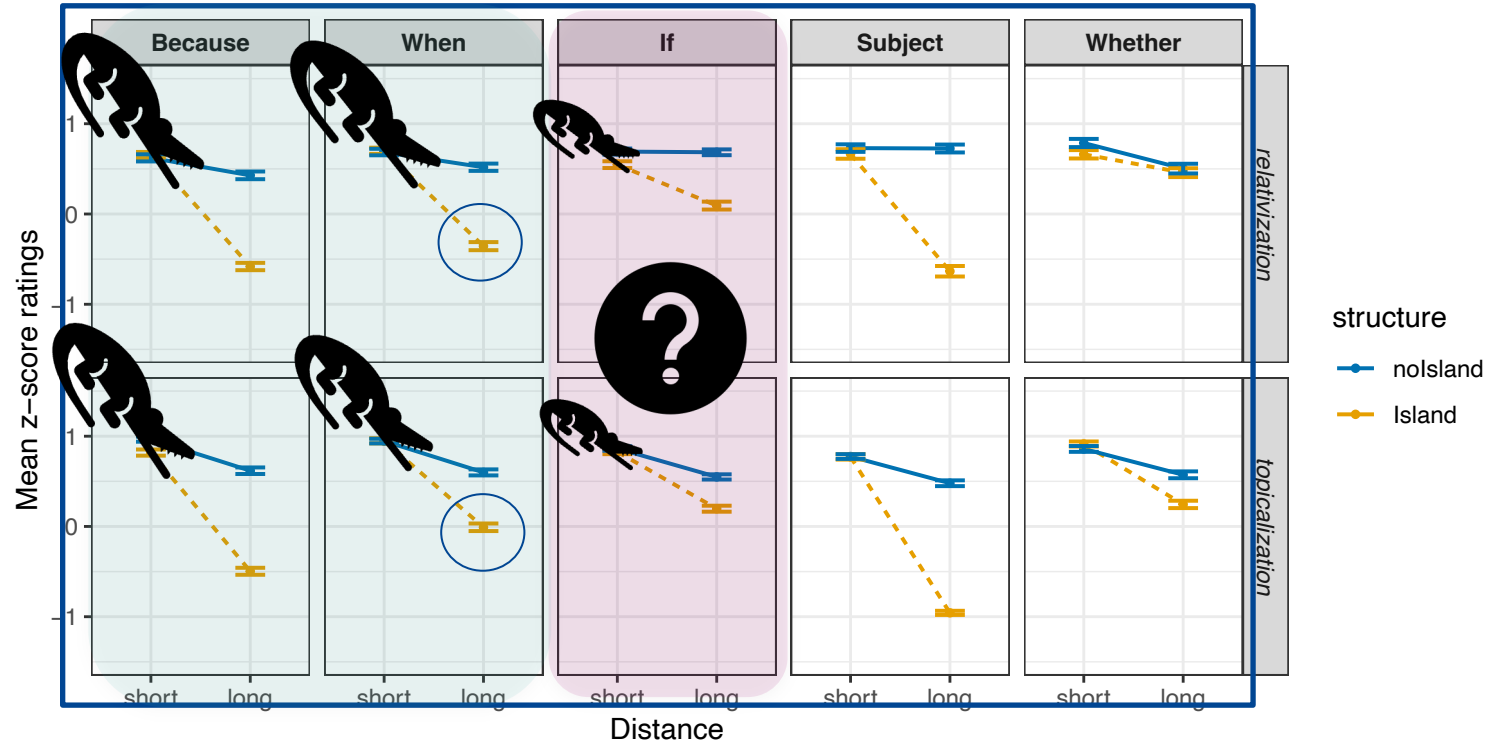
Island effect: predicted patterns



Results

- 1) Statistically significant island effect across:
 - Dependency types
 - Adjunct clause types
- 2) Consistent differences between adjunct clause types

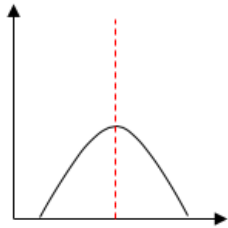
Island effects



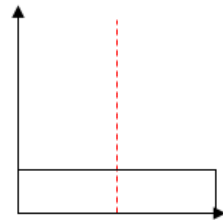
Small island effect

- Could the small island effect be caused by *variation*?
- There are different ways to get the same average:

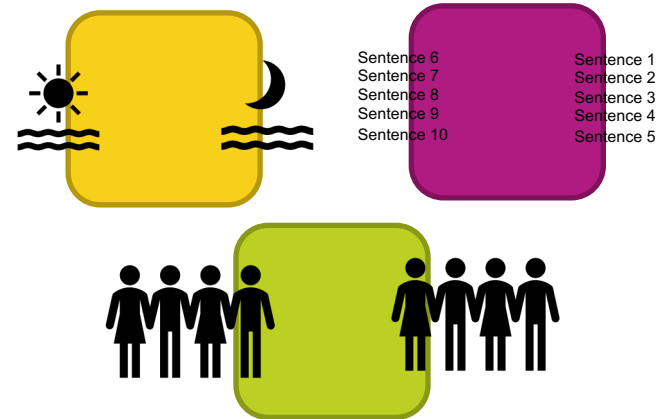
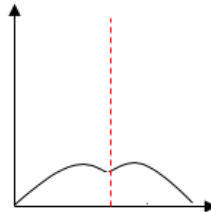
Normal distribution



Uniform distribution

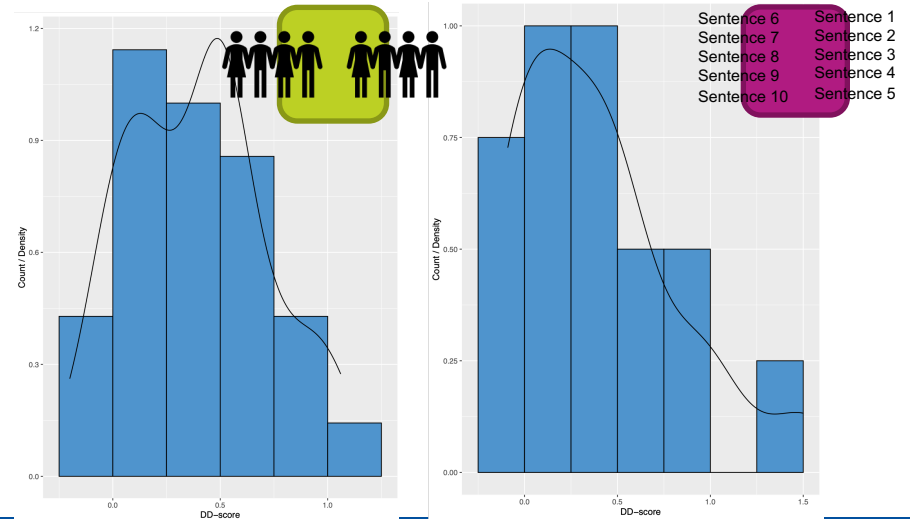
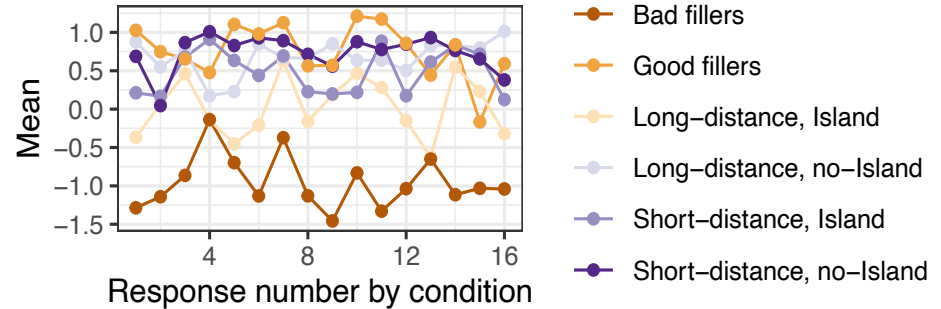


Bimodal distribution



Normal distribution

- Normal distribution around small effect size
- No evidence of “either island or not island” (binary judgments)
- *Om* ‘if’ is a small island for:
 - all participants
 - all test-sentences
 - in all stages (blocks) of the experiment



Results across dependencies

- Statistically significant island effects across adjunct clause types ($\alpha = 0.05$)
- Consistent groupings between adjunct clause types
 - *Fordi* ‘because’ = *når* ‘when’ (linear mixed effects model fails to distinguish between them)
 - *Om* ‘if’ consistently smaller island effects
 - Small island effect is consistent between:
 - Participants
 - Test-sentences
 - Order (experiment effects)
- Gradient results

How to explain the variation?

- 1) How to explain differences between adjunct clause types?
- 2) How to explain gradient results in adjunct island effects?

Variation in adjunct clause types

- Experimental conditions are exactly the same
- Results are different between adjunct clause types
- ➔ Variation in island sensitivity between finite adjunct clause types
- The question is *which* feature of the adjunct clauses differs

Theoretical implementation

- Seemingly impossible in current theories
 1. Adjunct clauses are merged differently
 - *Fordi* ‘because’ and *når* ‘when’ are merged late
 - *Om* ‘if’ is merged early
 - ! *Om* ‘if’ is crucially not as open as declarative complement clauses
 2. Adjunct clauses are merged at different heights
 - *Fordi* ‘because’ and *når* ‘when’ are merged high (peripheral)
 - *Om* ‘if’ is merged low (central)
 - ! Kush et al. (2018) find that *om* ‘if’ yields large island effects with *wh*-dependencies
 - ? How can height of merge interact with dependency type?

Adjunct clauses

- The different adjunct clauses clearly have different meanings (i.e., semantic differences)
- Also difference in island effects
 - As island effects most typically are explained as syntactic constraints, this indicates that there are also syntactic differences between the adjunct clause types
- Thus, the hypothesis going forward will be:

Syntactic factor(s) that distinguishes adjunct clause types interacts with island sensitivity

One proposal

- Looking at *syntactic* differences between *om* ‘if’ and *fordi* ‘because’
- Starting-point
 - Conditional clauses are derived by operator movement (Bhatt & Pancheva 2006; Haegeman 2010)
 - Causal *fordi* ‘because’ is not
 - *Internal syntax* must be different
 - Rizzi’s (1997) cartography of CP-domain
ForceP...(TopP)...(FocP)...FinP

Internal syntax of conditional *om* 'if'

- (i) Conditionals are like interrogatives (formed by interrogative complementizer or I-to-C movement)

(12)

- a. Jeg lurer på om han dro // Jeg blir sur om han drar
'I wonder whether he left' // 'I'll get upset if he leaves'
- b. Visste du dette? // Hadde jeg visst det, ville jeg ikke gjort det
'Did you know this'? // 'Had I known, I would not have done that'

Internal syntax of conditional *om* ‘if’

- (ii) Interrogatives are like free relatives

(13)

a. **Free relatives**

John var fornøyd med hva Mari hadde kjøpt

‘John was happy with what Mari had bought’

b. **Interrogatives**

John lurte på hva Mari hadde kjøpt

‘John wondered what Mari had bought’

Om 'if' in Fin

- V2 related word orders impossible with conditionals:

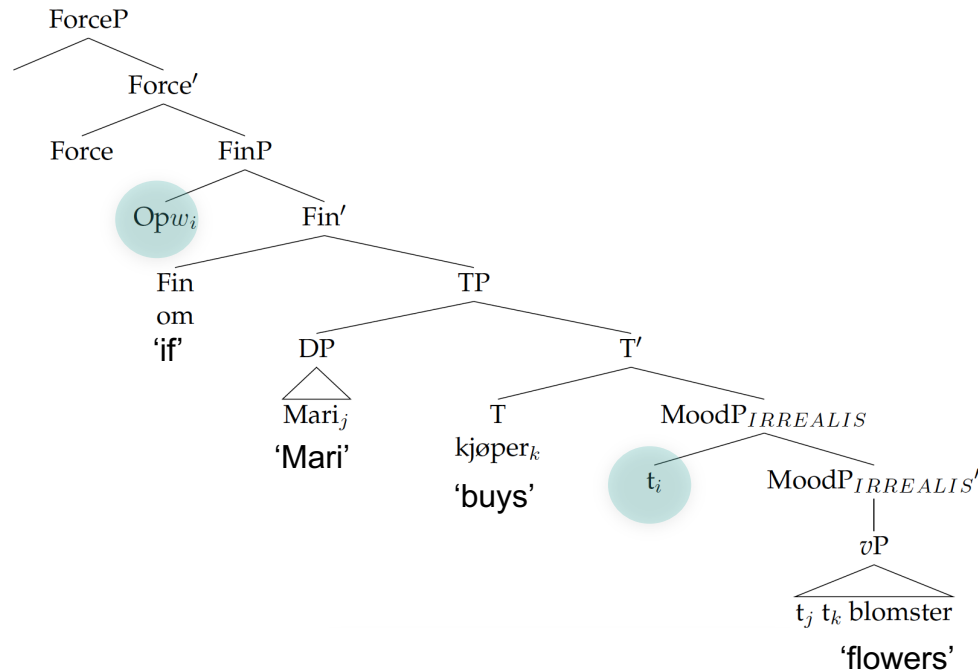
(14) *Han kjem heim [viss han får **ikkje** legetime]
he comes home if he gets not doctor's.appointment
'He comes home if he doesn't get a doctor's appointment.'

(Ringstad 2019: 334)

- V2 asymmetry (den Besten 1983) → V2 and *om* 'if' target the same position
- Prediction from freezing effects: if subject extraction is possible, Force is lexicalized. If not, Fin is lexicalized (Lohndal 2009; Rizzi 2018)
- Faarlund et al. (1997): subject extraction from conditionals is impossible, while object extraction might be possible
- Indicates that conditional *om* 'if' lexicalizes Fin

Syntax of conditional *om* 'if'-clauses

Conditional *om* 'if'



Fordi ‘because’ in Spec-ForceP

- *fordi* ‘because’: high in the clause
- *at* ‘that’ lexicalizes Force in Norwegian (Lohndal 2009)
- *fordi* ‘because’ can precede *at* ‘that’

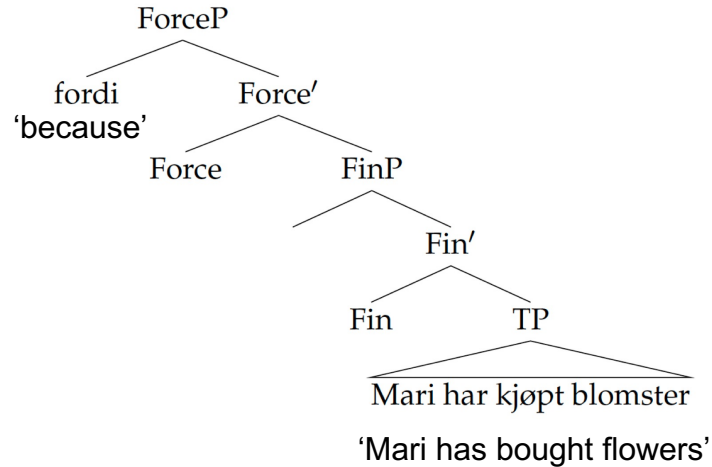
(15) *John vil flytte fordi at naboen hans*
John wants to.move because that neighbour.DEF his
spiller høy musikk.
plays loudmusic

‘John wants to move because his neighbour plays loud music’

- *Fordi* ‘because’ in Spec-ForceP

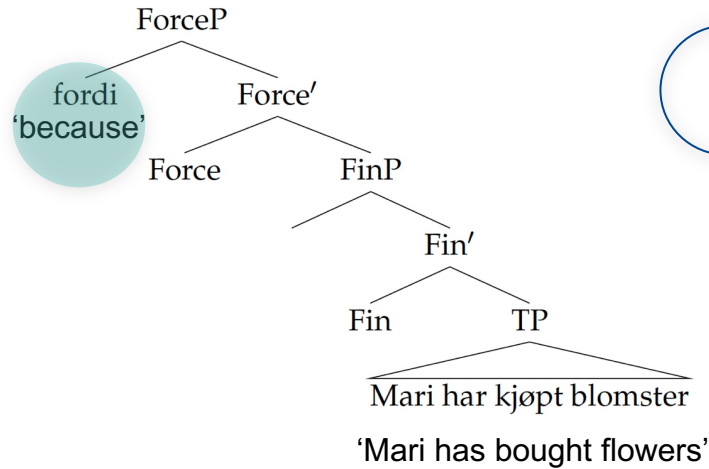
Syntax of causal *fordi* 'because'

Causal *fordi* 'because'

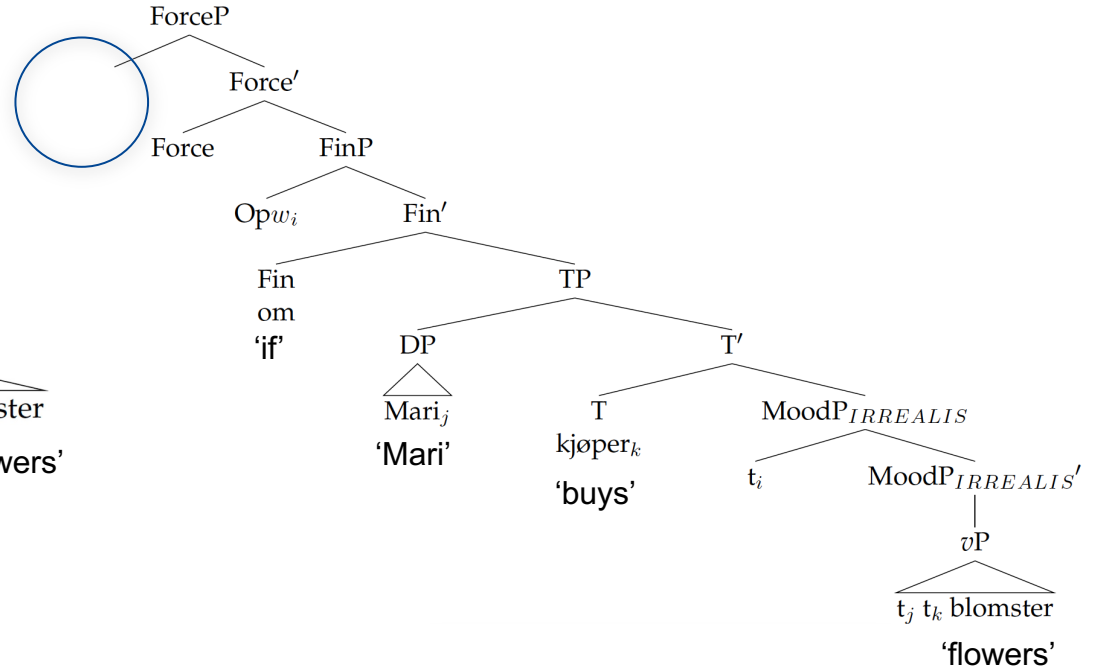


Internal syntax differs

Causal *fordi* 'because'

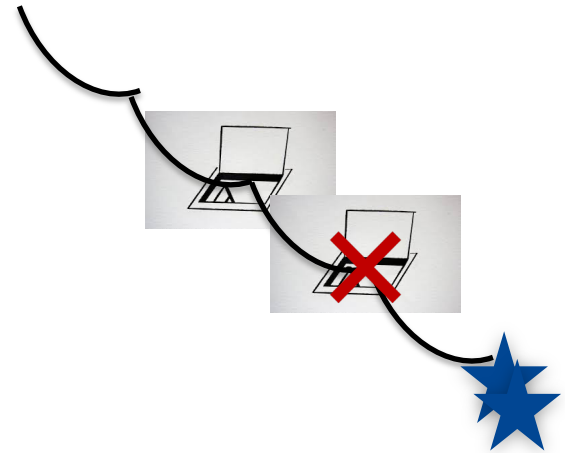


Conditional *om* 'if'





Explanations of islands in nutshell

- Natural languages allow dependencies to be formed at a distance
- Syntactic theory must allow this, while also constraining long-distance dependencies in certain domains
- Movement is successive cyclic
- At the left edge of each clause there is an «escape-hatch» that ensures movement is successive cyclic
- Movement is blocked if the escape hatch is unavailable (Chomsky 1973 onwards)



Internal syntax matters

- Explanation in terms of *Phases* follows naturally from these facts
 - *fordi* ‘because’ is in Spec-ForceP : blocks the escape hatch
 - *om* ‘if’ is in Fin and Opw is in Spec-FinP : escape hatch is open
- Predictions:
 - Extraction from *fordi* ‘because’ is never accepted 
 - Extraction from *om* ‘if’ is always accepted 
 - ✓ Varies as a function of dependency type
 - ✓ Gradience in acceptability

Relativized Minimality

- Another type of explanation of island effects
- In X ... Z... Y
 - «Y cannot be related to X if Z intervenes and Z has certain characteristics in common with X. So, in order for Y to be related to X, Y must be in a minimal configuration with X, where Minimality is relativized to the nature of the structural relation to be established» (Rizzi, 2004: 89).

Relativized Minimality

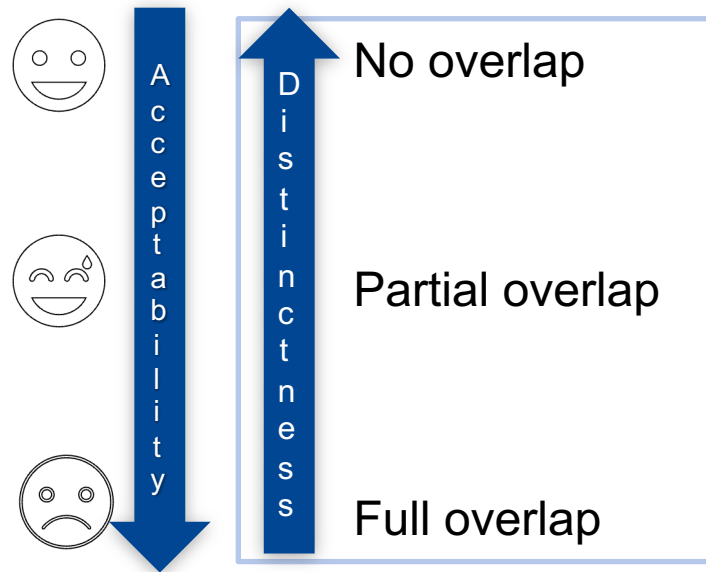
- Even if the “escape-hatch” is not filled, any element between filler and gap which is similar to the filler/gap can block chain formation
 - Features relevant for A'-movement [+Op] (question-formation, relativization, topicalization)
 - DPs that move have “something more” than bare elements (Starke 2001; Friedmann et al. 2009; Belletti et al. 2012; Villata et al. 2016)
 - Different suggestions for what the “something more” is
 - Specificity [+ β] (Starke 2001), lexical restriction of A'-fillers [+N]
- I will use [+Op] for A'-movement, [+ ∂] for “something more”

Relativized Minimality

- Two features relevant for movement [+Op], [+ ∂]
- Hierarchy of intervention effects
 - Features of the intervener overlap fully with the mover => full intervention
 - [+Op], [+Op], [+Op]
 - [+Op], [+Op, + ∂], [+Op]
 - [+Op, ∂], [+Op, + ∂], [+Op, ∂]
 - Features of the intervener partially overlap with mover => partial intervention (Starke 2001)
 - [+Op, + ∂], [+Op], [+Op, + ∂]

Relativized Minimality Effects









- In cases of topicalization and relativization, the filler and gap are full DPs that A'-move: [+Op, + θ]
 - In cases with *om* 'if' there is an operator over possible worlds: [+Op]
- Filler and gap: [+Op, + θ]
- Intervener: [+Op]
- Partial intervention



Based on Villata et al. (2016) and Rizzi (2018)

Predictions

- *Om* 'if'-adjuncts will yield small island effects with [+Op, + ∂] dependencies
 - Topicalization-, relativization- and complex *wh*-dependencies (i.e., *which* N)
 - *Om* 'if'-adjuncts will yield large island effects with [+Op] dependencies
 - Bare *wh*-dependencies (i.e., *what*, *who*)
 - *!Fordi* 'because'-adjuncts will yield large island effects irrespective of dependency type as the escape-hatch is blocked
- ➔ This seems to be the pattern that we are seeing in the experimental results

	<i>Wh</i>		Topicalization	Relativization
	Bare	Complex		
<i>Om</i> ‘if’	 Kush et al. 2018	 Kobzeva et al. 2022 Kush et al. 2018	 Kush et al. 2019 Bondevik et al. 2021	 Kobzeva et al. 2022 Bondevik & Lohndal 2023
<i>Fordi</i> ‘because’			 Bondevik et al. 2021	 Bondevik & Lohndal 2023
<i>Når</i> ‘when’			 Bondevik et al. 2021	 Bondevik & Lohndal 2023

Summary of proposal

- Internal syntax alone can explain differences in patterns of extractability between adjunct clause types
- Two locality conditions are required to explain the fine-grained patterns:
 - Derivational (*fordi* ‘because’ and *når* ‘when’)
 - Representational (*om* ‘if’)
- **Adjunction alone does not make an embedded clause an island**

Remaining questions

- Habitual *Når* ‘when’-adjuncts
 - Internal syntax?
 - Difference in size of the effect between relativization and topicalization
- Theoretical implications of assuming way of Merge does not affect extractability
- Do we see the same patterns cross-linguistically?

Conclusion

- Interaction between island effects and adjunct clause type
- Adjunct clause types are different in ways that matter for island sensitivity
- This evidence points in the direction that adjunct island effects cannot be derived from effects of merge
 - Prediction is binary (early vs. late / Pair- vs. Set-Merge)
 - Empirical patterns are gradient (unacceptable vs. partially acceptable vs. acceptable)
- Explanation seems to be syntactic, one proposal being that the internal syntax most naturally explains patterns

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