

Implementing Modality in Algorithmic Composition

by Vincent Joseph Manzo
June 1, 2007

Abstract

The Modal Object Library is a collection of algorithms to control modality. The heart of the Modal Object Library is the *Modal Change* object which interprets all of the scale data for major, harmonic minor, harmonic major and melodic minor and each of the 7 modes for each of these categories (28 modes all together). It outputs all of the pitch classes in order and stores the data in a table as well. It also puts the data into a coll list file which can easily filter incoming notes that are not from the user selected mode to those from the mode. For instance, if you play a D in Db Major, the list file will bump the note down to Db.

Additional objects in the library are *Modal Shift* (finds modes related to the one you select sharing 6 of the 7 notes), *Modal Mutation* (same as *Modal Shift* but excludes the list of related modes to those sharing a common tonic), the Messiaen Objects (utilizes the Messiaen Modes of Limited Transposition), *Modal Chord* and *Modal Triad* (for chords and triads), *Modal Prog*, for creating 4, 8, 12 or 16 bar progressions based on each mode.

The Modal change object and the Messiaen objects all have the ability for you to input your own scale degree distance map (in steps. For instance major scale is 2 2 1 2 2 2 1). If the user entered mode is unidentified it will say that it doesn't have a name for it, but will still output all pitches from the scale in order and input the data into a table.

The library also includes networking objects optimized for controlling objects in this library over a network, and an analysis object that takes all notes played within a specified time frame and identifies the mode.

This library was created primarily to aid in my own compositional interests including algorithmic compositions and interactive music systems. Examples of my works that implement these objects can be heard and seen at www.vincemanzo.com. This library was originally conceived to aid in teaching modal relationships to my theory students.