

## The Descriptive Approach to Segmental Articulations (DASA): new definitions on acceleration landmarks

Malin Svensson Lundmark<sup>1</sup>, Donna Erickson<sup>2</sup>

<sup>1</sup> Centre for Languages and Literature, Lund University, Sweden

<sup>2</sup> Haskins Laboratories, New Haven, CT., USA

malin.svensson\_lundmark@ling.lu.se, ericksondonna2000@gmail.com

Acoustic segment transitions correspond to the deceleration and acceleration of primary active articulators (Svensson Lundmark 2023). Specifically, for any speech posture of an active articulator we find a deceleration peak at the start of the speech posture and an acceleration peak at the end of the posture, seemingly dividing the slow movements of speech postures from the fast intervals of the movements to and from the postures (Svensson Lundmark and Erickson 2024). However, only the speech postures of the consonantal articulators align directly with the segment transitions (deceleration peaks with segment onset and acceleration peaks with segment offset); the mandible and tongue body movements do not.

In the Descriptive Approach to Segmental Articulations, DASA, the deceleration and acceleration peaks of articulatory movements can be used to describe the coordination of the different articulators in the construction of syllables and speech segments (Svensson Lundmark and Erickson 2024). This talk will report on previous EMA findings on Swedish speakers, while also redefine the DASA approach slightly: segment onset at constriction closure align to the jerk of the deceleration phase, and segment offset at the release with the acceleration peak (Svensson Lundmark 2024).

### References

- Svensson Lundmark, M. (2021). Evidence of segmental articulations: Acceleration determines vowel segment duration in Swedish Word Accents. In: Proc. 1st International Conference on Tone and Intonation (TAI), pp. 156–160. DOI: 10.21437/TAI.2021-32.
- Svensson Lundmark, M. (2023). Rapid movements at segment boundaries. *The Journal of the Acoustical Society of America* 153.3, pp. 1452–1467. DOI: 10.1121/10.0017362.
- Svensson Lundmark, M. (2024). Timing of acceleration peaks and acceleration changes. In: Proc. 13th International Seminar on Speech Production (ISSP), Autrans, France (pp. 205–208) [https://issp24.sciencesconf.org/data/pages/proceedings\\_long\\_papers.pdf](https://issp24.sciencesconf.org/data/pages/proceedings_long_papers.pdf)
- Svensson Lundmark, M. & Erickson, D. (2024). Segmental and syllabic articulations: a descriptive approach. *Journal of Speech, Language, and Hearing Research*. DOI: [https://doi.org/10.1044/2024\\_JSLHR-23-00092](https://doi.org/10.1044/2024_JSLHR-23-00092).
- Svensson Lundmark, M. & Frid, J. (2023). Segmental articulations across prosodic levels. In: Niebuhr, O. and M. Svensson Lundmark. Proc. of the 13th International Conference of Nordic Prosody. Sciendo (pp. 255–261). DOI: 10.2478/9788366675728-023.

