TECH 101

FX

Audio Effects I:

Echo/Delay

Definition: *Adding delayed copies of a signal to itself*
Typical Parameters: delay length, feedback, filtering, wet/dry
Example REAPER plug-in: *ReaDelay*

Stereo Imaging

Def.: *Changing the perceived width of a stereo signal*
Params.: width, delay, mid/side, wet/dry
Ex. Plug-in: *Stereo Enhancer*

Reverb

Def.: *Emulating the reverberance of a room*
(using many delays or a special room recording ('impulse'))
Params.: length, size, dampening, stereo width, wet/dry
Ex. Plug-in: *ReaVerbate* (*ReaVerb* more advanced version)

Modulation Effects

Def.: *All involve using a control signal, called a low frequency oscillator (LFO), to modulate parameters of the signal*

Tremolo – changing **amplitude** over time with an LFO
Vibrato – changing **pitch/speed** over time with an LFO

Flanger and **Chorus** operate similarly: a delayed, modulated copy of a signal, with the delay and modulation changed over time by an LFO, is added to the input signal. Depending on the length of the delay (in ms) different perceptual effects will occur.
Phasers operate differently, using a phase-shifting delay (called an all-pass filter), and their parameters often allow you to control the frequency range effected.

Phaser – alters phase relationship between incoming signal and its copy, perceived not as a delayed signal but rather a shimmer-y, sweeping effect.
**Flanger** – longer delay times than phaser (1ms – 10ms), perceived as a water-y, swirling effect.
Chorus – longest delay times (10ms – 100ms+), perceived as multiple copies of the input signal.

Params.: depth, length, feedback, rate, low/high range (Phaser), wet/dry

Ex. Plug-ins: *Tremolo, Chorus, Flanger (is broken…), 4-Tap Phaser, Ring Modulator*

Parallel vs. Series

Input

FX1   FX2

Output

Input

FX1

FX2

Output
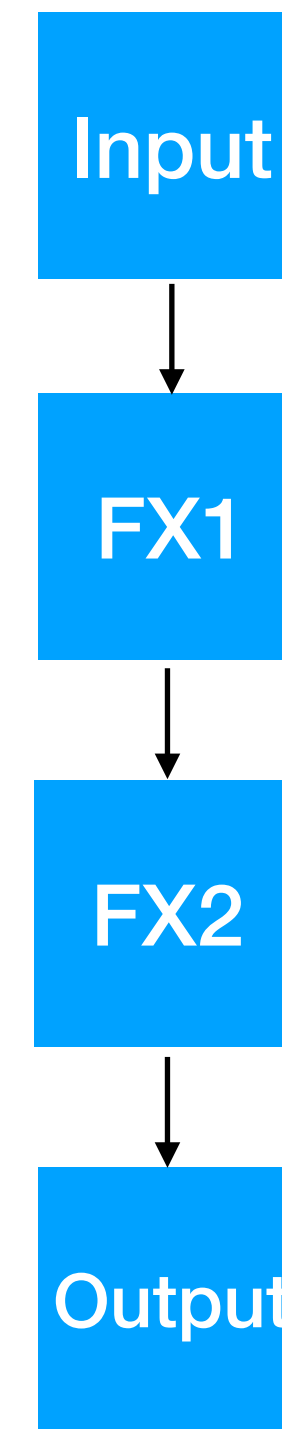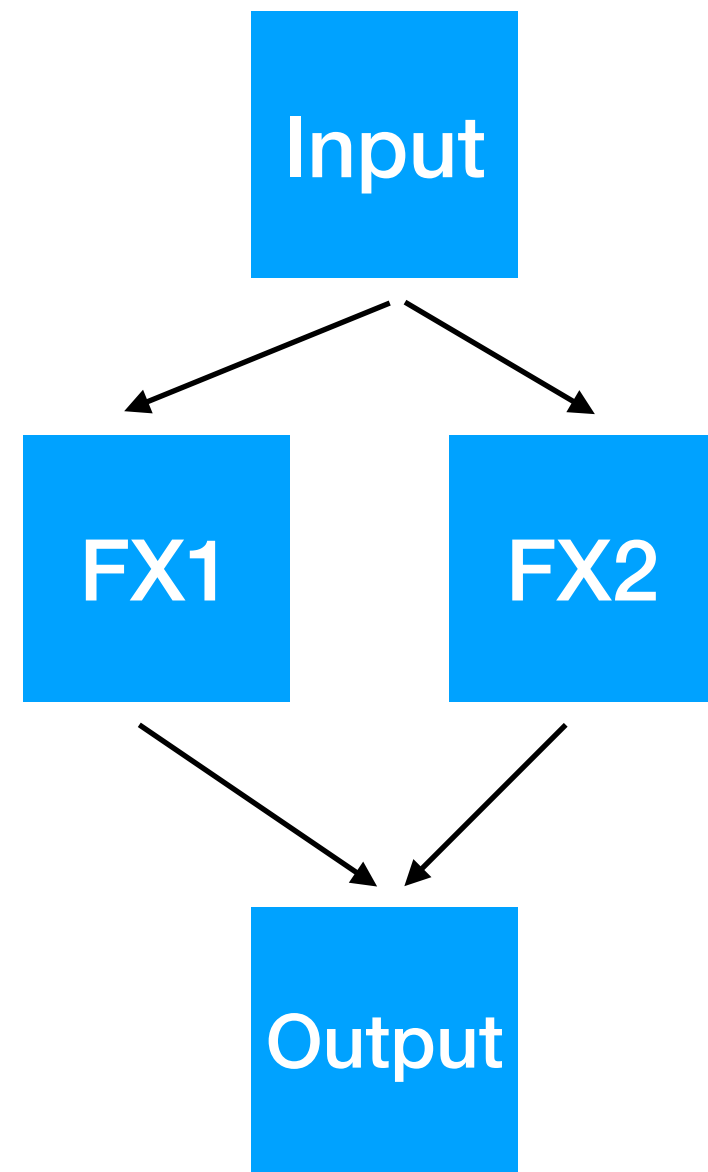
Differences?

Reverb: Algorithmic vs. Convolution

LFO

(low frequency oscillator):

*signal below 20 Hertz (often periodic)
used as a CONTROL signal
rather than an AUDIO signal*

Modulation

Tremolo vs. Vibrato

Volume   *Pitch*

Modulation

Phaser vs. Flanger vs. Chorus

MODULATION

alter an audio signal in some way. either my combining it with another signal (carrier wave) or by mixing the altered and unaltered signal.

Chorus

Phaser

Tremolo

Flanger