Prosodic prominence hinders word recall in German

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Speakers can draw a listener's attention towards specific entities in an utterance by making them prosodically prominent. A prosodically prominent entity stands out of its environment based on prosodic characteristics, such as for example pitch accent (Terken & Hermes, 2000). Psycholinguistic research has investigated how prosodic prominence influences language processing. For instance, recall studies have found that a prosodically prominent word can be better recalled, suggesting that prosodic prominence draws attention to the so marked word and serves to better anchor this word in memory (e.g., Kember et al., 2021). However, recall studies so far have specifically looked at the effect of prosodic prominence when the target word itself was prosodically manipulated. However, processing prosodic prominence might also come at a price. Thus, it is possible that the processing of a prosodically prominent word also binds processing resources, leading to less processing resources for subsequently presented words.

In order to test this, we conducted a word recall task with 54 adult native speakers of German, where the prosodic manipulation was on the word *preceding* the target word for which recall was tested. Following the scale of prominence established by Baumann and Röhr (2015), we manipulated the word preceding the target word with either the highly prominent accent type *L+H** or the low prominent deaccentuation *ø*, respectively (e.g., *Gerne trinkt* <u>*Lola*</u> **morgens** *ein Glas Milch*, bold indicating the target word for which recall was tested, underlining indicating the subject that was prosodically manipulated). If processing a prosodically prominent word binds processing resources which are then lacking for the processing of subsequent words, we would expect lower recall rates in the condition where the highly prominent accent *L+H** is on the word preceding the target word compared to the baseline condition where the word preceding the target word is deaccented (*ø*). We tested 20 unique sentences per experimental condition.

The experiment was divided into ten blocks, each block containing of two parts: First, the participants listened to ten sentences via headphones. Then, ten individual words appeared on the screen successively, and the participants had to decide for each word whether they had heard this word in one of the sentences in the block or not (recall phase). Each block contained 4 experimental and 6 filler sentences. In the experimental condition, the target words that were tested for recall were always bi-syllabic, trochaic adverbs and occurred in fourth position of the sentence. Each experimental condition (*L+H** on the word preceding the target word, and *ø* on the word preceding the target) occurred twice in each block. The syntactic structure across experimental sentences was held constant (Adv-Verb-Subject-target-Object). Filler sentences either contained (1/3 of fillers) or did not contain (2/3 of fillers) a word that re-appeared during the recall phase. The blocks were pseudo-randomized so that one experimental condition did not occur in two sentences in a row. Across experimental conditions, we controlled for the word frequency, the type of adverb, and the number of phonemes of the target words for which recall was tested.

The results showed that in the condition *L+H** on the word preceding the target word, the target word was correctly recalled in 53.7 % of the cases. The recall rate in the condition *ø* on the word preceding the target word was 65.8 %. We ran a linear mixed effects models comparing the accuracy rates in the conditions *L+H** vs *ø* on the word preceding the target word, using the *lme4* package in RStudio. The final model included experimental condition as predictor, random intercepts for items and for participants. The model yielded a significant effect of experimental condition, suggesting an effect of prosodic prominence on word recall (see table 1).

The results confirmed our assumption that prosodic manipulation on the word preceding the target word negatively affects the recall of the target word. We found that the recall rate was significantly lower when the word preceding the target word was manipulated with a highly prominent accent type (*L+H**) compared to when it was deaccented (*ø*). This suggests that the processing of prosodic prominence binds processing resources that are, hence, not available for the processing of following material. Our findings indicate that the processing of prosodic prominence has not only facilitative effects, as previously shown in recall studies, but that it can also be costly when it comes to processing the information that directly follows the prosodically prominent entity.

Tables

	Estimate	SE	z	p
ø	.752	.173	4.341	
L+H*	-.579	.217	-2.670	.007

Table 1: *Fixed effects of the linear mixed effects model.*

References

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