

In speech, coarticulation is a fundamental mechanism allowing the fluent and dynamic production of upcoming speech targets. In adults, this coarticulation process has been largely described with a particular interest on anticipatory coarticulation modelling (*i.e. Look Ahead* [Henke 66], *Time-locked* [Bell-Berti & Harris 82], *Hybrid* model [Perkell & Chiang 86] for the prediction of articulatory gestures timing in English; and *Movement Expansion Model* [Abry & Lallouache 91] for French). Yet, when studying coarticulation in a developmental point of view, we find that very few articulatory studies have been dedicated to the acquisition of speech segment control abilities, certainly because of the methodological constraints involved in studying young children. However, the numerous acoustic studies on temporal and spectral characteristics in CV coproduction contributed to shed a light on motor control development since canonical babbling to adult speech (Sussman 1999; Lee, Potaminos, Narayanan 1999; Nittrouer, Studdert-Kennedy, Nelly 1996).

As concerns children, coarticulation would progressively reach the maturity of adult speech with the achievement of neuromuscular control of articulators around 12 years old [Kent 76] or even later as concern the vocal tract, (around 15-20 years old according to Goldstein 80).

In order to track the development of vocalic anticipatory behaviour and to assess this progressive speech motor control acquisition, we ran an experimental study with 7 French children aged from 3,5 to 8 years old with a follow up for the 4 youngest children. A lip area tracking system allowed us to analyse on-line the extent of the rounding movement in [iCny] sequences (with C corresponding to a varying number of consonants from 0 to 3)

The results show that the neuromuscular control required for vocalic anticipatory gestures is likely to reach adult like pattern as soon as 3,5 years old in our study. Indeed, we found the same regular temporal pattern of anticipatory coarticulation as previously evidenced in adults by Abry et al. 95, 96 for all our young subjects including the youngest, suggesting that this motor control that seems typical of a language community can be settled quite early in French.

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