Predictability of consonant reduction from written text

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The paper presents some results from research on coarticulation of voiceless consonants in Estonian.

It has been noted that short voiceless consonants tend to reduce and get voiced in connected speech (Davidson 2016; Torreira & Ernestus 2011; Torreira & Ernestus 2012). Most of the work in the area in Estonian has been conducted on short plosives. Research has shown reduction in realisation of plosives, less in read speech (Suomi & Meister 2012), more in spontaneous speech (Ermus 2017).

We researched the realisation patterns of short voiceless consonants (written by letters b, d, g, h, s, word-initial p, t, k). Passages from radio news read by one female and one male speaker were used. We compared possible effects of different phonetic environments and different positions on consonants in word and in phrase, parts of speech. We sought for patterns in reduction of short plosives that may be predicted from written text.

We found that articulation and coarticulation patterns are influenced by articulation place and articulation manner of the consonant. The more backwards is the articulation place, the more the consonant is influenced by context. The most reduced was [h], which was voiced, in most of the analysed tokens, and the least reduced was [s] that showed no voicing in almost 80% of the tokens.

For predictability analysis we used binary logistic regression and discriminant analysis. Preliminary analysis shows different significant features for different consonants. Some common features include position of consonant in the word and the position of the word in phrase. [t] had the biggest number and [h] the smallest number of significant features that may be used to predict reduction from text.

References


