Intermediate island effects in clausal prolepsis: DP shells are just right

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Introduction: Variability in the strength of island effects is a major topic in psycholinguistics and many sources of variability have been proposed, including frequency, backgroundedness, and information structure among others [1-3]. We investigate island effects in extraction from embedded clauses (CPs) which differ primarily in their syntactic structure. In clausal prolepsis constructions (CPCs), a CP is doubled by an argument position pronoun as in (1) [4-7]. Two analyses have been proposed in the syntax literature. On the **CP complement analysis** [5,8], the CP complement extraposes rightward, leaving the pronoun in the object position. As a complement, the CP is expected to permit wh-extraction. On the **Complex DP analysis**, the CP is embedded in a DP with a null NP layer [6,10]. This predicts that CPCs are complex NPs (CNPs) and thus islands for extraction [11]. The Complex DP analysis has been rejected for English as judgments suggest that CPCs are not strong islands [5,12]. However, these judgements are not yet supported by empirical investigations, which we undertake here.

Experiment 1: We investigate extraction from three forms of CP using a 2×3 design [13] (Table 1). 95 participants read and rated sentences on a 1-7 Likert scale. Bare CPs are predicted to generate a small extraction penalty, as they are not islands for extraction, while CNPs are predicted to generate a large extraction penalty. Of interest then is the penalty observed for CPCs. Using ordinal regression analysis, we observe a significant penalty for extraction in general ($\beta=5.46$, $p<0.001$) and that Bare CPs ($\beta=2.45$, $p<0.001$) and CNPs ($\beta=1.13$, $p<0.001$) are more acceptable than CPCs overall. However, we also find interaction effects indicating a smaller extraction penalty for Bare CPs than CPCs ($\beta= -0.60$, $p<0.027$), but a larger penalty for CNPs than CPCs ($\beta= 2.76$, $p<0.001$). Results visualized in Figure 1.

Experiment 2: We investigate whether the lowered acceptability of extraction from CPCs is due to extraposition. Although extraposition does not fully block wh-extraction [9], extraposition could lower ease of extraction, making the results of Experiment 1 consistent with the CP complement analysis. We added Extra(posed) CPs as a condition, alongside Bare CPs and CPCs (Table 2). We manipulate whether extraction takes place from outside the CP or within the CP. If extraction penalties for CPCs have a source other than extraposition, the extraction penalty for CPCs should be larger than the penalties for Bare CPs and simple Extraposition. We observe a significant penalty for extraction from CP ($\beta= 3.30$, $p<0.001$) and that Bare CPs ($\beta=1.29$, $p<0.001$) are more acceptable than CPCs overall. We also find interaction effects indicating a smaller extraction penalty for Bare CPs than CPCs ($\beta= -2.12$, $p<0.027$), and a smaller extraction penalty for Extraposition than CPCs ($\beta= -3.11$, $p<0.001$). Results visualized in Figure 2.

Conclusion: In two experiments, we investigated the acceptability of extraction from CPCs alongside relevant CP baselines. While extraction from CPCs triggers costs like other island violations, these costs are smaller than those observed for CNPs. This penalty is also not reducible to the presence of extraposition. This intermediate effect suggests that the structure of CPCs is unlike either the **CP complement analysis** or the **Complex DP analysis**. We propose a **DP-Shell analysis**. In this analysis, CPCs are formed by a CP embedded directly within a DP without an NP layer. Under a **DP-Shell analysis** the intermediate island effect is a definiteness effect introduced by the proleptic pronoun *it* [14]. Thus, CPCs incur a smaller extraction penalty than true CNPs and are an example of a syntactic source of variability in island effects.

(1) a. Sam regretted **it** [CP that I left early]. b. **It** stinks [CP that the game was cancelled].

Table 1: Experiment 1 Design

Declarative	Bare CP	Jeff regretted that he failed his driving test for the second time.
Question	Bare CP	What did Jeff regret that he failed for the second time?
Declarative	CNP	Jeff regretted **the fact** that he failed his driving test for the second time.
Question	CNP	What did Jeff regret **the fact** that he failed for the second time?
Declarative	CPC	Jeff regretted **it** that he failed his driving test for the second time.
Question	CPC	What did Jeff regret **it** that he failed for the second time?

Table 2: Experiment 2 Design

Short	Bare CP	Who would love for Benjamin to meet Sarah at the airport?
Long	Bare CP	Who would Sarah love for Benjamin to meet at the airport?
Short	Extra	Who would love **most of all** for Benjamin to meet Sarah at the airport?
Long	Extra	Who would Sarah love **most of all** for Benjamin to meet at the airport?
Short	CPC	Who would love **it** for Benjamin to meet Sarah at the airport?
Long	CPC	Who would Sarah love **it** for Benjamin to meet at the airport?

Figure 1: Experiment 1 Acceptability

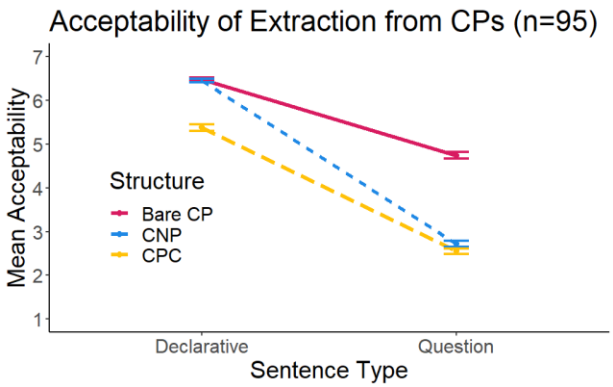
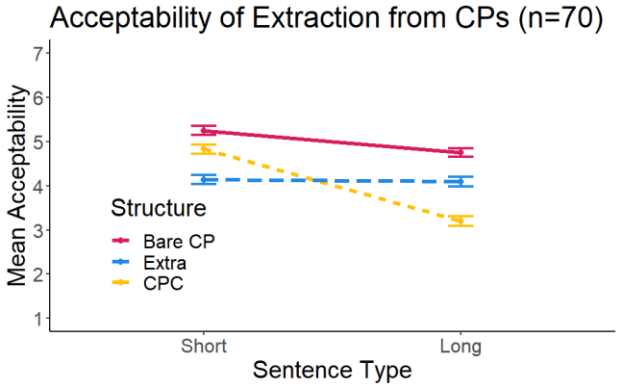


Figure 2: Experiment 2 Acceptability



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