

Changes in the melodic scale in the course of gradual rise of pitch in Seto folk song. The results of acoustic measurements of upper voice *killõ* and lower voice *torrõ*

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In this paper the melodic scale of the Seto folk song is examined in the course of the gradual rise of pitch tessitura. A common problem when analysing scales in non-Western music is the fact that semitone pitches are not equal (unequal temperament).

Setomaa is an ethnographic region on the border between Estonia and Russia, in the north-eastern corner of European Union. Seto culture is distinguished from the rest of Estonia by its language, its Orthodox religion and its folk traditions. The latter include the unique multipart folk song or *leelo*, which was added to the UNESCO World Heritage list in 2009.

The *torrõ* (leader and lower part) and *killõ* (higher part) were extracted and analysed from two Seto multipart folk songs, performed by the female folk choir Leiko (Examples 1, 2). Sound recordings were made in 2006 with multitrack equipment and preserved in the Estonian Folklore Archives as DH 17, 34 ('Harvesting Song') and DH 17, 39 ('Wedding Song'). Sound analysis was carried out using the Multispeech programme (Model 3700, Version 2.2). In both songs, the same two singers, Maria Rõžikova and Anastasia Puhm, performed the *killõ* and *torrõ* parts, but in reversed roles.

The melodic scale used in both songs can be likened to a 'one-three-semitone scale', D-E \flat -F \sharp -G-A \sharp -B (Pärtlas 2008). However, researchers have encountered problems when describing Seto scales as it has been difficult to extract single voices from multipart singing and analyse them without a perceptual or theoretical bias (Pärtlas 2010 a, b).

Figs. 3 and 4 represent graphically the values of the rising melodic steps in both voices in song no. 34. In the gradual rise of pitch the lower part of the scale rises more, so has a bigger change of tessitura than the upper voice (figs. 3–6). The singers try to coordinate pitches at tonal centres and to keep small melodic intervals consistent, while larger intervals are diminished (figs. 5, 6). Melodic steps are produced in different ways. At times they overlap and do not correspond to the equally tempered scale. In the upper part of the scale there are two smaller intervals, closer to the notes G-A \sharp -B, than to G-A-B. The lowest note, D, differs more in tuning than the others. The scale for the song no. 34 is schematically written as D(-) F \sharp G A \sharp (J) B(J). A 'minus' indicates a small alteration and an arrow, a gradual descent.