

Deletion of /t/ in German *braucht*: auxiliarization process or phonetic necessity?

The modal use of the verb *brauchen* in contemporary German is a result of auxiliarization, a diachronic process whereby the (non-auxiliary) full verb *brauchen* comes to be used in an auxiliary function. Due to this (still ongoing) process *brauchen* gradually adopts the characteristic morphological, syntactic and semantic features of modal auxiliaries. One of the most important of these features is the spreading deletion of the inflectional ending *-t* in the 3p.sg. present tense form. Relevant literature (Diewald 1997, Girnth 2000) usually describes this deletion as part of the auxiliarization process, i.e. as a development caused by morphological analogy to other modal auxiliaries (*er muss/kann/will – brauch(t)*). Contrary to this interpretation, Maitz/Tronka (2009) argued that the main reason for this morphological change is rather a phonological one, namely the complexity reduction of the final consonant cluster, similarly to many other (especially high-frequency) words in several languages (cf. Vennemann 1988: 21ff., Goeman 1999 etc.).

The aim of our paper is to find and present further empirical evidence for the hypothesis that the deletion of the word final *-t* in *braucht* is primarily a phonological rather than a morphological phenomenon, even though the process has, of course, morphological consequences and might be influenced by morphological analogy, too. Therefore we will show how and to what extent the word final *-t* can also be deleted in many similar cases in which morphological analogy cannot be assumed:

- (a) 3p.sg. form of *brauchen* (*braucht*) as a full verb
- (b) 2p.pl. form of *brauchen* (*braucht*) (as modal and full verbs)
- (c) 2p.sg. form of *brauchen* (*brauchst*) (as modal and full verbs)
- (d) 2p.pl. form of other modal auxiliaries
- (e) 3p.sg. form of high frequency full verbs with a similar phonological structure (such as *macht*)

Thus, in our paper we present an analysis of /t/ deletion under the aspects of (1) accentuation, (2) word frequency, (3) consonantal/vocalic environment after the target word, and (4) full verb vs. auxiliary function. A passage of approximately two minutes (5 repetitions) was read by two speakers of Standard Southern German (both 26 years, one male and one female). Further recordings with Southern and Northern speakers are in progress. Recordings took place in an anechoic room via a head-mounted microphone (sampling rate 44.1 Hz, 16 bit). Speech samples were recorded to a PC by the Audacity software.

Segmentation and labelling of the data were performed in Praat. The stop consonant /t/ in the target word was divided into two phases: the silent phase until the burst and the aspiration phase between burst and the following vowel or nasal of the next word. Statistic analysis was based (1) on the presence or absence of /t/ and its phases, and (2) the duration of the phases. Since the amount of collected data so far is relatively small, only non-parametric statistical tests were used at this stage.

The following tendencies were found: (1) Auditory perception and acoustic analysis of /t/ realizations often diverged: even in cases with no audible burst, a closure was present in the signal. (2) The few cases of complete /t/ deletion occurred with the 2p.pl form of *braucht* where missing -t cannot be explained by analogy to other modal auxiliaries. (3) The duration of closure and aspiration phase was longer in unaccented words, possibly due to rhythmic effects. (4) Closure and aspiration were longer if the target was followed by a word-initial consonant. (5) The observed tendencies applied to all target words, showing no effect of word frequency or modal vs. full verb function. Thus we argue that /t/ deletion in *brauchen* is not primarily a consequence of the auxiliarization process, but can be explained by phonotactic and rhythmic factors alone.

These results are to be tested on another data set that we are collecting at present. This part of the experiment includes a sentence creation task in which the target verb forms do not appear directly: subjects are asked to create a grammatical sentence based on the units *Peter* + *brauchen* + *Urlaub* ('Peter' + 'to need' + 'holiday') and also produce their negation in order to receive both accented and deaccented verb forms. Target words and independent variables are identical to those presented above. With this procedure we hope to minimize the effect of orthography on speech production and elicit forms closer to spoken language usage than in the first experiment. Results will be recorded at the conference and in the connected paper.

References

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