Influence of Swiss German dialects on vowel and consonant length in Swiss Standard German

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Abstract

German-speaking Switzerland is diglossic (Ferguson, 1959) in that Alemannic varieties (= vernacular) are spoken whereas a variety of standard German (= official language) is written. There are, however, certain contexts in which Swiss Standard German is spoken too, namely amongst other things in an educational setting, in political speeches in parliament, most contexts of broadcasting, and to address non-Swiss-German speakers (Rash, 1998). When this happens, speakers show interferences from Alemannic on multiple levels, amongst which the phonetic one (Hove, 2002). Given this, my first study attempts to answer whether it is possible to infer the Alemannic dialect of a speaker by analysing his/her spoken Swiss Standard German regarding vowel (V) and consonant (C) length. The insights of this study are not only of descriptive nature, but can also be used for forensic casework, e.g. for speaker profiling or comparison. To achieve this, 32 speakers from four cities (Bern BE, Brig VS, Chur GR, and Zurich ZH) have been recorded in a sound-attenuated booth or in the field (44.1 kHz, mono, 16-bit, stored as .WAV) speaking words in generic carrier phrases both in their respective Alemannic dialect as well as Swiss Standard German (8 from each city, 4M/4F, age range: 17-32). The words were disyllabic and contained either of the vowels /i a u/ plus either one of the plosives /p t k/, or the sonorants /l n/, or the fricatives /g s/ in the contexts VC, VC, V:C, and V:C. The resulting 12,000 tokens were then automatically segmented using the Munich Automatic Segmentation (MAUS) System (Schiel, 1999; Kisler et al., 2017), uploaded to the EMU Speech Database Management System (Winkelmann et al., 2017), where each sentence was manually corrected. The statistical analyses were conducted in R (2017) with help from Sandra Schwab PhD (University of Zurich). It included a linear mixed effects analysis with the packages lme4 (Bates et al., 2015) with the Alemannic dialects and VC categories as fixed factors (with interaction term), speaker and target word as random factors, and either normalised (by utterance length) V duration, normalised (by utterance length) C duration, Proportional Vowel Duration (PVD; i.e. $\frac{V}{V+C}$), or V/C ratios as dependent variables. The preliminary results (more to follow) suggest that the differences found are not between-dialect differences but between-speaker differences. In other words, though there are phonetic differences, they are speaker-individual as the dialects share the underlying phonological system. Furthermore, the data obtained indicate that phonetically, there are three consonant categories, namely lenis, fortis, and superfortis (= geminate). The latter occurs when a fortis consonant follows a
short vowel. Lastly, though the statistical analysis is not complete yet, it seems that Swiss Standard German words whose Alemannic equivalents have different phonological quantities such as e.g. *bade* 'bathe', which is VːC in Swiss Standard German, and VC in e.g. ZH and BE, show slight differences in vowel quantity. Regardless of whether these differences are statistically significant, a slight tendency can be identified. See figure 1 for a visualisation of these results.

![Figure 1](image)

**Figure 1.** Normalised durations of Swiss Standard German words that prescriptively have a short vowel in Standard German but dialect-specific vowel quantity (V or Vː) in Alemannic.

**References:**


