

## How to Study Voicing

Yury Makarov ([yurmak@iling-ran.ru](mailto:yurmak@iling-ran.ru))

Institute of Linguistics, RAS (Russia, Moscow); Vinogradov Russian Language Institute, RAS (Russia, Moscow); University of Cambridge (United Kingdom, Cambridge)

Even in systems lacking a voicing contrast (such as Hawaiian [Polynesian], cf. Parker Jones, 2018) consonants are phonetically characterised by the presence or absence of vocal fold vibration. It is therefore necessary that any phonetic and phonological description include data on voicing. These data have to be instrumental not only because by-ear judgments are barely falsifiable and are drastically affected by the scholar's first language(s). The other reason is that often voicing is not phonetically categorical (e.g., only 40% of closure voiced) and perception, which is mostly categorical, just cannot be used in analysing such numerical data.

The first part of the proposed talk will be dedicated to methodological issues in conducting research in voicing, which includes making recordings and choosing the proper elicitation strategy. This section will be supplemented with a discussion of typical mistakes leading towards either technical incapability of drawing consistent conclusions (e.g., echo in the recordings) or unreliability of the data resulting from priming (e.g., relying on orthography in stimuli). The problems that a researcher can face are not homogenous. It is fully possible to control the quality of the recording (by choosing good equipment and monitoring the audio during elicitation), less possible to influence the way a subject understands the tasks (e.g., the subject consistently treats only the last repetition of a stimulus as truly phrase-final), and almost impossible to eliminate phonetic/phonological effects or the subject's speaking habits (e.g., inserting a paragoge). I argue that the more controllable an issue is, the more linguistically relevant information it conveys.

The rest of the talk will concentrate on analysing the phonetic data and drawing phonological conclusions. Contrary to the belief that a language is either true voice (Russian) or aspirating (English) (Beckman et al., 2013), there are more possible scenarios of how phonetic voice onset time categories can map onto phonological series such as voiced/voiceless or fortis/lenis (Iosad, 2024). It is often the case that the traditional descriptions mention two series of plosives, voiced and voiceless, whereas, in fact, both series can be called voiceless, and the contrast is rooted in aspiration (one of the most obvious examples is English initial stops). For a comprehensive description of voicing in a language, it is important to compare the realisations of a phoneme in different positions depending on the following segments. For example, in Russian [Slavic], final devoicing normally occurs only before a pause and sonorants (Kulikov, 2012), see Figure 1.<sup>1</sup> On the contrary, in Shughni [Iranian], the following sonorant blocks final devoicing, see Figure 2 (note the voiceless [d̥], which results either from final devoicing or assimilation, cf. Makarov & Plungian, 2023). It is also essential to control for the morphological status of the words. For instance, in Russian, the preposition *под* 'under' in *под ногами* 'under (one's) feet' will not be devoiced, unlike in *год назад*, see Figure 3.

---

<sup>1</sup> Technically devoicing also occurs before a voiceless obstruent, though it can be interpreted as assimilation.

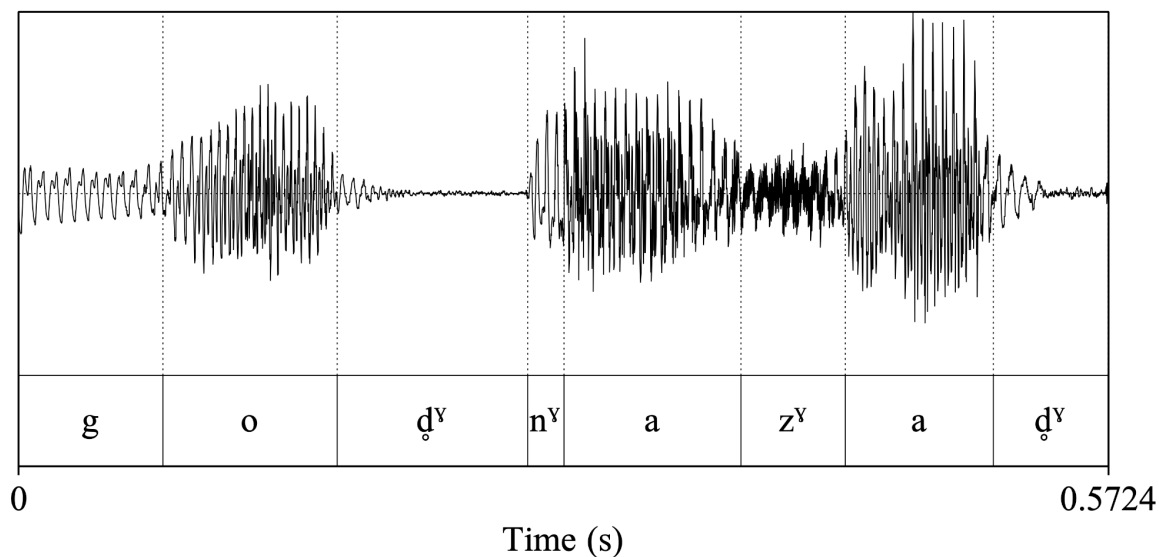


Figure 1. Soundwave of the Russian *god nazad* 'a year ago' as pronounced by a 62-year-old male speaker of Russian (<https://www.youtube.com/watch?v=6icyBmi1VIs>). The /dʲ/ of /godʲ/ is devoiced before the /nʲ/ of the following /nʲa'zʲadʲ/

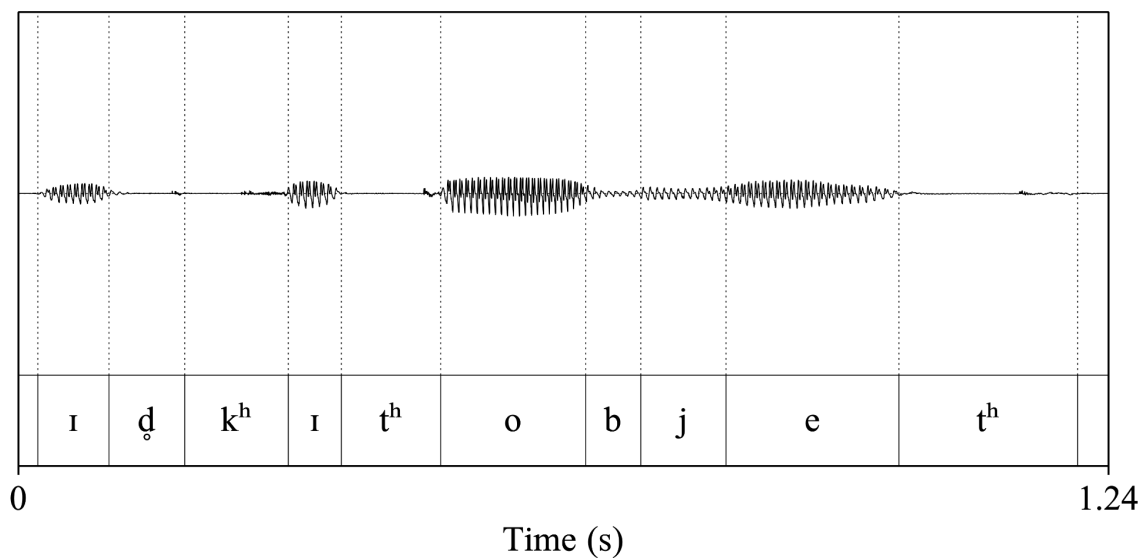


Figure 2. Soundwave of the Shughni *id kitob jet* 'this book is open' as pronounced by a 17-year-old male speaker of Shughni. The /d/ of /ɪd/ is devoiced before the /k/ of the following /kɪ'tob/

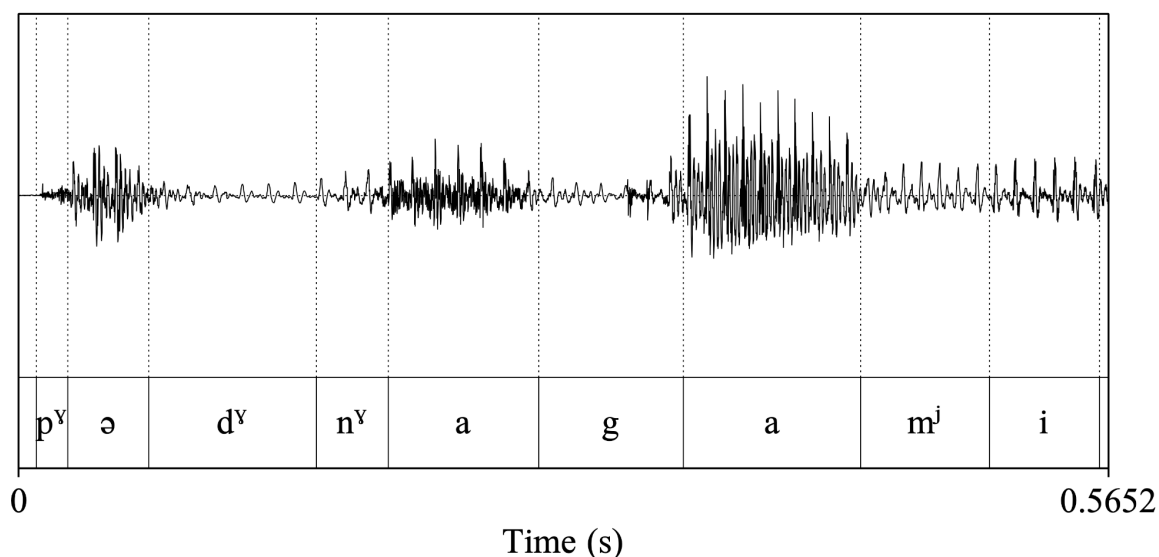


Figure 3. Soundwave of the Russian *под ногами* 'under (one's) feet' as pronounced by an adult male speaker of Russian. The /dʸ/ of the preposition *под* /pʸodʸ/ is not devoiced before the sonorant /nʸ/

## References

- Beckman, J., Jessen, M., & Ringen, C. (2013). Empirical evidence for laryngeal features: Aspirating vs. true voice languages. *Journal of Linguistics*, 49(2), 259–284. <https://doi.org/10.1017/S0022226712000424>
- Iosad, P. (2024). Why the search for rarities should take phonology seriously. In N. Kuznetsova, C. Anderson, & S. Easterday (Eds.), *Rarities in phonetics and phonology: Structural, typological, evolutionary, and social dimensions*. Language Science Press.
- Kulikov, V. (2012). *Voicing and voice assimilation in Russian stops* [Doctor of Philosophy, University of Iowa]. <https://doi.org/10.17077/etd.r6ib0d07>
- Makarov, Y. Y., & Plungian, V. A. (2023). K opisaniju shugnanskoj morfonologii: Predvaritel'nye zamechanija [Towards the Description of Shughni Morphology]. In «...Vperjod i vverkh po lestnitse zvuchashchej». *Sbornik statej k 80-letiju Ol'gi Fjodorovny Krivnoj* (pp. 178–193). Buki Vedi. [https://www.researchgate.net/publication/366840259\\_K\\_opisaniju\\_sugnanskoj\\_morfologii\\_predvaritelnye\\_zamecania\\_Towards\\_the\\_Description\\_of\\_Shughni\\_Morphology](https://www.researchgate.net/publication/366840259_K_opisaniju_sugnanskoj_morfologii_predvaritelnye_zamecania_Towards_the_Description_of_Shughni_Morphology)
- Parker Jones, 'Ōiwi. (2018). Hawaiian. *Journal of the International Phonetic Association*, 48(1), 103–115. <https://doi.org/10.1017/S0025100316000438>