Investigating \(wh\) dependency formation in complex NP objects

Syntactic literature reports a difference in acceptability of \(wh\) dependency formation inside complex indefinite and definite NP objects (Davis & Dubinsky 2003, a.o.). Dependency formation is purportedly prohibited inside definite NPs, which are said to constitute an ‘island’ effect (Ross 1967), contrasting with indefinites NPs: (1).

(1) (a) **Indefinite:** Who did Cathy watch [a documentary about _ ]?

(b) **Definite:** ?*Who did Cathy watch [the documentary about _]? 

It is also argued that dependency formation within islands is improved by D-linking (Pesetsky 1987, et seq.); i.e., (1b) is predicated to be more acceptable with *which NP* than with *who*.

The current paper uses the well-attested processing phenomenon of “Filled-Gap Effect” (Frazier 1978) to investigate \(wh\) dependency formation inside complex NP objects such as (1), and potential interaction with the nature of the \(wh\) phrase. A Filled-Gap Effect is observed when material which disqualifies dependency creation appears at the hypothesised gap (e.g., a direct object), causing a slow-down in reading time (this indicates that the parser aims to create the shortest dependency possible between a \(wh\) phrase and a gap). For the complex NP, we could expect a Filled-Gap Effect after *about* (at *Bill Clinton*) in (2a), but not (2b). Furthermore, a larger Filled-Gap Effect should be observed at *Bill Clinton* in (2b) when the *\(wh\)* phrase is D-linked (e.g., *which friend*).

(2) (a) **Indefinite:** Who did Cathy watch [a documentary about Bill Clinton] with _?

(b) **Definite:** Who did Cathy watch [the documentary about Bill Clinton] with _? 

We explore these issues in an offline question completion task. Question fragments such as (3) were presented following a short context story which could support the *which NP* questions (a Yes-No condition was also included as a baseline), and participants (n=30) were instructed to determine whether the question was complete or required the addition of more words.

(3) (a) **Indefinite:** [Who/Which NP] did Cathy watch a documentary about ____

(b) **Definite:** [Who/Which NP] did Cathy watch the documentary about ____

The likelihood of adding a direct object provided a measure of the extent to which this position constitutes an unacceptable gap position. Results showed that direct objects were added significantly more often when the complex NP was definite (13%) than indefinite (3%)(\(p=0.019\)), consistent with the claims in the syntactic literature that a gap is more acceptable with an indefinite complex NP than with a definite one. We also found that direct objects were added significantly more in *who* conditions (9%) than *which NP* (6%)(\(p=0.0375\)), indicating that dependency creation inside complex NPs is overall more acceptable with *which NP*, consistent with the claim the D-linked *\(wh\)* phrases are less susceptible to syntactic islands. However, the lack of interaction with definiteness suggests that D-linking ameliorates long-distance *\(wh\)* questions generally, even if they are not islands for dependency formation (e.g., (1a)).

In an online version of this task (currently ongoing), participants read questions like (2) word-by-word. Reading times at *Bill Clinton* reflect the effects of definiteness and *\(wh\)* phrase type on real-time dependency creation in complex NPs. Preliminary results show the same effect of *\(wh\)* phrase from the offline task (i.e., *which NP* conditions are read slower than *who*), but no clear effect of definiteness.

In sum, although the dependency formation in (1b) was less acceptable than (1a), (1b) was not generally rejected, suggesting that questions like (1b) are not categorically ungrammatical. Furthermore, both (1a) and (1b) are ameliorated by D-linking. This raises questions concerning syntactic theories of NP structure, islandhood and question formation, as well as whether ‘grammaticality’ can be viewed as a binary phenomenon (e.g., Schütze 2011).
References: