(In)complete voicing neutralisation in Standard Russian: does the general reflect the individual?

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While a range of studies have addressed the issue of voicing neutralisation in Standard Russian [1–3 inter alia], the reported results seem far from final. For example, [1] provides valuable insight into how L2 English may affect the acoustics of voicing neutralisation in L1 Russian but makes unsupported claims, based solely on production data, regarding its perception. In [3], the main focus is on methodological and lexical factors affecting incomplete neutralisation but not on comprehensive research into the acoustic parameters involved (only differences in glottal pulsing and consonantal duration are reported). Finally, [2] concentrates on the Russian variety spoken in Tambov, which raises questions regarding how standard the observed patterns are, provided that the norm is usually associated with the Moscow variety.

In the proposed talk, we report the first stage of our project investigating voicing neutralisation in word-final position in Standard Russian. While our ultimate goal is to create a comprehensive account of the phenomenon from the perspective of both production and perception, we now focus on the former. Specifically, we are interested in identifying the acoustic correlates of the underlying voice categories that will be subsequently used in the perception experiment. Moreover, while drawing conclusions based on generalised data from all speakers appears to be common practice in the area, we also employ a by-speaker comparison of minimal pair production.

Our data come from 16 native speakers of Standard Russian from five regions, including seven Muscovites. Each was asked to produce words from nine minimal pairs (e.g. *кот* /kotʸ/ ‘cat’ – *код* /kodʸ/ ‘code’) in different contexts (only isolated pronunciations are reported in this talk). The stimuli were presented as images or, when impossible, as dictionary definitions, so no influence of orthography is expected. In the analysis, four acoustic parameters were measured: closure/frication duration (C/F), voiced portion percentage (V), aspiration duration (A), and preceding vowel duration (PV).

Pooling data from all speakers, and with the exception of F (Δ=0.0125 s, P=0.005), we found that C (0.0054, 0.002), V (5.0466, 0.000), A (0.0135, 0.001), and PV (0.0109, 0.000) all differ significantly depending on underlying voicing. However, it is not at all clear (contra [1]) whether these statistical differences eventually converge in the perceptual domain, as most of the deltas predicted by the linear models are quite small.

On the contrary, when analysed on a by-speaker basis, it becomes clear that we are dealing with a number of different individual systems rather than a single uniform one. For instance, our data show that between the voicing categories, only 3 speakers (Va, Ve, and Ta) maintain differences in C; 7 (Va, Ve, Ta, Ro, Mar, Ni, and Do) in V; 5 (Al, Va, Be, Zh, and Do) in A; 3 (Ro, Mar, and Ta) in PV; and 3 (Do, Al, and Ro) in F.

Leaving the full discussion for the presentation itself, we would like to underscore the importance of accounting for actual, individual systems while analysing phonetic (and phonological) phenomena. While generalising over all speakers implies the potential impact of a number of acoustic parameters on incomplete neutralisation, a more thorough investigation of individual systems demonstrates quite the opposite. While some speakers consistently produce acoustic differences aligned with underlying voicing categories (e.g., Ro), this might not be the case for the majority.

References [1] Dmitrieva, O., Jongman, A. and Sereno, J. (2010) 'Phonological neutralization by native and non-native speakers: The case of Russian final devoicing', *Journal of Phonetics*, 38(3), pp. 483-492. [2] Kulikov, V. (2012) *Voicing and voice assimilation in Russian stops*. PhD dissertation. The University of Iowa. [3] Kharlamov, V. (2014) 'Incomplete neutralization of the voicing contrast in word-final obstruents in Russian: Phonological, lexical, and methodological influences', *Journal of Phonetics*, 43, pp. 47-56.