V-to-V Coarticulation Direction in Children and Adults – An Ultrasound Study –

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Changes in coarticulation magnitude across childhood have been interpreted as evidence for development in speech motor control, linguistic organization, or planning processes. A comparison between coarticulatory directions might help to disentangle underlying processes: While anticipatory coarticulation has been claimed to result from articulatory planning, carryover coarticulation would mainly arise because of mechanical constraints and articulator inertia (Recasens, 1987). To investigate the development of speech and coarticulatory patterns, both directions need to be taken into account.

The present study is the first to compare anticipatory and carryover V-to-V coarticulation in German children (3y, 4y, 5y, & 7y) and adults. With ultrasound imaging tongue positions were directly traced instead of inferred from the acoustic signal. A symmetrical stimulus structure (əC_1VC_2ə) allowed us to test influences of the medial tense long vowel (/i/, /y/, /u/, /a/, /e/, /o/) on both schwas – the preceding one for anticipatory and the following one for carryover coarticulation effects. To investigate whether different mechanisms underlie the two directions, the intervocalic consonants varied in coarticulatory resistance (/d/>/g/>/b/). It was hypothesized that a resistant intervening consonant would decrease V-to-V coarticulation to a greater extent in the carryover (mechanical) than in the anticipatory (planning) direction (Recasens, 1987).

First results reveal that anticipatory V-to-V coarticulation is present in all cohorts. Anticipation is stronger for younger than for older participants and as expected is not affected by the resistance degree of the intervocalic consonant in any of the age cohorts. Data for carryover coarticulation are currently under analysis.

Reference

Recasens, D. (1987). An acoustic analysis of V-to-C and V-to-V coarticulatory effects in Catalan and Spanish VCV sequences. *Journal of Phonetics, 15*, 299-312.