

1067-00-1966 **Dmitri Tymoczko*** (dmitri@princeton.edu), 310 Woolworth Center, Princeton, NJ 08544.
Mathematical Concepts in Musical Composition.

In my talk I will consider some ways in which recent music-theoretical developments can be applied compositionally. I begin by reviewing some general questions that have been the focus of intensive theoretical work: What makes a good scale? How can modulation be modeled in the seven-dimensional orbifold representing seven-note chords? What are voice leadings and how can they be categorized? Under what circumstances can harmony and voice leading be combined? I then describe some broad strategies for musical organization, including two popular twentieth-century techniques that I call "scale first" and "chord first" composition. Finally, I present some musical pieces that exploit this new body of theoretical knowledge, including a piece of electronic music whose harmonies are generated by a second-order Markov model derived from Mozart's piano sonatas. (Received September 22, 2010)