Acquisition and processing of lexical tone in East-Limburgian dialects of Dutch

Stefanie Ramachers, Susanne Brouwer, Carlos Gussenhoven, and Paula Fikkert
Radboud University, Nijmegen, the Netherlands

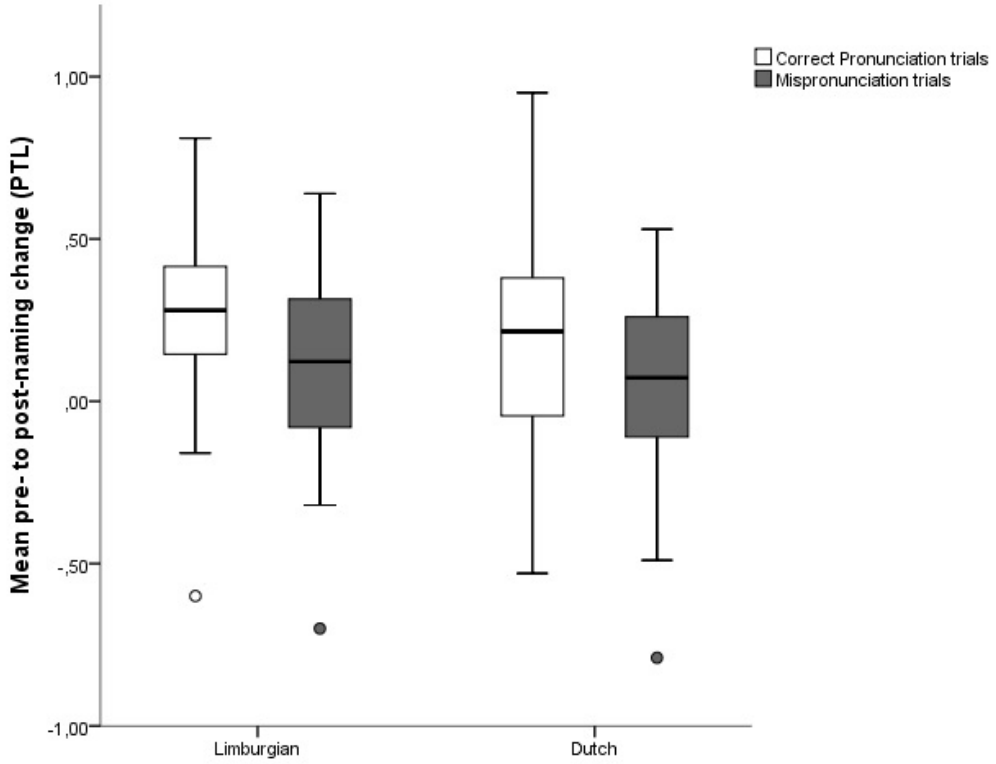
Acquiring the sound structure of a language entails finding out which phonetic contrasts are meaningful in the native language and storing them as part of a word's mental representation. Whereas approximately 60-70% of the world's languages employ pitch differences to distinguish words (Yip, 2002), most research has focused on the acquisition of segmental contrasts. The present study investigates the influence of pitch on novel word learning in bidialectal children acquiring a restricted tone language (Limburgian) and an intonation language (Dutch). Limburgian children are compared to a control group of children acquiring non-tonal Standard Dutch.

In dialects spoken in the southern Dutch province of Limburg, pitch can be lexically distinctive. For example, *haas* [ha:s] with falling pitch (accent 1) means 'hare', whereas *haas* with falling-rising pitch (accent 2) means 'glove'. From a typological point of view, these dialects are particularly interesting for two reasons. First, tone in Limburgian has a relatively low functional load compared to many Chinese dialects. Secondly, there is a complex interaction between lexical and intonational tones, which is unusual for tone languages, leading to many different surface realizations of the underlying tone categories.

Twenty-three Limburgian and 35 Dutch 2,5-to-4-year-olds took part in our study. The linguistic background of the Limburgian children was assessed using an adapted version of the PaBiQ (COST Action IS0804, 2011). In a word learning experiment, following the procedure employed by Quam and Swingley (2010) and Singh, Hui, Chan, & Golinkoff (2013), participants learned two novel word-object mappings. After training, word recognition (measured as the mean proportion of target looking) was tested in correct pronunciation (CP) trials and mispronunciation (MP) trials featuring a pitch change. For example, if a child learned a word with accent 1, it would be mispronounced with accent 2, and vice versa. We expected that the pitch change would hinder word recognition in Limburgian children, but not in Dutch children.

Contrary to our expectations, both Limburgian and Dutch children appeared to be sensitive to pitch changes in newly learned words, indicated by a significant decrease in target fixation in MP trials compared to CP trials (see Figure 1). The findings are discussed against the background of the influence of the native prosodic system.

Figure 1: Mean pre- to post-naming change in CP and MP trials for Limburgian and Dutch toddlers.



References

COST Action IS0804 (2011). *Questionnaire for Parents of Bilingual Children (PaBiQ).* http://www.bi-sli.org

Quam, C., & Swingley, D. (2010). Phonological knowledge guides 2-year-olds' and adults' interpretation of salient pitch contours in word learning. *Journal of Memory and Language, 62*, 135-150.

Singh, L., Hui, T.J., Chan, C., & Michnick Golinkoff, R. (2013). Influences of vowel and tone variation on emergent word knowledge: A cross-linguistic investigation. *Developmental Science, 17*(1), 1-16.

Yip, M. (2002). *Tone*. Cambridge University Press.