A325 Exercise #6: | Vocal Comping and Tuning

* auditioning vocal takes
* "comp"ing a vocal
* cleaning Vocal edits
* evil of AutoTune

This exercise will require approximately one hour to complete.

This exercise can be done on any Pro Tools 10 system with Antares Auto-tune

6-1. Start by launching the Pro Tools application. Open the "Exercise6_VocalCompTune" session file from the A325 folder on the audio drive. As in earlier exercises choose "New Session" when asked and save in the "Student files" folder with the correct naming according to the class syllabus.

6-2. Open the Memory Locations window and select "Vocal Comp&Tune". This is a selection based marker and will select the section of the song on which you will be working. Give this section a listen and adjust the mix if needed so that you can hear the vocal well enough to edit and tune.
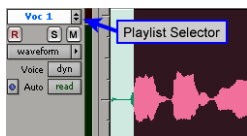
6-3. Click on the Playlist Selector on the "Voc 1" track. Notice that there are 5 vocal takes to choose from (Voc 1...Voc 5).
<*note: you can also use the "playlist view" and click SOLO for each take to listen to that playlist*>

6-4. Using the chart below listen through the 5 vocal takes and mark whether you like or dislike each line for each take. Notate what problems you hear and then see if your choices for the comp differ from mine. Although you are making choices now for this exercise **you will use my choices for the comp.**

	Voc 1	Voc 2	Voc 3	Voc 4	Voc 5	Your Choice	My Choice
In my time							1 (In my)/4 (time)
I've spawned forth							1
Children of Sin							2
All of which consumed me							1
I turned my back on you							3
This began my							2
Eternal rage							1
All I want							2
is your love							2
For you to							1
Love me							1

Creating the Vocal Comp

6-5. Start by clicking on the playlist selector for the "Voc 1" track and selecting "New". Name the new playlist "Voc COMP" and hit OK.

6-6. You now have an empty playlist. Switch back to the "Voc 1" playlist and select the audio for the first two words (In my) with the selector tool. Copy these by hitting "C"
<center>(make sure Keyboard focus is turned on).</center>
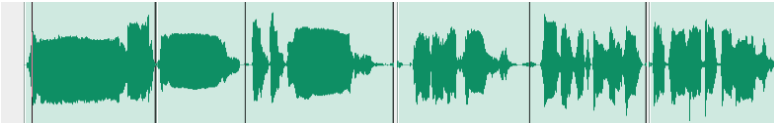
6-7. Switch back to the "Vocal Comp" playlist and hit "V" to paste into the comp playlist.

6-8. Now switch to the "Voc 4" playlist to get the next word. Note that the words you pasted are still selected. This will help you find where your next section should start. Select the next word (time) then copy and paste it just like you did in 6-7. Use this method for the first 6 lines, switch to "lanes" method (shown below) for the rest.
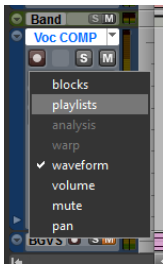
6-9. You can also use the playlist lanes for comping. Trying both will allow you to decide which feels like a better workflow for you. Click on the Track View Selector and choose "Playlists". This will display all the playlists at once. You can then select the audio in the playlist you want and use the ⬆ "Copy Selection to Main Playlist" key to copy that selection to the "Vocal Comp" playlist.
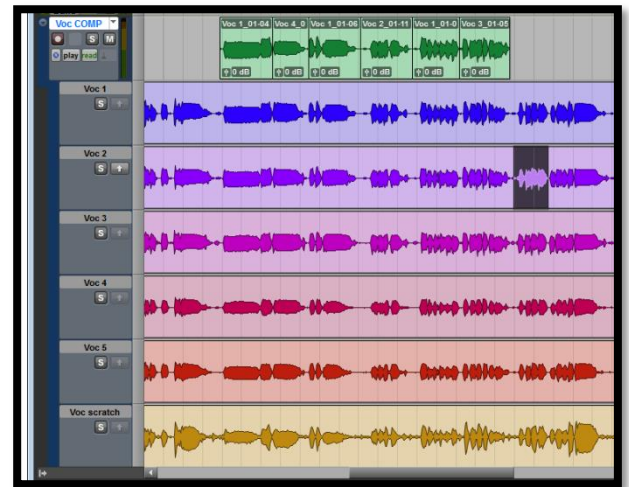
6-10. Give the track a listen. You will notice that the first edit, "In my" edited to "time" does not match. "time" is lower in level than the other words, including "I've" which follows. To fix this we will use clip gain.

6-11. Switch back to "Waveform" view if you were using "Playlist" view. Make sure that "Clip Gain" is shown in your clips. If not select it in the "View" menu. Your second clip should be the word "Time".
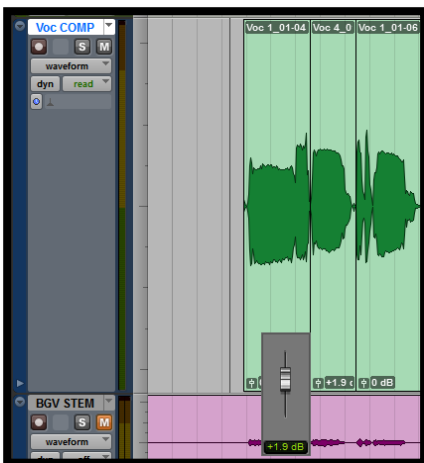
6-12. Near the bottom of the clip you will see an icon that looks like a fader, this is clip gain. Click on that icon and you will get a fader. Adjust this to match the level of this clip to the words before and after. I found that +1.9dB worked well. Adjust it to what you feel matches best.
<note: if you have trouble getting the level you want use the "fine adjust" setting by holding CMD (or Ctrl for Win) while moving the fader, this works for most PT controls>
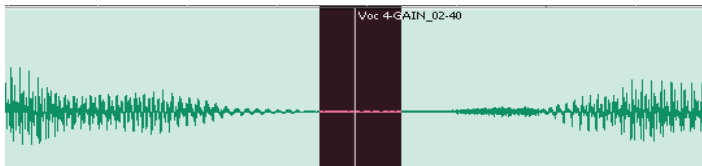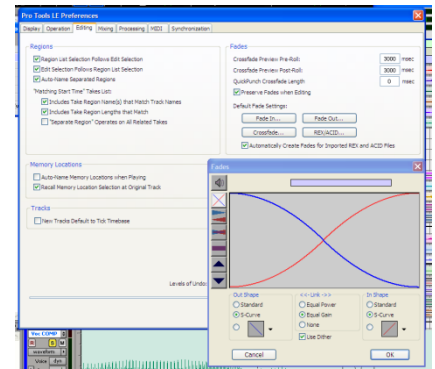
6-13. Give the comp a listen and make sure the adjusted level for "time" makes it feel like part of the same performance. Always keep asking yourself that as it is our final goal.

6-14. Now it is time to check and fix all of the edits between takes. I will guide you through the first few and then you will be on your own for the rest. It is VERY important that you listen to the edits in solo and make then perfect. Any clicks or cut off breaths or words could come out with later processing (compression and EQ).

6-15. Zoom in close to the edit between "my" and "time". Adjust the boundaries of each clip to see what

each contains where they overlap. You will notice that on Voc 1 she cuts off "my" and enters with "time" earlier than she does on voc 4. Adjust the boundaries so that there is the smallest amount of "my" on Voc 4 but not including the beginning of "time" from Voc 1. Here is a picture of where I made the edit.
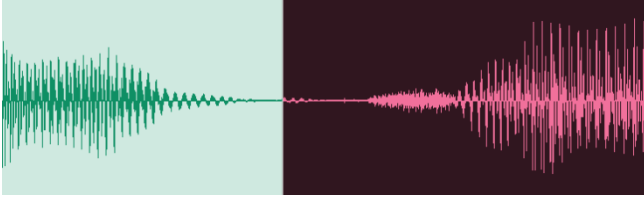
6-16. Give this a listen with the vocal track in solo. It sounds OK, but let's put in a crossfade just to be sure. We will be using the "F" key of keyboard focus to create our crossfades. This inserts the default crossfade. Open the preferences page (Setup>Preferences) and then click on the "Editing" tab and then the "Crossfade" button. Set either the Out shape or In Shape to S-Curve. Then click on the curve above and drag it to match the picture here. This is a fade I have found to work well. Then click "OK" and "OK".

6-17. Select a small area between the clips and press "F" to create the default crossfade. Give the fade a listen and make sure you are happy with the edit.

6-18. The next edit is during silence, she doesn't even breathe, so just adjust and check that it does not have clicks or noises. I do find it better to keep the track continuous in these cases and not try to cut out the silent parts.

6-19. An easy way to move from edit to edit is to use the "Tab" key. First turn off the "tab to transient" function. Now hitting the "Tab" key moves the cursor to the next clip boundary, thus to your next edit. Try this to move to the next edit between "forth" and "Children".

6-20. This edit is again pretty easy, make sure you watch out for her breath though. Most of the time you will want the breath that comes with the next line, that will work in this instance. There is a bit of sounds in the track here so I would also use a small crossfade. Make sure it is before the breath. It is always better to be safe and include a crossfade. Make sure you listen after you have inserted the fade, they can sometimes cause audible artifacts.

6-21. Go ahead and finish checking the rest of the edits. Make sure to listen carefully to each one in solo. When you are finished listen through them all in solo and then again with the rest of the instruments.

6-22. Now you have a "comp" vocal track. "Comp" is short for compile and you just compiled 5 tracks (though you only used 4) into 1. Now it's time to tune the vocal. Wouldn't it just be easier if the singer sang in pitch? There are those singers out there, but many of your sessions will involve singers more like this young lady.

6-23. Instantiate the Autotune plug-in onto the "Voc COMP" track. Set the "Input type" to Alto/Tenor voice. There are two ways to use Autotune, "Auto" mode and "Graphic" mode. We will start this track with the "Auto" mode and then fix what is still not right in "Graphic" mode.

6-24. In "Auto" mode you can either choose the key of the song (or section) or you can leave Autotune set to a "Chromatic" scale. Since it does not require knowing or working out the key, let's try "Chromatic first.

6-25. Use the memory location to select the section again and make sure Loop Playback is engaged. Give the section a listen with the default Autotune settings.

6-26. Chromatic works for a good portion of the section, though there are times when it can pull to a wrong note. This happens when the singer is closer to a note not in the key than one that is in the key. If we choose the key of the song then Autotune won't pull to the wrong notes.

6-27. In a perfect situation you can either ask the band the key or even listen and know. However, there are times when you may need to find the key. The best way I have found is to instantiate Autotune on the bass gtr track (BASS STEM in this case). Play the section you are tuning and watch the keyboard at the bottom of the Autotune window. It will show you the notes the bass is playing, the bass should play the root of the key often.

6-28. Instatiate Autotune on the "BASS STEM" track and watch during this section. You will notice that he is playing "G" and B" a great deal of the time. He is also playing "C#". Since "G" major or minor does not contain "C#" but both "B" major and minor do, the key of "B" is a good choice. However, "B" major has a "G#" not a "G" so we will start with "B" minor.

6-29. Set the key to "B" Leave the "Scale" set to "chromatic" but then go to the scale window and click on "Set Minor". This will set a major scale but still allow you to see the notes on the keyboard at the bottom. If you set the scale next to the key the keyboard is grayed out. Give the Bass track a listen to make sure

that it is not being pulled to any wrong notes. We now have the key for the song. Note that there may be "blue" or other notes in the vocal that are not in the key. Just deal with these if they come up.

6-30. Now drag the AutoTune plug-in from the "BASS STEM" track onto the "Voc COMP" track over the current AutoTune plug-in. This will move all of your settings. If you wanted it to stay on the Bass track, simply hold OPTION as you drag and it will copy the plug-in and all settings. Reset autotune on the vocal track to Input type="Alto/Tenor".

6-31. Check that the "Retune Speed" control is set to 20, this is the default speed from Antares. Listen through the vocal section and listen for how well it is working with these settings.

6-32. Play the sections through a few more times and adjust the "Retune Speed" until you get the best sounding correction. It is OK if a few notes come out wrong; you want the best tuning for the largest amount for the section. Since we are working with a verse and chorus, you may find a different setting for each. We will then go back and fix the few notes that need work. Write down your speed setting.

6-33. I found 2 speed settings for this section "33" for the verse and "15" (with "Targeting Ignores Vibrato" turned on) for the chorus. With these settings there are problems still at the following places:
-"In my time"
-"This began my eternal rage"
-"For you to"

6-34. Before addressing these problems we need to "bounce" the tuned vocal to a new track. If you play the track with Autotune on it back over and over you will notice slight differences in the way it corrects. In order to make sure the tuning we like is heard we will record it to another audio track.

6-35. Create a new mono audio track named "VocCompTuned". Assign it's input from Bus "AutoTuneBounce". Set the output of the "VocCOMP" track to Bus "AutoTuneBounce". Make sure that the fader level of the "VocCOMP" track is at 0 and record enable the "VocCompTuned" track.
*Any plug-ins on the "VocCOMP" track will be recorded as well.*

6-36. Adjust the level of the "VocCompTuned" track so that the vocal is at a good level again, set AutoTune for the verse settings (use mine) and record the verse. Then do the same for the chorus. Make sure to overlap the recording a little so that you can crossfade if needed. You may need to record it multiple times to capture the tuning at its best. Try a few times just to see what happens. You may want to save your plug-in settings so that you can easily access them later (not really for this exercise, but for future projects it is very worthwhile).

6-37. Adjust the edit between the two sections you just recorded. Make sure it is a clean edit, even though we will be recording over a portion of it.

6-38. Now we will fix the three problem lines. Reset to the verse settings and select the first line "In my time". Listen to the line with the verse settings. Try adjusting the "Retune Speed" so that this line works. I found that a retune speed of 136 (with "Targeting Ignores Vibrato" on) works reasonably well. Listen to this line with Autotune in bypass to make sure you are not blaming Autotune for sounds that are on the original track. This is always worth doing. I have spent my share of time trying to make Autotune stop creating artifacts only to realize it was on the original track, FUN! Go ahead and record this line with the new settings (you can use mine or your own, if you think I'm wrong…ya right). *Don't forget to record a little past the line.*

6-39. Clean up the edit you just created. You can choose "time" from either the newly recorded section of the earlier one, whichever you prefer.
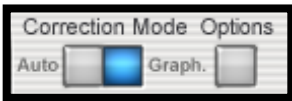
6-40. For the next problem line "eternal rage" we will move to the Graphic mode of AutoTune. First reset the "Retune Speed" to the original verse settings. Then click the "Graphic" button under "Correction Mode".

6-41. Select the words "eternal rage", plus a little before and after, then make sure that "Loop Playback" is turned off. This can be done with the button just above the transport keys on the Pro Control.

6-42. Click on the "Track Pitch" button at the bottom of the AutoTune window. It will flash red/dark blue. It is worth creating a memory location of this selection before moving forward. Be sure to select "selection". Now play the selection. AutoTune will track the pitch. Click "Track Pitch" again turn stop tracking the pitch.
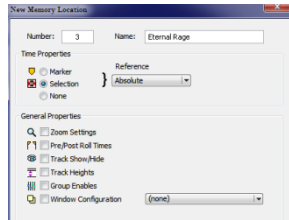
6-43. Click the "Track Pitch" button to off, this will automatically zoom to the area you just tracked. I find it helpful to turn off "Auto Scroll" at the left of the screen at this point . Click on "Import Auto" next to "Track Pitch" and a correction curve will be created that matches the settings from the Auto page. Although the "Retune Speed" for this curve is taken from the auto page there is an additional "Retune Speed" control on the Graphic page that determines how closely it follows the drawn curve.

6-44. Play the line again and listen for how well it corrects. You will notice that the correction is better even if you set the "Retune Speed" to be the same. This is because AutoTune does not have to track the pitch and correct it at the same time, it knows ahead of time what it needs to do. Sometimes just moving to graphic mode will help. We can still make it better in this case.
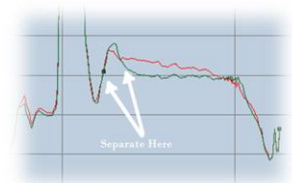
6-45. After you import the auto settings, AutoTune selects all the curves. We first want to un-select them. Click anywhere in the window where there is not a curve (with the arrow tool). When editing make sure to use the "Cut/Copy/Past/Undo" buttons in the AutoTune window and not CMD-X (etc), or you will cut the clips from the edit window.

Graphic Mode Colors:
RED: what Auto-tune thinks was the original pitch
BLUE: what you are telling Auto-tune to correct to
GREEN: what comes out

6-46. Using the "Line Tool" draw a line as shown to the left. Click once to start the line, a second time to set the end point, and a third time (without moving the cursor) to set the line. This will tell AutoTune to correct this area to a D#.

6-47. The middle of the line feels OK but for the last part of "Rage" (sounds more like "…hage" here) we need to tweak. Using the arrow tool select the curve in that section (just after the big mountain shape. This selects the entirety of "Rage" which we do not want. Use the Scissors tool to separate this curve at two spots as shown.

6-48. Select just the later section that you just separated using the pointer tool. If you click near the front of that curve you will get a symbol with arrows going up and down. ⊕ Use this to reposition that end of the curve + or – in pitch. Play with it to see how it reacts then place on the F#. With this curve selected you can adjust the retune speed for just that section with the control at the bottom of the window. Adjust this to 71. Try different settings if you wish. Notice how this move the Green curve (what we get) either closer to the Red curve (what the singer did) or the Blue curve (what we want). Green is what we are interested in so it doesn't matter what the Blue shows as long as it gets us what we want in the end. You can go with more straight lines and a slower retune speed or more complex curves and a faster retune speed and end up with the same results.

6-49. Record these two words with the graphic settings onto the "VocCompTuned" track now. Go ahead and record both words for now.

6-50. Now we will fix the last problem "For you to love me". Select "For you " plus a little before and after. With AutoTune opened click "Track Pitch" and play in the selection, turn off "track pitch" when done.

6-51. Move back to the Auto mode page and reset your chorus settings. You can move between modes without losing your settings. Back on the Graphic mode page, click "Import Auto". Give it a listen. Again it is better just moving to graphic mode but it could be better.

6-52. Draw a line on C# for "you" the section is highlighted in the image to the right. It should start at the first peak and go until it starts to slope down at the end.

6-53. With that line still selected adjust retune speed to 6. Give this a listen. To me it feels off as it goes sharp. Try a faster return of 0. That certainly doesn't sound right.

6-54. Go back to a retune of 6. Then switch to the pointer tool and pull that line down until the top peak for the green line just barely goes above C#. It turns out that (*in most cases*) it sounds worse to be sharp than flat. Give this a listen and see what you think.

6-55. Take some time now to try some different ways of fixing this and write down your best solution. We'll talk through everyone's in class.

6-56. Another tool of Autotune that we can use here allows us to control the amount of vibrato. Select "For" with the "I-beam" tool and set "Adjust Vibrato" to "+12" and listen. OK so that was just for "fun" but if we set it to "0" it reduces the vibrato while leaving some of it. Notice that this deletes the pitch correction that was imported from Auto. You will need to use the pointer tool to move this back down to C#. Give it a listen and see if it is better than the auto setting. I think it is be but they are close.

6-57. One more thing to try. Let's change her performance a bit and make "for" into 2 notes. Take the first little bit of "for" and draw a line at "D" and then a line sloping down to the corrected C# you just made. Set this to a slow "134" retune speed.
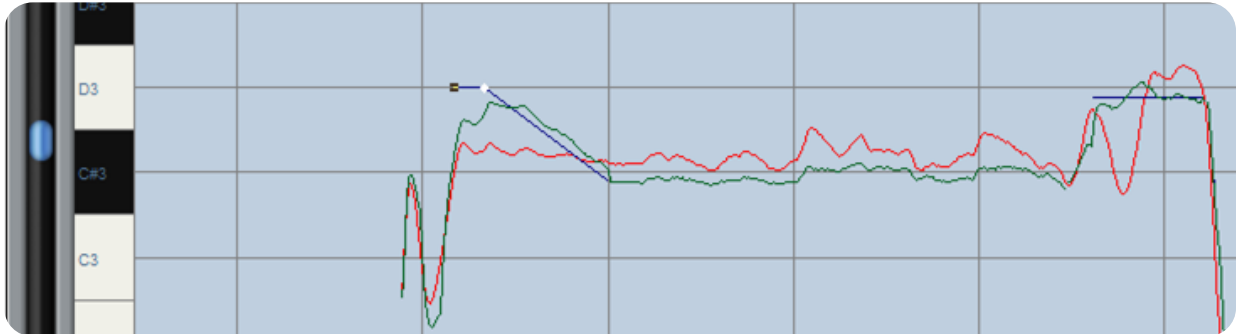
6-58. Give this a listen and see if you like it. You may not, I think it adds a tension that I like but it shows how powerful this tool can be to do more than just fix singers who can't sing.

6-59. That's it you've now comp'ed and tuned a vocal. Well actually you've just comp'ed and tuned a verse and chorus of a vocal. A lot more time would be required to finish the entire song.