It's all in the Past.

An Experimental and Rational Approach to the Influence of the Sentence Onset on Past Tense Choice in German

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Both German preterit ('Präteritum') and perfect ('Perfekt') tenses locate an event in the past (Rothstein, 2006; Thieroff, 1992) and are somewhat interchangeable, as evidenced by the loss of preterit in various dialects (Fischer, 2018). However, they differ in construction. The perfect (1a) is built with the auxiliary *haben* ('have') or *sein* ('be') plus the past participle while the preterit (1b) is morphologically marked on the full verb. Thus, the position of the lexical verb differs, appearing in the clause-final position in the perfect and the second position in the preterit tense in main clauses.

In contextless sentences, this can result in processing difficulties if the past tense is only anchored in the verb and not additionally in a temporal adverb (tAdvP), like *gestern* ('yesterday'), at the sentence onset (1c/d). Using a tAdvP can spread the tense information more evenly. Spreading information as evenly as possible to avoid processing difficulties caused by peaks and troughs is the key concept of the Uniform Information Density Hypothesis (Fenk-Oczlon, 1983; Levy & Jaeger, 2007). This can play a role in the past tense choice in German for the following reasons:

In the preterit, conveying temporal and lexical information in a single word creates a potential peak without a tAdvP (1b) at the sentence onset, as both the lexical meaning and the tense information are processed simultaneously in the synthetic verb form. However, if the tAdvP already signals the necessity of past tense (1d), only the lexical information of the verb must be processed, reducing cognitive load. The same should be true for the perfect tense (1c). Additionally, an uncertainty on the auxiliary is resolved as *haben/sein* ('have'/'be') can no longer be mistaken for a full verb. However, since *haben/sein* ('have'/'be') is more commonly used as an auxiliary than a full verb and highly frequent, the effect of the tAdvP should be stronger for preterit.

These possible differences in the past tense choice dependent on the sentence onset are investigated in two experiments. First, we test whether context-free German sentences with perfect or preterit tenses are rated differently depending on whether they start with a tAdvP or a neutral AdvP like a sentence adverb, as another highly frequent frame setting constituent at the sentence onset (e.g. Speyer, 2008, 2009).

Thus, a rating study was conducted using a 7-point scale (7 = completely acceptable) to assess participants' judgments. The study employed a 2x2 experimental design, with factors of sentence onset (temporal (1c/d) or neutral adverb (1a/b)) and tense (preterit (1b/d) vs. perfect (1a/c)). 48 native speakers of German were recruited over prolific. 24 items as in (1) were presented to them using PCIbex.

The statistical analysis with CLMMs (Christensen, 2023)[1] shows only a main effect of the AdvP (z= 3.89, p<0.001). The tAdvPs are rated higher than sentence adverbials (tab. 1). This aligns with the proposed claim that the temporal adverbial phrase (tAdvP) distributes the tense information more uniformly throughout the sentence. Independent of the verb tense, the early tense information of the clause seems to help processing.

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[1] The rating results are the dependent variable, AdvP and tense were sum-coded (+/- 0.5). Furthermore, the random slopes of AdvP and tense as well as the random intercept of the participants were included.

A second experiment, a reading time study using the same material as the rating study, is currently underway. It will test whether reading times on the finite verb differ across conditions and whether participants' regional background influences ratings, given the decline of the preterit in southern German dialects. (Fischer, 2018).

1) a) | Vielleicht | hat | die | Studentin | ein | neues | Buch | aus | der |
Perhaps | *has* | *the* | *student* | *a* | *new* | *book* | *from* | *the*
Bibliothek | geholt.
library | *fetched.*
'Perhaps, the student has fetched a new book from the library.'

b) Vielleicht | holte | die | Studentin | ein | neues | Buch | aus | der
Perhaps | *fetched* | *the* | *Student* | *a* | *new* | *book* | *from* | *the*
Bibliothek.
library.
'Perhaps, the student fetched a new book from the library.'

c) Gestern | hat | die | Studentin | ein | neues | Buch | aus | der
Yesterday | *has* | *the* | *student* | *a* | *new* | *book* | *from* | *the*
Bibliothek | geholt.
library | *fetched.*
'Yesterday, the student has fetched a new book from the library.'

d) Gestern | holte | die | Studentin | ein | neues | Buch | aus | der
Yesterday | *fetched* | *the* | *Student* | *a* | *new* | *book* | *from* | *the*
Bibliothek.
library.
'Yesterday, the student fetched a new book from the library.'

	Estimate	Std. Error	z-value	p-value
AdvP	0.68	0.18	3.89	<0.001
Tense	-0.23	0.18	-1.24	0.22
AdvP x Tense	0.54	0.34	1.59	0.11

Table 1 Results of the regression.

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