

Update of research on velar stop consonant production

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This talk will present additional data that follow up on presentations at previous Ultrafest meetings, focusing on methods for measuring stop consonants and the results of two studies.

Study one, a replication of previous work with a larger number of participants (10), examined velar/vowel coarticulation. Participants produced monosyllabic words with /k/ onsets and nine different vowels. The coarticulatory pattern suggests each velar/vowel combination results in a distinct closure location for the velar. The pattern is consistent across talkers, however, statistical analysis found different subsets of vowel contexts to be significantly different for different talkers. This suggests that individual talkers' productions reflected coarticulatory influences to different degrees.

Study two examined speech errors in the production of velar and alveolar stops in four participants. All talkers produced tongue twisters to the beat of a metronome (e.g. top cap cop tab) following previous work (e.g. by Shattuck-Hufnagel and by Pouplier). Two of the talkers produced identifiable errors. One talker produced no errors at all. The final talker produced velar and alveolar stops for which our articulatory measures overlapped between categories, making error analysis impossible. Analysis of the two talkers who produced identifiable errors found that most errors involved the production of a segment that appeared to be a normal production of the wrong category. In addition, the overall pattern of "correct" productions showed a greater degree of variability than productions measured from utterances that were not tongue twisters. This variability may come from so-called gradient errors, or may be the result of coarticulation.