

# Islands with bridges? Extraction from adjunct clauses in Danish

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## Abstract

We present data from a series of acceptability judgement experiments on extraction from three types of finite adjunct clauses in Danish: relativization with and without supporting context, and topicalization with context. The results revealed a strikingly stable pattern: Extractions from temporal and causal clauses are significantly less acceptable than extractions from conditionals, which are significantly less acceptable than extractions from complement clauses. We shall argue that adjunct clauses are not strong islands in Danish, and that the variation in the acceptability ratings across constructions and languages depends on extra-syntactic factors.

## 1 Introduction

Adjunct clauses are traditionally assumed to be universal, strong syntactic islands blocking extraction. This characterization has traditionally been captured by the *Condition on Extraction Domains* (CED, Huang 1982, 505), which bans extraction from domains that are not properly governed. However, several studies have challenged this assumption. Extraction from finite adjunct clauses has been shown to be acceptable to varying degrees in a number of languages, including Danish and the other Mainland Scandinavian languages, based on examples like (1):

- (1) Den vase får du ballade [hvis du taber \_\_\_\_ ].  
*that vase get you trouble if you drop*  
'You are in trouble if you drop that vase.'  
(Hansen and Heltoft 2011, 1814)

In (1), the DP *den vase* 'that vase' has been felicitously topicalized from a finite adjunct clause introduced by *hvis* 'if'. Examples like this appear to violate the CED and thus raise the question whether island constraints are subject to cross-linguistic variation.

However, recent studies on Norwegian (Bondevik, Kush, and Lohndal 2020) and Swedish (Müller 2017) suggest that extraction from adjunct clauses is not unconstrained, given that these languages exhibit an acceptability pattern that varies as a function of the type of adjunct clause in question. In other studies, the relative acceptability of extraction has also been suggested to depend on dependency type (Sprouse et al. 2016) and the presence of contextual facilitation (e.g. Kush, Lohndal, and Sprouse 2019). Although it has previously been suggested that neither *wh*-islands (Christensen, Kizach, and Nyvad 2013) nor relative clauses (Christensen and Nyvad 2014) are strong islands in Danish, it has not yet been explored in an acceptability study on adjunct clause extraction.

## 2 Present study

The purpose of the present study was twofold: One, to find out whether the acceptability of extraction out of different types of adjunct clauses varies in Danish, as has been found in the other Mainland Scandinavian languages Swedish and Norwegian. Second, to compare adjunct island sensitivity in Danish and English, based on the same basic set of stimuli, differing minimally across conditions.

## 2.1 Methods

Based on a recent study on English (Nyvad, Müller, and Christensen 2022), we conducted a series of acceptability judgment experiments (off-line judgments on a 7-point Likert scale) on extraction from three types of finite adjunct clauses in Danish. For the design of this experiment, we used a 2x2 factorial design with the two factors  $\pm$ Island and  $\pm$ Extraction. In addition, there was an additional Complementizer factor with four different levels: *at* 'that' (introducing a complement clause), *hvis* 'if', *da* 'when' and *fordi* 'because' (all introducing adjunct clauses). The *that*-clauses and the three different types of adjunct clauses were embedded under adjectival psych-predicates, and the target sentences were all preceded by a supporting context, e.g. as follows:

(2) **Context:**

I det sidste træningsprogram jeg udarbejdede for Emma, ville jeg gerne gøre det så godt som umuligt for hende og inkluderede derfor endnu et sæt virkelig brutale pull-ups.

'In the latest workout routine I designed for Emma, I really wanted to make it impossible for her and included another set of particularly brutal pull-ups.'

**Target:**

Det er dét program som jeg ville blive overrasket hvis hun faktisk gennemførte \_\_\_\_ .

*it is this exercise that I would become surprised if she actually completed*

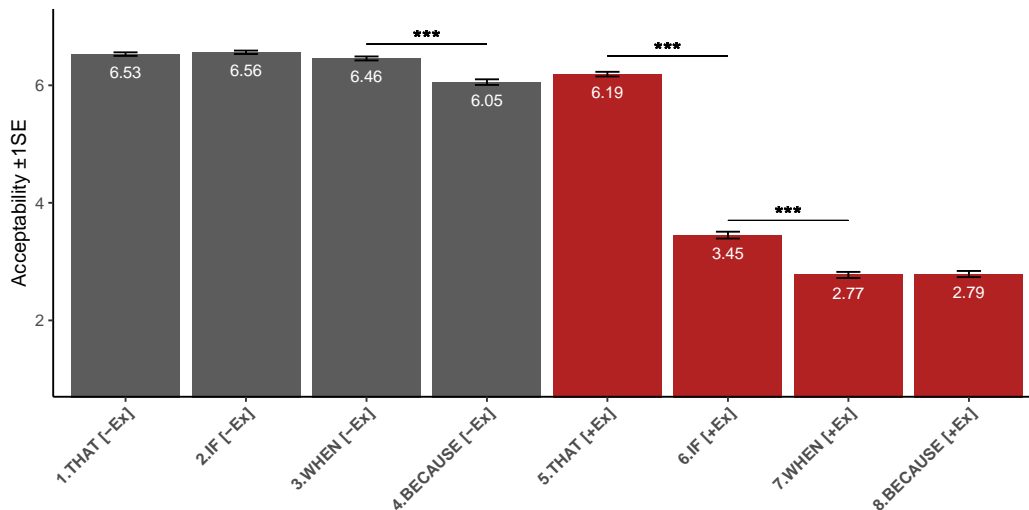
'This is the exercise that I would be surprised if she actually completed.'

Two types of fillers were added, one involving extraction from NP subjects and another involving extraction from coordinate structures. These structures served additionally as points of comparison, as both subjects and coordinate structures are also assumed to be strong islands in both English and Danish. The acceptability survey was disseminated in the form of an online questionnaire using Google Forms and participants were recruited through social media platforms.

## 2.2 Results

A total of 335 native speakers of Danish (330 female, 5 male) volunteered to participate in the experiment. The results and sliding pairwise comparisons for the eight target sentence types are shown in Figure 1 below. The acceptability ratings for the four baseline conditions [-Ex] all had a rating above 6 on the 7-point scale. There was a significant drop in acceptability between the [-Ex] and [+Ex] types, indicating a significant negative main effect of extraction, [+Ex]>[-Ex], as shown by the contrast between *that* [+Ex] and *if* [+Ex]:

Figure 1



Furthermore, we tested whether the acceptability level of extraction out of adjunct clauses in Danish would be affected by (a) removing the supporting context, and (b) employing topicalization out of the adjunct clauses instead of relativization. The overall results revealed a strikingly stable pattern: Extraction from *when*- and *because*-clauses is significantly less acceptable than extraction from *if*-clauses, which was significantly less acceptable than extraction from complement clauses headed by *that*. While we find that Danish is similar to Swedish (Müller 2017) and Norwegian (Bondevik, Kush, and Lohndal 2020) in showing variability in the acceptability pattern of extraction from conditional, temporal and causal adjunct clauses, the results relating to the raw scores of extractions from adjunct clauses are surprisingly low. In addition, the DD scores (difference-in-differences) suggest that all three types of adjunct clause extraction are island violations in Danish, according to the 0.75 threshold suggested by Kush et al. (2019, 401), while the results for English (Nyvad, Müller, and Christensen 2022) indicated that relativization out of conditional, temporal, and causal clauses does not appear to constitute strong island violations. In addition, there seems to be very little (if any) positive or negative effect of supporting context, and the overall acceptability pattern was the same for relativization and topicalization.

### 3 Conclusions

We shall, however, argue that though the pattern in Danish could be taken to support the assumption that adjunct clauses are strong syntactic islands, a closer analysis of the results suggests otherwise. First of all, the acceptability ratings are all much higher than for ungrammatical controls (in particular, coordinate structure violations). Secondly, the *if*-type shows more inter-participant variation, reflected in a less uniform (less skewed) response distribution than the other types.

Based on the variability observed in the data, we argue that adjunct clauses are not strong syntactic islands in Danish. Moreover, while extraction out of adjunct clauses must be licensed by the grammar, the variation in the acceptability of extraction depends on extra-syntactic factors, including processing and discourse function, both cross-linguistically and cross-construction.

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