

## **Methodological and structural effects in production & perception of final devoicing: Evidence from Russian.**

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Traditional formal accounts of final devoicing in neutralizing languages such as German, Dutch, Russian, etc. assume that both phonologically voiced and phonologically voiceless stops and fricatives are produced identically as voiceless obstruents in word-final environments (e.g., word-final /d, t/ surfacing as a [t]; among many others, Lombardi 1991). However, experimental production and perception studies have often shown that speakers of neutralizing languages produce and perceive statistically significant durational differences between voiced versus voiceless stops and fricatives even in word-final positions (among others, Port & O'Dell, 1985; Piroth & Janker, 2004; Ernestus & Baayen, 2007; Dmitrieva et al., 2010). Such findings have been interpreted as having serious consequences for formal phonology, ranging from warranting re-consideration of phonological inventories (e.g., Ernestus, 2000) to rejection of formal analyses of devoicing (Port, 1996; Port & Leary, 2005; Ernestus & Baayen, 2007). However, other studies have proposed that the apparent lack of neutralization in laboratory speech does not necessarily signal preservation of the underlying contrast but may instead be due to task-dependent factors, including speakers' exposure to orthographic forms during testing and presence of minimal pairs among stimuli items (among others, Fourakis & Iverson, 1984; van Rooy et al., 2003).

This talk will present the results of a series of acoustic production and perceptual identification tasks which investigated the role of methodological influences (exposure to orthographic forms, presence of minimal pairs among the stimuli) versus structural factors (underlying voicing, place and manner of articulation, word length, lexical competition) in production and perception of the voicing contrast in word-final obstruents in Russian. Acoustic production data from 78 speakers and perception data from over 200 participants indicate that methodological biasing can have a strong effect on the degree to which the voicing contrast is preserved, with differences between underlyingly voiced versus voiceless word-final obstruents being robust and perceptually salient when participants perform a reading task or encounter full minimal pairs among the stimuli but not when speakers produce non-orthographically represented stimuli items (e.g., naming pictures) or when minimal pairs are not included in the stimulus list. Effects of phonological and lexical factors are also observed; however, they are found to be more limited and less consistent than the effects of methodological biases both at the group level and within individual speakers and items. These results suggest that although the apparent preservation of voicing cues in experimentally-elicited speech cannot be attributed *exclusively* to the influence of non-structural biases, any interpretation of laboratory data and its implications for formal analyses of final devoicing requires taking into account not only phonological and lexical but also methodological influences on participants' linguistic performance. The present talk will also address the question of formal modelling of the observed effects and will show that the observed results are compatible with more interactive approaches to final devoicing that allow for a less restrictive notion of neutralization and do not require a strict separation of phonetic and phonological components of grammar.

## References

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