

## Composition: Electronic Media II

Spring 2012

### Filters in Max/MSP

- 1) Lowpass – [onepole~]
  - a. Right inlet controls cutoff frequency, also can be set with a creation argument
  - b. Audio passes through left inlet
- 2) Highpass
  - a. Highpass signal = Original signal - lowpass-filtered signal
  - b. Inlets function identically to [onepole~], right inlet still controls cutoff frequency
  - c. Excellent situation to create an external, to be reused in many other patches
- 3) Bandpass – [reson~]
  - a. Audio sent to left inlet
  - b. 2<sup>nd</sup> inlet from left controls gain of output
  - c. 3<sup>rd</sup> inlet from left controls center frequency, can be set with a creation argument as well
  - d. Right inlet controls Q. A lower value yields a ‘wider’ band, higher a narrower one
  - e. Be careful not to set Q too low, this ‘feeds back’ the signal and yields enormous clipping.
- 4) Bandpass controlled by signal and not control data
  - a. Any of [reson~]’s inlets can accept either control data or audio signal
  - b. This makes the filter more easily used in conjunction with ‘LFOs’ and amplitude envelopes.
  - c. Input can be more precisely ramped. Since the change in c.f. is continuous, rather than discreet as with ordinary control data, fewer artifacts emerge in use.
  - d. According to MAX references, once a signal is sent to an inlet that inlet will no longer accept floats.
- 5) Applications
  - a. Single instance
  - b. Multiple instances
  - c. With envelopes
  - d. Simple envelope application
  - e. Vocoding (PD example)
  - f. Filtering white noise