

Binding accessibility and online anaphora processing

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How do binding constraints influence the online processing of reflexive anaphors? According to the *binding-as-initial-filter hypothesis* (Nicol & Swinney, 1989), Principle A applies early in sentence processing such that only grammatically accessible noun phrases (NPs) are entertained as antecedents for reflexives. The *defeasible filter hypothesis* (Sturt, 2003), on the other hand, posits a more flexible system. Under this model, although Principle A constrains the earliest stage of processing, binding-inaccessible antecedents can be considered at later stages, particularly if they are in structurally-prominent (c-commanding) positions and are focused in discourse. An alternative is that the processing of reflexives is *not* initially constrained by Principle A (for such a proposal, see Badecker & Straub, 2002). The model proposed here is that reflexives trigger an antecedent search that considers both binding-accessible and -inaccessible antecedents, particularly if the latter are in local subject positions. This proposal will be referred to as the *constrained local search (CLS) hypothesis*.

These competing models were tested ($N=40$) by examining eye movements/reading time (RT) patterns on sentences (i) in which the main-clause subject was modified by either a subject- or object-extracted relative clause (SRC or ORC) and (ii) in which this subject matched or mismatched the gender of the NP in the RC (see the example sentences).

Predictions: Both the binding-as-initial-filter hypothesis and the defeasible filter hypothesis predict that only the binding-accessible, main-clause subject (*lady*) will be considered as the antecedent of the reflexive (*herself*). The CLS hypothesis, however, predicts that both the main-clause subject (*lady*) and RC NP (*princess/prince*) will initially be entertained as antecedents, particularly when the latter is the subject of an intervening ORC. Unlike the other two models, this hypothesis therefore predicts processing difficulty at the reflexive in ORC sentences.

Results: In line with other studies (e.g., Gordon et al., 2006), longer RTs were obtained across measures at the RC in ORC sentences. Consistent with the CLS hypothesis, the results also indicated that both the main-clause subject and the binding-inaccessible ORC subject were initially entertained as antecedents. Longer first-pass, regression-path, and total RTs were found at the reflexive in ORC sentences. Separable processing costs in these sentences suggest that these effects are unlikely due to spill-over from the RC. In the region after the reflexive, ORC/mismatched sentences induced more first-pass regressions than their matched counterparts, indicating a persistent mismatch effect. Furthermore, ORC/matched sentences incurred longer total RTs than all other sentence types at the main clause subject, suggesting heightened confusion about the correct antecedent for the reflexive in these sentences. This interference was also evident in participants' performance on comprehension questions, which targeted the antecedent of the reflexive (*Who got pricked by the rose?*). The incorrect antecedent was selected most often for ORC/matched sentences, indicating difficulty recovering the correct antecedent-anaphor link after an initial misparse.

Conclusion: The results suggest that binding theory constraints do not apply at the earliest stage of processing. Rather, both binding-accessible and binding-inaccessible NPs, and in particular those in local subject positions, appear to be considered potential antecedents for reflexive anaphors.

References

- Badecker, W. & Straub, K. (2002). *JEP: LMC*, 28, 748–769.
 Gordon et al. (2006). *JEP: LMC*, 32, 1304–1321.
 Nicol, J. & Swinney, D. (1989). *JOPR*, 18, 5–20.
 Sturt, P. (2003). *JML*, 48, 542–562.

Example Sentences (with demarcated regions of interest)

- SRC/matched: The **lady** that | greeted the **princess** | pricked | herself | on a rose | in the garden. |
 SRC/mismatched: The **lady** that | greeted the **prince** | pricked | herself | on a rose | in the garden. |
 ORC/matched: The **lady** that | the **princess** greeted | pricked | herself | on a rose | in the garden. |
 ORC/mismatched: The **lady** that | the **prince** greeted | pricked | herself | on a rose | in the garden. |