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Processing empty categories in Norwegian

Abstract:

Many important aspects of language are not directly observable. Empty categories play a crucial role in linguistic theory; yet, their role in language processing is controversial. The phenomenon of Control relies on a null item, PRO, which acts as the subject in non-finite clauses. PRO's existence has been disputed, with some theories depending on it for theoretical consistency (Chomsky, 1982) and others excluding it entirely (Hornstein, 1999; Janke, 2003). Recently, experimental evidence has emerged supporting the hypothesis that PRO has detectable effects on language processing (Larsen, 2017; Nicol and Swinney, 1989; Walenski, 2002). Do empty categories also affect sentence parsing?

We investigate PRO reactivation effects in Norwegian using reaction time measures. Previously, we detected significant facilitation effects for Subject Control sentences after the infinitive marker in the non-finite clause. In the process, we discovered a better experimental contrast by comparing reactivated antecedents against non-reactivated ones.

In a novel experimental design, we aim to apply this same contrast to a G-maze design. We predict that the choice will be more difficult when a reactivated item is present. We use four test sentence constructions: (1) Object and (2) Subject Control sentences and (3 & 4) a 'pronoun counterpart' of each Control sentence type. This provides a unique minimal comparison between a covert and an overt pronoun.

A sentence like (a) presents a choice between the subordinate clause verb (spise) and a matrix clause NP (neshornet or krokodillen). A sentence like (b) presents a choice between the pronoun after at (han), and a matrix clause NP (elefanten or neshornet). Activation of the correct antecedent in the sentences (e.g., neshornet and elefanten), which is ungrammatical, will interfere with the grammatical alternative (spise and han), resulting in longer reaction times.

a. Det store neshorneti lover krokodillen å PROi spise eplene sinei.
The big rhinocerosi promises the crocodile to PROi eat hisi apples.

b. Den grå elefantenj lover neshornet at hanj drikker vann hver dag.
The gray elephantj promises the rhinoceros that hej drinks water every day.
Comparing coreference processing between an NP, a pronoun, and an empty category (PRO) helps us to focus on the cognitive effects of coreference processing. Walenski (2002) suggests a strong correspondence between the parser and the grammar for both PRO and Raising construction trace processing. However, various experimental studies have found that PRO reactivates more than one possible antecedent (Larsen, 2017; Nicol and Swinney, 1989). What kind of syntactic and/or semantic restrictions are at play here? How does the syntax of control sentences interact with the parser?

References:


