Stability and Variation in Cadence Formulas in Oral and Semi-Oral Chant Traditions — a Computational Approach

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Aim
Investigate stability and variation of melodic scale and melodic contour in Torah trope, Qur’an Recitation and Dutch folk songs, taking a computational approach.

Audio Analysis

Qur’an Recitation
Alignment of two reduced renditions of the same phrase from surah al-zalzalah as read by Hajjah Maria Ulfa (Indonesia) and Nurul Ummah (Netherlands), presenting similarity of recitation tone and basic melodic contour

Torah Trope
Pitch-Histogram of Genesis 1–4 (left) and Genesis 5 (right) as read in The Netherlands (by Amir Naamani in 2011), showing a high degree of pitch-stability in different sections of the reading.

Dutch Folk Songs
Reduced contour of a cadential phrase from the Dutch tune family Soldaat kwam uit de oorlog. The pitch density diagram reveals a pentatonic scale.

Conclusion
By developing computational models for analyzing these three chant types we are creating a methodology to test stability and variation in terms of melodic scale and melodic contour. By extending possibilities for musical transcription via the employment of a new computational platform we reexamine variation and stability within melodic formulas within these chant traditions.