Wave Tables and Oscillators

t = tableSinesN numSamples partialsList  

Example: tableSinesN 4096 [1]

t = tableLinear y0 syPairs  

Example: tableLinear 0 [(0.5, 1.0), (0.5, -1.0)].

Note: syPairs represents pairs of segment lengths (note absolute x-coords) and y values (amplitudes). See also: tableExponN, tablesSines3N (takes triples of partial number, strength, & phase offset)

y <- osc tableName phaseOffset <- frequency  

Basic oscillator syntax

See also: oscI (linear interpolation version of osc)

Commonly Used Signal Functions

White noise generator: n <- noiseWhite intSeed <- ()

Delay line: outSignal <- delay sec <- inSignal

Variable delay line: outSignal <- delay maxDel <- (inSignal, delAmt) where delAmt ≤ maxDel

Low-pass filter: outSignal <- filterLowPass <- (inSignal, halfPowerHz)

High-pass filter: outSignal <- filterHighPass <- (inSignal, halfPowerHz)

Butterworth low-pass: outSignal <- filterLowPassBW <- (inSignal, cutoffFreq)

Butterworth high-pass: outSignal <- filterHighPassBW <- (inSignal, cutoffFreq)


Butterworth band-stop: outSignal <- filterBandStopBW <- (inSignal, cutoffFreq, bandwidth)

Linear envelope: e <- envLineSeg [y0, y1, ..., yn] [d1, ..., dn] <- () where y:: Double is an amplitude and d:: Double is a duration in seconds. The list of amplitudes should always contain one more value than the list of durations. See also: envExponSeg.

Virtual Instrument Creation and Usage

Mono Instrument Format

instr1 :: Instr (Mono AudRate)

instr1 dur pch vol params =
let freq = apToHz pch
in proc _ -> do
...
returnA <- outSignal

Stereo Instrument Format

instr2 :: Instr (Stereo AudRate)

instr2 dur pch vol params =
let freq = apToHz pch
in proc _ -> do
...
returnA <- (leftSig, rightSig)

Using Your Instruments

myName = CustomInstrument "Foo"

instrMap :: InstrMap (Mono AudRate) instruments used must be all mono or all stereo, not mixed

instrMap = [(myName, instr1), ...]

myMel = instrument myName musicVal musicVal must use only instrument names in instrMap

writeIt = writeWav "m.wav" instrMap myMel

See also: writeWavNorm (normalizes amplitudes to [-1.0, 1.0])