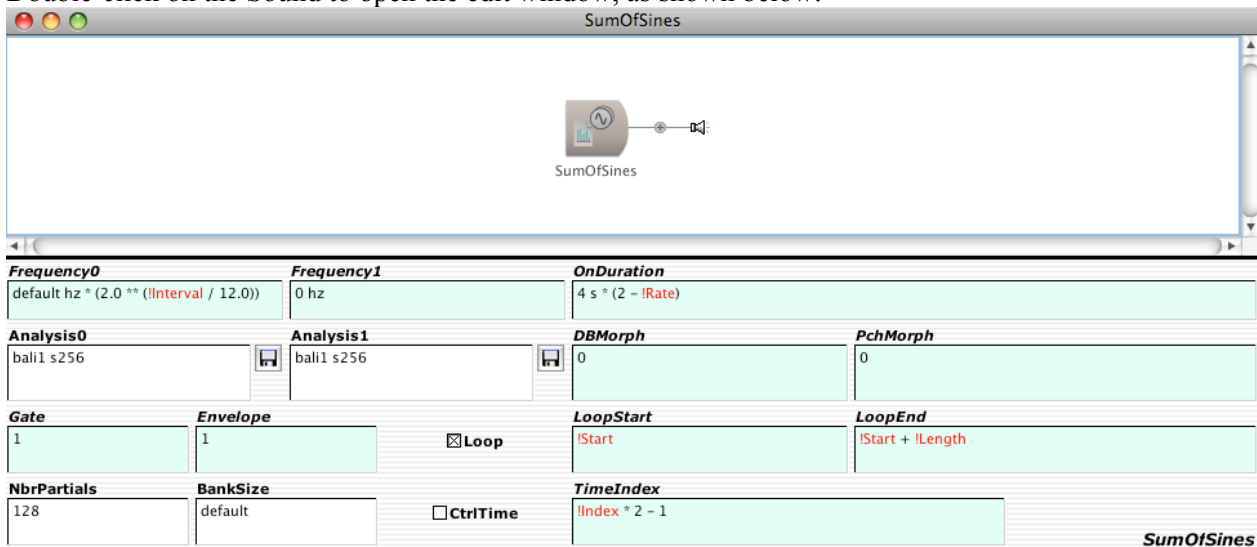**Composition: Electronic Media II**
Spring 2009
Spectral Synthesis in Kyma Part 2

1. Open a SumOfSines Sound as discussed in the Spectral Synthesis handout Part 1.

2. Double-click on the Sound to open the edit window, as shown below:


2. Notice the characters in the edit windows. Some have black, plain text. Others have red text preceding by an exclamation mark! Wow!
   a. Plain text characters are called cold parameters. They are fixed and do not change. They do not appear in the Virtual Control Surface, discussed below.
   b. Red text characters are called hot parameters. They are variable and change in time. They are controlled by faders and buttons in the Virtual Control Surface, discussed below.

3. In the window Analysis0, open one of your spectral files by clicking on the disk icon and using the open file dialog. The name of the file will appear in the Analysis0 window instead of bali1 s256.

4. Enter the data below in the Frequency0 field, as shown below:
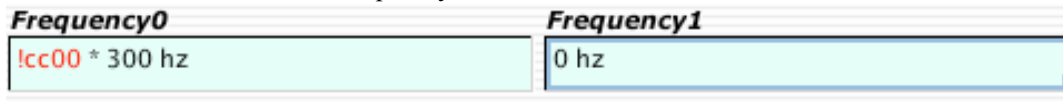
Consider the following:
   a. !cc00 denotes "continuous controller number 00".
   b. This controller sends a value in a range of 0 to 1.
   c. This value is multiplied by the * symbol and acts on the cold parameter of 300 hz.
   d. Notice the spaces between characters.
   e. Consider the possible products produced in this field, such as 0.1 * 300 hz = 30 hz; 05 * 300 hz = 150 hz.
   f. Consider the results on the sound of these possible products.

5. Enter the data below in the OnDuration field, as shown below:
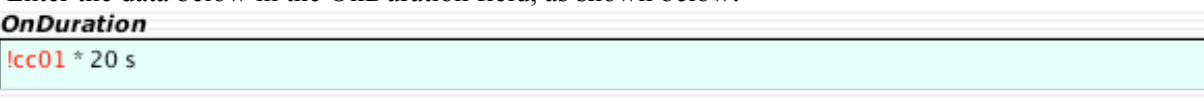
Consider the following:
   a. !cc01 denotes "continuous controller number 01".
   b. This controllers sends a value in a range of 0 to 1.
   c. This value is multiplied with the cold parameter of 20 s, where s denotes seconds.
   d. Consider the possible products produced in this field and their results on the sound.

6. Enter the data below in the DBMorph and PchMorph fields, as shown below:

DBMorph	PchMorph
0	0

Consider the following:
  a. The value of 0 in DBMorph means that the amplitude envelopes of Analysis0 are present in the resulting sound, while those of Analysis1 are not.
  b. The value of 0 in PchMorph means that the frequency envelopes of Analysis1 are present in the resulting sound, while those of Analysis1 are not.
  c. Since these are cold parameters, these values are fixed and do not change.
  d. Since these are cold parameters, they do not appear in the Virtual Control Surface.

7. Enter the data below in the checkboxes and LoopStart, LoopEnd, and TimeIndex fields, as shown below:

	LoopStart	LoopEnd
☐Loop	0	1

	TimeIndex
☐CtrlTime	0

SumOfSines
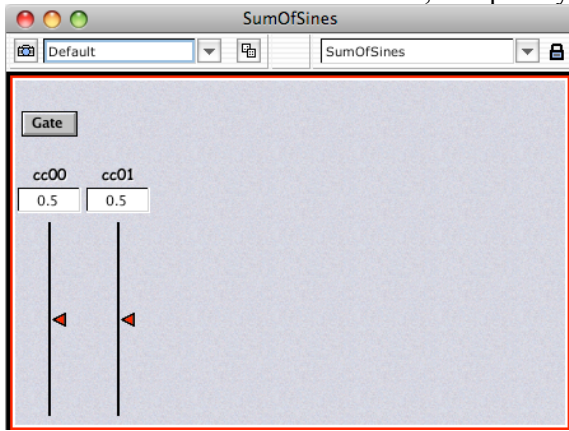
Consider the following:
  a. Since the Loop and CtrlTime boxes are not checked, the values in the parameter fields do not affect the the sound.
  b. Because the values in the parameter fields are cold parameters, they do not appear in the Virtual Control Surface.

8. Enter the data shown below in the Gate and Envelope windows

Gate	Envelope
!Gate	1

Consider the following:
  a. The hot parameter !Gate will trigger the playback of the sound.
  b. !Gate will appear as a toggle button in the Virtual Control Surface.
  c. The value of 1 in the Envelope field means that the sound will be played back at the maximum loudness.

9. To play the sound, do the following:
  a. Compile it by typing cmd-P.
  b. The cursor will turn into a white arrow.
  c. The Virtual Control Surface will appear, as discussed below.
  d. To stop all actions, de-compile by typing cmd-k.
  e. The cursor will return to a black arrow.

10. To see the Virtual Control Surface, compile by typing cmd-P. A window like the one below will appear:

Consider the following:
a. To view the Virtual Control Surface if it is hidden, select File>Virtual control surface.
b. The Gate toggle button triggers playback of the sound.
c. The controller cc00 controls the frequency of the sound.
d. The controller cc01 controls the playback speed of the sound.

11. Next, we will learn to morph between two spectral files and performan a basic kind of cross synthesis.