Replacing retroflex laterals: The spread of /l/-vocalization in East Austrian dialects

Jan Luttenberger[1] and Eva Reinisch[2]

[1]*Department of German Language and Literatures, Paris Lodron University Salzburg (Austria),* [2]*Acoustics Research Institute, Austrian Academy of Sciences (Austria)*

Like Standard German, the Bavarian dialects in Austria have a single lateral phoneme /l/. However, this phoneme shows considerable variation across regions and depending on the position in the word and phonetic context [1]. This study investigates a possible sound change from retroflexion to vocalization in East Central Bavarian dialects (ECB) and South Central Bavarian dialects (SCB).

The retroflex [ɭ] can occur as a variant of /l/ in five different contexts: 1) word-medially in ambisyllabic position, where additionally preceding front vowels are rounded (Keller -> [ˈkœɭɐ] "basement"); 2) after labials in onset clusters (Blech [b̥ɭɛç] "tin"); 3) as syllabic segment of an unaccented syllable when preceded by a labial (Himmel [ˈhɪmɭ̩] "sky"); 4) in syllable-offset after back vowels (Holz [hɔɭt͡s] "wood"); and 5) in syllable-offset after front vowels, rounding the vowel (gelb [g̊øɭpʰ] "yellow"). In positions 3 to 5 the retroflex contrasts with the process of /l/-vocalization, whereby the lateral becomes an [ɪ]-like vowel after labials and back vowels (Himmel [ˈhɪmɪ]; Holz [hoɪ̯t͡s]) and is dropped after rounded vowels (gelb [g̊øːb̥]). SCB dialects use [ɭ] in all five positions, whereas ECB dialects apply /l/-vocalization in positions 3-5 and maintain [ɭ] in ambisyllabic position and syllable-initial clusters after labials. Recently, /l/-vocalization has been suggested to spread southwards into SCB dialects [2]. We ask how far /l/-vocalization has spread in the contemporary SCB dialects, whether this spread is still ongoing, and whether it is driven by certain phonetic contexts.

We analyzed a spoken dialect corpus [3] by taking acoustic measures of the first three formants from 42 speakers of two generations (18-35 vs. >60 years) across 21 locations Relative to alveolar laterals, retroflex [ɭ] has been characterized by a lowered F3 with a small difference to F2 [4]. Since in ECB /l/-vocalization results in either an [ɪ]-like or a front rounded vowel, those phones should have a higher F2 and F3 compared to [ɭ]. Since F1 is expected to be similar across variants, the difference F3-F1 was adopted as a measure of retroflexion while normalizing for individual differences. The data were sampled from the traditional East and South Central Bavarian dialect areas in Eastern Austria [5]. SCB locations were further subdivided into a Northern and Southern region based on geographical latitude. For each speaker, 36 items were analyzed. Figure 1 shows the distributions of the F3-F1 values across regions for the 5 contexts. The difference F3-F1 in Hertz also served as the dependent variable for a linear mixed-effects model. Fixed factors were phonetic context (intercept: ambisyllabic word-medial), region (ECB, North_SCB, South_SCB) and age (old, young; contrast coded). Speaker and item were random variables.

Results showed that compared to the medial position of ECB speakers, all other contexts led to significantly higher F3-F1 values, indicating less retroflexion/more vocalization. Moreover, interactions between the Southern SCB region and all three vocalizing contexts indicated significantly lower F3-F1 values pointing to overall more retroflexion in the southernmost region. Results for the Northern SCB region did not significantly differ from the ECB region. Interestingly, the factor Age was not significant nor did it interact with any of the other factors. This can be interpreted as a completed sound change in the Northern SCB area adopting /l/-vocalization in all positions where it is also found in ECB, while the Southern SCB area by and large retains the retroflex. Interestingly, Figure 1 suggests that /l/ in the context after front vowels (gelb "yellow") may move towards vocalization even in Southern SCB indicating that a position-specific spread may still be ongoing.
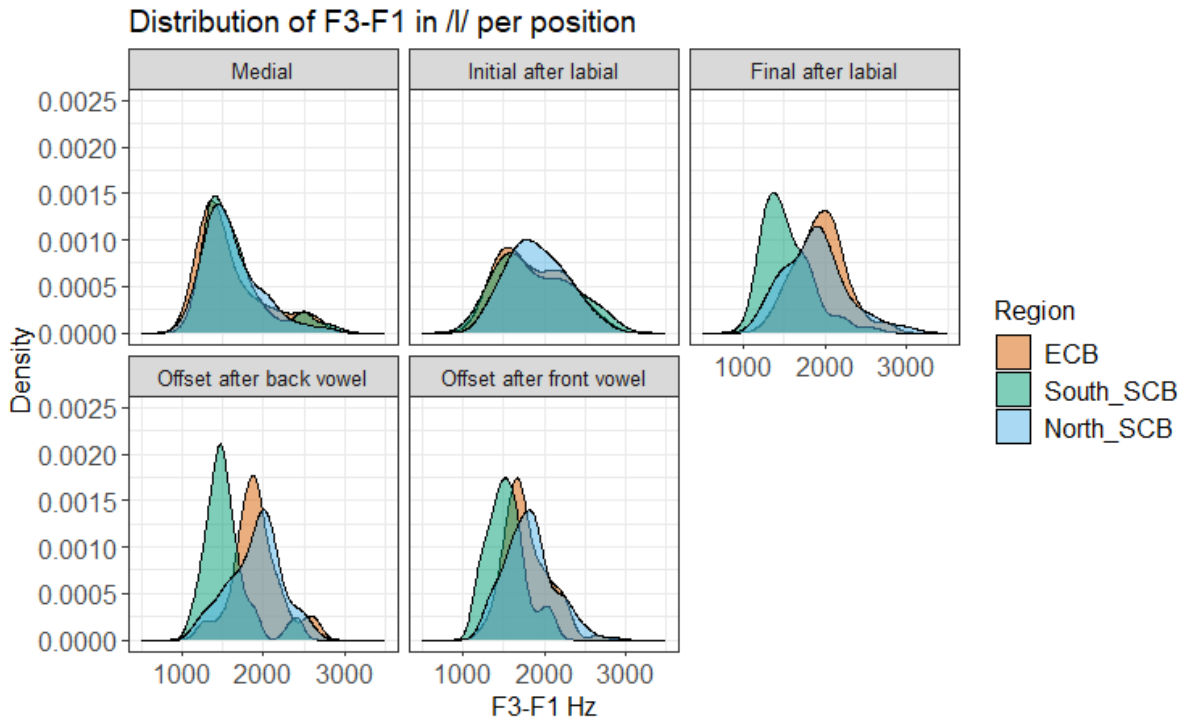
Fig. 1. Density plots of F3-F1 values in Hertz per phonetic context (Panels) and region. Region is color coded with East Central Bavarian (ECB) in orange, the southern region of South Central Bavarian (South_SCB) in green and the northern region of South Central Bavarian (North_SCB) in blue.

References

[1] Moosmüller, S., C. Schmid & C. H. Kasess (2016). Alveolar and Velarized Laterals in Albanian and in the Viennese Dialect. *Language and speech,* 59 (4), 488–515.

[2] Vollmann, R., B. Hobel, T. Seifter & F. Pokorny (2017). The Spread of /l/-Vocalization in Styria. In S. Moosmüller, C. Schmid & M. Sellner (Eds.), *Phonetik in und über Österreich* (pp. 123-136). Wien: Verlag der Österreichischen Akademie der Wissenschaften.

[3] Lenz, A. N. (2018). The Special Research Programme „German in Austria. Variation – Contact – Perception". In U. Ammon & M. Costa (Eds.), *Yearbook Sociolinguistica 32: Sprachwahl im Tourismus – mit Schwerpunkt Europa. Language Choice in Tourism – Focus on Europe. Choix de langues dans le tourisme – focus sur l'Europe* (pp. 269–277). Berlin & Boston: De Gruyter Mouton.

[4] Stevens, K. N. (1998). *Acoustic phonetics.* Cambridge: MIT Press.

[5] Wiesinger, P. (1983). Die Einteilung der deutschen Dialekte. In W. Besch, U. Koop, W. Putschke & H. E. Wiegan (Eds.), *Dialektologie: Ein Handbuch zur deutschen und allgemeinen Dialektforschung* (pp. 807-900). Berlin & New York: de Gruyter.