

Drum Machine 2
Assignment due 25 February 2008

0. Reading

a. Functions

<http://chuck.cs.princeton.edu/doc/language/func.html>

b. Envelopes

Run the ADSR and Envelope examples at

<http://chuck.cs.princeton.edu/doc/examples/>

Also read ADSR and Envelope specifications in the Programming Guide:

<http://chuck.cs.princeton.edu/doc/program/ugen.html>

Be sure you understand how these work, and how ADSR is different from Envelope.

c. Additive Synthesis

Tutorial:

<http://soundlab.cs.princeton.edu/learning/tutorials/SoundVoice/pcm1.htm>

(read through at least to end of Additive Synthesis section)

Chuck UGens:

Read GenX documentation

1. Encapsulate a drum machine ChuckK file from the last assignment in a function called `drumMachine`. Expose control over musical aspects of the loop (tempo, instrumentation, ... ?) via parameters of the function. Play with calling your function with different parameterizations from the main section of the code.
2. Write a function called `makeNote` that synthesizes a single note using one of the GenX objects and an ADSR or Envelope object. The parameters of this function should minimally include pitch and length, but you should add other parameters for higher-level properties of the sound; perhaps “attack sharpness” or “brightness” (related to the parameters of the GenX and/or envelope used). Choose the GenX object, envelope, and their parameters to make the sound interesting!
3. Call this function from existing or new drum machine code so that you like how it sounds. (Feel free to keep using `SndBuf`, `UGens`, etc. in conjunction with your new function.) Find a good way to control the parameters of `makeNote` over time.

4. Object scope

Consider the two following code examples:

A	B
<pre>SinOsc s => dac; while (true) { play(); } fun void play() { Std.rand2(100,1000)=> s.freq; .5::second => now; }</pre>	<pre>while (true) { play(); } fun void play() { SinOsc s => dac; Std.rand2(100,1000)=> s.freq; .5::second => now; s =< dac; }</pre>

Why might you choose to write A instead of B? B instead of A?

What to hand in:

- Your ChuckK code for Question 3 (will also contain code you wrote for Questions 1 and 2). Make sure you include all sound files you use in the drum machine.
- Your answer to Question 4

Be prepared to demo your improved drum machine in class!