The articulation and acoustics of postvocalic liquids in the Volendam dialect

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In different varieties of Dutch, there is variation in the production of /l/ and /r/ (Mees and Collins 1982; Booij 1995). In postvocalic position, liquids may vocalize or delete (Van de Velde et al. 1997; Van Reenen and Jongkind 2000). This can lead to neutralization of contrasts between words with and words without a liquid (Plug 2010). In addition, tense mid vowels may neutralize to their lax counterpart before a liquid (Botma et al. 2012). Although there are many acoustic studies on Dutch /r/, the articulation of Dutch liquids has only been studied recently (Scobbie and Sebregts 2011; Sebregts 2015; Haverkamp 2015).

The present study shows an Ultrasound Tongue Imaging (UTI) and acoustic analysis of postvocalic liquids in the Volendam dialect. Speakers from different age and educational level read two texts. UTI recordings were analyzed visually for ArtMax (Articulatory Maxima, Lee-Kim et al. 2013) for the vowel (/e, ɪ, o, ɔ/) and the following consonant (/l, r, t, lt, rt/) to study neutralization of /e/ and /ɪ/ (or /o/ and /ɔ/) before a liquid, retraction of the Tongue Dorsum (TD) for /l/, and raising of the Tongue Tip (TT) for /l/ and /r/. An SS ANOVA (Davidson 2006) is performed to compare differences between tongue contours.

Preliminary results of two highly educated female speakers from Volendam show that there are similarities and differences between speakers of different age (RV, 22 years old; MdWV, 62 years old). Both speakers make a contrast between /e/ and /ɪ/ before a liquid (Fig. 1), but the contrast is smaller for the younger speaker. The TD is more retracted for coda /l/ than for onset /l/ (Fig. 2). However, the younger speaker makes a clearer difference between onset and coda /l/. Fig. 3 shows that for both speakers, there is no TT raising visible for coda /l/ in sentence-final position (vocalization). Coda /l/ does show TT raising in sentence-medial position, but only the younger speaker shows a clear contrast between onset and coda /l/, that is, TT is higher in onset /l/. For both speakers, TT gestures for coda /r/ are visible in both sentence-medial and sentence-final position, but there is no clear onset-coda pattern (Fig. 4). Acoustically, postvocalic /r/ is often realized as short /s/-like frication. Postvocalic /l/ is characterized by F2 lowering.

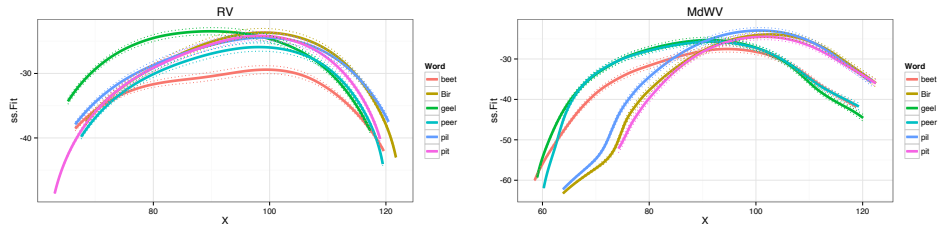

Fig. 1: ArtMax for /e/ and /ɪ/ in CVl, CVr and CVt

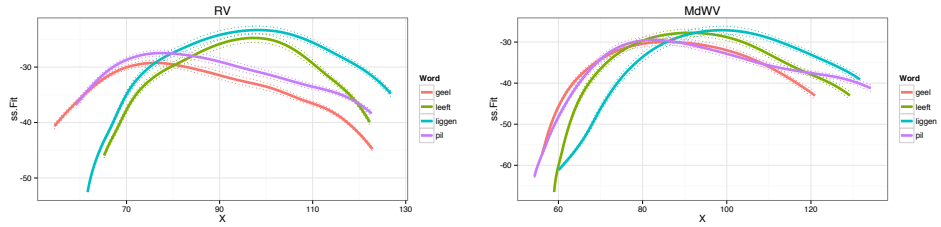

Fig. 2: ArtMax for TD in words with onset and coda /l/

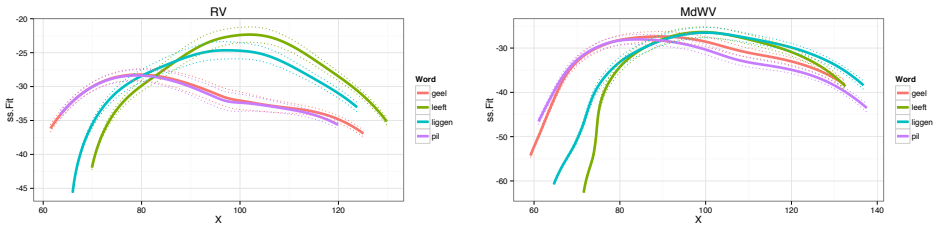

Fig. 3: ArtMax for TT in words with onset and coda /l/

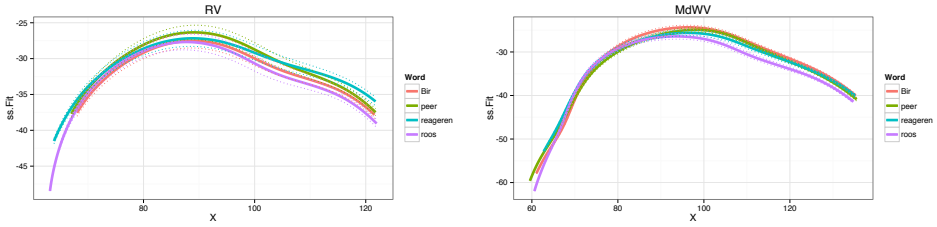

Fig. 4: ArtMax for TT in words with onset and coda /r/

Differences between MdWV and RV may show a tendency of change in articulation of liquids in Volendam. Data from more speakers will be analyzed to test whether this pattern is not just due to individual variation. In addition, the relation between articulatory data and acoustic data will also be studied.

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