

## Speaking on the edge: contact-induced sound variation in the laboratory

The integration of different laboratory techniques such as ultrasound imaging and acoustic analysis helps gaining better understanding of language contact mechanisms and allows a finer modelling of synchronic contact-induced sound variation.

The main aim of this paper is to offer a preliminary articulatory description of uvular rhotics in a bilingual speaker based on Ultrasound Tongue Imaging data. The analysis focuses on the comparison of articulatory configurations of uvular variants as they occur in the two phonological systems, namely that of Italian and that of the Tyrolean German dialect. As a result of intense language contact Tyrolean /r/-sounds of the uvular type (/R/-sounds) are likely to be transferred into Italian of early bilingual speakers. The analysis is twofold: at first each /R/ variant is identified and defined in terms of static target configurations; then a tentative dynamic representation of VRV transitions is put forward building on a sub-sample of tokens. The profile of about 220 words repetitions is considered in the investigation: 200 are used for the static analysis; 20 are for the dynamic analysis. As regards the data collection procedure the analyzed stimuli consist of word lists containing the /R/ consonant in different intervocalic environments that were uttered by a young male Italian/South-Tyrolean German early bilingual speaker.

With relation to the static representation analysis, averaged configurations are created from each category by automatically tracking the tongue surface by means of the Articulate Assistant Advance graphical edge detection software (Zharkova, Hewlett 2009). As a matter of fact the emergent patterns show a difference between a more bunched trill/tap (with a dip in the anterodorsum, Fig. 1) and fricative/approximants /R/, characterized by a lower tongue body and the absence of dips or bunching. The dynamic description instead aims at modeling the tongue movements in VRV transitions by plotting the trajectories of the points that intersect the fan axes in order to reduce the whole tongue contour to a space of reduced dimensionality (Stone, Epstein, Iskarous 2004; Gick, Campbell, Oh, Tamburri-Watt 2006).

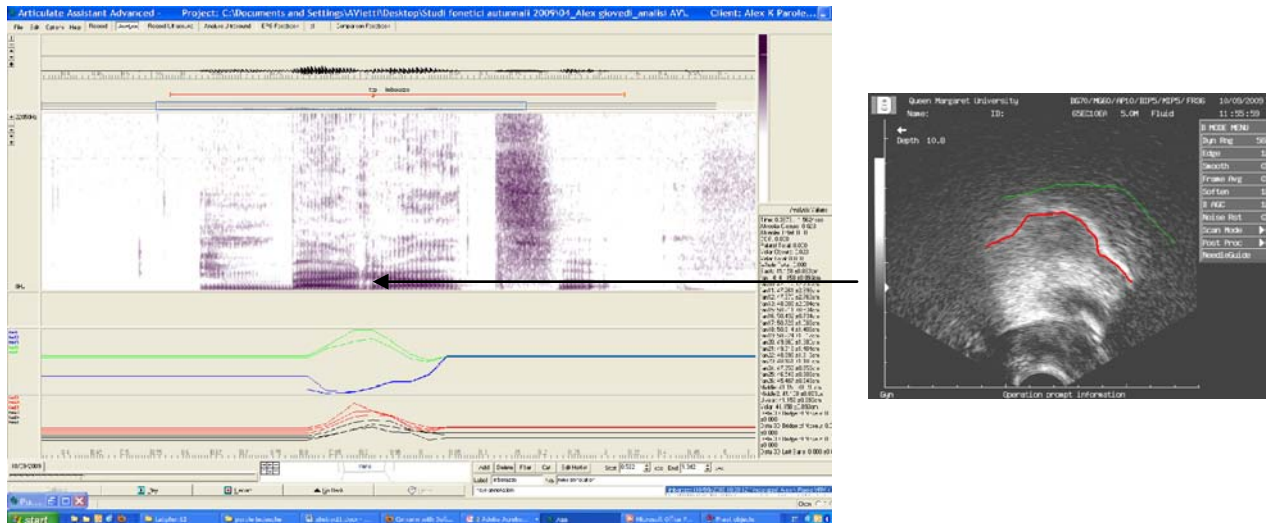


Fig. 1 – Chart of the radial distance from the origin and the point where the spline crosses the radius (blue lines = predorsum, green = dorsum, red = post-dorsum, black = root)