

Analyzing Sonic Design in Central Asian Multiphonic Throat Singing: Spectral Sets, Contours, Transformations, and Morphologies

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This paper will develop several new tools and strategies useful for analyzing various aspects of sonic design in Central Asian multiphonic throat singing. Previously, Shuster (2012; 2014) demonstrated how timbral surfaces can be divided into a succession of spectral segments with the contents of each segment being characterized as a distinct spectral set and class. This approach affords an efficient labeling system in which to inventory and compare the diversity of timbral contexts in a performance. Contour theory affords a complementary linear perspective by demonstrating how the individual pathways that connect the harmonics in each successive spectral set combine to create multilinear displays.

By considering the succession of spectral sets within a broader musical space informed by the harmonic series, it is now possible to characterize their succession as a series of transformational functions. Thus, we can not only demonstrate the internal organization of a given spectral set but explicitly define the transformations that map each successive set onto the other. Using an assortment of sonic analysis software applications to measure the loudness and amplitude of individual harmonics within each spectral set, it is possible to demonstrate a profile of spectral morphology by defining change over time. Software applications include Sonic Visualiser, Sygyt, SPEAR, Audacity, and Wavanal. Analytical examples include excerpts from Fedor Tau's performance of Sygyt.