Kinematic variation of syllable parses: Perturbation of stability patterns

Languages differ in the way consonants and vowels are parsed into syllables. For a CCV sequence, either they allow for complex onsets, with a monosyllabic CCV parse, or they allow only for simple onset parses, resulting in a C.CV parse, where the first consonant does not belong to the syllable onset. Coordination patterns in the kinematic signal of oral articulators, such as the lips and the tongue, can be used as a diagnosis for syllable affiliation (Browman & Goldstein 1988, Marin & Pouplier 2010, Hermes et al. 2011, 2013). Based on the large amount of variation in phonetic data, a number of studies have shown that these idealised syllabification patterns are not always robust in the face of prosodic variation and changes in segmental context, indicating that there is no clear dichotomy. The aim of the present study is to model the variation of continuous phonetic parameters associated with distinct phonological syllable organisations in Tashlhiyt Berber and Polish. In a first step, we investigate stability patterns for simple and complex onset coordination based on electromagnetic articulographic data. In a second step, we test the effect of perturbation on the stability patterns by increasing the variability of phonetic parameters in a simulation task (Shaw et al. 2009). While Tashlhiyt shows a clear dominance for a simple onset parse, the dominance of the preferred complex onset parse for Polish is less stable when variability is increased, leading to a critical switch from complex to simple onset parse. The variability in these languages is further related to continuous phonetic parameters of consonant production such as the duration of the gestural activation interval and the gestural overlap. We conclude that the degree of perturbation on a stability pattern differs across languages, reflecting differences in quantitative consequences of phonological syllable parses.

References:


