ON PHONETIC FACTORS IN LAMBDACISATION AND RHOTICISATION. EVIDENCE FROM GREEK

Lambdacisation of a rhotic, i.e. development /ɾ/ into /l/, and the more common rhoticisation of an alveolodental lateral, i.e. evolution of /l/ to the rhotic tap /ɾ/, are ubiquitous sound changes in the languages around the world and through the ages. The present study is designed to take a closer look at the phonetic factors conditioning misperceptions of /l/ as /ɾ/ and /ɾ/ as /l/ via a perception experiment using natural stimuli and listeners from Modern Greek.

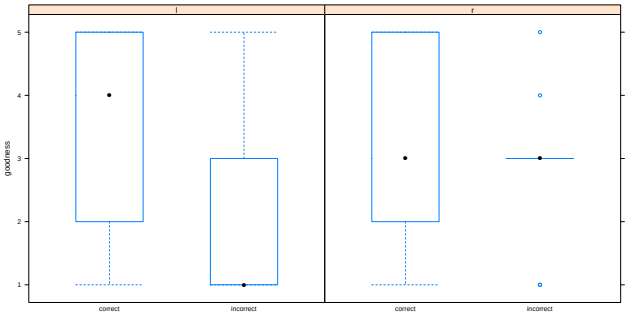
A previous study has tried to pin down the contribution of duration to the phenomena under investigation (Müller 2010). It found that a temporal reduction of the lateral matching that of the rhotic tap led to a certain amount of perceptual confusion of the two sounds, i.e. to the basis for /l/-rhoticisation. On the other hand, reduced instances of rhotics, whereby the rhotic seemed to be realised rather as an alveolar approximant than as a tap, had not only significant longer durations than the taps, but also gave rise to some perceptual confusion, and hence, lambdacisation, whereas the (unreduced) taps did not. – The aim of the present experiments is to address yet unanswered questions raised by Müller 2010. In order to ensure maximal comparability, the same method as in this previous study was applied.

Experiment 1: 20 native Greek listeners were presented with stimuli of the sequences /ala/ and /aɾa/, which varied systematically according to stress pattern (unstressed, iamb, trochee), length of the lateral (from 20 ms to 70 ms, by 5 ms incremental steps, obtained through manipulation of the recorded stimuli), and degree of reduction in the rhotic (unreduced, slightly reduced, strongly reduced). These stimuli were extracted from recorded sentences read by a Greek speaker.

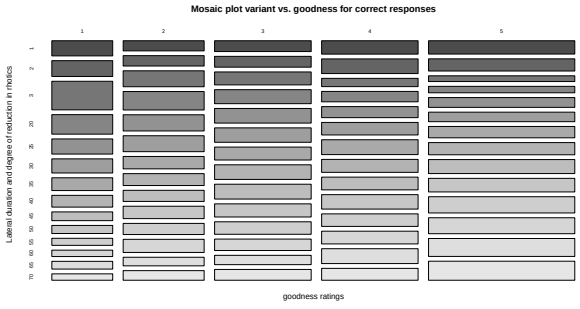
In a forced-choice test (5 repetitions of each stimulus, presentation in random order), the listeners had to decide which type of stimulus they had heard ("ara" vs. "ala") and how they judged the quality of the sound on a five-point-goodness-scale. Such a goodness rating was not elicited in Müller 2010.

Results: Analyses are currently being carried out. A first summary of the results appears in figures 1 and 2 in boxplot form and mosaic form, respectively. In contrast to the findings by Müller 2010, only very few instances of /l/ were heard as /ɾ/, despite the stimuli being more natural (closer to spontaneous speech) than in the previous experiment. Among the rhotic, the strongly-reduced variants led to some confusion with the lateral. Figure 1 shows that misheard rhotics were in general judged as bad instances of laterals, whereas misperceived laterals were judged no differently than the true rhotics (although the large number of outliers calls for additional testing). Moreover, correctly perceived laterals were judged better than correctly perceived rhotics (χ^2-test: $\chi^2 = 60.2461$, df = 4, p = 0.0000), perhaps due to the reduced instances of /ɾ/ in the set of stimuli. The correctly perceived unreduced tap and longer laterals received better goodness judgments than reduced rhotics and shortened laterals, as evident from figure 2.

figure 1: first results of goodness judgments according to incorrect and correct responses to the stimuli



Experiment 2: A second experiment with the same setting, for which the stimuli were obtained during the same recording session by the same speaker as in Experiment 1 and focusing on substantially shortened laterals and strongly-reduced rhotics vs. laterals of normal duration and non-reduced taps in both intervocalic and pre-stop positions (as opposed to only intervocalic position in Experiment 1) will be carried out and presented and thus allow to refine the results obtained in Experiment 1.



Reference: MÜLLER, DANIELA (2010), « Phonetic factors influencing /l/-rhoticisation in Greek ». In BOTINIS, ANTONIS (ed.), Proceedings of the third ISCA Tutorial and Research Workshop on Experimental Linguistics; 117-120.