

What makes a good cleft in English? Is it syntax or semantics?

A common assumption in phrase structure theories of syntax is that phrases (NPs, PPs, VPs) are **constituents**, such that they pass several tests (e.g., Osborne, 2018). A standard constituency test is **clefting**, whereby a syntactic constituent can be clefted, but a non-constituent cannot be (for recent textbooks, see Anderson, 2018; Roberts, 2023; and many earlier others: see references in Osborne (2018)). According to this test, NPs, PPs, and VPs can be clefted as in (1a)-(1c), but other non-syntactic constituent sequences cannot (1d), (1e). Critically, no matter which preposition heads a PP, it should be cleftable as long as the cleft contains a **syntactic head and its dependents**. An alternative view for why some sequences are cleftable is **meaning-based**: the elements that prefer to be clefted are **semantic heads plus their dependents**. In addition, there is a discourse function to a cleft, such that there should be a question under discussion, which the cleft answers. Furthermore, a usage-based view of the semantic theory predicts that NP clefts should be more acceptable than PP clefts, because NP clefts are much more commonly produced, from a corpus analysis of COCA.

In order to test these theories, we examined PP clefts – and NP cleft controls – with a range of semantic headedness. In Experiment 1, we compared PPs headed by “of” – with virtually no semantic content – to PPs headed by prepositions with more semantic content like “with” and “to”. (See (E1) below.) The syntactic phrase theory predicts no differences between “of” and other PP clefts, or between PP and NP clefts. In contrast, the semantics-based version of the usage-based theory predicts that semantically contentful PP clefts should be better than “of” PP clefts, but there should be no difference between NP cleft types, resulting in an interaction between cleft category and preposition type.

60 Prolific English participants rated 24 items in four conditions – (of, other) x (PP-cleft, NP-cleft) – along with 48 fillers on a 5 point Likert scale. Models were analyzed using Bayesian cumulative regressions with the maximal random effects structure justified by the design. Sentences with “of” were less acceptable than sentences with other prepositions ($M = -0.75$, $CrI = [-1.31, -0.21]$); PP clefts were less acceptable than NP clefts ($M = -1.42$, $CrI = [-1.84, -1.01]$); and PP clefts with the preposition of were superadditively unacceptable ($M = -1.09$, $CrI = [-1.78, -0.40]$). These results support the semantics theory over the syntax theory. We also replicated this result in a further experiment (E1', not displayed), with the same statistical inference.

In E2, we compared PPs headed by the same preposition – “in”, “with”, or “about” – in an environment where the preposition gets its semantic interpretation canonically (typical meaning), and one where the preposition is interpreted non-canonically, dependent on the verb (see materials). The pure syntax theory predicts no effects among the conditions. The semantic theory predicts lower ratings for non-canonical clefts relative to canonical ones. 60 participants rated 24 items in four conditions. The model detected that, on average, non-canonical items were rated lower than canonical items ($M = -1.04$, $CrI = [-1.67, -0.41]$), and that PP clefts were rated lower than NP clefts ($M = -1.85$, $CrI = [-2.35, -1.36]$), with no interaction ($M = -0.52$, $CrI = [-1.43, 0.39]$). Overall, the results of the two experiments support the semantics usage-based theory over the pure phrase structure theory. More broadly, the notion of syntactic constituent as defined by phrase structure does not seem to be well grounded empirically (see Osborne, 2018, for many issues with other tests). There might be other reasons for the phrase level of analysis but not this constituency test.

- (1) a. NP cleft: The old dog food, a squirrel might steal from the dog dish.
 b. PP cleft: From the dog dish, a squirrel might steal the old dog food.
 c. VP cleft: Steal the old dog food from the dog dish, a squirrel might.
 d. * Might steal, a squirrel the old dog food from the dog dish.
 e. * Dog food from, a squirrel might steal the old dog food from the dog dish.
- (E1) a. “of”-PP, NP-cleft: It was the large language model that the teacher disapproved of.
 b. “of”-PP, PP-cleft: It was of the large language model that the teacher disapproved.
 c. other-PP, NP-cleft: It was the tournament that the athlete competed in.
 d. other-PP, PP-cleft: It was in the tournament that the athlete competed.

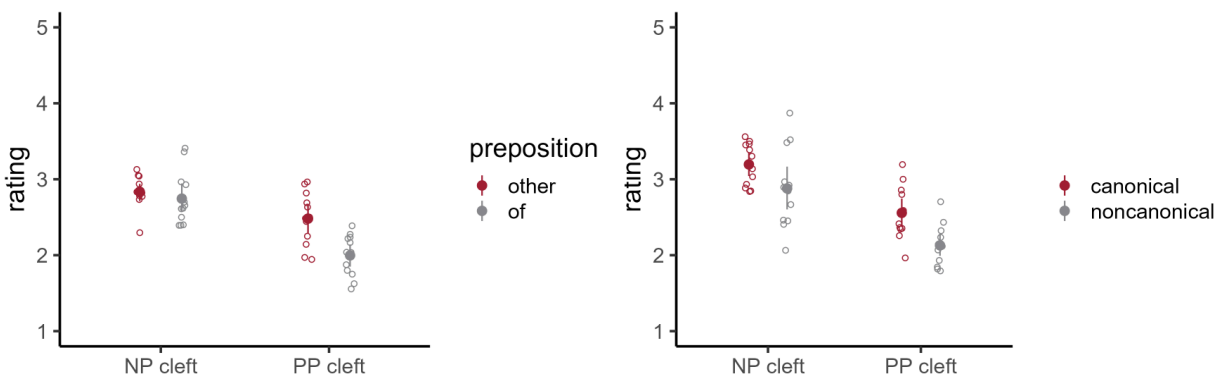


Figure 1: Experiments 1 (left) and 2 (right). Error bars are 95% bootstrapped confidence intervals over item means. Hollow circles represent item means.

- (E2) a. non-canonical, NP-cleft: It was the shipping costs that they factored in.
 b. non-canonical, PP-cleft: It was in the shipping costs that they factored.
 c. canonical, NP-cleft: It was the competitive scholastic program that she enrolled in.
 d. canonical, PP-cleft: It was in the competitive scholastic program that she enrolled.

References:

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