

Articulatory coordination in word-initial clusters of German

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Abstract

Intra-gestural and inter-gestural coordination in German word-initial consonant clusters /kl, kn, ks, pl, ps/ is investigated in four speakers by means of EMA as a function of segmental make-up and prosodic variation, i.e. prosodic boundary strength and lexical stress. Segmental make-up is shown to determine the extent of articulatory overlap of the clusters, with /kl/ exhibiting the highest degree, followed by /pl/, /ps/, /ks/ and finally /kn/. Prosodic variation does not alter this order. However, overlap is shown to be affected by lexical stress in /kl/ and /ps/ and by boundary strength in /pC/ clusters. This indicates that boundary effects on coordination are stronger for clusters with little inter-articulator dependence (e.g. lips+tongue tip in /pl/ vs. tongue back+tongue tip in /kl/). The results also show that the extent to which prosodic factors affect articulation interacts with the position of the affected segment in the sound sequence: In general, boundary strength strongly affects the cluster's first consonant while lexical stress influences the second consonant. This indicates that prosodic effects are strongest at their source (i.e. the boundary or the stressed nucleus) and decrease in strength with distance from their source. However, prosodic lengthening effects can reach the more distal consonant in clusters with a high degree of overlap and high inter-articulator dependence. Beside these aspects the discussion covers differences in measures of articulatory coordination.

Key words: consonant clusters, articulatory coordination, prosodic lengthening, EMA
