

**Vowel and consonant quantity in southern German varieties:  
typology, variation, and change**

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Southern German varieties present a rather high degree of variation with respect to vowel and consonant quantity, both from the typological point of view and from the perspective of language contact and sound change. For instance, Standard German has distinctive vowel quantity (e.g. /ban/ ‘ban(n.)’ ~ /ba:n/ ‘railway’) as well as a fortis-lenis contrast between stops (e.g., /'zaɪtə/ ‘side’ ~ /'zaɪdə/ ‘silk’ [1]); phonetically, the contrast between fortis and lenis stops is mainly implemented through a longer VOT (aspiration) and closure duration of the former. The phonotactics of Standard German allows for all four combinations of short and long vowels with fortis and lenis stops: V:C, V:C:, VC, VC: (for the sake of simplicity, we symbolise fortis stops as long consonants C:). Instead, traditional Central Bavarian (CB) has a phonotactic restriction that prohibits the combinations of long vowels + fortis stops and of short vowels + lenis stops, but there are indices for an incipient sound change due to the contact with the standard variety [2, 3]. Finally, Swiss German dialects exploit vowel quantity in a systematic manner [4], but – differently from Standard German – the fortis-lenis contrast is implemented in stops solely through a difference in closure duration [5].

This study presents for the first time acoustic evidence from a cross-linguistic study for the typological diversity in three Southern German varieties from Austria, Germany and Switzerland and further evidence for a sound change currently in progress in Bavarian dialects. A total of 104 speakers recorded in Munich (12 Standard German and 24 West Central Bavarian dialect, WCB), Vienna (19 standard variety and 13 East Central Bavarian, ECB) and Zurich (20 Alemannic dialect) read standard or dialectal target words (depending on the speaker group) containing the four phonotactic combinations V:C, V:C:, VC, VC: (e.g. Standard German *wieder* ‘again’, *Bieter* ‘tenderer’, *Widder* ‘ram’, *bitter* ‘bitter’) embedded in standard or dialect sentences. Adopting an apparent-time approach [6], we included speakers who were under 30 and over 50 years old. As a measure of comparison, we calculated the ratio of the vowel duration to the duration of the vowel+stop closure sequence V/(V+C) [2]. Our hypothesis was that we would find three types of V/(V+C) ratios in German standard varieties and in the Swiss dialects (i.e. low values for VC:, high values for V:C, and intermediate values signalling equal vowel and closure proportions for VC and V:C: combination), whereas CB would show a mixed pattern according to the regional background and the two age groups.

The results show indeed that speakers of Standard German in Munich and Vienna display three rather neatly distinct types of duration ratios (i) V:C, ii) V:C: and VC, iii) VC:); the same observation holds for Zurich dialect speakers (Fig. 1). On the other hand, the two groups of Bavarian dialect speakers show a rather instable system which is moving away from the traditional phonotactic constraint described above. While Viennese dialect speakers (Fig. 2, right) show vowel shortening in the V:C: category as well as vowel lengthening in the VC category, WCB speakers’ (Fig. 2, left) ratios especially of VC sequences overlap with the other three categories which is a result of generational differences in this group: whereas older speakers adhere to the traditional phonotactic constraint (resulting in only two major duration patterns), among the younger speakers a new category VC emerges (cf. Fig. 3). No such generation effects were found in the other three groups. Bimodal distributions of some of the within-category ratios can be related to word-specific pronunciations suggesting a change in terms of lexical diffusion [8].

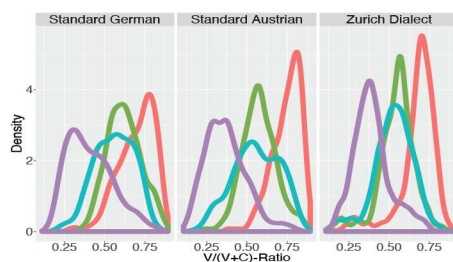


Figure 1. Density plots of the  $V/(V+C)$  ratios in VC: (purple), VC (turquoise), V:C: (green), V:C (red) sequences separately for the three regional groups across age groups.

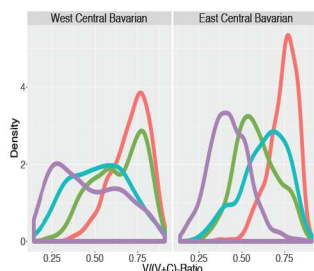


Figure 2. Density plots of the  $V/(V+C)$  ratios in VC: (purple), VC (turquoise), V:C: (green), V:C (red) sequences in West (left) and East (right) Central Bavarian speakers.

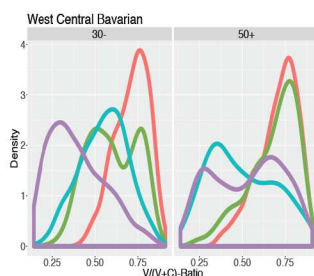


Figure 3. Density plots of the  $V/(V+C)$  ratios in VC: (purple), VC (turquoise), V:C: (green), V:C (red) sequences in younger (left) and older (right) West Central Bavarian speakers.

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