

Create Generative Music in Ableton Live.

Ray Chemo / **AUDIOTUTS.com**

In this tutorial we are going to use Ableton Live's innovative follow actions to create generative music in the form of some electronic wind chimes. When writing generative music we look at composition from a different angle. Instead of composing melodies and writing arrangements, we define a number of fixed parameters and let the music write itself! Wind chimes are perhaps the most common example of generative music—a term coined by ambient pioneer Brian Eno.

Wind chimes are an excellent starting point for generative music because they're played by the infinite variations of the wind. As a result, the tones played by a wind chime are ever-changing while sticking to certain rules and probabilities (that not every chime can be hit at once, etc.) Rather than trying to program a natural-sounding 'random' sequence we can use Ableton Live to do this for us.

Though we're using Wind chimes for this tutorial you could use the same technique with almost any instrument.

You can listen to the sounds we will be using below. You'll find .WAV versions of these sounds in the Play Pack for this tutorial, available after the conclusion.

 Csharp.wav

 *Dsharp.wav*

 *Fsharp.wav*

 *Gsharp.wav*

 *Asharp.wav*

Step 1

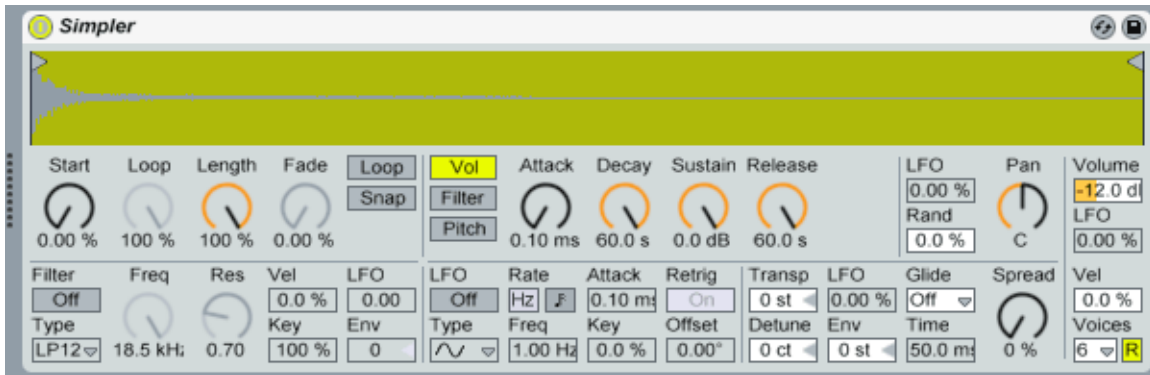
Wind chimes consist of a number of tubular bells each cut to a length that produces a specific pitch. Generally the pitch of chimes sticks to a pentatonic scale so that the chimes remain harmonic with the others when played simultaneously. When creating our electronic wind chimes we are going to replicate each chime through a separate channel containing a sample played back in Ableton's Simpler.

Create a new MIDI Channel, load a copy of Simpler and load the sample C# from the included samples. Rename this track 'Chime C#'.



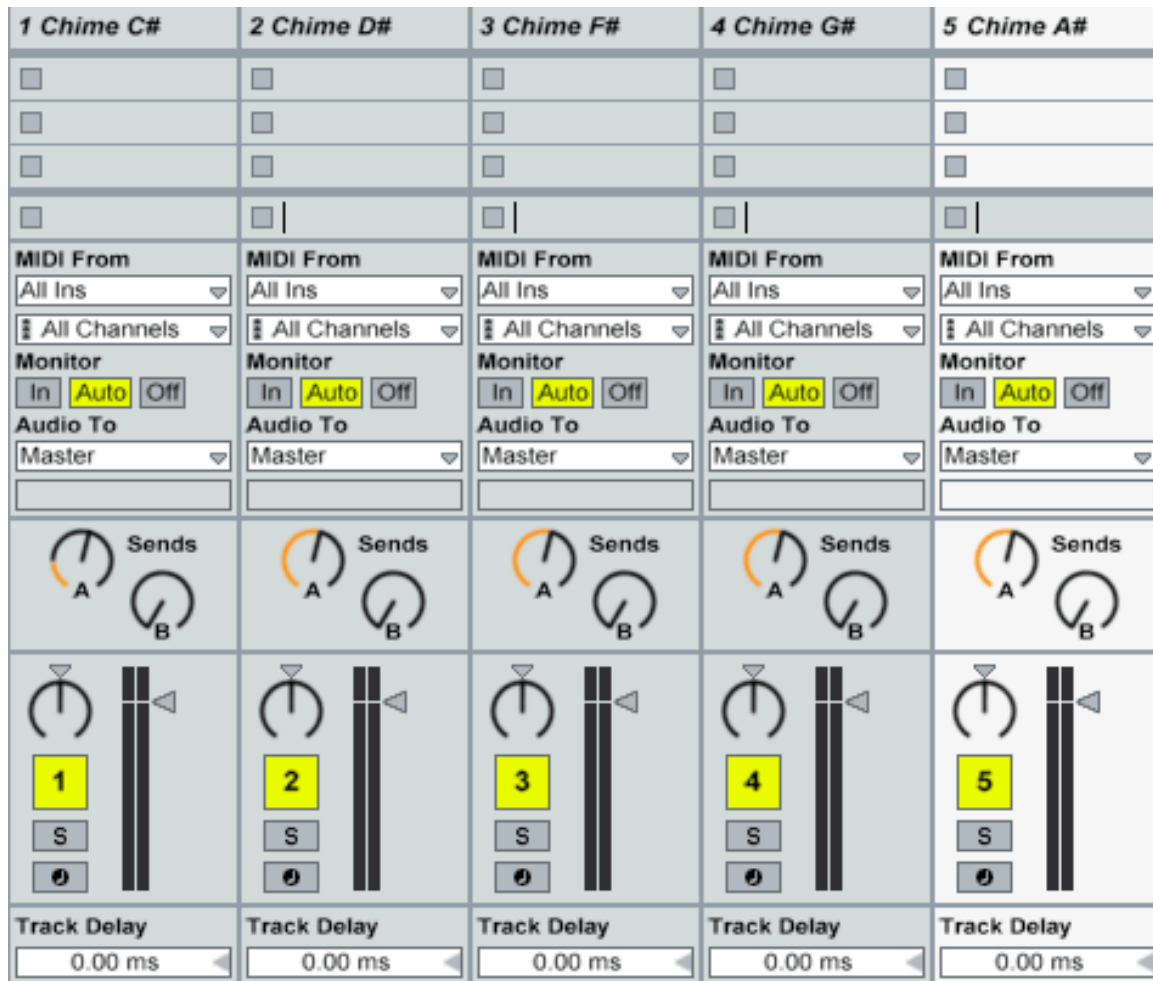
Step 2

We want the whole sample to play every time we trigger a note, so change the envelope settings on our instance of Simplr. Set the attack to zero and the decay, sustain, and release controls to maximum.



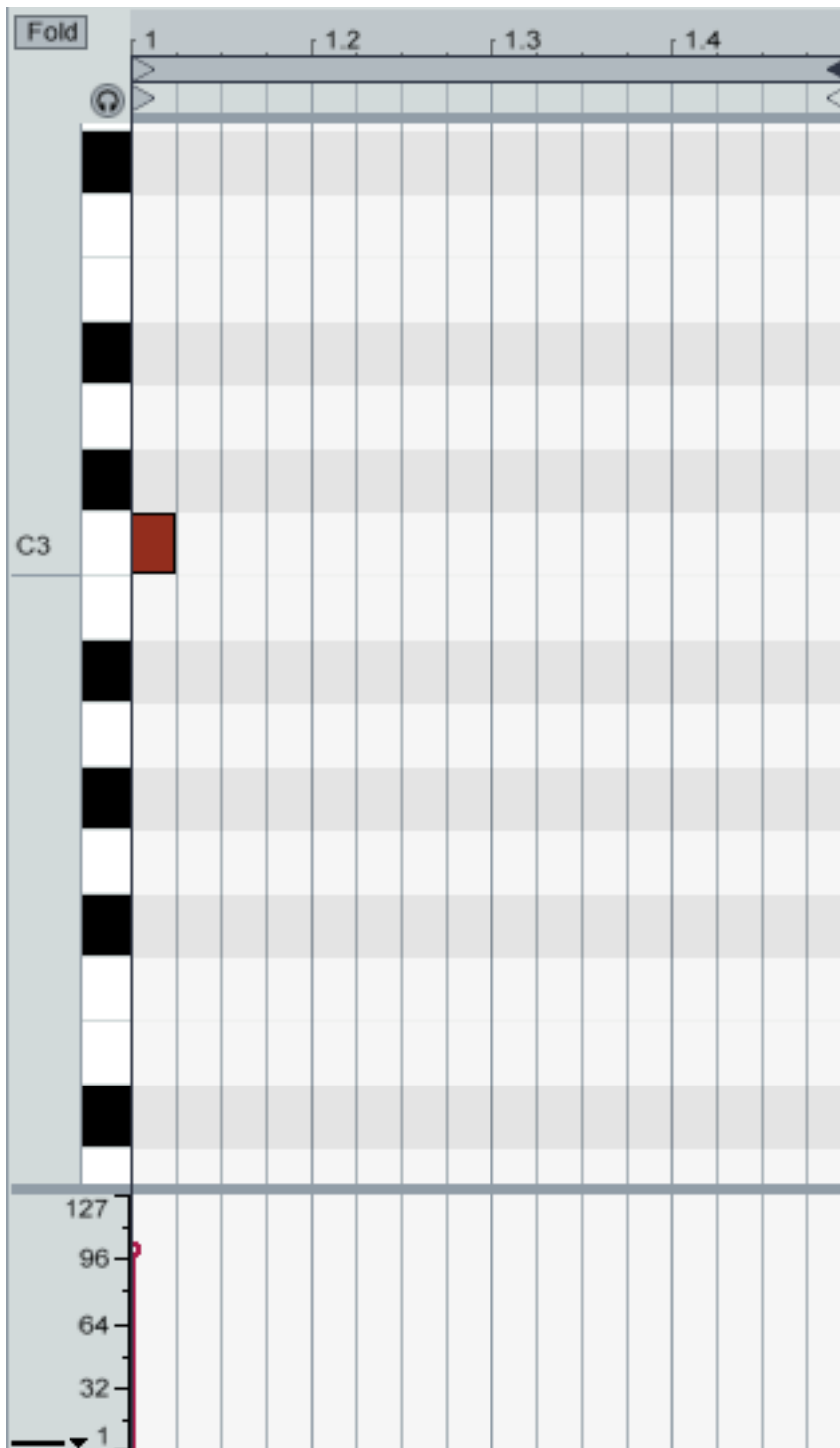
Step 3

Now we are ready to duplicate this channel four times so that we can load our other samples. Hit Ctrl + D (Apple + D) four times and load the other samples in each instance of Simplr. Rename each channel after the sample it contains.



Step 4

We need to make a MIDI note to trigger our chimes. Create a new one bar MIDI pattern in the first box in our Session view. Once you have done that, add a MIDI note at C3 on beat one. C3 will play the sample back at the original pitch and because our samples are already tuned this is exactly what we need.



Step 5

If you are the adventurous type and have already pressed play you will realize nothing exciting is happening. We need to add more clips, each with different variations and then use follow actions to link them all together in a random way. Follow actions are only possible in Session view and define what will happen to a sequence of clips once a clip has reached its end. This will become more transparent a little later down the line when you see them in action.

Let's duplicate our clip 6 times so that each one sits directly under the one above. This is important as Ableton can only apply follow actions to clips that sit either directly above or below each other in what is called a group. For the sake of organization rename each new clip (A, B, C, etc.)

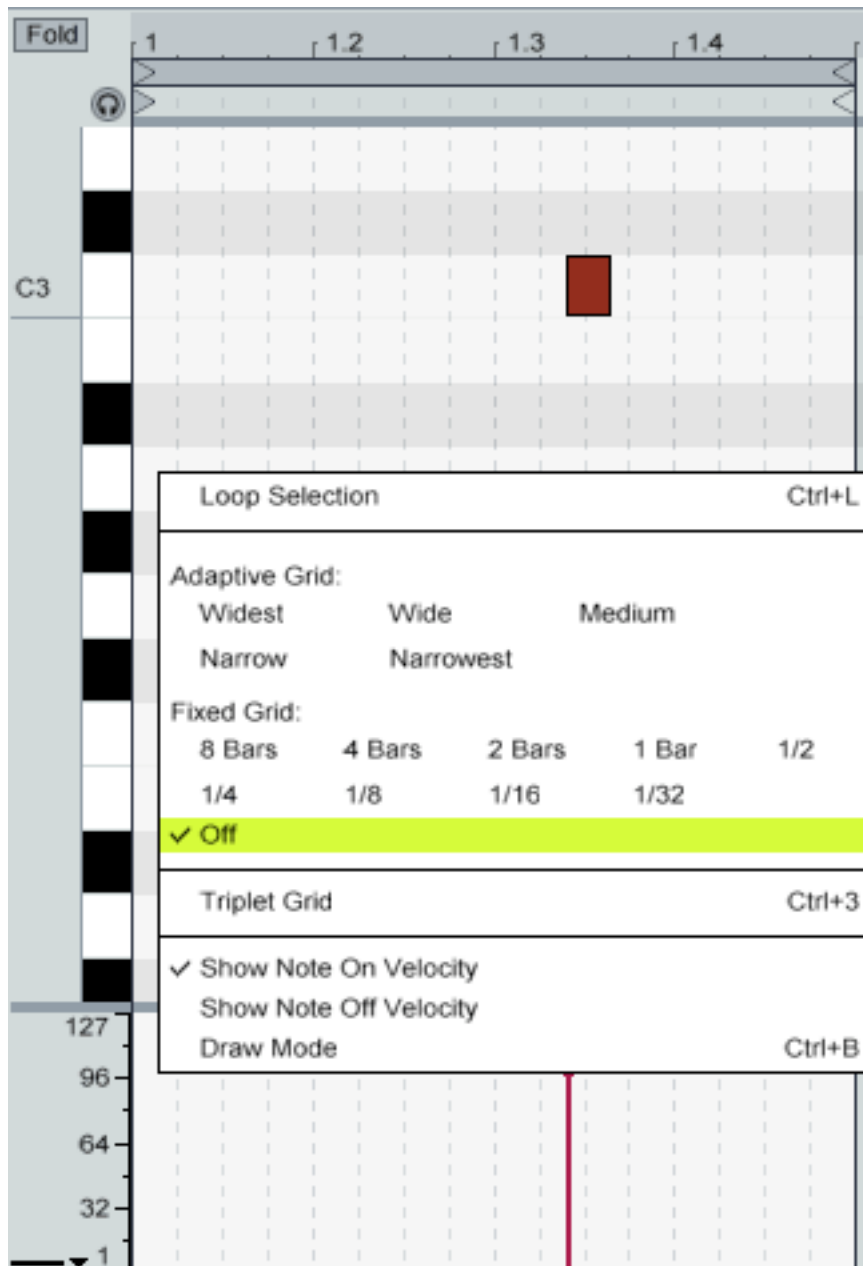


Step 6

Let's add that much needed variation I was talking about. The wind doesn't tend to stick to quantization so

let's replicate that. Turn and turn it off for each clip by right clicking within the MIDI grid.

For each of our clips (A, B, C, etc.) move the MIDI note to a random position within the bar except for clip 'G'. Instead of moving the position of the note within clip 'G' simply delete it so that when clip G is played nothing happens. Rename this clip so that it reads 'G Silence'. This is to add a little bit of space, and for another reason that will be revealed soon!



Step 7

Now it's time to add those mysterious follow actions I keep talking about. To set the follow actions for our group, select all of our clips at once, and then click on the little 'L' at the bottom right of our page to open our

launch properties. Click on Legato. Legato ensures that the position within the bar is kept relative regardless of which clip is playing or when it has been triggered.

1

2

3

▶ A

▶ B

▶ C

▶ D

▶ E

▶ F

▶ G Silent

1 Chime C#

2 Chime D#

3 Chime F#

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<div><div><div>A</div><div>B</div></div><div>Sends</div></div>	<div><div><div>A</div><div>B</div></div><div>Sends</div></div>	<div><div><div>A</div><div>B</div></div><div>Sends</div></div>
<div><div><div><div></div><div>1</div><div>S</div><div></div></div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div><div><div></div><div>2</div><div>S</div><div></div></div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div><div><div></div><div>3</div><div>S</div><div></div></div><div><div></div><div></div><div></div><div></div></div></div></div>
Track Delay 0.00 ms	Track Delay 0.00 ms	Track Delay 0.00 ms

7 Clips

*

Signature
4 / 4

Groove
Straight

Launch

Launch Mode
Trigger
Legato

Quantization
Global

Vel
0.0 %

Follow Action
1 0 0
1 0

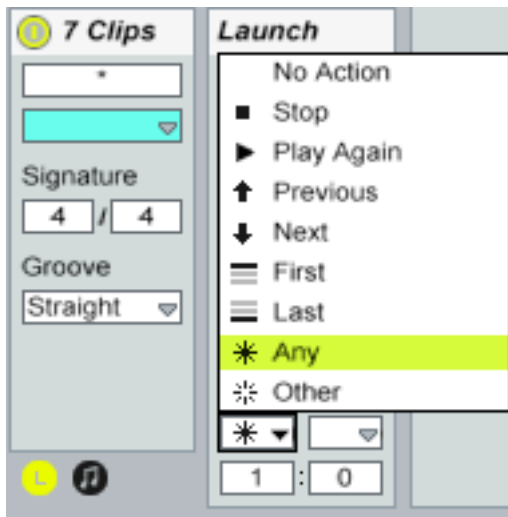
Step 8

We also need to tell Live how often a follow action should occur but it's easy enough. Directly under the word 'Follow Action' in our clip launch box click on the number '1' and drag it down to zero. You should see a '1' appear in the last box on the right. This tells Live we want a follow action to occur every 16th beat.



Step 9

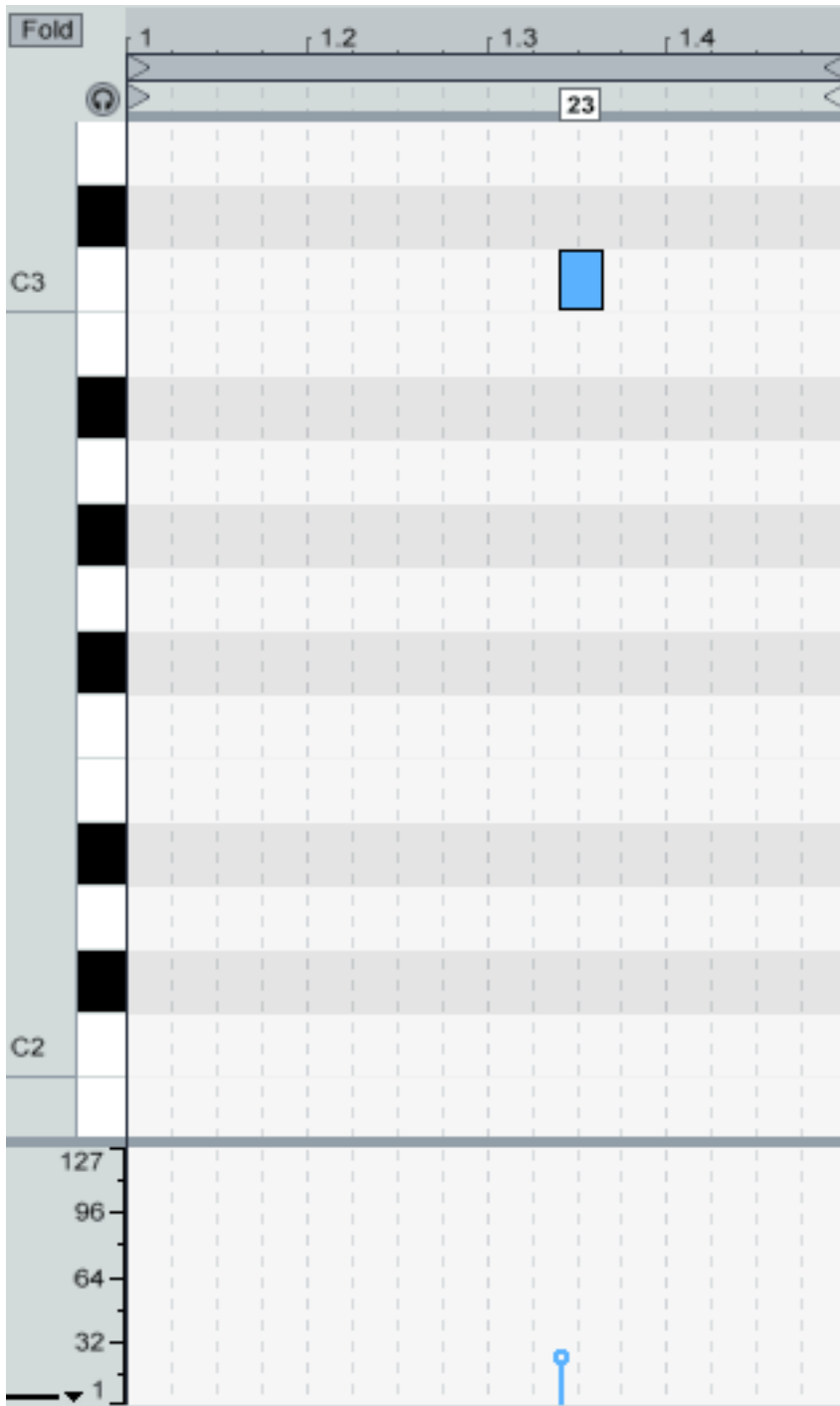
We have defined when a follow action will occur, but we need to specify what exactly will happen. Under the box we use to choose the interval of our follow action you will find another little box. When you click the box, a drop down menu appears. Select 'Any'. This tells Ableton Live to play any other clip in our group once the current clip has finished playing. I hope you are still with me. If not, everything is going to make sense when you click play. So go on—what are you waiting for!



Step 10

When you click play you should see Live automatically triggering clips in a random fashion. This will carry on until you press stop or until your neighbours pull your power cord.

It's sounding very, very mechanical at this point so we need to add some more variations to our clips. We are going to do this using two methods: by simply adjusting the velocity levels of our MIDI notes and also changing the start position of our sample. Let's tackle the velocities first. Click on each clip and change the velocity of the note to a random position. Some should play quiet, some should be loud—it's all about variation.

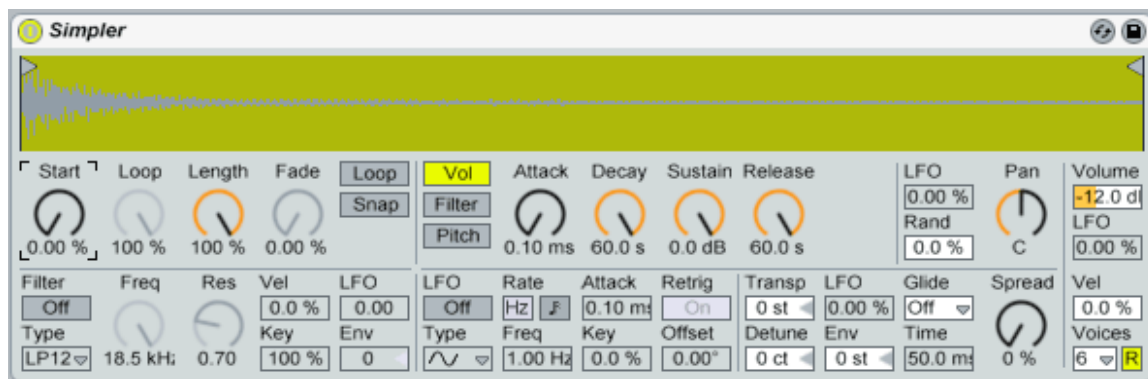


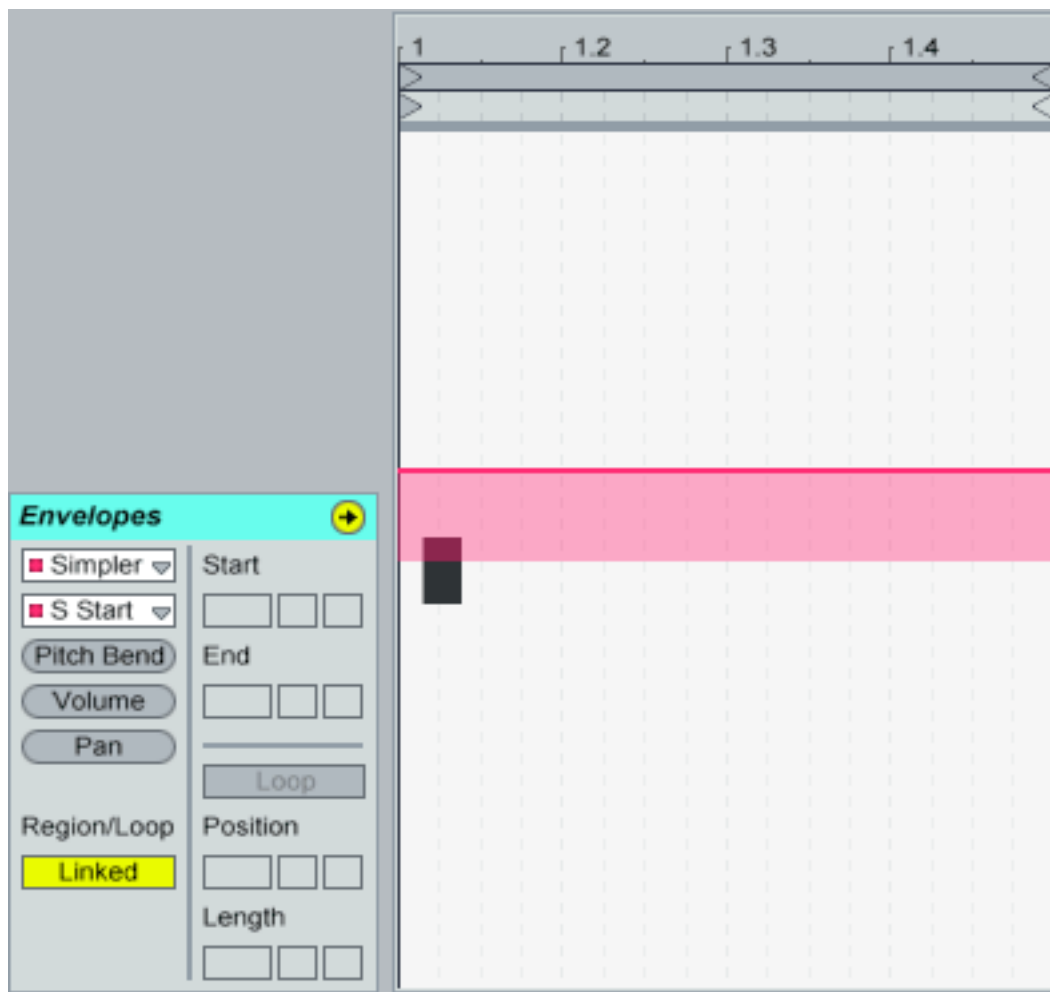
Step 11

One of the most effective methods to add variations to sounds is to adjust the sample start position. Double-click on your channel so that Simplr is now visible. Click on the Start knob and then click on clip 'A' to bring our MIDI information into focus. Then we click on the little 'E' to open the Envelope dialog. By first clicking on the 'Start' knob Ableton Live automatically brings this parameter into focus so we don't have to search through the menus to find our control. Neat, huh?

Let's go through all our clips and adjust the start position of each note in a similar fashion to what we did with our velocities. Don't move the start position too far, however, or we risk the note not sounding at all.

Starting our sequence by pressing play on one of our clips now produces a much more dynamic, expressive and realistic sound from our chimes.

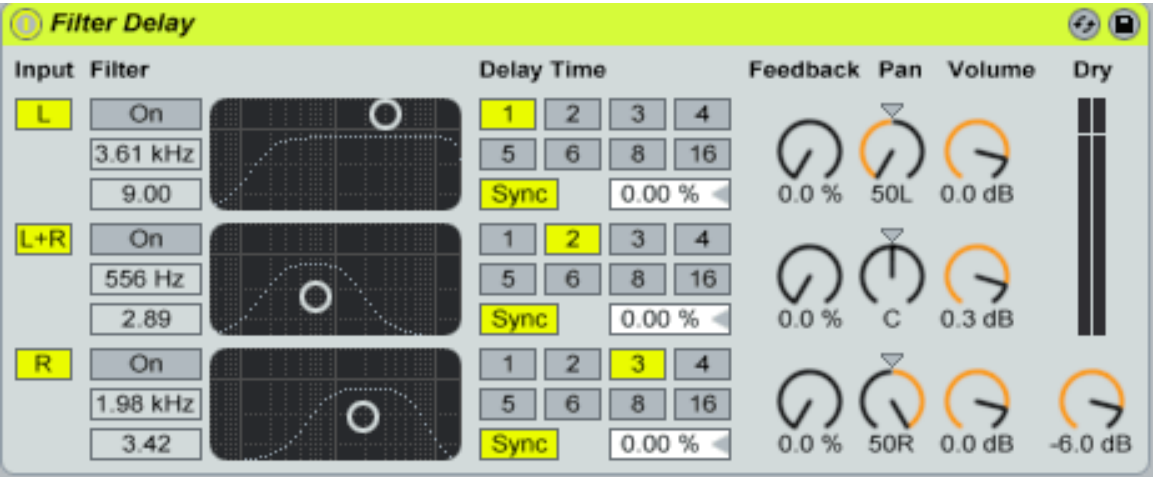




Step 12

We have the basic sound down but let's take things a little bit further. I need you to imagine a wind chime in action. Once the beater initially strikes the chime it's very unlikely that the chime will only produce a sound once. It would be more realistic if we can emulate the beater knocking against our chimes repeatedly. Luckily, this sound can be replicated through the use of a filtered delay.

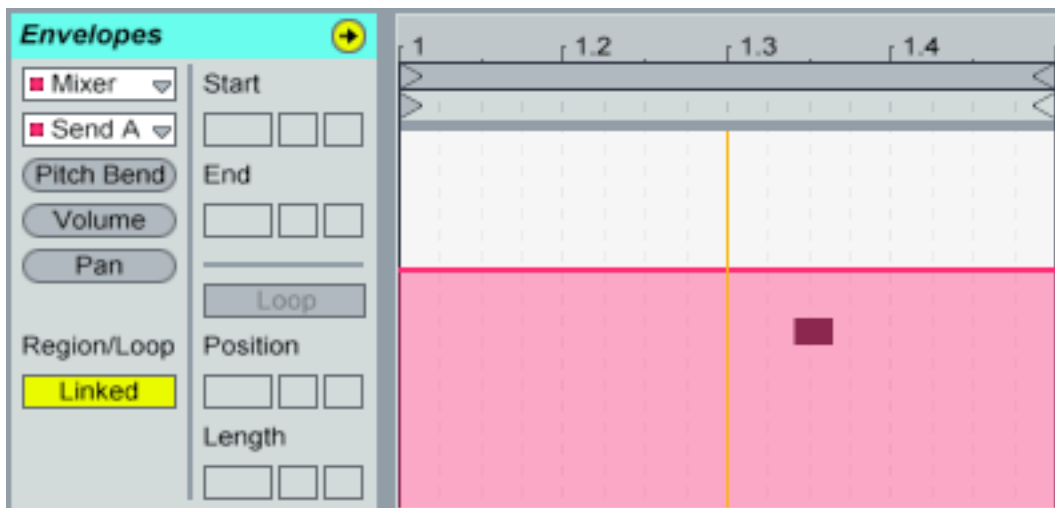
Load an instance of Ableton's Filter Delay in send channel A and select the preset Repetitor II. Once you have done this you will need to send some signal to the delay so turn our channels send knob up about $\frac{3}{4}$ of the way. You should also do this for the other four channels.



1 Chime C#	2 Chime D#	3 Chime F#	4 Chime G#	5 Chime A#
<input type="checkbox"/> A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> G Silent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 35 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Sends A B	<input checked="" type="checkbox"/> Sends A B	<input checked="" type="checkbox"/> Sends A B	<input checked="" type="checkbox"/> Sends A B	<input checked="" type="checkbox"/> Sends A B

Step 13

If you have learned anything about me over the course of this tutorial you will have realized that I absolutely love variation. For the final time let's make it so that each clip sends a varying amount of signal to our delay line. All you have to do is click on the send level for our channel, then edit the send amount for each clip exactly the same way we did for our sample start position.

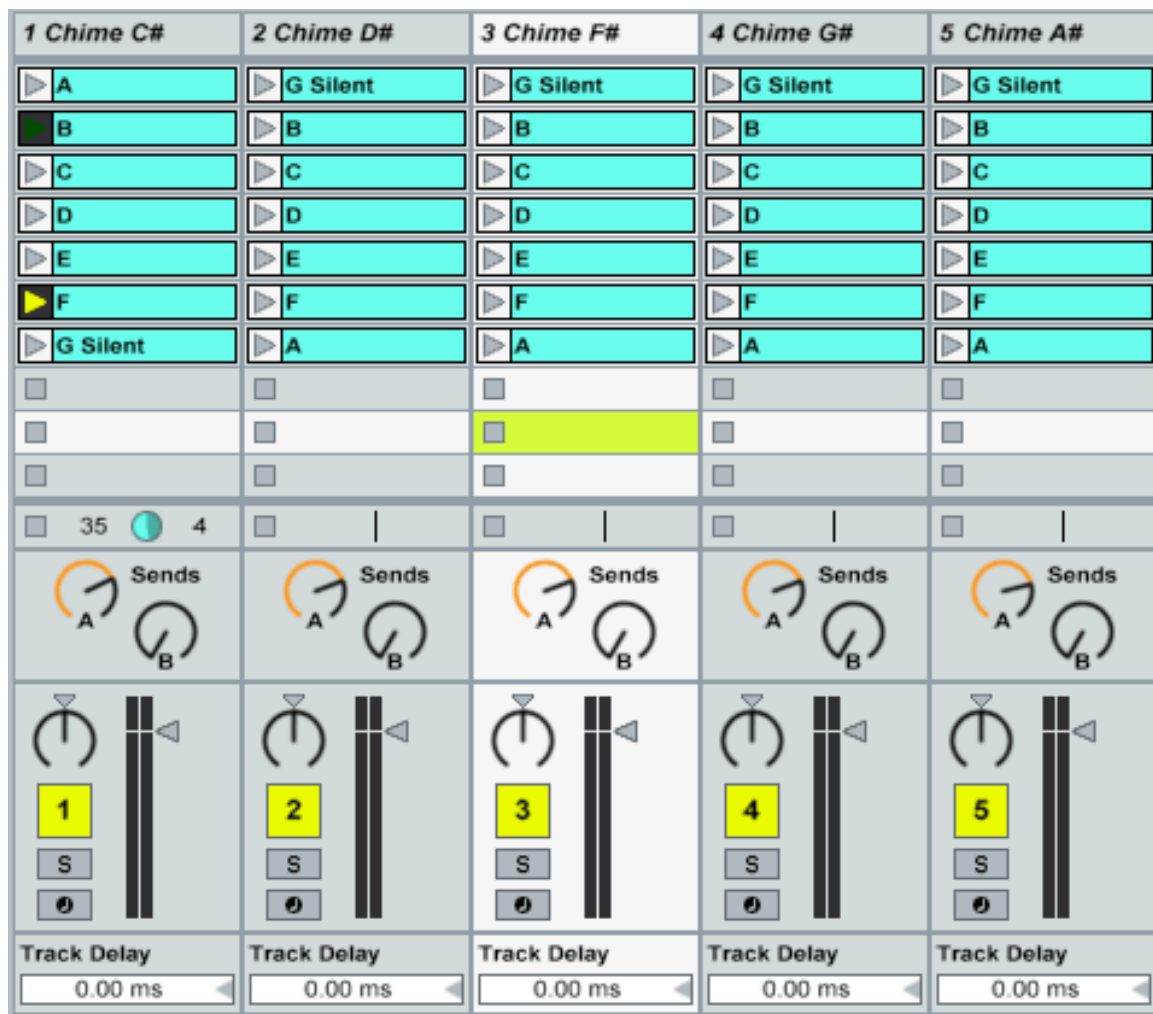


Step 14


Our chimes are nearly ready but we still need to duplicate the clips from our Chime C# channel to the other chime channels. For the attentive amongst you, you may remember there was an extra reason for creating our silent clip. Well, the suspense is now over. If we played all our channels at the same time we would have the issue that all the chimes are triggered

simultaneously. To beat this we simply need to swap clip 'G' with clip 'A' in each of the channels.

A storm has been brewing and the moment we have been waiting for has arrived. Press play in the Master Scene channel to trigger all of the clips at once and marvel at the beauty of our very own realistic wind chime.



Let's hear our completed wind chimes!

 *completed_chimes.mp3*

Conclusion

The principles of generative music allow us to explore some very creative possibilities within our music composition. Spend some time exploring how you can integrate follow actions into your own music. Don't forget to experiment with different sounds, too.