

Creativity
and
3D Mixing

1

Announcements

- Turn in logbook today. We will return next Tuesday.

2

Blackboard

- See the **Overview** in each Week's section for the goals and assignment
- See Week 3's Review Sheet for Quiz 1
 - we will review on Tuesday
 - you will have a week to take it in one of the Respondus Labs

3

Week 3 (Jan 23–29) ▾

Build Content ▾

Assessments ▾

Tools ▾



Overview

Goals:

- Learn about the use of complexity as an organizing principle in composition.
- Develop a plan for the form of your musique concrète étude. Layer and organize your processed source sounds on multiple tracks in Audacity. Pan each track track to either the left, center, or right position in the stereo field.
- Learn how to balance the amplitude levels of the multiple tracks. Use dynamics to heighten the effect and give it a shape.
- Learn how to avoid *clipping* - the distortion that arises when your waveform exceeds the maximum amplitude level supported in Audacity.
- Learn how to export your mix as a stereo .wav file (44.1 Hz sampling rate, 16 bits per sample), upload to your Box portfolio, and connect to your Google Drive link page.

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Assignment:

- Create a multitrack version of your musique concrète étude in Audacity. Organize your sounds into a form and accentuate the shape by balancing the tracks without clipping.
- Study for Quiz 1, which you will take next week.
- Turn in your logbook in class on Thursday (**2 points**). Please add page numbers to your Table of Contents for Module I for;
 - definitions and examples of use of the vocab words from Week 1: vibration, pressure wave, waveform, sine wave, frequency, Hertz (Hz), amplitude, decibels (dB), musique concrète, noise, étude, and organized sound
 - your review of Peyton Cox's *PENDULUM* concert, answering the questions from Week 1 (**3 points**)
 - notes taken during lectures in class
 - documentation of work sessions with file names of exported audio files of your processed source sound, following the model shown on Blackboard Week 2 for Thursday's work session.
 - a sketch of a plan for the form of your musique concrète étude.

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Review Sheet for Quiz 1

Take Quiz 1 next week on:

Vocab:

vibration, pressure wave, waveform, sine wave, frequency, Hertz (Hz), amplitude, decibels (dB), musique concrète, noise, étude, and organized sound, clipping, layering, complexity, form,

Mixing / balancing tracks

Panning in the stereo field

Signal path: how to get sound from your computer's [AudioBox](#) audio interface or laptop straight into the [Macke mixer](#) in the lab

Varèse's idea of "organized sound." Control of complexity as an organizing principle in composition.

Difference in features between [eAnalysis](#) and [Sonic Visualizer](#).

Classic musique concrète techniques:

- reverse
- combined pitch and time change ("change speed")
- independent pitch change ("change pitch")
- independent time change ("change tempo")
- looping
- layering
- filtering

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Today's Learning Objectives

- How to open your mono mix in the stereo field
- How to balance the amplitude of multiple audio tracks to increase the impact of your mixes, while avoiding clipping
- How to export your mix as a stereo .wav file

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Creative Limitation

- Purposely limiting oneself can drive creativity

<http://rkwilley.com/creative-limitations>

8



9



10



11

Hemingway

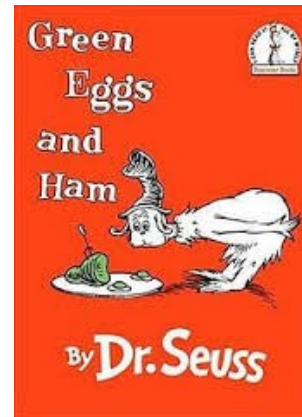
- Bet his friends he could write a complete story in six words.

12

For sale: baby shoes, never worn

13

Dr. Seuss



a, am, and, anywhere, are,
be, boat, box, car, could,
dark, do, eat, eggs, fox,
goat, good, green, ham,
here, house, I, if, in, let, like,
may, me, mouse, not, on, or,
rain, Sam, say, see, so,
thank, that, the, them, there,
they, train, tree, try, will, with,
would, you

14

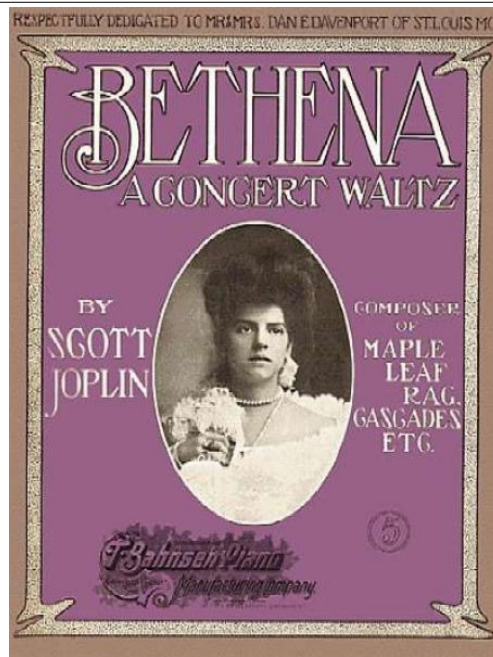
- Scott Joplin



1867 ? - 1917



123 times



15



ff

- Beethoven *Symphony V*

16

False Tempo

Tema mp

rit.

poco a poco

False cantabile

mp

a tempo

17

Your limitations / parameters for the Musique Concrète étude

- Single source sound (same as partner)
- Classic MC manipulations: reversal, pitch and time change, and layering. EQ and reverb are optional.
- 1:00–2:00 duration
- Tracks panned to 100% left, center, or 100% right

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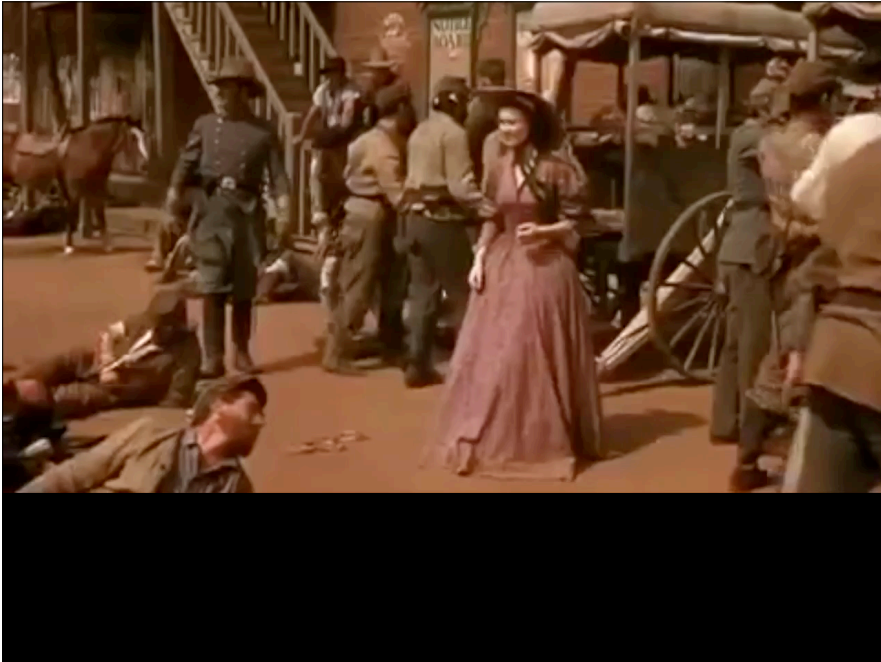
3D Mixing

- place sounds left to right with panning
- move sounds front to back with reverb and EQ

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Panning

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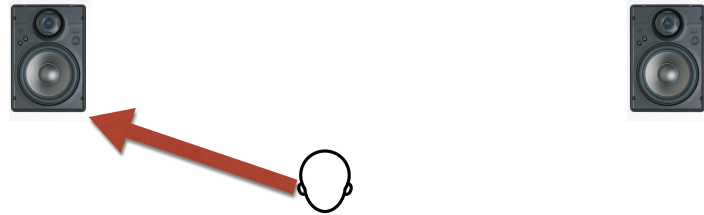


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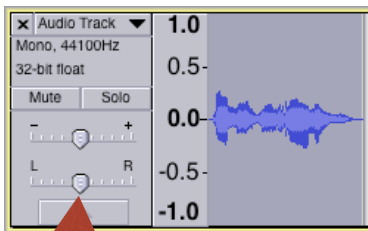
Panning

Positioning a sound in the left-right stereo field

Panning is done through inverse amplitude control: making the sound louder in the left speaker and softer in the right speaker makes the sound seem to come out on the left side.



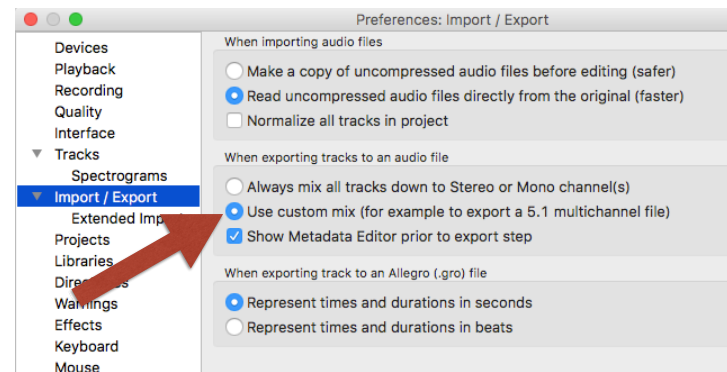
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This track is panned in the center, so the signal is sent with equal amplitude to both output channels

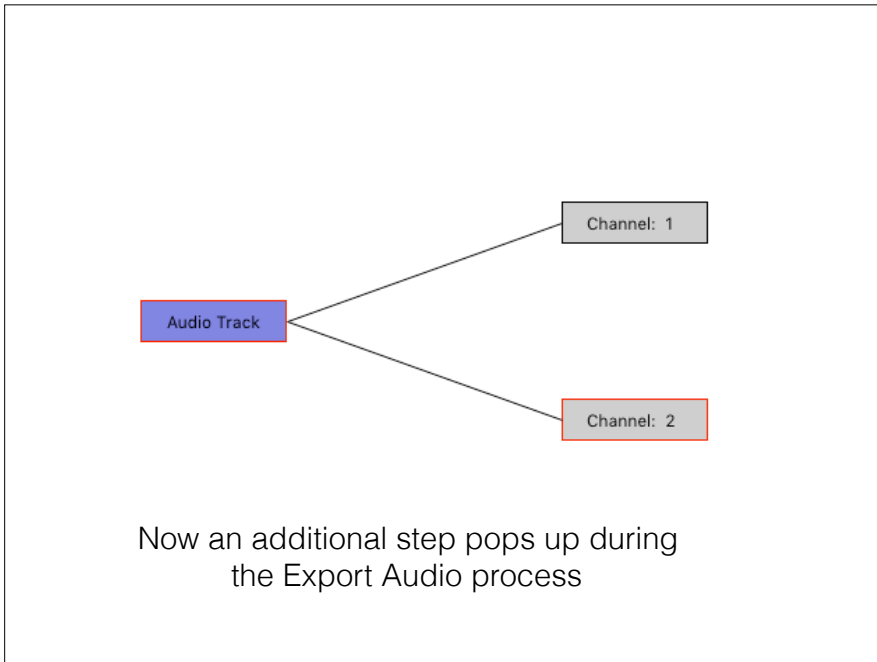
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If you export a mono track panned to the center you'll get a mono audio file that plays out of both speakers on most systems. You may never need to do this.

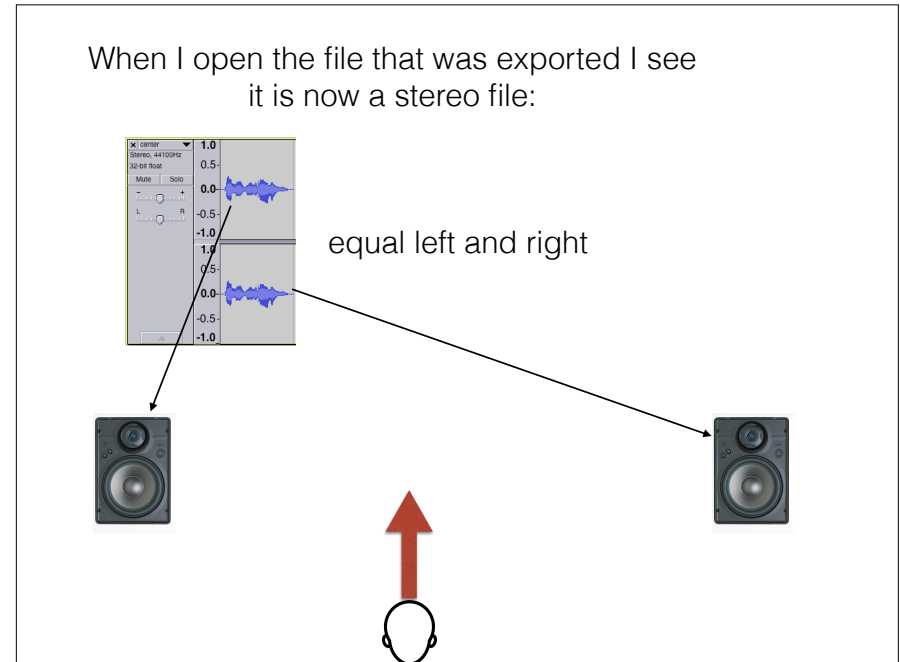


I switched "Always mix all tracks down to Stereo or Mono Channels" to "Use custom mix" in order to be able to export a mono track as a stereo track

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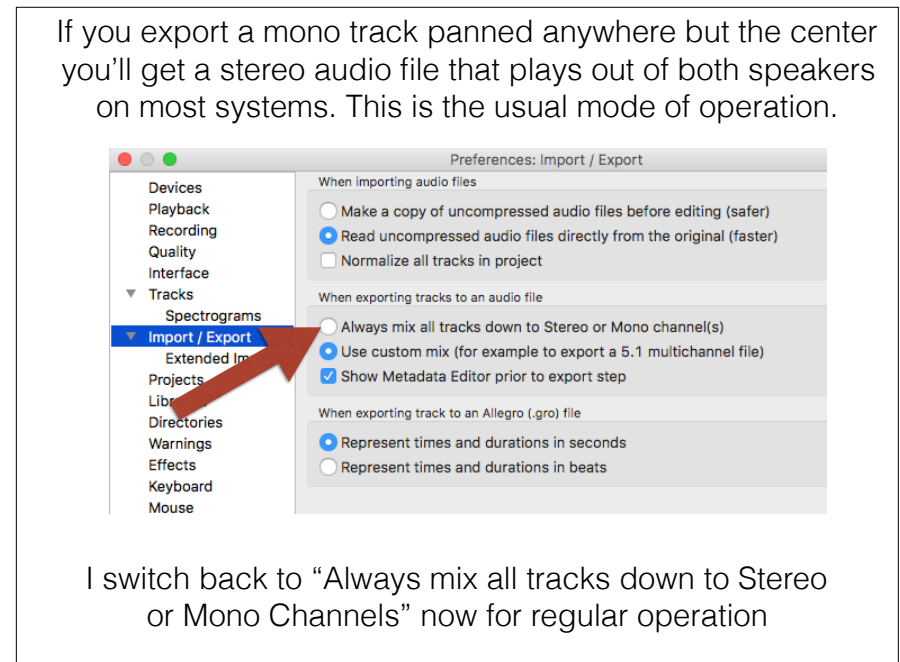
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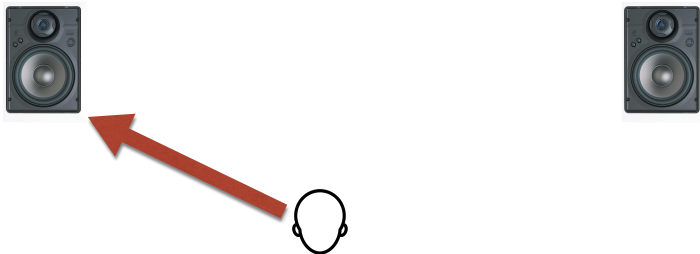
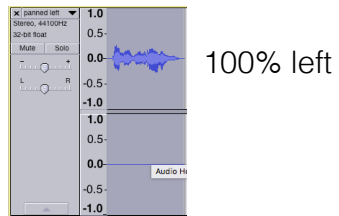


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When I open the file that was exported I see this stereo file:

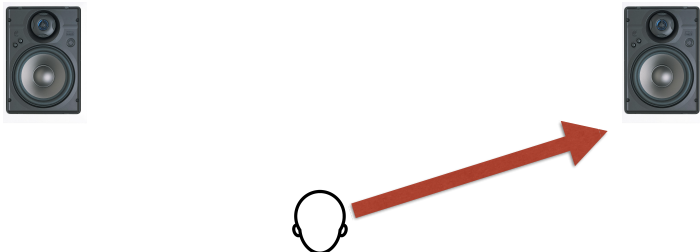
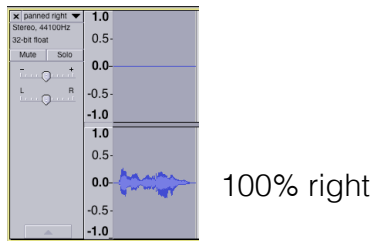


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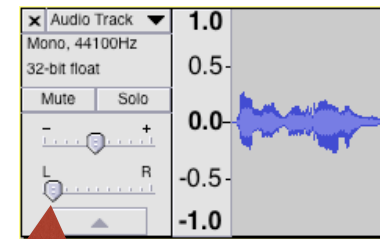


100% right

30



31



80% left

32

80% left

33

Creating Depth with EQ

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Volume as a cue for distance

The closer a sound source is to you, the louder it seems.

louder softer

35

Tone as a cue for distance

High frequencies are absorbed more by air than low frequencies are. The closer a sound source is to you, the brighter it seems.

We will boost the high frequencies of the second sound to make it seem closer.

boost
highs

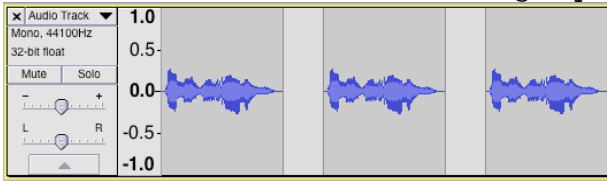
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Tone as a cue for distance

High frequencies are absorbed more by air than low frequencies are. The farther away a sound source is from you, the duller it seems.

We will cut the high frequencies of the third sound to make it seem farther away.

cut
highs

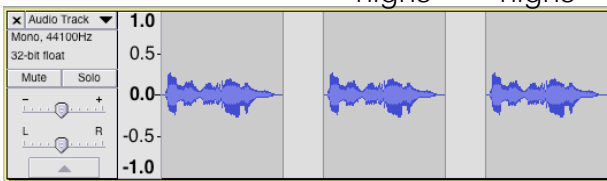


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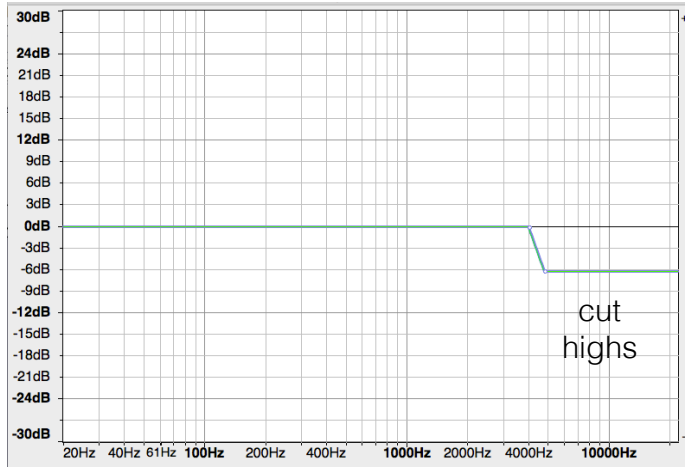
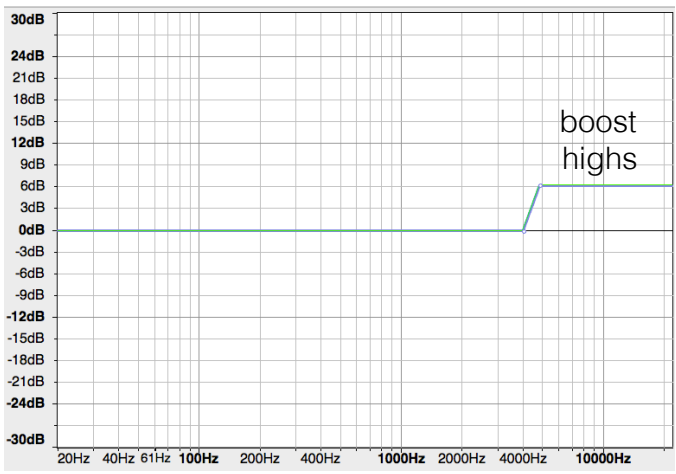
Tone as a cue for distance

boost
highs cut
highs



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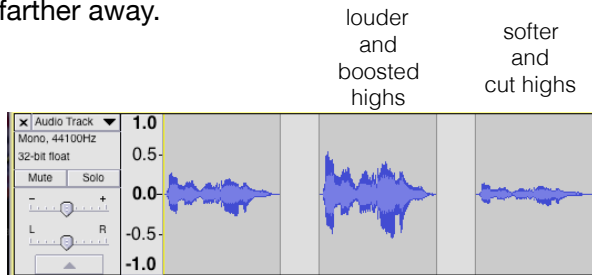
40



Combining changes in volume and tone

Boosting the highs of the louder version will make it seem even closer.

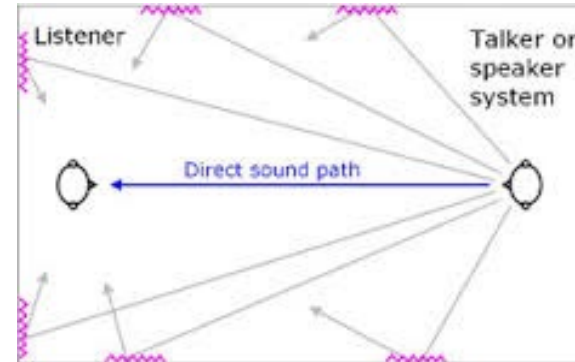
Cutting the highs of the softer version will make it seem even farther away.



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Creating Depth with Reverberation

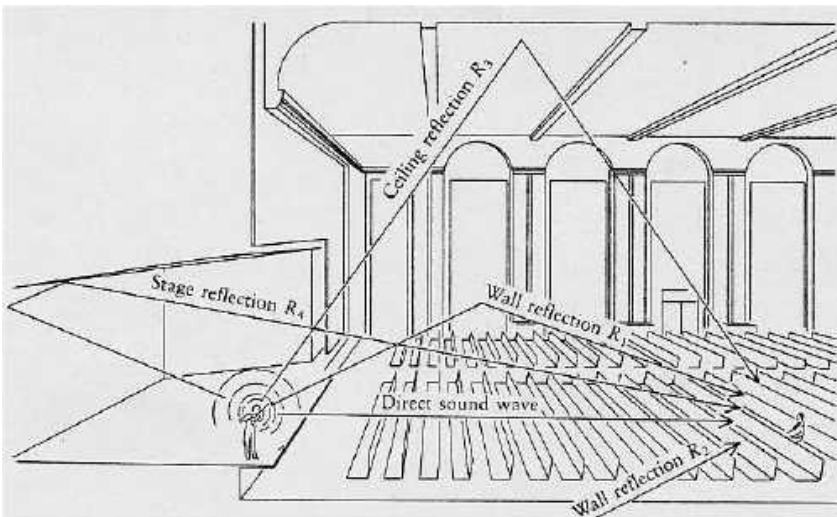
The closer something is, the more direct sound, and less reflected sound you hear. The further something is away, the less direct sound, and more reflected sound you hear.



The listener's brain judges the ratio between dry and reverbed sound to form an idea of how far away the sound source is.

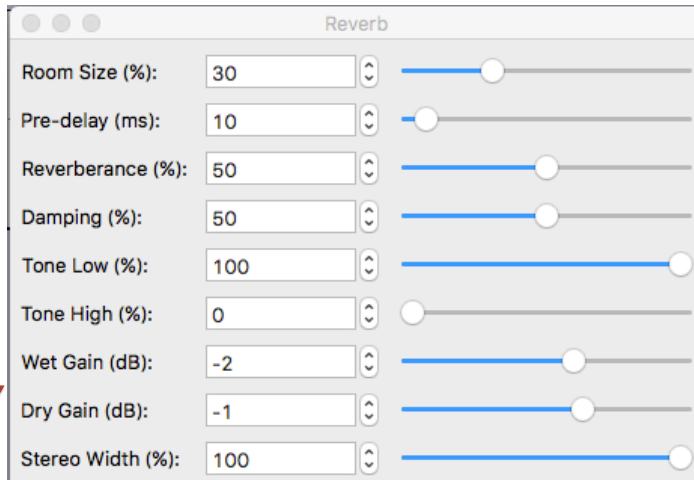
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Vibrational energy reaches the listener first in a direct path. The sound wave that is reflected off surfaces takes longer to arrive.



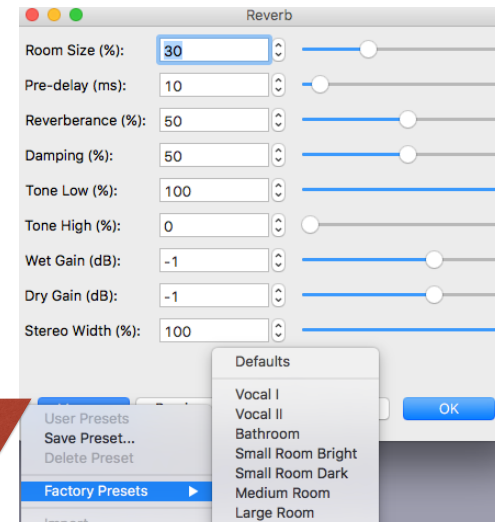
43

- Wet gain - how much reflected sound (reverb)
- Dry gain - how much direct sound (no reverb)



45

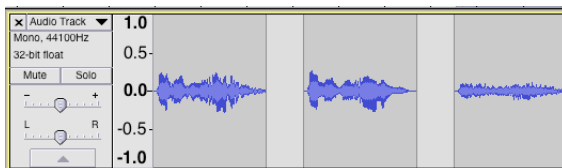
You can also click on MANAGE and try out the presets that change many of the parameters for you:



Manage

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some reverb no reverb more reverb

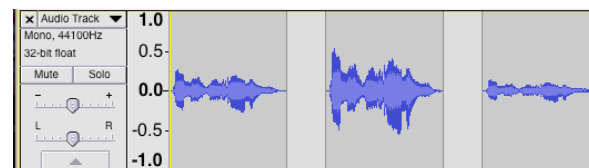


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Combining changes in reverb, volume, and tone

louder,
boosted
highs,
and
less
reverb

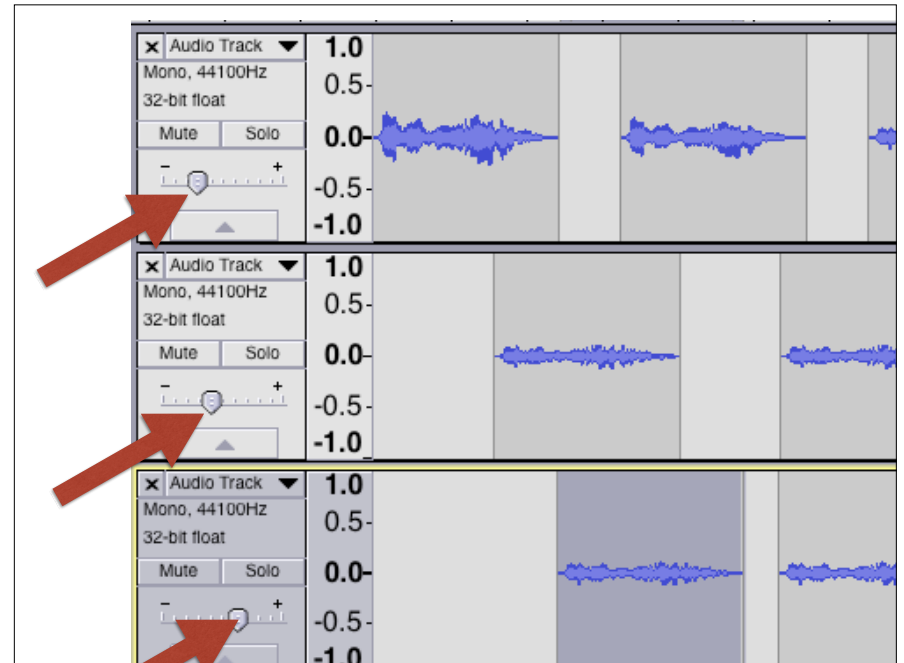
softer,
cut highs
and more
reverb



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Setting up a different volume level for an entire track

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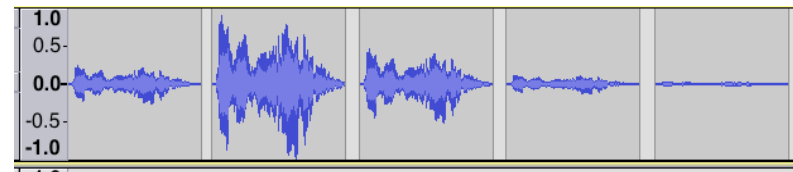


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Changing the volume level of individual sounds

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Use the amplify on individual sound regions to change the volume of one separate from the rest of the track.



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