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**An experimental and modeling study of anticipatory coarticulation**  
**in VCV sequences**

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Anticipatory coarticulation within V1CV2 sequences is studied for EMMA data in French and in Mandarin Chinese. The corpus was designed consistently for both languages. V1 and V2 were /i, a, u/ and C was either /t/ or /k/. The influences of V2 on tongue position of V1 and of C were analyzed for three French and two Chinese speakers. For French speakers vowel V2 influences the whole sequence V1CV2, while its influence is strictly limited to the syllable CV2 for Mandarin speakers. These suggested that speech planning strategies in French and in Chinese are different and that differences could arise from differences in the status of the syllable in the analyzed languages. A speech production model has been then used for testing quantitatively these conclusions. It involves a forward model and optimization techniques to infer optimal motor commands from the phonemic targets in the perceptual space. Different hypotheses about planning and execution of movement were tested on this model. The comparison of simulations and data supports the hypothesis that the syllable could be a basic unit for planning for Mandarin speakers, while it suggests that larger sequences such as VCV should be considered in the planning of French sequences.