

PP modifiers do not reconstruct for principle C. Evidence from German wh- and ATB-movement.

Claim: We present a series of novel experiments on principle C reconstruction of PP modifiers in German wh- and ATB-movement. By varying underlying c-command but not linear order, we show that (i) PP modifiers do not reconstruct; (ii) the asymmetrical ‘reconstruction’ pattern in ATB-movement is a result of distance rather than of asymmetrical extraction; and (iii) coreference rates can be manipulated through the experimental design and item structure. We conclude that the observed effect is a mix of linear precedence, distance and pragmatics, and that it does not reveal underlying syntactic relations.

Background: Principle C reconstruction for PP modifiers is controversial (Freidin 1986; Lebeaux 1988; Sauerland 1998; Takahashi & Hulse 2009; vs. Bianchi 1995; Henderson 2007; Lasnik 1998). Proponents argue that it reveals where constituents are base generated (Nissenbaum 2000; Sportiche 2017):

- (1) a. *Which investigation of Nixon_i did he_i resent ___?
 b. Which investigation near Nixon_i’s house did he_i resent ___? Safir (1999, p. 589)

In ATB-movement, a single filler is related to multiple gaps. Approaches differ depending on which conjunct(s) the filler is base-generated in (Citko 2005; Nunes 2001; Ross 1967; Salzmänn 2012, a. o.). A principle C violation is reported if the pronoun is in the initial conjunct (Citko 2005; Salzmänn 2012):

- (2) a. *Which picture of John_i did he_i like ___ and Mary dislike ___?
 b. Which picture of John_i did Mary like ___ and he_i dislike ___? Citko (2005, p. 494)

If PP modifiers reconstruct and coreference between a pronoun and an R-expression is ruled out if the former c-commands the latter, the test suggests ATB-movement to be asymmetric. However, experiments for principle C in simple wh-dependencies used different tasks, conditions and item structures, leading to mixed conclusions (Adger et al. 2017; Bruening & Al Khalaf 2019; Salzmänn et al. 2023; Stockwell et al. 2021, 2022). We aim to address this variability by testing principle C reconstruction effects in German simple wh- and ATB-movement, and how the task and item structure affect the outcome.

Study: Experiment 1 applied the design by Salzmänn et al. (2023) to ATB-constructions. Targets were embedded sentences with an extracted wh-phrase modified by a PP containing a referent, followed by the coordinate structure with a matching pronoun in one conjunct. Items came with neutral contexts.

- (3) *ATB target item, condition OBJECT, INITIAL*

Ich habe **Marie_i** gefragt, [welche Geschichte über **Laura_j**] **she_{i/?j}** ___ entzückend und
 I have Marie asked which story about Laura she delightful and
 Michael ___ überraschend fand.
 Michael surprising found

‘I asked Marie which story about Laura she found delightful and Michael found surprising.’

Two forced choice tasks appeared per trial, (a) whether the sentence could be understood such that the matrix referent (*Marie*) and the pronoun coreferred, as a sanity check, and (b) the same regarding the embedded referent (*Laura*). Experiment 2 only asked about coreference with the embedded referent in ATB-items, implementing the sanity check through non-target materials. Simple wh-items from Salzmänn et al. (ibid.) were included as pseudofillers. Experiment 3 saw further simplifications based on Stockwell et al. (2021, 2022). Participants were shown interrogative sentences with no item-specific context, no embedding and no matrix referent. The task was to decide whether the pronoun referred to the embedded referent or someone else. Again, wh-items from Salzmänn et al. (2023) were also tested. Factors included GRAMMATICAL FUNCTION (extracted wh-phrase is subject/object) and additionally for ATB-items, POSITION (pronoun in initial/non-initial conjunct). Subject conditions do not yield the relevant configuration violating principle C on the surface nor underlyingly (object pronoun does not c-command subject wh-phrase), while in object conditions, full reconstruction yields a violation. The term *coreference rate* refers to the proportion of responses indicating coreference between the pronoun and the embedded referent. Based on prior findings and the working assumptions that principle C holds and PP modifiers reconstruct, we hypothesize that in wh-items, (H1) object conditions should elicit significantly lower coreference rates than subject conditions; while in ATB-items, object conditions should elicit significantly lower coreference rates (H2a) regardless of POSITION if reconstruction is symmetric, (H2b) only in OBJECT, INITIAL if reconstruction is asymmetric to the initial gap, and (H2c) only in OBJECT, NON-INITIAL if reconstruction is asymmetric to the non-initial gap. If H1 is confirmed, we expect

the subject-object contrast to become more pronounced (H3) by simplifying the experimental task as in experiments 2 and 3, and (H4) by omitting the alternative referent as in experiment 3 only.

Results: We find coreference rates below chance level in experiments 1 and 2 and above chance level in experiment 3 across all conditions. We do not find the predicted contrast between extracted objects and subjects. Although there is a slight difference between them in both wh- and ATB-items, H1 is not borne out; the contrast varies between 7% and 15%, with a statistically significant main effect found by Salzman et al. (2023) and experiments 1 and 3 herein. H2a-c cannot be evaluated because, although ob-

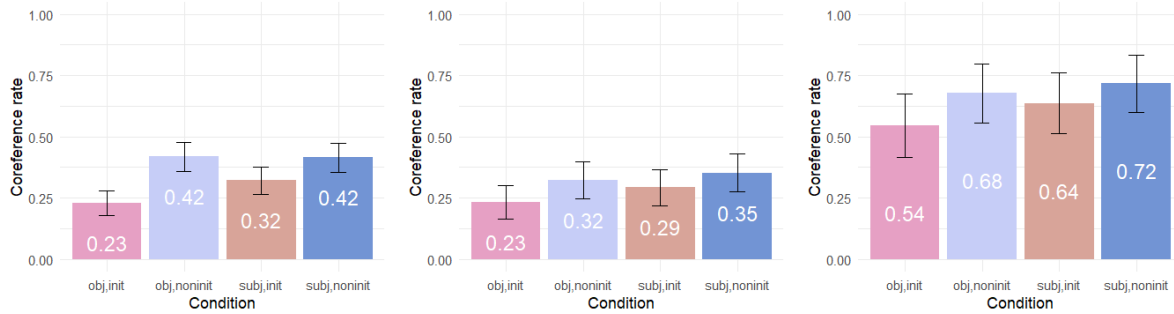


Figure 1: Coreference rates in ATB-movement, exp. 1-3 herein (l-r).

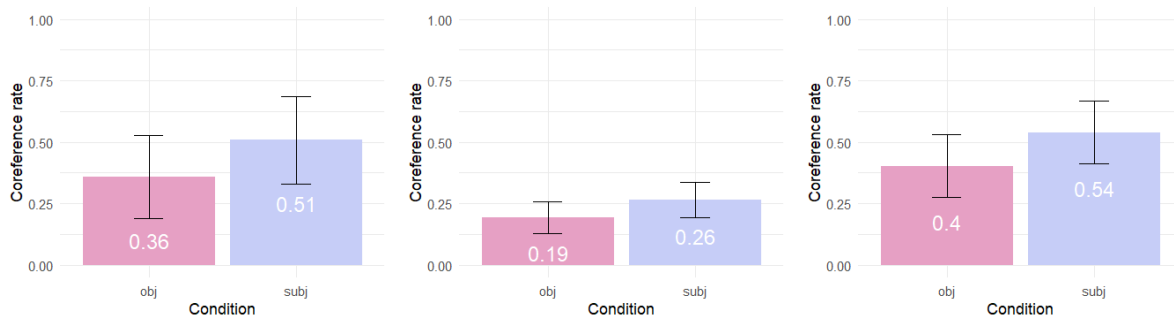


Figure 2: Coreference rates in wh-movement, exp. 2 in Salzman et al. (2023); exp. 2-3 herein (l-r).

ject conditions show a tendency towards H2b, subject conditions show the same pattern, with a significant main effect of POSITION in experiments 1 and 3. H3 is not borne out either, on the contrary, simplifying the design in experiment 2 depressed coreference rates across conditions. As for H4, additionally omitting the matrix referent in experiment 3 increased coreference rates by 30% across conditions.

Discussion: The significant main effect of POSITION is indicative of an effect of distance independently of GRAMMATICAL FUNCTION. Contrary to prior reports, rather than reconstruction becoming less robust, coreference becomes preferred with increased linear distance due to the presence of the effect in subject conditions (cf. Adger et al. 2017; Salzman et al. 2023; Stockwell et al. 2021). The comparison between reconstruction with and without the relevant c-command relation crucially reveals that any lingering effects and asymmetries, though present across experiments, are not due to a principle C violation under reconstruction. Instead, participants' choices are informed by linear precedence and distance, potentially favoring coreference with referents contained in subjects due to prominence. Simplifying the task depressed coreference rates overall, and omitting the matrix referent in experiment 3 biased participants to prefer the embedded referent over a new referent not present in the discourse (Gordon & Hendrick 1998). These design-related findings further support that the principle C reconstruction test does not go beyond the surface. Comparing distinct underlying structures without manipulating linear order provides strong evidence that PP modifiers do not reconstruct and that the residual contrast is independent of c-command (cf. Bruening 2014). Any asymmetry in ATB-movement is non-syntactic (Bruening & Al Khalaf 2017). **Selected references:** Adger et al. (2017). Is there Principle C reconstruction? Proceedings of NELS 47. * Bruening (2014). Precede-and-Command Revisited. *Language* 90. * Bruening & Al Khalaf (2017). Reconstruction and Linear Order in ATB Movement and Parasitic Gap Constructions. * Bruening & Al Khalaf (2019). No argument-adjunct asymmetry in reconstruction for Binding Principle C. * Salzman et al. (2023). Condition C in German A'-movement: Tackling challenges in experimental research on reconstruction. *Journal of Linguistics* 59(3). * Stockwell et al. (2021) There is reconstruction for Condition C in English questions. Proceedings of NELS 51. * Stockwell et al. (2022) Experimental evidence for the Condition C argument-adjunct asymmetry in English questions. Proceedings of NELS 52.