

EMERGENCE OF ROUNDING ANTICIPATORY CONTROL IN FRENCH

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Short Overview

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, Time-locked, Hybrid* model for the prediction of articulatory gestures timing in English; and *Movement Expansion Model* for French). When studying anticipatory 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, partly because of methodological constraints involved in studying young children.

According to the literature, coarticulation would progressively reach the maturity of adult speech with the achievement of neuromuscular control of articulators around 12 years old or even later as concern the vocal tract.

Methods

In order to track the development of vocalic anticipatory behaviour, 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 and two adult females taken as reference. A lip area tracking system enabled us to analyse the extent of the rounding movement in [iCny] items (with C corresponding to a varying number of consonants from 0 to 3) presented as puppet names in sentences like “Le toutou Iku est rouge The dog Iku is red”.

Results & Discussion

The results show that the motor 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 French adults.

Therefore, the 3 to 5 years old period seems crucial for the acquisition of anticipatory control in the timing of vocalic gestures. These results suggest that in a language like French for which rounding contrast seems essential, this control can be settled quite early.

References

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