

The impact of non-syntactic factors on Principle C in German – an experimental investigation

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In this talk, I present the main results of my M.A. thesis on Principle C and the influence of non-syntactic factors on Principle C violations in German. While it is undisputed that pragmatic and discourse-related factors can influence the surfacing of Principle C effects and license Principle C violations that are not predicted by syntactic theories of coreference and binding based on Principle C and c-command (see Schlenker 2005, for example), there is still surprisingly little experimental research investigating how stable and widely accepted by speakers these allegedly accepted Principle C violations are. At the same time, coreference and binding have been addressed in the theoretical literature on German, the most influential and widely cited work being Frey's (1993) c-command-based syntactic theory of coreference and binding. However, the data discussed in Frey (1993) has not been experimentally tested and while German speakers generally agree with the judgment in (1a), many do not agree with the judgment in (1b).

(1) (Frey 1993: 144, exx. 3a, 4a)

a. *Sie hat ihm₁ Peters₁ Buch zurückgegeben.

she has him Peter's book returned

'She returned to him₁ Peter's₁ book.'

b. *[Peters₁ Buch]₂ hat sie ihm₁ ___₂ zurückgegeben.

Peter's book has she him returned

'Peter's₁ book, she returned to him₁.'

While c-command rules out (1a) in the c-command-based theory by Frey (1993), (1b) is ruled out under this theory due to the topicalized DP reconstructing into its base position where it is c-commanded by the pronoun. In my experiments, I find that reconstruction effects such as in (1b) cannot be replicated under experimental conditions, which is in line with newer findings on reconstruction in German (e.g. Salzmann et al. 2022). Other crucial judgments that the c-command-based theory of Frey (1993) is based on could also not be replicated in my experiments, calling into question the general explanatory adequacy of such a predominantly syntactic theory for German.

With respect to specific non-syntactic factors influencing coreference judgments in German, I experimentally tested the impact of subtle non-syntactic modifications such as the ones presented in Bolinger (1977) for English in a judgment task. In this experiment, focusing on subtle semantic modifications that do not change the syntactic structure of the experimental item at hand, I tested contrasts like the one in (2).

(2) a. Sie hat ihm₁ Peters₁ Buch zurückgegeben.

she has him Peter's book returned

'She returned to him₁ Peter's₁ book.'

b. Sie hat ihm₁ Peters₁ **eigenes** Buch zurückgegeben.

she has him Peter's own book returned

'She returned to him₁ Peter's₁ **own** book.'

While not all modifications tested in this experiment were equally successful, modifications such as the one with *eigen* ‘own’ in (2b) were. I therefore found a significant main effect of modification on coreference judgments ($\beta = -0.4761$, $SE = 0.1445$, $z = -3.294$, $p < 0.001$). Consequently, the results suggest that Principle C effects can be overridden in German with the help of the insertion of lexical items that change the availability of coreference, but not the syntactic structure of the sentence under investigation. Purely syntactic theories, no matter if they are based on c-command or other syntactic relations like precede-and-phase-command (Bruening 2014), cannot account for the effect of modifications like this.

In a second judgment task, I embedded the items taken from Frey (1993) into two different kinds of contexts (a context in which the R-expression denoting the referent that is supposed to corefer with a c-commanding, preceding pronoun in the critical item was already introduced, and a context in which this referent introduction was lacking) and presented them with no context at all in a different condition. I found a significant main effect of the referent-introducing context ($\beta = 2.2153$, $SE = 0.5705$, $z = 3.883$, $p < 0.001$), an example for which is shown in (3).

(3) Maria hat sich von allen ihren Freunden Dinge ausgeliehen. Peters Sachen hat sie fast alle noch nicht zurückgegeben. Was hat sie ihm schon zurückgegeben?
 ‘Maria borrowed things from all of her friends. She hasn’t returned almost all of Peter’s things yet. What has she already returned to him?’
 Sie hat ihm₁ Peters₁ BUCH zurückgegeben.
 ‘She returned to him Peter’s BOOK.’

The ability of the referent-introducing context to override the effect of the c-command relationship in (3) is unexpected given that such an effect is not found in experiments such as the ones by Gordon & Hendrick (1997) where a shorter context question is used to introduce the R-expression denoting the referent in question. Nevertheless, the prediction that is often made in the theoretical literature on Principle C (see e.g. Zwart 2015), namely that proper contexts can make coreferential readings available even when there is a c-command relationship between a pronoun and an R-expression, is borne out here.

A conclusion that can be drawn from my experimental work is that purely syntactic theories of coreference in German are unable to account for the impact of context and subtle non-syntactic modification. However, there are alternative, discourse-based theories available that capture the experimental data with ease. I therefore present an implementation of the coreference patterns found here in Discourse Prominence Theory (Gordon & Hendrick 1998), a theory based on Discourse Representation Theory (DRT, Kamp & Reyle 1993). Instead of relying on a syntactic relation, Discourse Prominence Theory introduces the notion of *prominence* and acknowledges the impact of precedence, assuming that the discourse representation is built up from left to right in a linear fashion. Typical cases of ‘Principle C violations’ such as (1a) are ruled out because in this example, it is attempted to establish coreference between a prominent pronoun for which a discourse referent was established after no suitable referent could be found in the preceding context and an R-expression for which a new discourse referent is introduced by default. (3) is ruled in by the principles of Discourse Prominence Theory because the pronoun in the critical item can be interpreted anaphorically here due to the referent-introducing context. As a final step, I discuss other additions that would be needed to further develop a prominence-based account of Principle C in German.

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