

**Meeting:** 1001, Evanston, Illinois, SS 23A, Special Session on Mathematical Techniques in Musical Analysis

1001-20-212      **Jack M Douthett\*** (jdouthett@tvi.edu), TVI Community College, Albuquerque, NM, and  
**Richard Hermann** (harhar@unm.edu), University of New Mexico, Albuquerque, NM. *Wreath  
Products, n-Cubes, and Musical Voice-Leading*. Preliminary report.

The n-cube will be utilized to model the chromatic voice-leading in selected passages of the music of several composers. The symmetry group of the n-cube will be broken down into a wreath product that acts on the binary labels of the n-cube vertices. It is these vertices that represent sequences of musical voices, with the members of the symmetry group acting as musical transformations. Subgroups of this symmetry group that act in a simply transitive (regular) way on the n-cube vertices will also be discussed. Finally, to extend the versatility of the musical analysis, copies of the symmetry group become a base group for a new wreath product. (Received August 26, 2004)