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Coherence and finiteness effects in extraction from adjunct islands in English

Christiane Müller, Damon Tutunjian, & Anna-Lena Wiklund
Lund University

christiane.muller@nordlund.lu.se, damon.tutunjian@englund.lu.se, anna-lena.wiklund@nordlund.lu.se
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Introduction
It has traditionally been assumed that adjunct clauses are strong islands for extraction across languages, including in English (the Adjunct Condition, Huang, 1982). However, recent studies have claimed that extraction from adjunct clauses is possible in English given certain conditions.

Semantic coherence: Extraction from adjunct clauses is possible in English, provided that a coherence relation (e.g., a causal, as opposed to a purely temporal relation) holds between the events referred to by the matrix and the adjunct clause (1a vs. 1b) (Truswell, 2011; Tanaka, 2015).

Finiteness: It has been argued that in English extraction from coherent adjuncts is only possible if the adjunct is non-finite (2a vs. 2b) (Truswell, 2011).

The current study
The current study investigates how coherence and finiteness affect the acceptability (Exp. 1) and the real-time processing (Exp. 2) of adjunct island extraction in English.

Hypotheses:
- Predicted main effect of coherence: For Experiment 1, a higher level of sentential coherence will increase the acceptability of extraction from the adjunct as measured via higher ratings for coherent structures. For Experiment 2, higher coherence is expected to facilitate reading times at the embedded adjunct verb (R9) and spillover region (R10) where dependency formation is expected to occur.
- The presence of finiteness on the adjunct verb is expected to degrade the acceptability of extraction (Exp. 1) and slow processing at the adjunct verb (Exp. 2), provided that sentences are coherent – with no additional effect being hypothesized for non-coherent structures.

Finding an influence of either factor on dependency formation could be taken as evidence of the online permeability of such structures.

Experiment 1 (Acceptability judgments)
Participants: 72 mono-lingual, native English speakers.
Materials: 40 sentence items bearing argument extraction in the form of question formation (Which NP) from an after-adjunct clause, manipulating Coherence and Finiteness (3), distributed across four lists with 8 distractor items.

Coherence (coherent/non-coherent):
- Sentential coherence was either augmented (3a) or impeded (3b). This was done by using telic matrix verbs in the coherent condition and activity verbs in the non-coherent condition (Truswell, 2011) and by using matching matrix adverbs, e.g. almost (coherent) vs. a little (non-coherent).

Finiteness (finite, non-finite):
- Verb finiteness in the adjunct clause.

Results
- Linear mixed models analysis: Main effect of Coherence: coherent > non-coherent (β = 0.283, t = 3.98, p < .001); Main effect of Finiteness: non-finite > finite (β = -0.095, t = -2.70, p < .05). Coherence × Finiteness interaction: finite < non-finite for coherent structures (β = -0.056, t = -2.69, p < .05).

Discussion
- Overall, ratings were on the low end of the scale, suggesting that extraction is difficult.
- The acceptability of extraction from adjunct islands is increased in the presence of a coherent relation between matrix and adjunct clause event.
- Finiteness reduces the acceptability of coherent structures in English.
- The small size of the finiteness effect points towards a processing phenomenon.

Experiment 2 (Self-paced reading)
Participants: 60 mono-lingual, native English speakers.
Materials: 40 critical sentences partially modified from those used in Experiment 1, rotated across four presentation lists. 8 distractor items.

Procedure:
- 7-point Likert scale rating task (1 = “completely unacceptable” to 7 = “completely acceptable”) presented online using Google forms.

Results
- Linear mixed models analysis of log residualised reading times for regions R5-R10 (excluding R8).

General discussion
Findings:
- Overall, coherent structures involving dependency formation into an adjunct are rated higher than non-coherent structures and are processed faster at the regions where filler-gap integration is expected to occur.
- Finiteness decreases the acceptability of coherent extraction, but has no effect on non-coherent extraction.
- Finiteness increases processing time at the first point of filler-gap integration (the adjunct verb). However, finiteness appears to only affect coherent structures at later stages of integration (the wrap-up region).

The Adjunct Condition: The acceptability results are compatible with the Adjunct Condition; extraction from the adjunct clauses produced ratings that fell below the mid-point of the scale across all conditions.

Implications for the permeability of adjunct islands:
- Our finding that coherence and finiteness have an impact on the acceptability of extraction from adjuncts as well as on the processing of such structures at the point of filler integration suggests that filler-gap integration need not be suspended in adjunct clauses, as has been claimed for other islands (Stowe, 1986; Traxler & Pickering, 1996).
- This suggests that some degree of filler-gap integration takes place inside the adjunct islands investigated here (i.e., the gap extraction is judged to be of low acceptability). See Tunajan et al. (2017) for similar observations regarding relative clause islands.

How can the permeability of adjunct islands be reconciled with the Adjunct Condition?
- Our stimuli may have forced integration inside the island, due to the absence of another gap; this forced integration was facilitated in the presence of a coherence relation.
- Gap assignment may be supported in the presence of a cue that suggests a tighter semantic relation (coherence) between the adjunct and the matrix clause (e.g. the telicity of the matrix verb). This is also supported by the trend of coherence held by finiteness interaction at the wrap-up region (Exp. 2), which suggests that some of the permeability is only visible in the coherent conditions.

References

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Figure 1. Exp. 1 trials mean acceptability ratings.

Figure 2. Exp. 2 residualised reading times (ms) by condition and region (C = coherent, NC = non-coherent, F = finite, NF = non-finite).