Free variation in verb cluster serialization – A harmonic grammar analysis

Markus Bader
Goethe UniversityFrankfurt
bader@em.uni-frankfurt.de

German verb clusters are normally serialized according to the rule "selected verb > selecting verb", with certain lexically specified deviations. For example, the auxiliary must occur before a modal verb in the perfect tense. According to prescriptive grammars, *auxiliary fronting* must put the auxiliary into the cluster-initial position. Empirical investigations have shown, however, that native speakers accept the auxiliary in all positions preceding the modal verb; only the cluster-final position is consistently rejected (Bader & Schmid 2009; see (1)).

(1)   *dass Peter den Wagen* (*hatte*) *reparieren* (*hatte*) *müssen* (**hatte*).
        that P.   the car   had   repair   had   must   had
        'that Peter had to repair the car.'

Experimental results as well as corpus data indicate that verb cluster serialization is a case of free variation. I discuss how this variation can be accounted for, taking into account experimental data obtained using the method of magnitude estimation and corpus data from the deWac corpus. A comparison of acceptability ratings and corpus frequencies reveals two mismatches that have been reported repeatedly before: First, a slight acceptability advantage for a certain syntactic variant can lead to a strong frequency advantage. Second, syntactic variants with (near) zero frequency can still vary substantially in acceptability.

Mismatches of this kind have been used to argue that constraint weights cannot be learned from experience. I will show that this argument only holds when acceptability is related to language use on the level of sentence probabilities, as in Stochastic OT (Boersma & Hayes 2001), but not when this relationship is considered on the level of individual constraints, as in Harmonic Grammar (HG; see overview in Pater 2009). Under an HG analysis, the two mismatches between acceptability and corpus frequencies follow from the way constraint weights are derived from corpus frequencies. First, because the mapping between constraint weights and frequencies is non-linear, small differences in acceptability can appear as huge differences in corpus frequencies. Second, syntactic variants with zero or near-zero corpus frequencies can still show significant acceptability differences because acceptability reflects constraint weights directly but corpus frequencies only indirectly.

References: • Bader, M. & T. Schmid. 2009. Verb clusters in Colloquial German. *The Journal of Comparative Germanic Linguistics* 12. 175–228. • Boersma, P. & B. Hayes. 2001. Empirical tests of the gradual learning algorithm. *Linguistic Inquiry* 32. 45–86. • Pater, J. 2009. Weigthed constraints in generative linguistics. *Cognitive Science* 33. 999–1035.