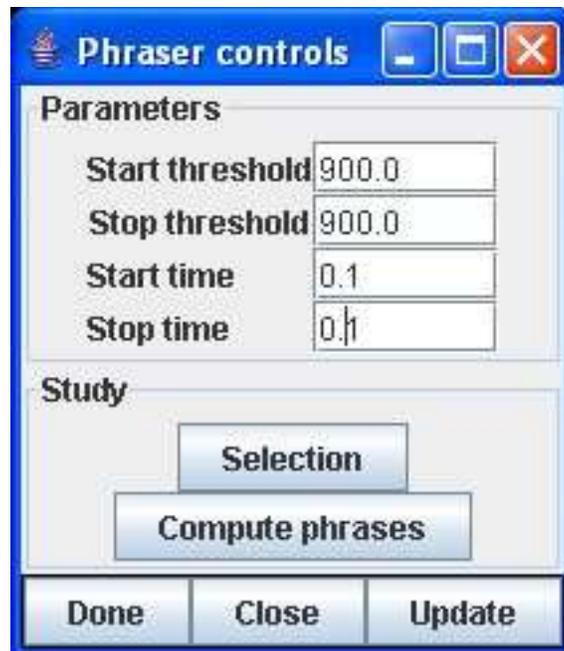


Dora2 Phrase Extraction

The "Phrase creation" process in Dora2 is based on the idea that the individual songs (or phrases) in a longer recording begin when the overall loudness level in the recording goes above some threshold level and the phrases end when the loudness drops below some other level.

Since small bits of a sound might pass above or below these *thresholds* briefly due to noise, randomness, etc., we require that the sound level exceed (or drop below) the thresholds for some specific amount of *time* to start or stop a phrase.

These are the basic parameters that control the phrase creation process, and you can adjust them in the Parameters portion of the **Phraser Controls** dialog window.

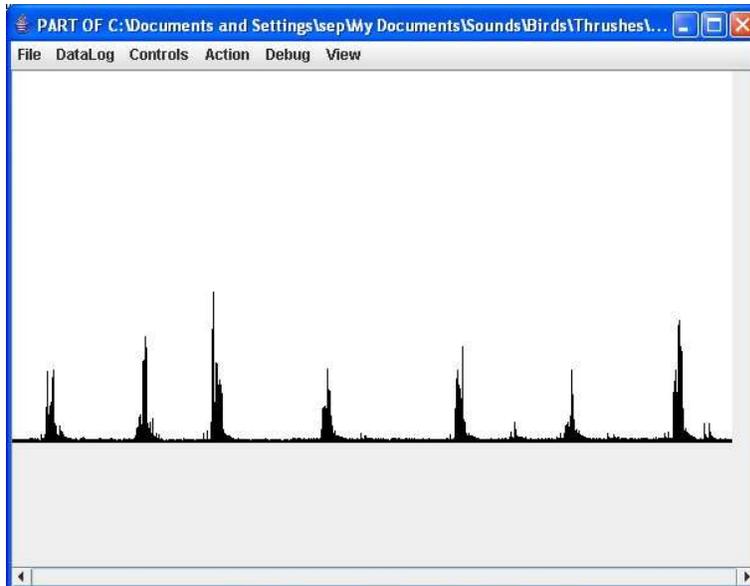


The way that the phrase creation process measures the loudness of a sound is to find the "average" size of some number of sound samples. The number of samples going into the average is the **BlockSize** (adjusted in the Image Controls window) and the "average" that is used is the so called "root-mean-square" or RMS average. If you choose to restrict the frequency range (in the Image Controls window) only that power in the sound that occurs in the specified frequency range is averaged in, otherwise the entire samples are averaged.

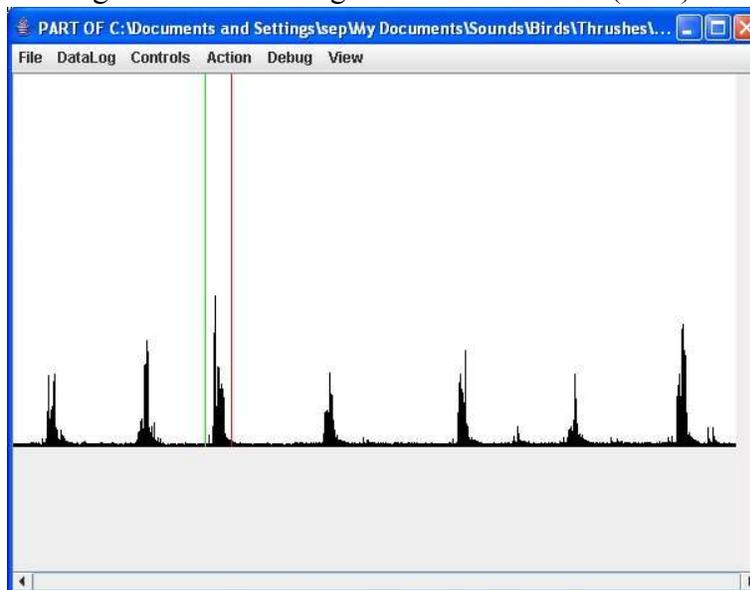
Here's an example of creating phrases.

Open a sound file and show the RMS power display. That is, use the **Image Controls** window to set **BlockSize** to 512 (say), turn the **Show spectrogram** option off (uncheck it) and turn the **Restrict Frequency** option off (uncheck it).

Open the sound file and you'll get a display something like this:



To get an idea of appropriate parameters for phrase extraction, select a fairly loud portion of the recording by left clicking the mouse to the left and then right clicking the mouse to the right of a phrase. This will create temporary start and stop cursors that will be displayed on the image of the sound as green and red cursors (lines):

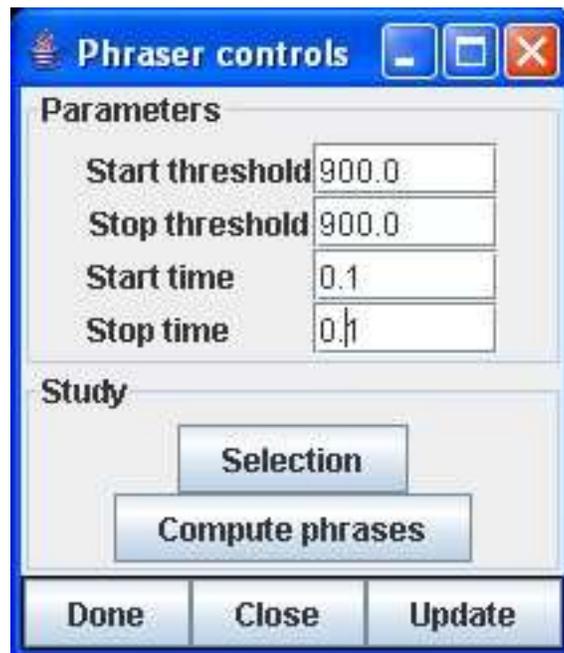


Next, in the **Phrase Controls** window click the Study **Selection** button, which will make Dora2 calculate the RMS averages for the blocks in the region you selected. A popup window will report something like:

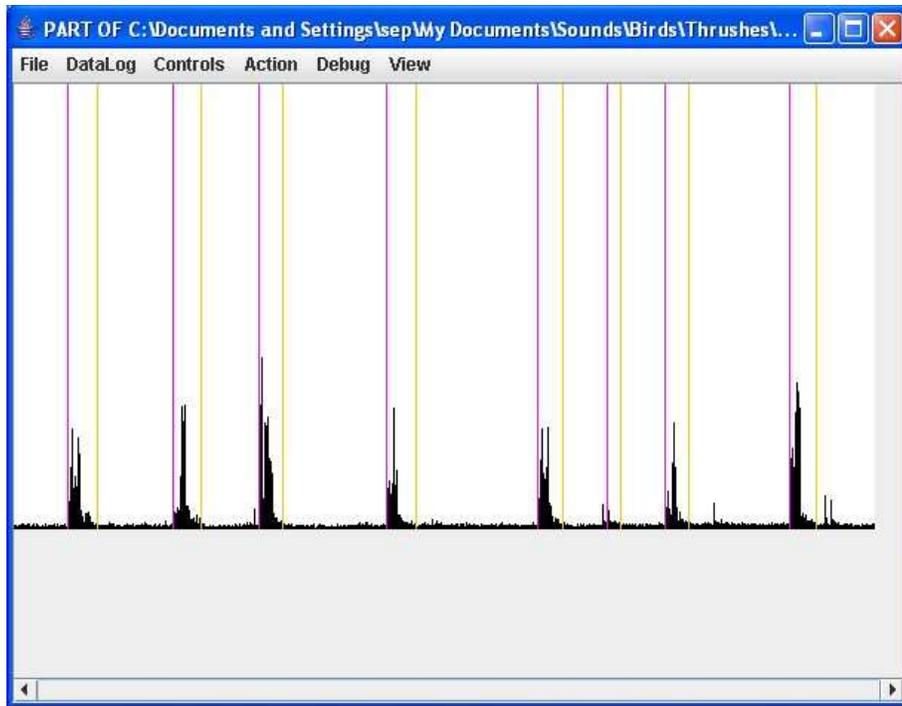
Max: 14282
Min: 393

You can dismiss the window with the **OK** button. Select the entire sound again by left clicking at the start and right clicking at the stop of the sound (or the portion of the sound from which you want to extract phrases).

Start and Stop thresholds between 393 and 14282 will probably recognize a phrase start and phrase end within the sound between the green and red cursors, so if you select values near the low end of this range for the start and stop thresholds, the process will capture most of the high energy portion of the selection as a phrase. Do this with the **Phrase Controls** dialog window that you can open from the main **Controls** menu. A good first guess for the Start and Stop times is 0.05 to 0.1 seconds. Adjust the values of the parameters in the textfields and click the **Update** button of the **Done** button to accept the new values.

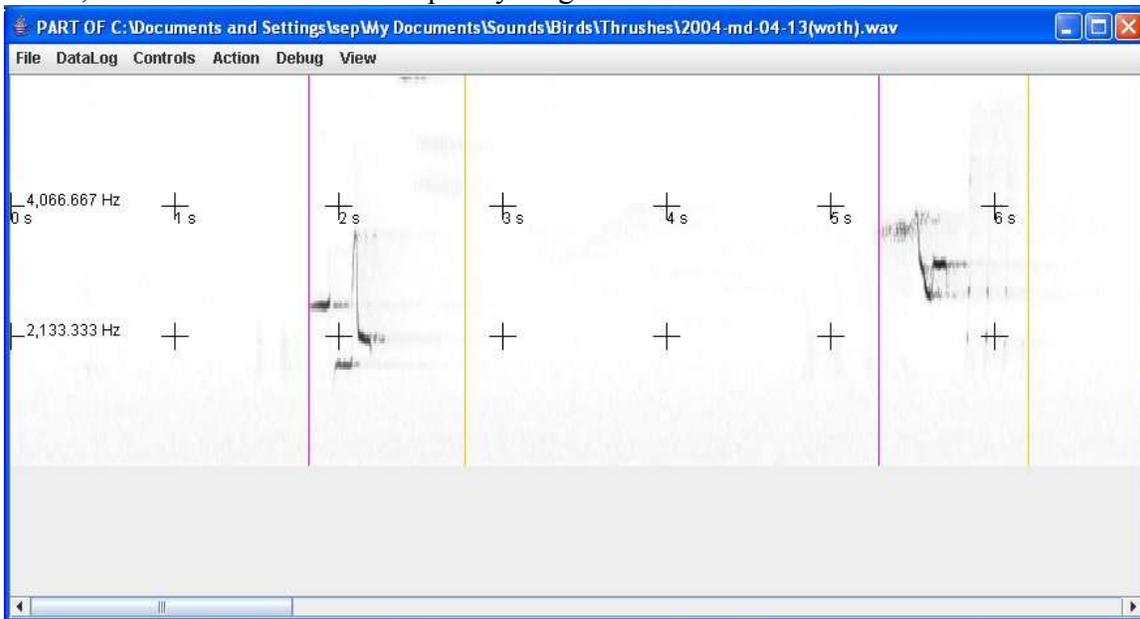


Then select **Compute Phrases** from the **Action** menu and Dora2 will calculate the phrases according to the parameters and display the start and stop of the phrases:



You can fool with the parameter values in the **Phrase Controls** window to modify the results of this process, and adjust the **BlockSize** value in the **Image Controls** window as well.

You can modify the **Image Controls** at this point, if you like, to make the display into a sonogram, and change other aspects of the display as well. For example, adjusting the Image Controls produces the following display that shows only two of the phrases in the sound, and in a more focused frequency range:



You can adjust the location of the individual phrase-start and phrase-stop cursors by shift-left-clicking on them and then dragging them to a new location.

When you're happy with the way the phrases are marked, turn of the **frequency restriction** (if you'd turned it on) and return the **BlockSize** to its original value. Then select the **Extract Phrases** item from the **Action** menu and Dora2 will create a separate wav file (in the same folder/directory in which the original sound file resided) for each of the phrases.