Coherence outranks Topicality in the Interpretation of Personal and D-Pronouns.
Markus Bader & Yvonne Portele (Goethe University Frankfurt)

The use of anaphoric demonstrative pronouns (d-pronouns for short), as they are found in languages like Dutch, Finnish or German, has been intimately tied to the information-structural notion of *topic*. In particular, it has been proposed that d-pronouns prefer non-topic antecedents, in contrast to personal pronouns (p-pronouns for short) which prefer topics as antecedents (Comrie, 1997; Bosch, 2013). A prototypical example from German is shown in (1).

(1)   Peter$_i$ hat auf der Party einen Kollegen$_j$ getroffen. Er$_i$/Der$_j$ hatte viel zu erzählen.
        P.   has at the party a   colleague met.   he/ he-DET had   much to tell
        'Peter met a colleague at the party. He had much to tell.'

Experimental evidence across different languages shows that subjects are the preferred antecedents of p-pronouns whereas d-pronouns prefer objects (see summary in Ellert, 2013). The above mentioned connection between topic-comment structure and pronoun resolution holds under the assumption that by default the subject is the topic whereas the object belongs to the comment. However, because topichood is confounded with syntactic function in (1), the observed preferences can also be described in the latter terms. Experimental evidence unequivocally showing that topicality affects the interpretation of d-pronouns is therefore missing.

The purported anti-topic orientation of d-pronouns has also been described in terms of expectations: d-pronouns are used for referents which are unlikely to be taken up again, under the widely held assumption of a preference for topic continuity. Verb semantics (e.g. *implicit causality*) and coherence relations (e.g. *cause* vs. *consequence*), however, are also strong predictors of which referents are talked about next (e.g. Stevenson et al., 1994). Järvikivi et al. (2017) showed that expectations due to implicit causality affect p- and d-pronouns in the same way. We have shown that the same holds for coherence markers (Portele and Bader, 2018).

To explore the interplay of coherence and topicality when interpreting p- and d-pronouns, we ran two experiments. The common design is shown in Table 1. 40/32 participants in Experiment 1/2 read a three-sentence context and had to complete a sentence fragment starting with either a

Table 1: A complete stimulus item for Experiments 1 and 2

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Context sentences	Gestern Abend wurde eine Talkshow für das Fernsehen aufgezeichnet.
	yesterday evening was a talkshow for the TV recorded
	'*Yesterday evening, a talkshow was recorded for TV.*'
Topic First:	**Im Publikum saß auch ein vorlauter Studiogast.**
	in audience sat also a cheeky studio guest
	***Der Studiogast** hat einen angesehenen Experten mehrfach irritiert.*
	the studio guest has a distinguished expert several times irritated.
	'***In the audience, there was a cheeky studio guest. The studio guest irritated a distinguished expert several times**.*' (topic [given] = *studio guest*)
Topic Second:	**In der Runde saß auch ein angesehener Experte.**
	in the round sat also a distinguished expert
	Ein vorlauter Studiogast hat *den Experten* mehrfach irritiert.
	a cheeky studio guest has the expert several times irritated.
	'***Among the participants, there was a distinguished expert. A cheeky studio guest irritated the expert several times**.*' (topic [given] = *expert*)
Continuation Prompt:	Experiment 1 **Er/Der** _____ nämlich (*namely*; cause) _____
	Experiment 2 **Er/Der** _____ deshalb (*therefore*; consequence) _____
	(Note: the short first line is for the finite verb)
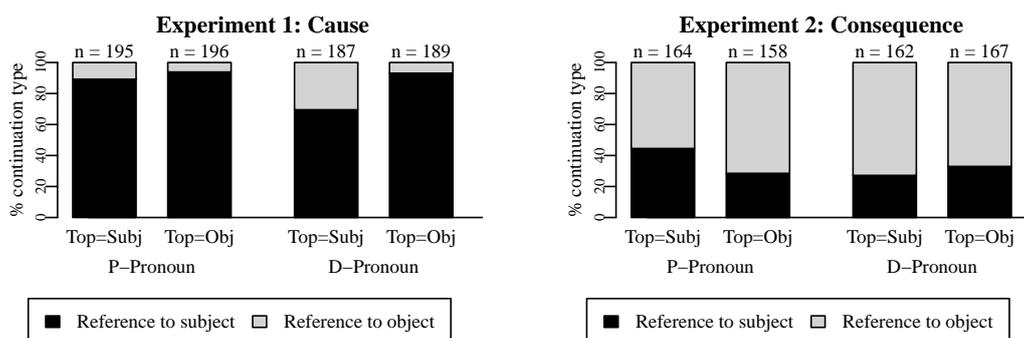
Figure 1: Percentages of references to the subject/stimulus or the object/experiencer.

p- or a d-pronoun. The fragment also contained either a causal (Experiment 1) or consequential coherence marker (Experiment 2), linking the context to the continuation sentence. Each of 20 contexts started with a scene-setting sentence. The next sentence introduced a first human referent. The third sentence contained an object-experiencer psych-verb. One argument of the verb was the referent of the preceding sentence. The second argument was a second human referent newly introduced in this sentence. Participants' continuations were scored as to whether the initial pronoun referred to the subject/stimulus or object/experiencer of the third context sentence. About 10% of the continuations were ambiguous and excluded from the analysis.

Results of Experiments 1 and 2 are shown in Figure 1. Experiment 1 (cause) shows a strong preference for the stimulus (subject) as antecedent of both pronouns. In addition, there was a significant topic effect for the d-pronoun: The stimulus/subject preference for the d-pronoun was less strong when it was the topic than when it was not a topic. Experiment 2 (consequence) shows the reverse. The preferred antecedent now was the experiencer (object) for both pronouns and a significant topic effect was observed for the p-pronoun: The experiencer/object preference was stronger when the object was the topic than when it was a non-topic for the p-pronoun.

In sum, our results show that the semantic bias that arises from the semantics of verbs and coherence markers is the main determinant of pronoun resolution. Both p- and d-pronouns prefer the antecedent most likely mentioned again due to semantic bias. This effect is modulated by topicality. In both experiments, topic effects only occur in those conditions in which the semantic bias overrides the normally observed preference for a pronoun – a semantic subject bias for the d-pronoun in Exp. 1 and a semantic object bias for the p-pronoun in Exp. 2. Otherwise, semantic bias and pronoun preference are too strong for topichood to have an effect. Based on additional production data, we show that the interplay of semantic bias and information structure is captured by Kehler et al.'s (2008) model of pronoun resolution.

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