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Effect of consonant gemination on vowel coarticulation

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As well known V1CV2 structures are typically characterized by two different phenomena: the first vowel V1 spectral properties are affected by the presence and nature of the second vowel V2 (anticipatory effect), and V2 is influenced by the presence of the first one (cross-over effect). The intensity of anticipatory and the cross-over effects are language dependent and can vary significantly. Both effects have been observed in the past to be present in the Italian language through the analysis of VCV nonsense words. The Italian language has however a unique property, that is distinctive consonant gemination, i.e. consonant length is phonemic; two different words may thus differ by the sole presence or absence of gemination in one of this consonants. The Italian language offers therefore the ideal framework for analyzing the effect of gemination on across-consonant coarticulation. The object of this work is to analyze whether and how the presence of gemination may affect the acoustic properties of vowels in V1CCV2 words. First results of acoustic analysis of V1CV2 as well as their V1CCV2 counterparts, spoken by Italian native speakers, tend to show that gemination may have an effect on across-consonant coarticulation, with specific peculiarities for anticipatory vs. cross-over effects.