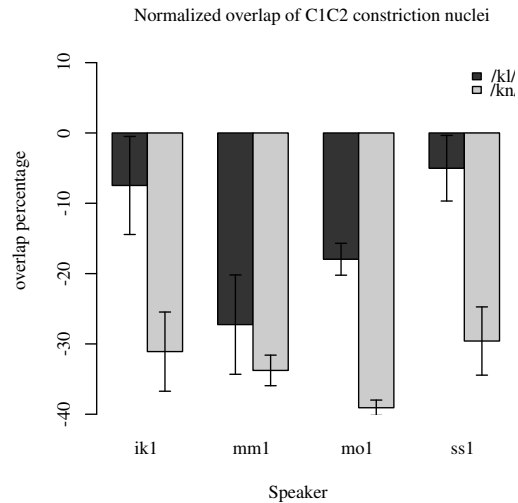


A physiologically grounded approach to the loss of initial /kn/ clusters in Germanic languages

Initial /kn/ and /kl/ clusters show different diachronic behavior across different Germanic languages. While /kl/ clusters appear to be quite stable, /k/ is lost in English *knee* /ni:/ but not in German *Knie* /kni:/.

Electromagnetic Articulography (EMA) data of initial /kl/ and /kn/ clusters in four speakers of German show that the articulatory gestures of the tongue dorsum and the tongue tip are less overlapped in /kn/ than in /kl/ (see figure). This behavior is stable even across different prosodic conditions (also confirmed for 7 additional speakers using EPG). While this is in accordance with models such as manner-based ranking (Mattingly, 1981), perceptual recoverability (e.g. Chitoran et al., 2002), or the DAC model (Recasens et al., 1997), the size of this difference is quite striking. The loss of /k/ in English /kn/ clusters is discussed in terms of a solution to the conflicting demands of Mattingly's parallel transmission principle and the maintenance of perceptual cue robustness (Wright, 2004). Furthermore, an approach by Goldstein et al. (in press) is considered which as part of the Task Dynamics framework treats gestural coordination as a system of coupled oscillators. Specifically, onset consonants - one or more - are coupled *in-phase* with the following vowel (they start simultaneously with the vowel) while they are coupled *anti-phase* with each other (which induces sequencing). The approach argues that coupling of the vowel to either the closure or the release of C1 can account for different overlap patterns and that differences in coupling topology can be phonologically relevant.



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