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### **The rise and fall of voiceless vowels across Finnic varieties**

To date, no languages are known where a phonological contrast of voiced and voiceless vowels is incontrovertibly established, though it might exist in a handful of languages (Jakobson, Waugh 1987: 138–139; Ladefoged, Maddieson 1996: 315; Gordon 1998; Blevins 2004: 199–201). Voiceless vowels are typically very short and are usually ultimately lost, a fact that partly explains their typological rarity (Blevins 2004: 199).

The vowel inventories of Finnic languages have not been previously famous for containing voiceless vowels. However, our recent field research has proven their existence in at least two Finnic varieties of Russia: the Lower Luga dialect of the Ingrian language in the vicinity of St. Petersburg and a mixed Ingrian/Finnish dialect of Western Siberia. Both dialects are severely endangered, each with less than 100 speakers remaining. They are also very much understudied, especially the Siberian variety. The latter is spoken by an ethnic group whose ancestors were expelled to the Omsk region of Western Siberia in 1803-1804 from exactly the area where the former variety has been traditionally spoken along with the local Ingrian Finnish dialects. At present, there is a unique opportunity to compare these extremely closely related dialects that have existed separately since 1804.

While early research by Mägiste (1925: 82, 85) and Ariste (1965, 1969: 173) mentions voiceless vowels in Lower Luga Ingrian, they have been now attested in the Siberian variety for the first time. Our research has also found that these two varieties present two successive stages of evolution of voiceless vowels. On the basis of other closely related Finnic varieties, we can also trace their point of emergence (in Ingrian Finnish, Votic or Soikkola Ingrian dialects), as well as the point of their ultimate loss (in Estonian). We have thus a rare chance to attest in living languages and describe in detail all the stages of the rise and fall of Finnic voiceless vowels. The authors have been conducting fieldwork on all the above-mentioned languages since early 2000s. The paper will present the structural phonological modeling of this evolutionary chain. Moreover, the experimental phonetic data, as well as the data on how speakers themselves perceive voiceless vowels will be used. The perception data are based both on interviews with the speakers and folk manuscripts composed by two speakers of Lower Luga Ingrian.

Finnic voiceless vowels have originally emerged out of the non-initial short vowels in certain positions. The opposition of the non-initial lengthened vs. short vowels has transformed in the course of reduction into the contrast of short vs. reduced voiceless vowels. In Soikkola Ingrian, Ingrian Finnish and Votic, we observe different stages of this reduction process, with voiceless vowels occasionally occurring as allophones of original short vowels. For example (the most frequent allophones are in bold), [**ku:k:õ** ~ **ku:k:õ** ~ **ku:k:õ**] ‘rooster:NOM’ vs. [**ku:k:õ** ~ **ku:k:õ**] ‘rooster:PART/ILL’. However, in these varieties, voiced reduced allophones are the most frequent ones, and they hardly ever elide in speech.

In Lower Luga Ingrian, devoicing and elision in rapid speech are already very frequent. Reduced voiceless vowels are phonologically opposed to short non-initial modal vowels *ü, ö, u, o, i, e, a, ä*, e.g. [**ku:k:õ**] ‘rooster:NOM’ vs. [**ku:k:õ**] ‘rooster:PART/ILL’. The subsystem of these vowels has still preserved all the original contrasts of the initial system from which it has emerged, with the exception of the height contrast for middle vowels: [**\*ü, \*ö, \*u, \*o, \*i, \*e, \*a, \*ä**] > [**ü, ö, ü, ö, ĩ, ě, ǣ**] (<**\*a, \*ä**, partly **\*e**). Phonologically, it is preferable to treat the vowels in question as reduced rather than voiceless, i.e. /**ü, ö, ü, ö, ĩ, ě, ə**/. This is motivated by the fact that **ə** also occurs in positions where it cannot elide due to phonotactic and speech production restrictions, e.g. [**lam:ǣz**] ‘sheep:NOM’. In such cases, **ə** is pronounced as a reduced but not a voiceless vowel. We can therefore state that reduction should be treated as the main feature that triggers devoicing in some, but not all, contexts.

In Siberian Ingrian/Finnish, reduced vowels have completely lost the original height contrast. The system now contains two binary oppositions, in backness and labialization: [**ü,**

ĩ, ǫ (<\*a, \*ä, \*e), ǿ (<\*u, \*o, \*ö)]. This system can be already described through the consonantal features of palatalization and labialization (*t* stands for any consonant): [t̥, t̥ʲ, t̥ʷ, t̥ʲʷ] = /t̥, t̥, t̥ʷ, t̥ʲʷ/. Such an interpretation is even preferable for this variety, at least according to the speakers' introspection, especially in comparison with Lower Luga Ingrian speakers. The latter always interpret their reduced voiceless vowels as vowels (apart for ə, whose existence they tend not to perceive at all). This comes clear from the interviews and manuscripts by the Lower Luga Ingrian speakers. For example, they would always transcribe [kuk:ǫ] 'rooster:NOM' as *kukko*, just as they would do for [kuk:o] 'rooster:PART/ILL'. Speakers are thus not able to depict the existing phonological contrast in writing. Meanwhile, the speakers of the Siberian variety would claim that there is a special kind of 'k' sound in words like [kukʷ:] 'rooster:NOM', but no final vowel at all. If asked, they would write it down as *kukk*, while [kuk:o] 'rooster:PART/ILL' as *kukko*. At the same time, here [kukʷ:] becomes homonymic in writing with [kukʲ:] 'flower:NOM' (<\*kukka). Some speakers with the most advanced degree of reduction even claim that these two words do not differ in pronunciation. However, the majority of Siberian speakers still perceive the pronunciation of these words as non-homonymic.

If to adhere to the interpretation of voiceless vowels through the consonantal features, the Siberian variety is left with an ample transitory system of consonants. The majority of consonants come to have four variants: plain, palatalized, labialized and labialized palatalized. Many of such consonants are marginal and have a vague phonological status, as their positions or occurrence are extremely restricted and these additional features are not stable in realization for some groups of consonants.

On the basis of the closely-related and geographically adjacent language of Estonian, where the original short vowels were completely lost exactly in the positions where the two varieties of Russia have eliding voiceless vowels, a considerable simplification is expected for such a consonantal system. In Estonian, no traces of consonantal labialization remained (cf. *kukk* 'rooster:NOM'), and palatalization was preserved only for the dental consonants. Taking Estonian facts into account, the following evolution would be expected for the Siberian Ingrian/Finnish system: /t, tʷ/ > /t/ and /t̥, t̥ʷ/ > /t̥/.

The Finnic example thus supports the model for the typical evolutionary path of voiceless vowels proposed by Blevins. Moreover, it offers data for better understanding of the particular stages of this evolution. At the same time, the example analyzed also shows that voiceless vowels do not necessarily disappear from the language immediately after their emergence, but can be maintained over long periods. The reduced voiceless vowels were presumably present in Lower Luga Ingrian already at the point where the Siberian Ingrian/Finnish variety split with it. These vowels have thus been already preserved in both varieties for at least two centuries.

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