

Trading relations between the phonetic cues of laryngeal contrast and the effect of lexical factors in contrast preservation: Production and perception evidence from an ongoing sound change in Hungarian

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The descriptive literature considers Hungarian to be a true “voicing” language in which word final obstruents are claimed to preserve their laryngeal contrast (i.e. the contrast is supposed to be solely based on the presence/absence of vocal fold vibration, this language has no final devoicing), as well as display regressive voicing assimilation (RVA), a process traditionally held to be completely neutralising (see e.g. Siptár & Törkenczy 2000). However, in the past few years, a number of studies have shown that the laryngeal contrast systematically co-occurs with other articulatory/acoustic features such as consonant duration, the duration of the surrounding vowels and sonorants, microintonational differences, formant values of the surrounding vowels, intensity differences, etc., and that these “subphonemic” differences may at least partially preserve the contrast if the cues provided by phonation are insufficient. Jansen (2004), Grácsi (2010), Markó et al. (2010), Bárkányi & G. Kiss (2015) all found traces of partial contrast preservation in RVA contexts, suggestive of incomplete neutralisation. Furthermore, the /s/–/z/ contrast in word-final position has started to show early signs of partially disappearing: /z/ is now increasingly produced in Hungarian with little or no voicing. These results indicate that the categorisation of Hungarian as a “true” voicing language in which there is no final devoicing is perhaps no longer tenable.

It has also been shown in various languages that not only the preservation of non-phonation related cues may militate against complete phonological neutralisation but lexical factors as well such as emergent homophony and semantic misinterpretation (Charles-Luce 1993, Kaplan 2011). The present study aims to explore the impact of lexical factors such as the presence of minimal pairs on the production and perception of word-final alveolar obstruents in prosodically weak positions with a special focus on sibilant contrast. Our data show that minimal pairs are more likely to preserve the acoustic correlates of voicing (the ratio of the voiced interval in the obstruent as well as the vowel/consonant duration ratio) than words that do not have such close competitors in the lexicon. Another aim of the study is to discover whether the acoustic correlates of the laryngeal contrast that the production studies found to be different for the two members of the contrast in voicing assimilation contexts are perceptually salient enough, i.e. whether these acoustic differences translate into perceptual differences or not.

For this reason, a perception experiment with the synthesised minimal pair *mész* /me:s/–*méz* /me:z/ ‘whitewash–honey’ and non-minimal pair *ész* /e:s/ ‘mind’ and *géz* /ge:z/ ‘gauze’ was carried out where the amount of voicing in the fricative, and the duration of the fricative and vowel were manipulated. The target words appeared in three sandhi contexts: before /p/, /b/ and /a/. Our results confirm that the lexical status of the word plays an important role in its recoverability: e.g. *géz* needs less voicing in all environments to be perceived as /z/ (Ganong, 1980). We have observed that listeners compensate for RVA: much less voicing is needed for the fricative before /p/ to be perceived as /z/ since here a voiceless realisation is expected.

We have also found that the difference in voicing in utterance-final fricatives is below the perceptual threshold in non-minimal pairs, while the difference is small but perceptible in minimal pairs. This suggests that Hungarian word-final fricatives might have taken the very first steps on their way to neutralising their underlying laryngeal properties. This is in line with Myers (2012) who argues that historically the perceptual basis of word-final devoicing is limited precisely to this class of obstruents and in this position, i.e. to fricatives utterance-finally. The phonological pattern of devoicing is then generalised from utterance-final words to all words and from fricatives to all obstruents in a given language.

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