

The time-course of anaphoric processing and syntactic reconstruction

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When children interpret sentences differently from adults, this may reflect either a non-adultlike grammar or a non-adultlike parser. Here we compare results from three adult experiments with results from a previous child study [1], and find parallels between adults' *initial* interpretation of reflexive anaphors and children's *only* interpretation of those anaphors. This suggests that children's reanalysis difficulty [2] may explain some cases of failure to access fully natural interpretations.

When a reflexive is inside a fronted wh-phrase, it may still be interpreted in its underlying position, i.e., anaphoric to the subject of the clause containing the gap. Such interpretations are described as 'reconstruction' of the underlying structure. Interestingly, reflexives in argument wh-phrases (1a) may also be interpreted in their surface position, i.e., anaphoric to a higher subject, but this additional possibility is unavailable to reflexives in fronted predicates (1b), forcing the reconstruction interpretation [3]. Leddon & Lidz [1] show using a truth-value judgment task that preschoolers respect the restriction on fronted predicates, but show an unexpected additional restriction on fronted arguments, accepting only antecedents that locally c-command the surface position of the reflexive, and rejecting the reconstruction interpretation. Our adult experiments test whether the children's interpretations correspond to the initial antecedents considered when adults process sentences of this kind.

Experiment 1 (self-paced reading, n=24) used a gender mismatch effect (GMME) paradigm [4] to test whether adults immediately respect the argument-predicate contrast in interpreting fronted reflexives (2). A clear GMME at the reflexive in argument-fronting conditions confirms that adults interpret the reflexive in-situ ($F(1,23)=4.33, p<.05$). However, a GMME was also observed in predicate-fronting conditions ($F(1,23)=11.13, p<.01$), suggesting either ungrammatical surface binding, or the parser's recognition that the reflexive may be indirectly linked to the higher subject via a subsequent pronoun. The second possibility is supported by Experiment 2 (sentence-fragment completion, n=13), which showed a strong bias for continuations containing a coreferential embedded subject pronoun in the predicate conditions (3b: 84.6%, 3a:33.3%).

Experiment 3 (self-paced reading, n=24) further tested whether the adult parser pursues the reconstruction interpretation in predicate-fronting conditions (4cd) but not in argument-fronting conditions (4ab). This study held constant the gender match between the main-clause subject and the reflexive and manipulated the stereotypical gender of the embedded-clause subject and wh-constituent type. Results confirm this prediction, showing a main effect of gender in predicate-fronting conditions ($F(1,23)=7.18, p<.05$) but not in argument-fronting conditions ($F_s<1$), and a wh x gender interaction ($F(1,23)=4.3, p<.05$). Interestingly, the effect of gender was an interference effect rather than a mismatch effect (i.e., $4c>4d$), an effect that has been observed in other studies [5]. This may be attributed to reanalysis upon failing to encounter a pronoun in the embedded subject position, where the gender-matching main-clause subject may interfere.

In sum, adults' initial interpretations in on-line parsing successfully predict child restrictions in off-line interpretation, with adult-child differences restricted to (i) children's inability to reanalyze, which blocks the reconstruction interpretation in argument-fronting cases, and (ii) children's failure to recognize that surface-binding is possible in predicate-fronting conditions via anticipation of an embedded pronoun subject.

Examples

- (1) a. Argument-fronting: Mary₁ knew which painting of herself_{1/2} Janie₂ put up _____. [surface, reconstruction]
b. Predicate-fronting: Mary₁ knew how proud of herself_{1/2} Janie₂ was _____. [*surface, reconstruction only]
(2) a/b. Arg, GM/GMM: Justin/Julie forgot which description of himself the snobby British actor had discussed...
c/d. Pred, GM/GMM: Justin/Julie forgot how mad at himself the snobby British actor had seemed...
(3) a. Arg, GM: Justin forgot which description of himself _____
b. Pred, GM: Justin forgot how mad at himself _____
(4) a/b. Arg, GM/GMM: Julie forgot which description of herself the snobby British actress/actor had discussed...
c/d. Pred, GM/GMM: Julie forgot how mad at herself the snobby British actress/actor had seemed...

References

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[5] Badecker & Straub (2002). *JEP: LMC*, 28(4), 748-769.