

## **Voices of Livonians: how to evaluate the pronunciation of the Livonian language spoken today?**

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The Livonians are currently considered the most endangered culture within the European Union, and their language is among the most endangered in the world. As of today, only about 20–30 people are still able to speak Livonian (Druviete & Kļava, 2018), and approximately 250 individuals identified as “Livonian” in the most recent Latvian national census (Census 2011). However, the actual number of Livonians is likely much higher. Although Livonian is no longer used as an everyday language, the community remains actively involved in heritage preservation, language revitalization efforts, and language learning initiatives (Druviete & Kļava, 2018), including the creation of a digital language environment (Ernštreits & Kļava, 2021).

Our presentation introduces the part of the Livonian digital sphere which focuses on the voice of Livonians. Different initiatives to create digital resources for the Livonian language have culminated in a cluster of databases which is currently being expanded by the Livonian Institute of the University of Latvia (see the *livonian.tech* website). In 2022, a project was initiated to create audio recordings for the lexicographic database, with the sound files then being incorporated into the system. The audio files were processed, their quality and pronunciation evaluated, and finally, the recordings were added to the database. In 2024, a new project started, focusing on AI-based methods for generating and acquiring Livonian language content. The goal of the project is to explore the feasibility of developing speech synthesis and recognition technologies for critically under-resourced languages with limited data and very few contemporary speakers. The project primarily aims to create speech synthesis (text-to-speech) systems and conduct initial experiments in speech recognition (speech-to-text).

All this work has involved analyzing and evaluating the Livonian pronunciation, by which we mean the pronunciation of contemporary Livonian speakers. Livonian is strongly influenced by Latvian at different levels due to the close contact between the speakers of the two languages. Speakers of Livonian have been bilingual for a long time, and today, the influence is unavoidable and stronger than it was decades ago. Due to the lack of a Livonian speaking area, all speakers, without regard to proficiency, are completely exposed to the Latvian language environment, and therefore, their natural ability to maintain a traditional Livonian pronunciation is inevitably affected. This means that there have been changes in pronunciation, especially in areas where Livonian and Latvian pronunciation details differ significantly.

Our work focuses on the evaluation and analysis of materials required for speech synthesis and recognition, ensuring the authenticity of pronunciation. This is particularly important so as to plan speech-to-text systems that can accurately interpret the pronunciation of informants recorded decades ago. The important part is working with the speakers and finding the best solutions. We analyze changes that have taken place or are currently changing in contemporary pronunciation, but also take into account individual and dialectal differences.

One of the challenges that we are currently facing is finding the balance between contemporary pronunciation and the pronunciation of informants recorded decades ago. The situation is even

more complex, as Courland Livonian is not and never has been completely homogeneous and differences occur even between the pronunciations of the speakers recorded long ago (see, e.g., Tuisk & Teras 2009, Tuisk & Pharao 2024). An interesting example of changes in contemporary Livonian pronunciation is the shift in palatalization. In Livonian, palatalized consonants are represented by *ṭ ḍ ṇ ḷ ṛ* [ṭ, ḍ, ṇ, ḷ, ṛ]. Standard Livonian orthography indicates palatalized consonants with a cedilla, e.g., *kaṭki* [kaṭki] ‘broken’, *kēḷ* [ke:ḷ] ‘language’. In contrast, fricatives such as š [ʃ] and ž [ʒ] remain unmarked for palatalization. However, palatalization of the fricatives [ʃ] and [ʒ] is disappearing from contemporary pronunciation.

Words such as *ve’ž* [ve’ʒ] ‘water’ and *tuo’ž* [tuo’ʒ] ‘truth’ are now pronounced without palatalization. In our presentation, we will discuss such issues and provide solutions that would support further work in order to ensure the authenticity of materials involving Livonian pronunciation.

## References

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