

F0 dynamics associated with prominence realisation in children with hearing impairment

Jérémy Genette^a, Jo Verhoeven^{a,b}

^a *Universiteit Antwerpen, Department of Linguistics, CLIPS Computational Linguistics and Psycholinguistics, Antwerp, Belgium*

^b *City, University London, Department of Language and Communication Science, London, United Kingdom*

Prominence in speech is typically realised by means of greater amplitude, duration and F0 of the vowel nucleus in the syllable that carries word/sentence stress. It is well-established that F0 is the more important physical dimension. The present study reports the analysis of F0 in word realisation of two groups of children differing in hearing status. One group consisted of children with hearing impairment, while the other group consisted of age-matched children with normal hearing. The hearing-impaired children had been fitted with either a cochlear implant or a conventional hearing aid. Children had participated in a (non-)word imitation task which consisted of the repetition of monosyllables containing one of the monophthongs of Belgian Standard Dutch. Measurement and analysis of F0 in the vowel nuclei revealed interesting differences between the groups. The children with hearing impairment had the highest overall F0. In terms of the dynamics of F0 associated with prominence, all children correctly realised an underlying prominence-lending rise-fall pattern which at the phonetic level manifested itself as a falling pitch movement. In addition, the F0 contour in children with a conventional hearing aid was steepest, while it was shallowest in children with a cochlear implant. The contour in children with normal hearing was situated between the two previous groups. The observed group differences are attributed to the acoustic information provided by the type of device the hearing-impaired children are equipped with.