Many Voices From One Using Audacity

When I did the Halloween activities, I needed a sound clip for the finale with several people talking at once. Since there was only me to do it, this could have been a problem. But luckily I had Audacity to help me out. Audacity is a powerful, and better yet, free sound editing program, and you can read more about it in Annie's Resource Attic.

Start With Two Samples

I started out by recording my sound clip, using the default **New** document in Audacity. The default is a stereo sound track, so you will see the waveform for the clip twice, one above the other. I went to File and chose **New** again, to open a second new document, and recorded the same clip, in a slightly different pitch.

Split Stereo Tracks
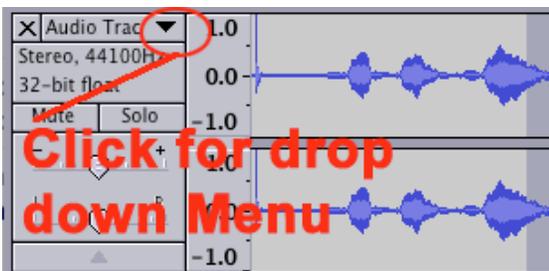
Next, I split both the recordings into two mono tracks instead of one stereo track. There is a **little black triangle** on the right side of the track's various settings, just before you see the beginning of the actual sound wave diagram. Click to open a drop-down menu there, and choose the **Split Stereo Track** option. Doing this for both recordings gave me four sound waves to modify.
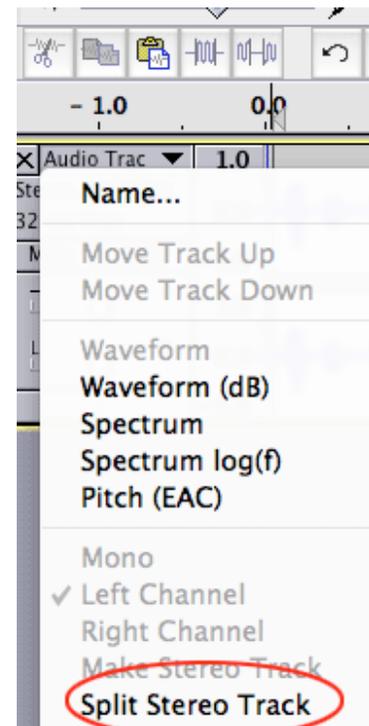
Change the Pitch

You can click and drag over a sound wave representation, or part of it, and do all kinds of things to change it up. I wanted to give the impression that several people had made my final recording, so I

wanted the four recordings to have slightly different pitches. I already had two different pitches, with the two original recordings. With these split, I could select one track from each, go to the **Effect** menu, and choose **Change Pitch**. This filter can raise a voice to high soprano or lower it to basso profundo, without changing the speed. This avoids creating chipmunk or undead voices--though the latter might make a good Halloween sound effect! For this "crowd" noise, I only changed the pitch a little bit on one track from each recording. Now I had four voices.

Save Your Work
I had done enough work at this point that I dreaded repeating it...time to save. I saved the first recording as Sample 1, the other as Sample 2. Note that at this point, I was saving in the default format, which is just for Audacity projects. I reminded myself that once I had a finished sound effect, I would have to **EXPORT** it as one of the standard sound file formats that most applications can use, such as .wav or mp3.

Out Of Sync Is Good
If four people chanted "Happy Halloween", they would not be in perfect sync. Somebody would say it a little faster, and someone would start a little later. There are two filters that can be used to get this "out of sync effect". I selected part of one of the tracks in Sample 1, and again went to the **Effect** menu. This time I chose **Change Tempo**. This speeds up or slows down the selection without affecting the pitch. I decided to speed up the track with the highest pitch, pretending that this was a child speaking. Now this track finished a teeny bit before its partner.

Another possibility is to make one of the tracks start a bit later. To do this, I clicked at the very beginning of one track in Sample 2, went to the **Generate** menu, and chose **Silence...** You can insert a very short interval of silence, even less than a second, to push the sound of that

track a little forward in time and thus out of sync with the other track in the sample. Note: Click on the **teeny black triangle** to drop down a menu letting you to choose the format of the silence generator. You want the one with **milliseconds**, so you can add less than a second.

Troubleshooting: If you find that you did not succeed in pasting a track at the very beginning, so that you have a blank space in front of the waveform, don't despair. Simply select the blank space and delete it.

Combine Two Files Into One File
Now I had four tracks that would sound great as one combined track. But how to combine them? First, I needed to get all four into one file. To do that, I went to the **Tracks** menu and added two new blank **Audio** tracks (not stereo) to Sample 1.   Then I dragged across one of the tracks in Sample 2 to select all of it, copied, went to a blank track in Sample 1, clicked at the very beginning, and pasted. I repeated this with the fourth track from Sample 2, pasting it into the remaining blank track in Sample 1. Huzzah! All the sound tracks were together in Sample 1! Definitely time to save again.

Troubleshooting: If you find that you did not succeed in pasting a track at the very beginning, so that you have a blank space in front of the waveform, don't despair. Simply select the blank space and delete it.

Combine Four Tracks Into One Track
Now it remained to condense all these tracks down into one mono track. (For sound effects like this, you really don't need stereo, and mono will

give you a smaller file size.) The next part is a little tricky, but hang in there!

When you look at the four tracks, you'll notice that the bottom two, where I pasted, have slightly different information beside them. The top two say "Left" and "Right", while the bottom two are just labeled "Mono". That's because the top two are the left and right halves of the original Sample 1 stereo sound that I spilt, while the bottom two are the separate mono tracks I created.
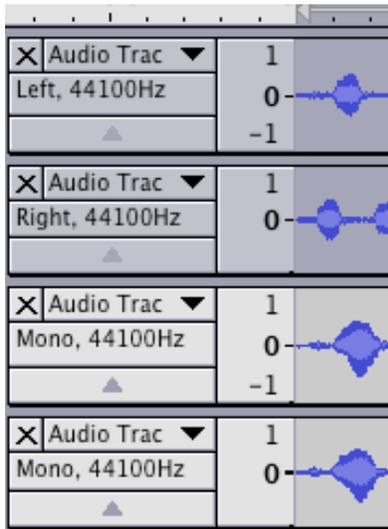
First, I selected the top two tracks (left and right). I did this by clicking into the top track, dragging over to select it, holding down **Shift**, and dragging over the second track. The "Left" and "Right" audio tracks selected, but not the two separate ones. Clicking the black rectangle at the right edge of the settings for one of these selected tracks, I opened the drop down menu again. Now there was a choice to **Make Stereo Track**, thus undoing my split. I chose that, and this joined the two top tracks. Now I had a total of three tracks, with the top one stereo. (You still see 4 waveforms at this point.)

Next, I selected the two bottom tracks, using **Shift** as in the previous step, clicked on the black triangle, and again chose **Make Stereo Track**. This joined the two separate tracks into one stereo track. Now I had just two separate tracks, both stereo. I needed to condense each one into a single mono track.

I selected one of the stereo tracks (both waveforms), and went up to the **Tracks** menu. I chose **Mix and Render**. I'm totally ignorant about sound terms, but judging from the appearance of the result, this takes

the slightly different waveforms in the left and right tracks I selected, stirs them up, and puts out identical left and right tracks combining the sounds. Whew! Try not to think about that :) I selected the changed stereo track again, returned to the **Tracks** menu, and chose **Stereo to Mono**. Yippeee! It combined the left and right tracks into one. Now I'm down to one stereo, and one mono track. Progress!

Note: I tried skipping the **Mix and Render** step, but it won't let me combine the two stereo tracks unless they are identical. I guess that makes sense!

I selected the other stereo track, and repeated this process. **Select**, go to **Tracks** menu, choose **Mix and Rende**r, select again, **Tracks**, **Stereo to Mono**. Again, it condensed down to a mono track! This left me two mono tracks. Hey, that looks familiar!

Home stretch! I selected the two remaining tracks, clicked on the black triangle, and again chose **Make Stereo Track**. Selected the stereo track, went to **Tracks**, **Mix and Render**, select again, **Tracks menu**, **Stereo to Mono**. Ta-Dah!   Finally it's all one track.   SAVE immediately!

Adjust the Project Rate
One last optional step: Look down at the bottom left for the **Project Rate**. It's 44100 Hz by default, but that's what is needed for CD quality music. For a sound effect, usually half that, 22050, is just fine. In fact, for short speech or a shriek or rattle, you could even make it less. The sound quality will go down a bit but the file size will go down a LOT! So set it for **22050**, and save again.

Export Finished File
At this point, I remembered that I had only saved as Audacity project files. I needed something standard to use in other applications. I went up to **File** again, and chose **Export**. I could then choose from various

standard formats. I could have used .wav, which works in most every application, but I was concerned about total file size. I had added a codec to Audacity letting me export MP3 files.   (See the More Audacity post for details).   MP3 is a very condensed file format, so I exported my "Happy Halloween!" as **.mp3**.

In summary, to make many voices from one:

1. Record several stereo samples, saying the same words at slightly different pitch. Save each sample.
2. Use the drop-down beside the waveform to access Split Stereo Track. Do this for each sample.
3. Select individual tracks and make changes as desired, such as pitch changes, insert a short silence at the start, change tempo slightly. Save each sample again.
4. Add blank audio tracks to Sample 1. You need one for each track in the other samples.   Example: If you used 3 samples, you eventually have 6 tracks. Add 4 tracks to Sample one, so there is space for all 6.
5. Copy each track in the other samples and paste each into a blank track in Sample 1. Save the combined sample.
6. Select two adjacent tracks. Use the drop-down to access Make Stereo Track. Repeat this for each pair of tracks.
7. Select one of the new stereo tracks, go to Tracks menu, Mix and Render. Select again, Tracks menu again, Make Mono. Condense each stereo track down to a mono track in this way.
8. Select a pair of mono tracks, and repeat from step 6.   Continue eliminating tracks until all the sounds are combined into one. SAVE!!!!
9. (Optional) Adjust the project rate down, if file size is priority.
10. Export the finished sound effect as .wav or better yet as .mp3.