

Ultrasound tongue imaging for sociophonetics

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Ultrasound Tongue Imaging has great potential for sociolinguistic research. Articulatory data can be collected in everyday social settings. However the technique requires refinement for effective use (e.g. using head stabilization) in locations outside the laboratory. Gick (2002) suggest methods for fieldwork generally, but we are not aware of any study on vernacular speakers, who are wellknown to alter their system under different conditions of observation. Using ultrasound is likely to cause an alteration in speech style, and this is our main concern: the effect on the speaker must be quantified.

We are investigating a change in progress: derhoticisation of Scottish /r/ (Stuart-Smith, 2007, Scobbie & Stuart-Smith, 2005). We have undertaken pilot laboratory-based recordings (acoustic and articulatory), and have begun collection of what we think is the first socially-stratified ultrasound/acoustic corpus of spontaneous and wordlist speech.

Our main methodological goal is to quantify, using well-understood acoustic social variables, the observer effect from the use of ultrasound recording. In addition, the phenomenon under investigation, derhoticisation (in which coda /r/ is gradiently acoustically vocalized), is of particular interest for ultrasound research, because the some speakers' behaviour is so different to those reported for onset-coda allophony in general American English (Mielke, Twist, and Archangeli. 2006). For example, we have observed a strong articulatory retroflex tongue motion which generated little or no rhotic acoustic consequences because it was timed to occur after phonation had ceased, before pause, similar to a previous report to this meeting on a speaker of Dutch (Scobbie and Sebregts, 2005).