

## Melodic Stability and Memory Analysis in Semi-Oral Chant Traditions: A Computational Study of *Qur'an* Recitation and Torah Trope

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We have been devising transcription methods of oral traditions via computational means based on research conducted over an eight-year period. In particular, we have developed new computational models for analyzing chant with twenty-first century technology, thereby continuing the project of folk music transcription initiated by Béla Bartók (1881-1945). In analyzing relationships between parameters of pitch, melodic gesture and melodic scale in examples of Hungarian laments, Jewish Torah cantillation and *Qur'an* recitation with computational tools we have also created a new paradigm for chant transcription by enriching traditional transcription techniques with results from computational analysis based on pitch histograms. In the present study, we have recorded examples of Torah trope and *Qur'an* recitation from specific reciters, analyzing parameters of pitch, melodic gesture, scales and *maqamat* both within and also across traditions. Over a four-year period, we have returned to these reciters, asking them to recite the same text passage several times. We thereby aim to better understand the functionality of melodic stability within semi-oral chant traditions and how this relates to the short- and long term-memory of given reciters and religious communities.