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An eye-tracking study of Swedish filler-gap dependencies:
Processing relative clause extractions
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Introduction
Complex noun phrases involving relative clauses (1) are standardly treated as instances of “strong islands” structural configurations into which a filler-gap dependency (FGD) cannot be formed between the fillers (those kinds of flowers) and the gap (2) (Ross, 1967; den Dikken & Szabolcsi, 2002). This constraint is widely assumed to be universal.

Unsurprisingly, Swedish and the other Mainland Scandinavian languages allow relative clause extractions (RCEs) (2) (Engdahl & Ejehed, 1982; Ertechik-Shir, 1975), thus presenting a challenge to the universality of island constraints.

Existing accounts for the Swedish data

• Discourse-organizational factors (Ertechik-Shir & Lapin, 1979)
• Island obviation by way of covert resumption (Cirque, 1996)
• Structural reanalysis during parsing (Kush et al., 2013)

Unfortunately, none of these accounts stands up under closer scrutiny (see Christensen & Nyvad, 2014; Engdahl, 1997; Heiniti & Wiklund, 2015; Lindahl, 2015; Müller, 2015). Thus, what drives the apparent flexibility of Swedish RCEs remains unidentified.

Approaching the question via processing

• No on-line processing data exists for Swedish.
• Not clear whether processing patterns track intuitive well-formedness.

First step:
• Look for basic differences in processing between Swedish RCEs and other FGDs at the embedded verb (untarded) and the following PP region (island constrained) (see examples 3-4) where integration is presumed to occur, while controlling for the possible influence of non-structural factors (e.g., working memory), which might affect the processing of FGDs.

Second step:
• Two studies suggest that in acceptability judgments and in online processing, only non-islands should show any modulating effects from plausibility and working memory on any primary manipulation.

• Sprague et al. (2012) found no evidence that acceptability-based island-effects show any modulation from individual differences in general processing resource capacity, as measured via two Working Memory Span (WMS) tasks and grammaticality judgment data (cf. Hofmeister & Sag, 2010).
• Traskier and Pickering (1996) demonstrated via eye-tracking that manipulations to the plausibility of a filler as a continuation of a verb only affected integration for non-island structures, with no differences being found for island structures.

If correct, the presence of an interaction between structural and non-structural factors on Swedish RCEs could then serve as a positive heuristic for non-island status. This would help to confirm that processing of such structures is in-line with their intuitive acceptability.

Research goals and predictions

Use eye-tracking to test whether:
• Swedish RCEs elicit processing costs similar to loci or illicit long-distance FGDs at the embedded verb (untarded) and the following PP region (island constrained).
• Any basic structural differences are modulated by non-structural factors (eg. pragmatic, pragmatic IL, and working memory).

Possible outcomes:
• Swedish RCEs will pattern more like non-islands, in line with their intuitive acceptability. Such a finding would leave us with at least two possible interpretations:
  • Swedish RCEs do not involve island structures, and thus a structural account is still needed.
  • True variation exists in island constraints
• Swedish RCs, although intuitively acceptable will pattern more like island structures. Such a finding would distance “deep variation” in the island constraints themselves (see Phillips, 2013).