Csound Opcodes for Scanned Synthesis

Scanned synthesis is a variant of physical modeling, where a network of masses connected by springs is used to generate a dynamic waveform. The opcode *scanu* defines the mass/spring network and sets it in motion. The opcode *scans* follows a predefined path (trajectory) around the network and outputs the dynamic waveform. Several *scans* instances may follow different paths around the same network.

These are highly efficient mechanical modeling algorithms for both synthesis and sonic animation via algorithmic processing. They should run in real-time. Thus, the output is useful either directly as audio, or as controller values for other parameters.

Please note that the generated dynamic wavetables are very unstable. Certain values for masses, centering, damping can cause the system to "blow up" and the most "interesting" sounds to emerge from your loudspeakers...

SCANU

The syntax for *scanu* is:

scanu init, irate, ifnvel, ifnmass, ifnstif, ifncentr, ifndamp, kmass, kstif, \
kcentr, kdamp, ileft, iright, kx, ky, ain, idisp, id

init: The initial position of the masses. If this is a negative number, then the absolute of *init* signifies the table to use as a hammer shape. If *init* > 0, the length of it should be the same as the number of masses (128), otherwise it can be anything.

irate
sample period of the system. If the number is big the string will update at a slow rate showing little timbral variability, otherwise it will change rapidly resulting in a more

ifndamp

128), and it

(shou)Tj 5F2 12 Tf27.996c 0 TD(waveform to use.)Tj ET BT/F32 12 Tf 90.125639.725 TD(korder)Tj /F2 12 Tf31.992c 0 TD