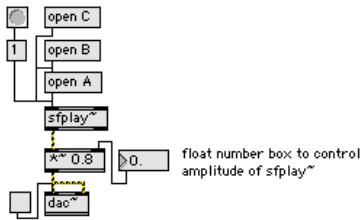


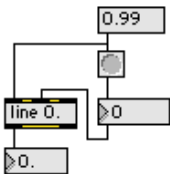
Composition: Electronic Media II
February 18, 2008
Fade In/Out Amplitude Envelope with the Line Object in Max/MSP

1. The patch below shows how a float number box can control the amplitude of sfplay~:



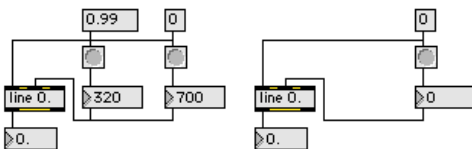
- The float number box changes the loudness of a sound from 0 – 1.
- This can be a fixed number or it can change over time.
- When the loudness of a sound changes over time, this is called an “amplitude envelope.”
- The steps below will show how to create a fade in/out envelope for sfplay~.

2. Consider the patch below:



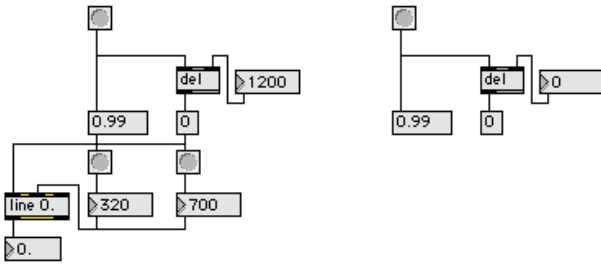
- The float number box at the bottom will eventually be patched to the float box pictured in Step 1.
- The **line** object has the text “0.” in it. This is to make the line object read float values.
- The number box (not float) to the right of the **line** object is patched to the middle inlet of that object.
- The user will enter or scroll to a number that will represent the time, in milliseconds, it takes to fade in.
- The bang button above is patched to the inlet of the number box.
- The bang button will trigger the output of the number box at the appropriate time.
- The message box “0.99” is patched down to the bang button. This means that when the message box “0.99” is triggered, it in turn sends a bang to the number box that represents the fade in.
- The message box “0.99” is also patched to the left inlet of the **line** object.
- When the message box “0.99” is triggered, it causes the float box at the bottom of the patch to go from 0 to 0.99.
- The time it takes to go from 0 to 0.99 is determined by the number, representing milliseconds, in the number box.
- This patch, then, acts as a fade in for an sfplay~ patch.

3. Consider the patches below:



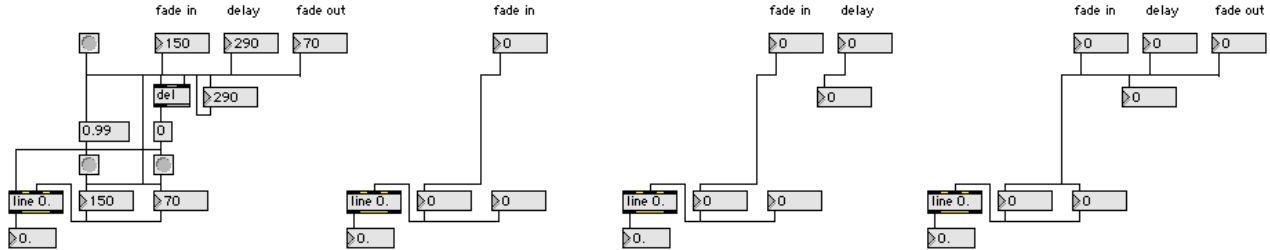
- The patch on the left has two stages. The left stage goes from 0 to 0.99 in 320 milliseconds when triggered. The right stage goes from 0.99 to 0 in 700 milliseconds when triggered. The left stage is a fade in and the right stage is a fade out.
- The patch on the right shows how the elements of the fade out stage are patched.

4. Consider the patches below:



- The patch on the left is triggered by the bang button at the top.
- As can be seen by the patch on the right, this bang button goes to the message box “0.99”.
- The bang button also goes to a **del** object.
- The **del** object is patched to the “0” message box.
- The number box on the right goes to the right inlet of the **del** object.
- This number box control the time in milliseconds that the initial bang is delayed before it triggers the fade out stage of the patch.

5. Consider the patches below:



- The number boxes denoted “fade in”, “delay”, and “fade out” place the controls for these functions at the top of the patch, for easy access.
 - The patches on the right show how these are patched.
6. To use the `line~` fade in/out patch, patch its bang button to that bang button above message box “1” of `sfplay~`. This will cause the soundfile to be triggered at the same time as the fade in/out process.