**Composition: Electronic Media II**
**Jan. 17, 2006**
Spectral Analysis in Kyma

1. Prepare soundfiles for spectral analysis in **Kyma**
   a. Use to **Peak** to isolate individual sounds—create a new mono soundfile for each sound and normalize it.
   b. Single-pitches work better than complex sounds. A good resource is the Iowa Musical Instrument Samples Database.

2. Perform the spectral analysis of your soundfile as follows:
   a. Launch **Kyma**.
   b. Select **Tools>Spectral Analysis**. A window like the one below will appear:
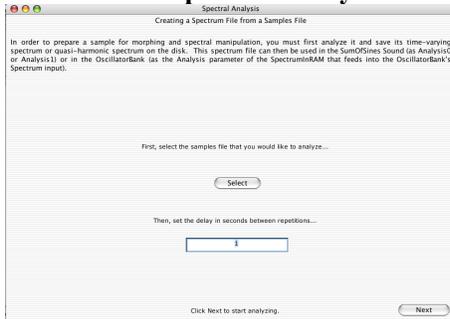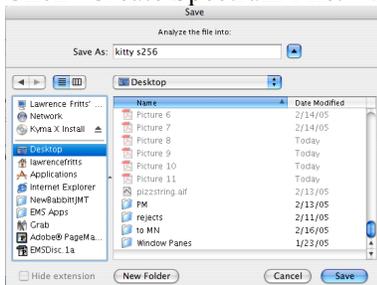

   c. Click "Select" to find a soundfile you wish to analyze, then click "next." A window like the one below will appear:
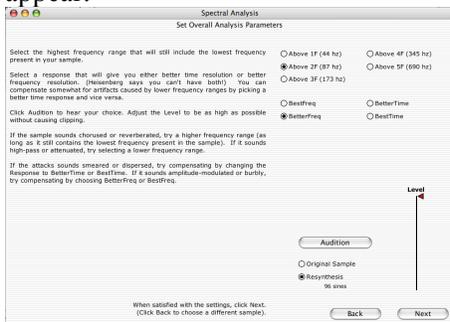
   d. Click "Audition" to hear the spectral analysis. By ear, select the best settings in the upper right corner. Click "Next." A window like the one below will appear:
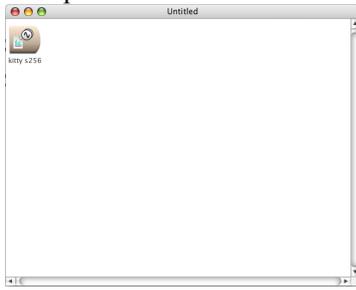

   e. Click "Create Spectrum File." Select "Exit." A save dialog like the one below will appear

   f. Note that s256 is appended to the file name. This denotes a spectral file with 256 tracks (which will be explained later). Click Save. A Sound File window like the one below will appear:
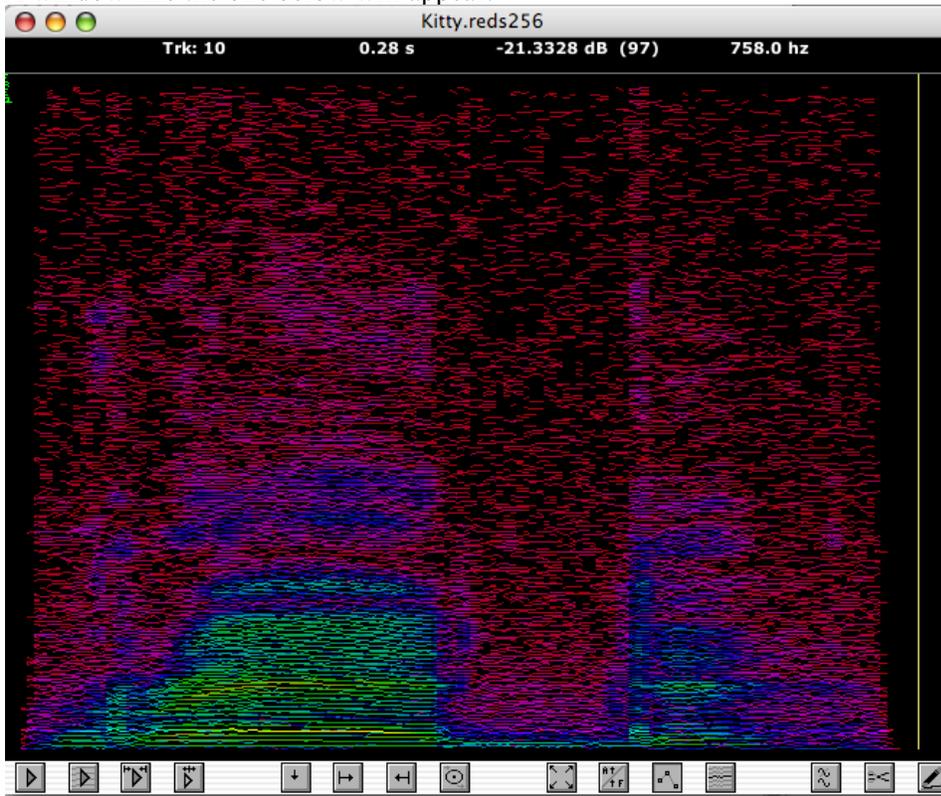
5. Save the spectrum as the one below:

Ignore this window for now and close it.

6. Open the **Spectrum Editor** as follows.
   a. Select **Open>Spectrum File**. Use the dialog window to find the spectrum file that you just created.
   b. A window like the one below will appear:

   c. Note the following structure in the window:
      i. Frequencies are displayed as tracks. Note that track 10 has a frequency of 758 hz in this example.
      ii. Time is displayed left to right. Note that track 10 has a frequency of 758 hz at 0.28 seconds in this example.
      iii. Loudness (or amplitude) is displayed as colors, where green>blue>purple>red>black. Note that track 10 has an amplitude of –21.3328dB at 0.28 seconds in this example.
      iv. Play up to start marker.

   d. The **spectral editor**, has the following controls, indicated by the icons on the bottom of the window. From left to right:
      i. Play all tracks.
      ii. Play selected tracks.
      iii. Play between markers.
      iv. Play up to start marker.
      v. Place marker at scrub bar.
      vi. Place start marker at scrub bar.
      vii. Place end marker at scrub bar.

viii.   Set pre- and post roll time.
        ix.   Zoom all the way out.
        ix.   Toggles between frequency and amplitude display modes.
        x.   Toggles between displaying tracks as dots or connected lines.
        xi.   Select tracks based on various criteria (complement, Fibinacci, prime, odd, etc.).
        xii.   Modify tracks in various ways (frequency, amplitude, arpeggiate).
        xiii.   Remove contents of the file between start and end markers.
        xiv.   Toggle between displaying and drawing tracks.

7. To edit the spectral file, perform some track selection techniques discussed in class Click save. A save dialog will
    prompt you to name the "Filenames256 subset". Be careful. If you create another file, it will also be named
    "Filenames256 subset". A solution is to adopt a naming scheme of subset1, subset2, etc.