French tautosyllabic vowel-glide or English falling diphthong? The acquisition of complex vocalic sequences by French-English bilingual children

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In this presentation, I discuss the cross-linguistic interactions in the phonetic implementations of tautosyllabic vowel-glide (VG) sequences in the speech production of preschool and school-aged French-English bilingual children. Tautosyllabic VG sequences in English and French have different phonological statuses. In English, this combination corresponds to a single segment (e.g., the diphthong [aɪ] as in *bye*), by which the offgliding portion has been analyzed as an integral part of the nucleus (e.g., Lehiste & Peterson, 1961; Olive, Greenwood, & Coleman, 1993). By contrast, that combination in French involves two separate phonemes (i.e., [aj] as in bâille 'yawn-3SG'), which includes an independent glide in coda position (e.g., Tranel, 1987). The current study investigates (1) whether English diphthongs and the similar-sounding French tautosyllabic VG sequences have different phonetic implementations, and if so, (2) whether bilingual children maintain those two categories separate in their own production.

Using a picture-naming experiment, the English diphthongs [aɪ, eɪ] and the French VG sequences [aj, ɛj] were elicited from 4-5 and 6-7 year-old French-English bilingual children (n = 12), from age-matched monolingual children for the control group (n = 24), and from adult native speakers in both languages (n = 12). The analysis of the adult speech production showed different acoustic implementations which further support the phonological distinction between the two entities. While the offset targets in French VG sequences have higher F2 than those of English diphthongs, they do not differ significantly in terms of F1, which is inconsistent with a hypothesis that independent glides involve more lingual stricture (a finding in line with Jaggers, 2018; Burgdorf & Tilsen, 2021). The offset targets for both French [aj] and [ɛj] converge towards the same position, while English [aɪ]'s offset target is lower and backer than that of English [eɪ], which is attributed to coarticulatory effects underlying the fact that the offglide is part of the syllable nucleus in English. Finally, the offset target for French VG sequences is reached earlier than in English diphthongs. However, the timing difference is mainly observed for the contrasts with greater spectral change [aj - aɪ] and for F2.

As for the bilingual children, the analysis showed that while the bilingual children in both age groups are able to maintain the French VG sequences separate from the English diphthongs at the phonetic level, their production patterns were not similar to those of the monolingual children in each language. The analysis also showed that the children who attended bilingual schools implemented a clearer separation between the two categories and more adult-like formant patterns than the bilinguals in English-only schools. This finding is consistent with the hypothesis that L2 learners benefit from a variable source of input to acquire the target language (e.g., Bradlow, 1997, 1999). However, the 4-5 year-olds in the current study did not show such differences with respect to schooling type. Overall, the results suggest that by the age of 6-7 years old, French-English bilingual children may still be transitioning towards the adult production patterns for these two dynamic entities.

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