

# Segmental factors in language proficiency: Velarization degree as a signature of talent

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This talk presents an acoustic study of the production of English /l/ by speakers of Standard German. Within the research project *Language Talent and Brain Activity* those speakers have been categorized as proficient, average and less proficient speakers of English with regard to their phonetic abilities (Jilka, in press). Languages differ in how articulatory gestures and their acoustic consequences are realized. It might be that less proficient speakers underlie *output constraints* limiting the way they can diverge from an ideally distinctive pattern. An earlier investigation reported for German the values for  $F_2$  in [l] to be overall lower than in other languages (Recasens, Fontdevila & Pallarès 1995).  $F_2$  frequency and the frequency distance between  $F_2$  and  $F_1$ ,  $F_v$ , served as indicators for the degree of consonantal velarization. The consonant /l/ has been categorized as “dark” or velarized (high  $F_2$  and  $F_v$ ) in Catalan, as opposed to “clear” and non-velarized (low  $F_2$  and  $F_v$ ) in German (Recasens & Farnetani 1990). Based on this finding we expect less proficient speakers to show lower  $F_2$ - and  $F_v$ -values than proficient speakers producing the more velarized variant [ɫ] of the consonant.

41 (11 less proficient [7 f, 4 m], 18 proficient [10 f, 8 m], 12 average [7 f, 5 m]) native German speakers have been recruited for the analysis. Formant frequency data were collected for the logotoms “gelate, gelite, geliute, gelute” embedded in carrier sentences and spoken as close as possible to RP. This speech material was read five times by each speaker resulting in 814 tokens. Six tokens were dismissed due to imprecise articulation and hesitation errors.

One-way ANOVAs across proficiency levels revealed significant differences in  $F_2$  ( $F(2)=5.163$ ,  $p<.006$ ), as well as  $F_v$  ( $F(2)=4.706$ ,  $p<.009$ ) which could be displayed by Scheffé-tests.  $F_2$  and  $F_v$  allow a high percentage of significant degree of velarization effects between proficient vs. less proficient speakers, while (less) proficient vs. average groups exhibited no significant results. Contrary to our prediction mean values of less proficient speakers ( $F_2=1967.79Hz$ ,  $F_v=1578.23Hz$ ) are always higher than those of proficient speakers ( $F_2=1886.37Hz$ ,  $F_v=1493.23Hz$ ). Probably proficient speakers are more conscious of English phonological rules claiming that the clear variant appears before a vowel in syllable-initial and/or phrase-initial position, and the dark one before a consonant or syllable- or word-final (Clark et al. 2007:96). See also Baumotte (in press) for more details on this topic.

## References:

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