// Modulation SynthDefs with one modulator //

// Basic Functions //

// modulate freq

//Carrier Modulator//

{ SinOsc.ar(440 + SinOsc.ar(150, 0, 30, 0), 0, 0.25) }.play;

// amp mod //

{ SinOsc.ar(440, 0, 0.25 + SinOsc.kr(3, 0, 1, 0)) }.play;

// Frequency Modulation Synths //

// Sine as Carrier //

(

SynthDef(\Sine\_2Sine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + SinOsc.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Sine\_2Triangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + LFTri.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Sine\_2Saw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + LFSaw.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Sine\_2Square, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + LFPulse.ar(mffreq, 0,0.5, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

// Triangle as Carrier //

SynthDef(\Triangle\_2Sine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + SinOsc.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Triangle\_2Saw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq + LFSaw.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Triangle\_2Triangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq + LFTri.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Triangle\_2Square, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq + LFPulse.ar(mffreq, 0,0.5, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

// Saw as Carrier //

SynthDef(\Saw\_2Sine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq + SinOsc.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Saw\_2Triangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq + LFTri.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Saw\_2Saw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq + LFSaw.ar(mffreq, 0, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Saw\_2Square, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq + LFPulse.ar(mffreq, 0,0.5, 200, 800), 0, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

// Square as Carrier //

SynthDef(\Square\_2Sine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq + SinOsc.ar(mffreq, 0, 200, 800), 0,0.5, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Square\_2Triangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq + LFTri.ar(mffreq, 0, 200, 800), 0,0.5, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Square\_2Saw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq + LFSaw.ar(mffreq, 0, 200, 800), 0,0.5, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

SynthDef(\Square\_2Square, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.5, pan = 0, mffreq = 1; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq + LFPulse.ar(mffreq, 0,0.5, 200, 800), 0,0.5, 0.25),0,Env.linen(attack, sustain, release, level).kr(2))

 , pan)}).add;

// Amplitude Modulation //

// Sine as Carrier //

SynthDef(\Sine\_AMSine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ SinOsc.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Sine\_AMTriangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFTri.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Sine\_AMSaw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFSaw.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Sine\_AMSquare, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(SinOsc.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFPulse.kr(mffreq, 0,0.5, 1, 0)))

 , pan)}).add;

// Triangle as Carrier //

SynthDef(\Triangle\_AMSine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ SinOsc.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Triangle\_AMTriangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFTri.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Triangle\_AMSaw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFSaw.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Triangle\_AMSquare, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFTri.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFPulse.kr(mffreq, 0,0.5, 1, 0)))

 , pan)}).add;

// Saw as Carrier //

SynthDef(\Saw\_AMSine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ SinOsc.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Saw\_AMTriangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFTri.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Saw\_AMSaw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFSaw.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Saw\_AMSquare, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFSaw.ar(freq,0,Env.linen(attack, sustain, release, level) .kr(2)+ LFPulse.kr(mffreq, 0,0.5, 1, 0)))

 , pan)}).add;

// Square as Carrier //

SynthDef(\Square\_AMSine, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq,0,0.5,Env.linen(attack, sustain, release, level) .kr(2)+ SinOsc.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Square\_AMTriangle, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq,0,0.5,Env.linen(attack, sustain, release, level) .kr(2)+ LFTri.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Square\_AMSaw, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq,0,0.5,Env.linen(attack, sustain, release, level) .kr(2)+ LFSaw.kr(mffreq, 0, 1, 0)))

 , pan)}).add;

SynthDef(\Square\_AMSquare, { // This first handle is the synths name, use it to load it into a Pbind //

 arg freq = 440, attack = 0.001, sustain = 0.01, release = 0.1, level = 0.25, pan = 0, mffreq = 20; // You can use any of these arguments in a Pbind //

 Out.ar(0,Pan2.ar(LFPulse.ar(freq,0,0.5,Env.linen(attack, sustain, release, level) .kr(2)+ LFPulse.kr(mffreq, 0,0.5, 1, 0)))

 , pan)}).add;

)

// Some Examples //

(

t = TempoClock(60/60);

Pbind(

 \instrument, "Sine\_2Sine", // "Saw\_1" is the synth name. Change it to another synths name to load it, i.e. "Sine\_1"

 \freq,Pseq([440],11),

 \mffreq, 3,

 \pan, Pseq([0],inf),

 \dur,0.5

).play(t);

)

(

t = TempoClock(60/60);

Pbind(

 \instrument, "Sine\_AMSine", // "Saw\_1" is the synth name. Change it to another synths name to load it, i.e. "Sine\_1"

 \freq,Pseq([440],11),

 \mffreq, 3,

 \pan, Pseq([0],inf),

 \dur,5

).play(t);

)