

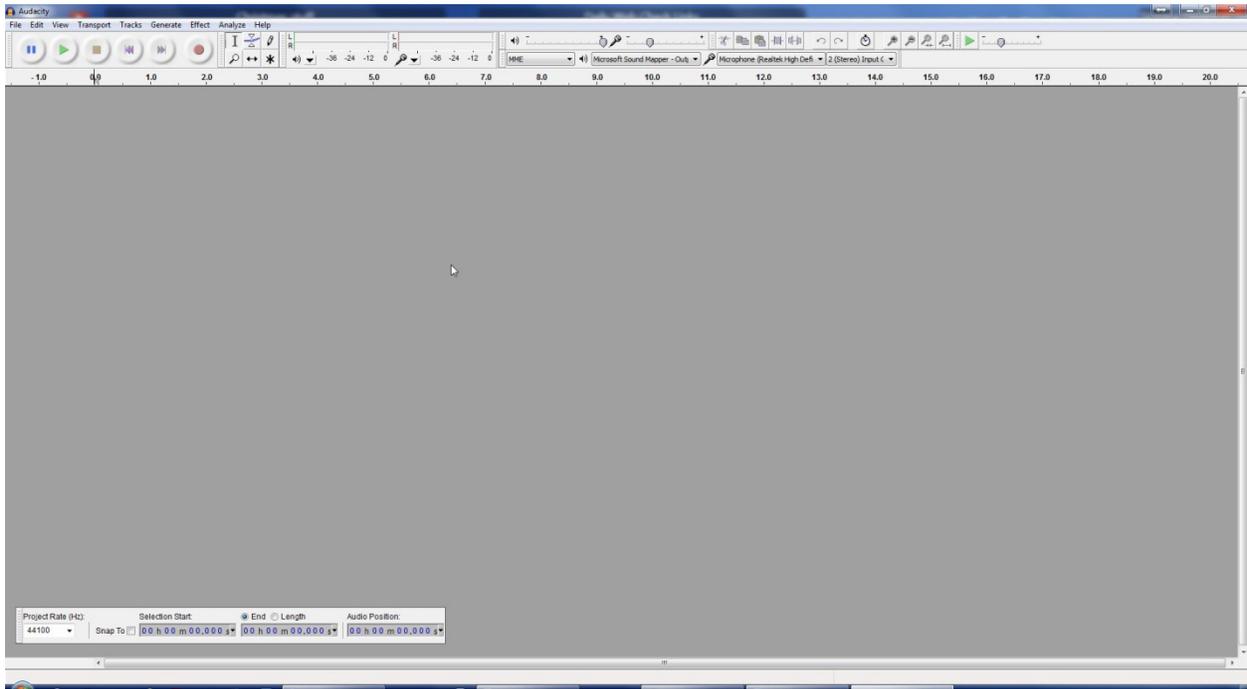
## PAPAGAYO TO NUTCRACKER STEP BY STEP

Papagayo is not an automatic mouth sync program. It was designed to analyze a text file of words and phrases and assign the proper phonemes. It does have features which then assist with aligning the words up with their respective audio envelope but not automatically.

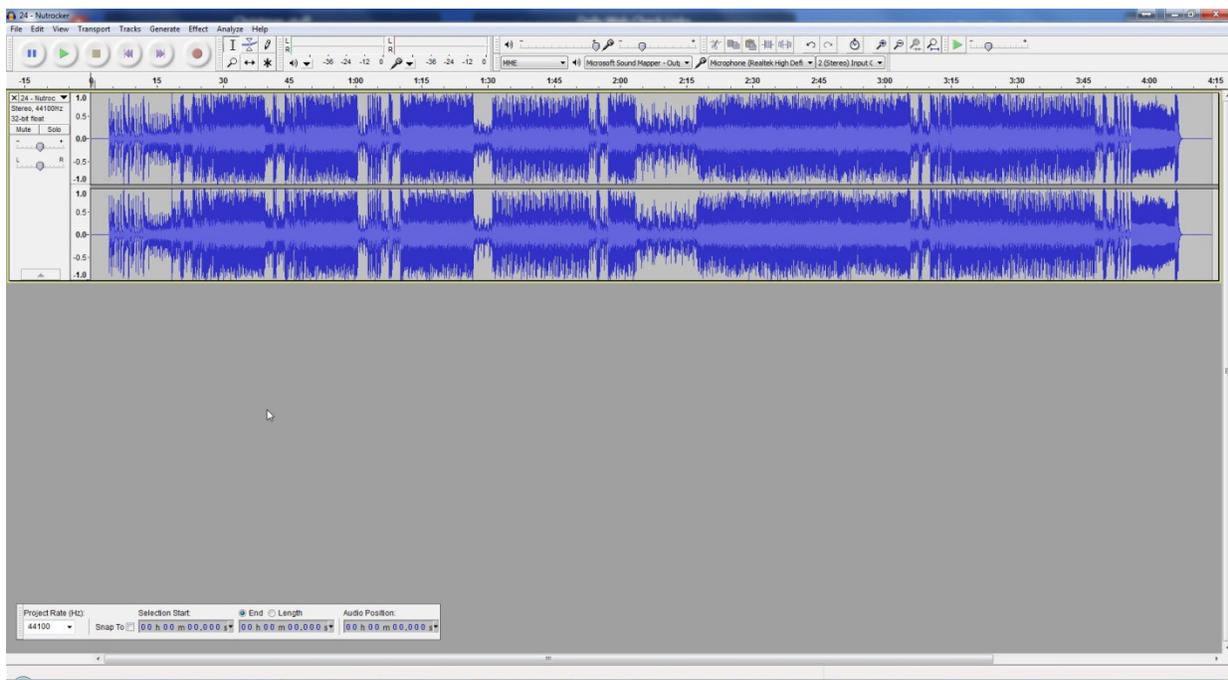
### AUDIO FILE CONVERSION

Papagayo requires that you have an audio format in the .wav format. If all you have is an .mp3 or other audio file a .wav formatted version of the audio file needs to be created. This can be easily done with Audacity.

First open the Audacity program.



Then select File > Open then browse to your audio file, Select the .mp3 or other audio file and click 'Open'.



Now click File > Export... and when the 'Export File' window opens be sure that in the 'Save as type:' box is the phrase 'WAV (Microsoft) signed 16 bit PCM'. You can either accept the default filename or change it if you like but I recommend you accept the default and click 'Save'. You can now close Audacity.

## BUILDING YOUR SONGS LYRIC LIST

You need to find the lyrics associated with your song. There are a several internet sites where you can search for lyrics. One thing to note is that not sites may have lyrics to your song or let you directly download them. Sometimes you have to print them out or to a PDF file then copy them to a text file. Here are some places to assist you with finding your song's lyrics. If you find a better one please post it on the facebook group page and it can be added here.

<http://lyricsserver.com/>  
<http://lyricsfly.com/>  
<http://www.lyrics.com/>  
<http://www.lyrics.net/>  
<http://www.metrolyrics.com/>  
<http://www.oldielyrics.com/>  
<http://www.lyricsmode.com/>  
<http://www.songlyrics.com/>

## A WORD OF CAUTION

Be **ABSOLUTELY** sure that you have the correct lyrics for the song you are using. When retrieving the lyrics from the web they may not be accurate and or complete. The reason for this is that after Papagayo does the lyrics phoneme breakdown and discover that a word or sentence is incorrect you can **NOT** edit in a new word so you would essentially have to start from the beginning of the lyric breakdown and matching process.

It is suggested that you carefully listen to your song and compare the downloaded lyrics with what is actually being said/sung in the song. A song may have a phrase repeated several times but the downloaded lyrics only have that phrase once. This comparison process will save you from having to repeat processing the lyrics which could be very timely.

## BREAKING DOWN THE LYRICS FOR THE VOICES

If you just have one face to animate things are fairly straight forward and simple. If you have multiple voices you must determine which words will be spoken by which voice. In my example here I will be using 4 different faces. Let's call them Skull 1, 2, 3, and 4. The lyrics of my song, Adams Family, are as follows:

They're creepy and they're kooky  
Mysterious and spooky  
They're altogether ooky  
The Addams Family

Their house is a museum.  
When people come to see 'em  
They really are a screa-um  
The Addams Family

Neat  
Sweet  
Petite

So get a witch's shawl on.  
A broomstick you can crawl on  
We're gonna pay a call on  
The Addams Family

Before splitting up the lyrics certain special characters should be replaced with spaces using a search and replace operation. These special characters can be misinterpreted by Papagayo and other phoneme processors. These special characters are the - and ". The next step is deciding which faces will be speaking which lyrics. In this example I will use Skull 2, 3, and 4 to sing the melody and Skull 1 will sing the three individual words. For each face/voice create a text file

named after the face/voice lyrics it will contain. For example, create files like these Skull1.lyrics.txt, Skull2.lyrics.txt, Skull3.lyrics.txt, Skull4.lyrics.txt, and Pumpkin.lyrics.txt.

Skull2.lyrics.txt, Skull3.lyrics.txt, Skull4.lyrics.txt

They're creepy and they're kooky  
Mysterious and spooky  
They're altogether ooky  
The Addams Family

Their house is a museum.  
When people come to see 'em  
They really are a screa um  
The Addams Family

So get a witch's shawl on.  
A broomstick you can crawl on  
We're gonna pay a call on  
The Addams Family

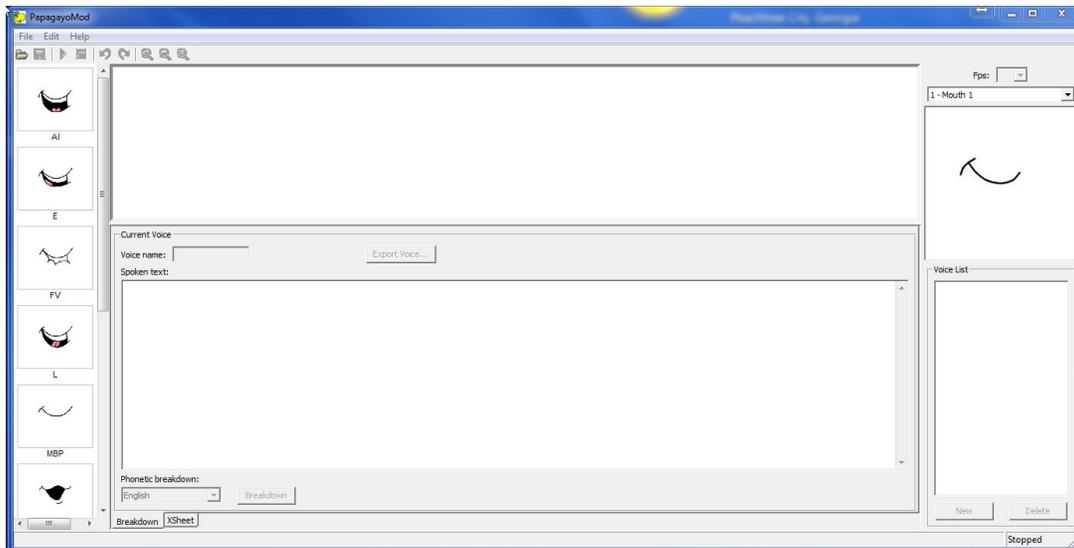
Skull1.lyrics.txt

Neat  
Sweet  
Petite

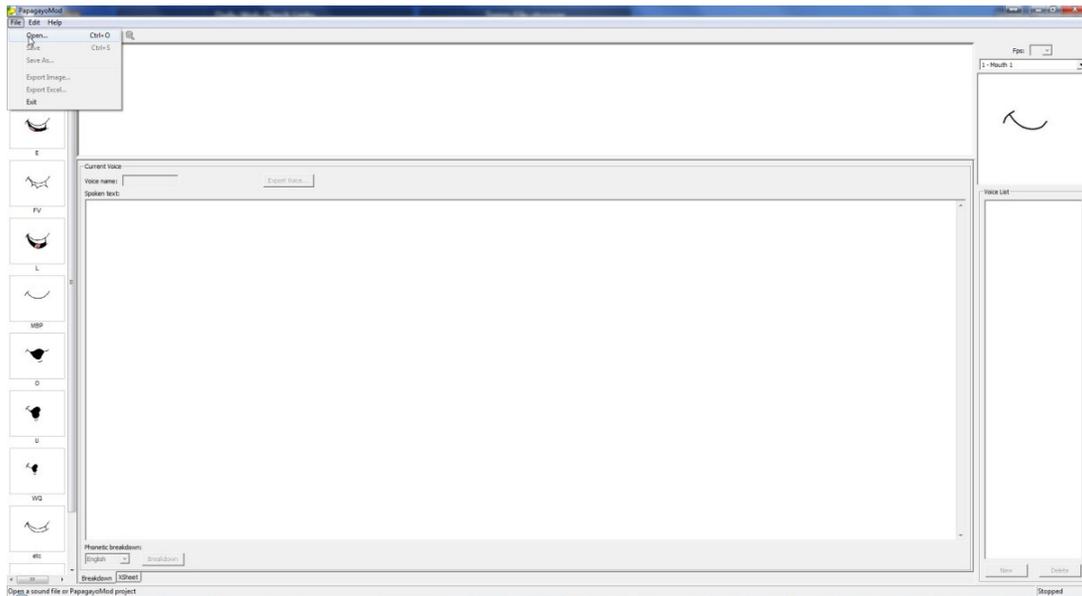
These files will be used several times during this process.

## BASE PAPAGAYO SETUP PROCEDURE

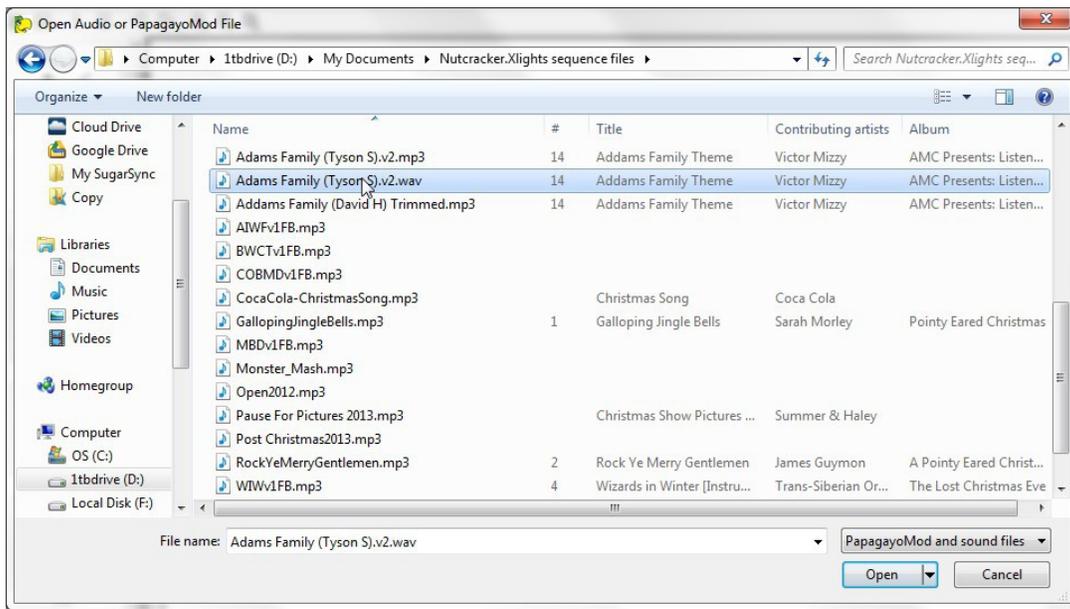
First open your Papagayo version 1.3.5.3 program.



Next open the audio file you wish to work with. In this example I will use my Adams Family Theme song. Click on 'File' then 'Open...' (or use the toolbar button).

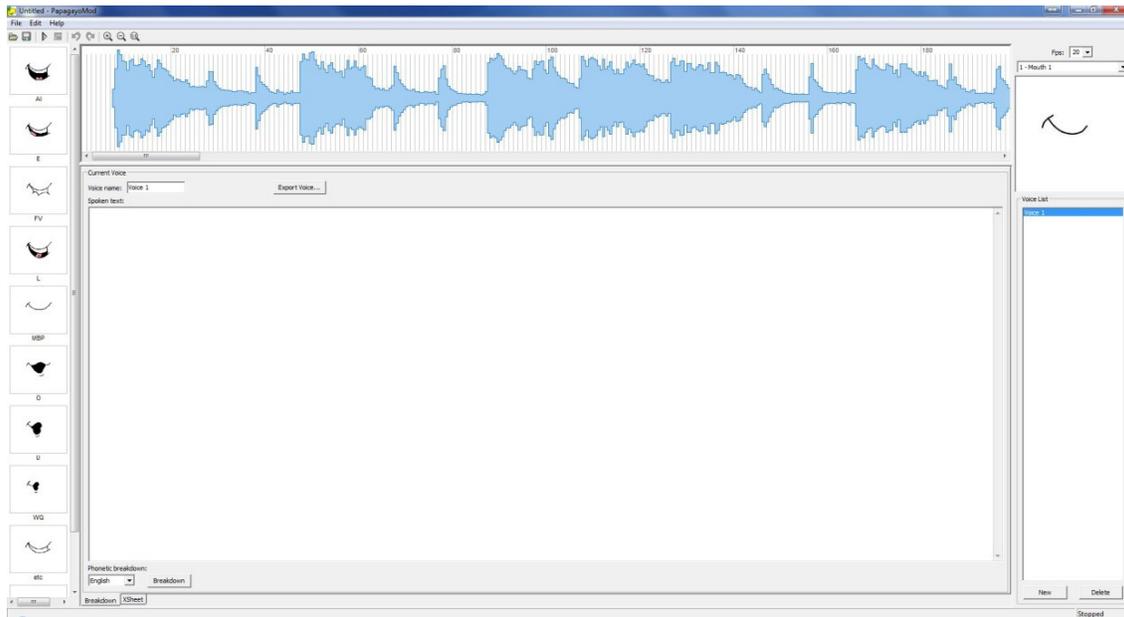


The 'Open Audio or PapagayoMod file' window appears as shown below. Browse to where your .wav audio file is stored. Click on the desired file and click 'Open'. Typically this will be your Nutcracker files folder.



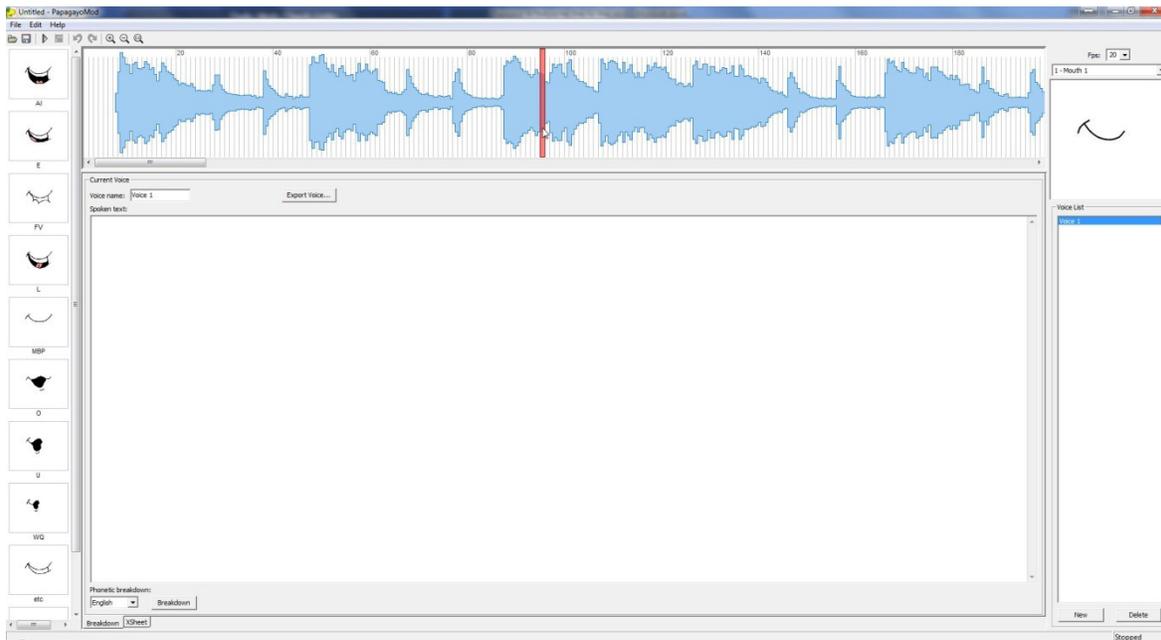
Once the file has opened and the audio wave form is displayed the Play and Stop buttons on the toolbar become active allowing you to play the audio file.

I recommend now maximizing this window to obtain as much working space as possible.



In the box beside the Fps: label type in the value of 20. This needs to be set to the same frame rate as used by Nutcracker (or 25fps for LOR).

In addition you can click anywhere in the audio track and drag the cursor, which turns to a red vertical bar that is one frame wide, back and forth through the audio waveform "scrubbing" the sound. Unfortunately if you press play the cursor always jumps back and begins playing from the beginning.



In this window there are 5 main areas. On the right is the mouth selection, below that is the list of voices you are going to animate, at the top is the waveform of the audio track you have loaded, on the left is representations of each of the mouth movements and their associated phonemes, finally there is the bottom section where you will paste the lyrics that a particular mouth/voice will be animated to.

### SAVING A PAPAGAYO PROJECT

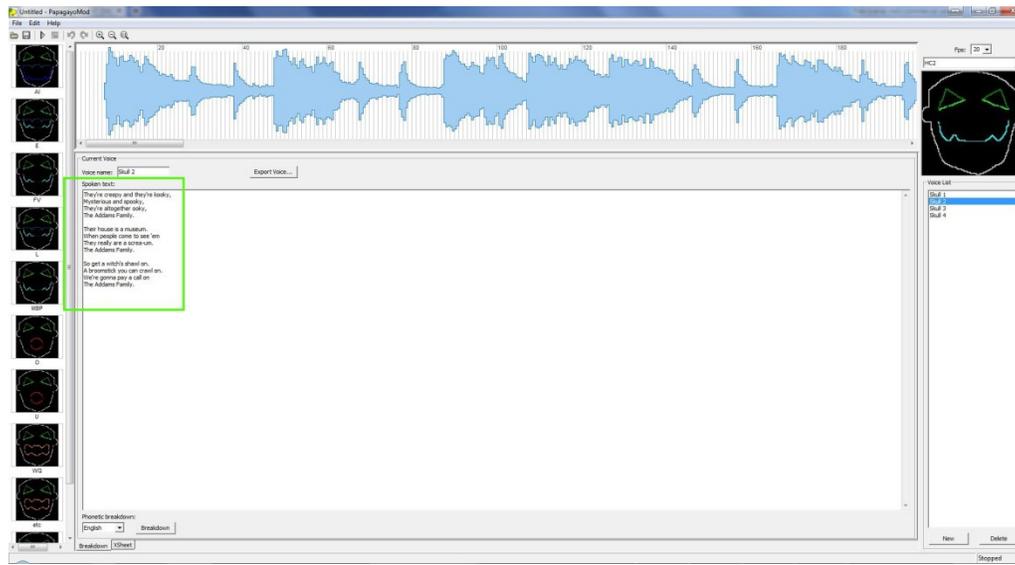
At this point save your current Papagayo project as follows:

Because for each song there may be files created with duplicate names a separate folder should be created for each Papagayo processed song.

To save the Papagayo Project click on the menu command 'File' then 'Save As', then browse to your songs folder and give this project a name. I suggest that you use the name of the song you are using and Papagayo will add the .pgo extension to that name.

## CHECKING FOR UNKNOWN WORDS

The next step will help eliminate any words in your songs lyrics that Papagayo may not have in its library. You should begin this with a text file with ALL the song lyrics in it. Copy and paste this text into the "Spoken text" field in Papagayo as shown.



Papagayo can now break this text down into phonemes. Check to be sure that 'English' is selected in the box under the "Phonetic Breakdown" label. Then click the 'Breakdown' button. If no popup windows appear then you can skip to the end of this section and continue.

Let me take a minute to explain what happens here. Papagayo is going through the list of phrases and word by word and is comparing each word to words in its dictionaries. These dictionaries contain information that assist Papagayo in converting each word into phonemes. Each word in the dictionary is listed with its associated phonemes. As Papagayo proceeds with the breakdown process there may occasionally be a word that it cannot find in these dictionary files. These files are located in the following folders.

64bit Windows

(Disk):\Program Files (x86)\Papagayo\rsrsc\dictionaries

32bit Windows

(Disk):\Program Files\Papagayo\rsrsc\dictionaries

There are 3 files located here are standard\_dictionary, extended\_dictionary and user\_dictionary

To view the contents of these files use either windows notepad or any other text editor such as Notepad++ to open these files. The only file that you should make any modifications/additions to is the user\_dictionary. Upon opening this file you will see it contains a list such as shown below.

```

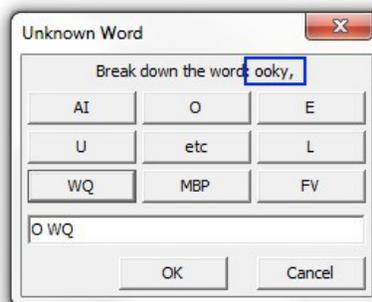
user_dictionary - Notepad
File Edit Format View Help
## You can add your own words to this user dictionary.
## For example, some proper nouns will not appear in the standard dictionary.
## Also strange, "cartoony" words will likely not appear.
##
## Each entry must be on its own line in the file. First is the word as normally written.
## Next, the word is followed by the phonemes used to pronounce it.
## These must be CMU-style phonemes, not Preston Blair phonemes. The CMU phonemes are more
## complex, but also more complete. Using CMU phonemes will also allow Papagayo to map them
## to other phoneme sets in the future.
##
## To start with, there is just one sample entry in this dictionary, WOWZA.
WOWZA W AW1 Z AH0

```

If no words have ever been added this is the only contents you will see. Close this file before continuing.

In the Adams family example Papagayo will find words that are not in its dictionaries. When that happens, a pop up 'Unknown Word' window appears which will allow you to set the phonemes for that word. The first word in this example in the Adams Family lyrics is a word 'ooky'.

A popup window will appear like this:

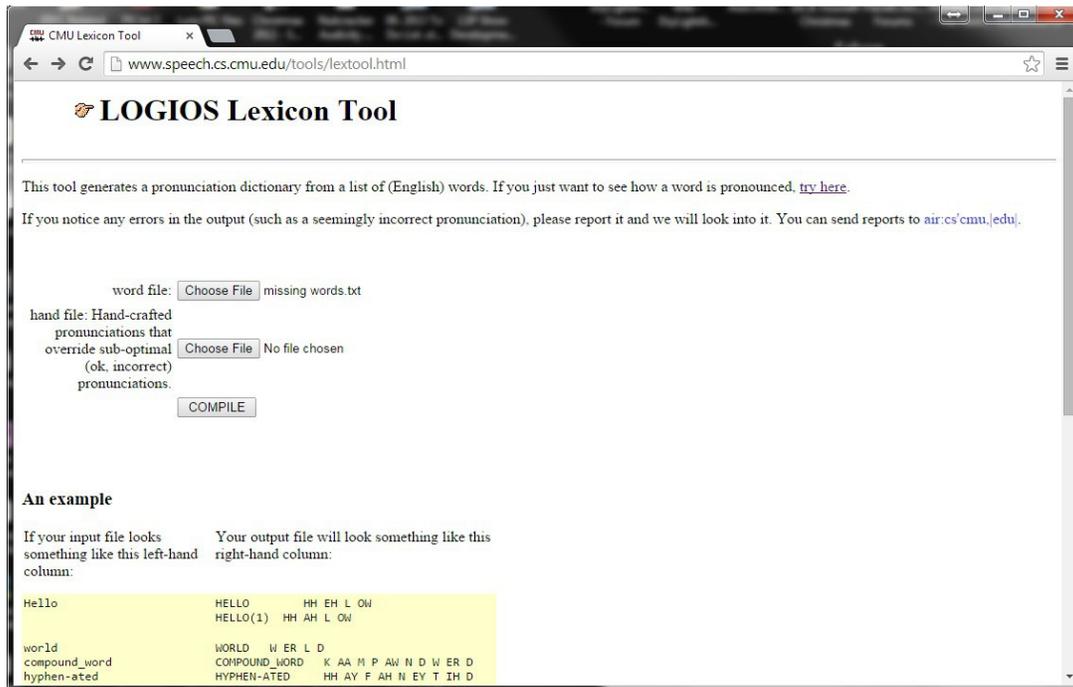


Add each word that is found to a list by creating a text file on your desktop (or whatever folder is easiest for you). Enter just a letter such as O into the 'Unknown Word' window box and click 'OK'. At this point it's not important.

Now another 'Unknown Word' window appears for the word screa-um. For now just add this to your list file. Again enter just a letter such as O into the box and click 'OK'. Repeat this process until the voice breakdown has been completed, then you will see the sentences/words appear in two places. First is in a green line along the top of the wave form. The second is a breakdown of that sentence word by word in an orange highlighted broken line of text. You should also have a list of the words that Papagayo could not find in its dictionaries.

**THIS IS IMPORTANT. DO NOT SAVE ANYTHING AT THIS POINT.** You should exit Papagayo at this time. If you click 'File' > 'Exit' the program should close with no prompting. If you click the 'X' to close the program A 'PapagayoMod' window appears, just click 'No'.

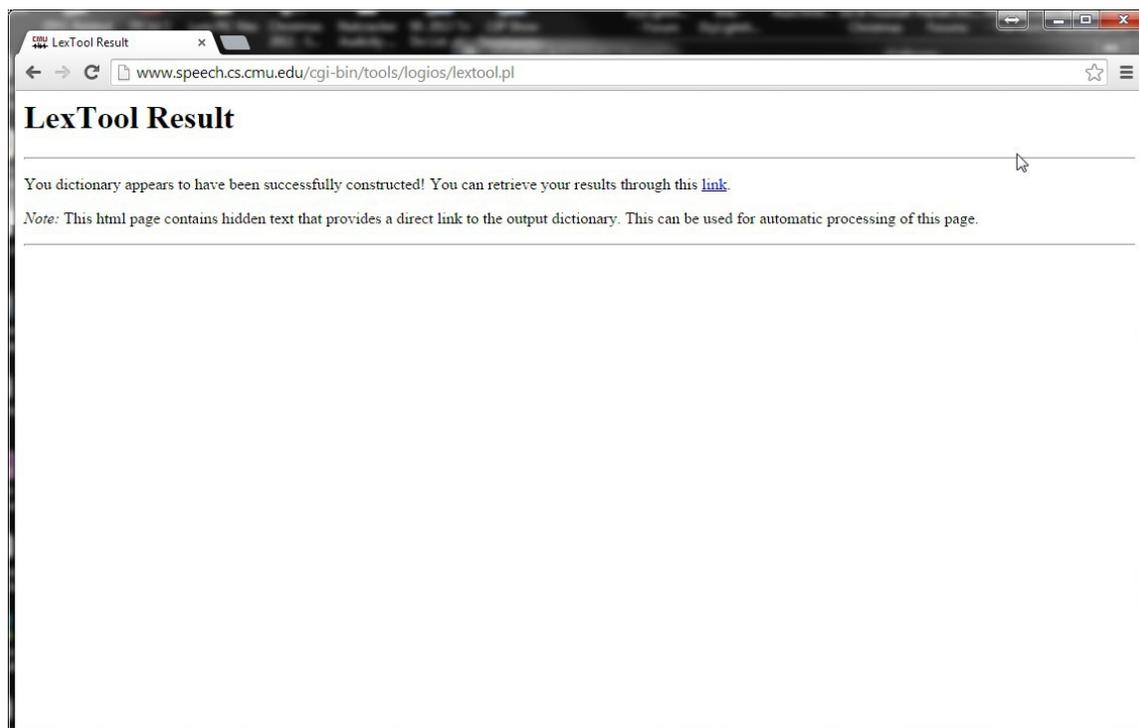
Now browse to the Papagayo users dictionary folder and open the user\_dictionary file. Then in your favorite browser open to the following webpage. <http://www.speech.cs.cmu.edu/tools/lextool.html> as shown here:



If you have not done so already, you need to create a small text file on your desktop or whatever folder is easiest for this to work. The one I created is called 'missing words.txt'. There is no special formatting just a list of words is required. One thing to note here is that if you have any hyphenated words such as 'screa-um' you should break the word into two words such as 'screa' and 'um' for this list. Hopefully all these special characters were removed in the earlier step.

Then click the "Choose File" button and browse to find the missing words.txt file or enter this name into the file box. Then click the 'Compile' button.

Once the processing has completed another webpage will appear similar to this:

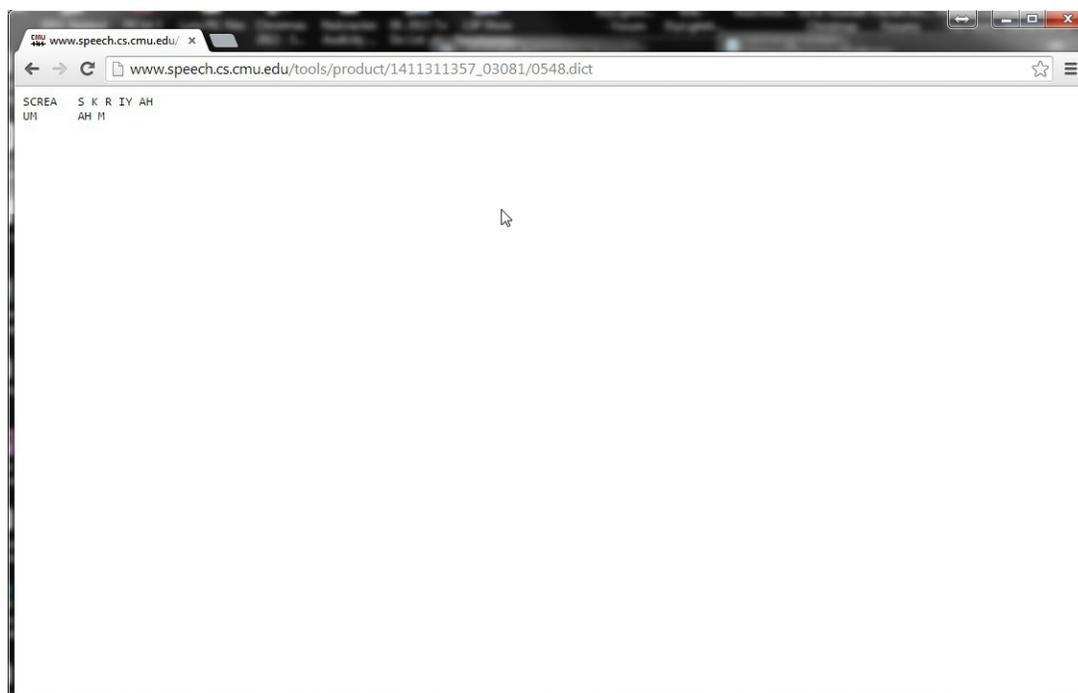


Click the work '[link](#)'

Another webpage similar to this will appear.



Here click the file with the .dict extension such as 0548.dict. then a web page will appear with the words and their phoneme breakdown as shown below.



Highlight and copy this list and paste it into your open user\_dictionary and save the newly modified file.

This process will work for one to how ever many words that you have. But if you just want to quickly check one word past the following link into your browser.

<http://www.speech.cs.cmu.edu/cgi-bin/cmudict>

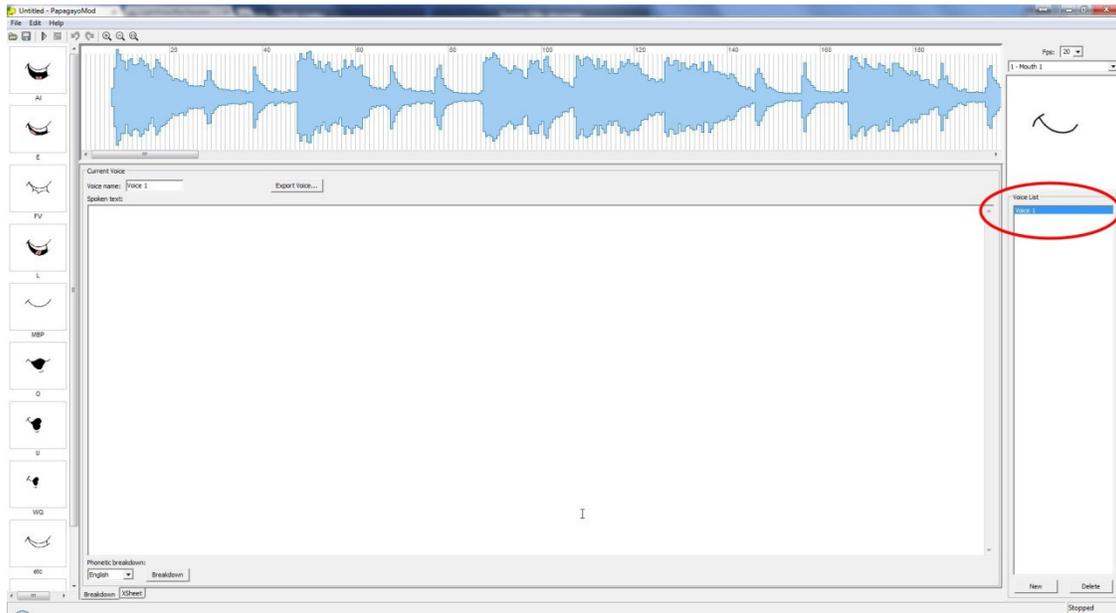
This is the online CMU Pronouncing Dictionary. Here you will look up each word that Papagayo did not find in its dictionaries. Lets take the first word 'ooky'. There is a box below the title 'Look up the pronunciation for a word or a sentence in CMUdict (v. 0.7a)' where you will enter this word. Then click the 'Pronounce it!' button. If a red dot appears with the phrase 'not in dictionary; consider using the LOGIOS tool, which is able to generate missing pronunciations by rule.' Then you need to click the 'LOGIOS' link which takes you to the previously discussed web page.

Now that you have updated the Papagayo user dictionary you should reopen Papagayo and load the previously saved .pgo project file.

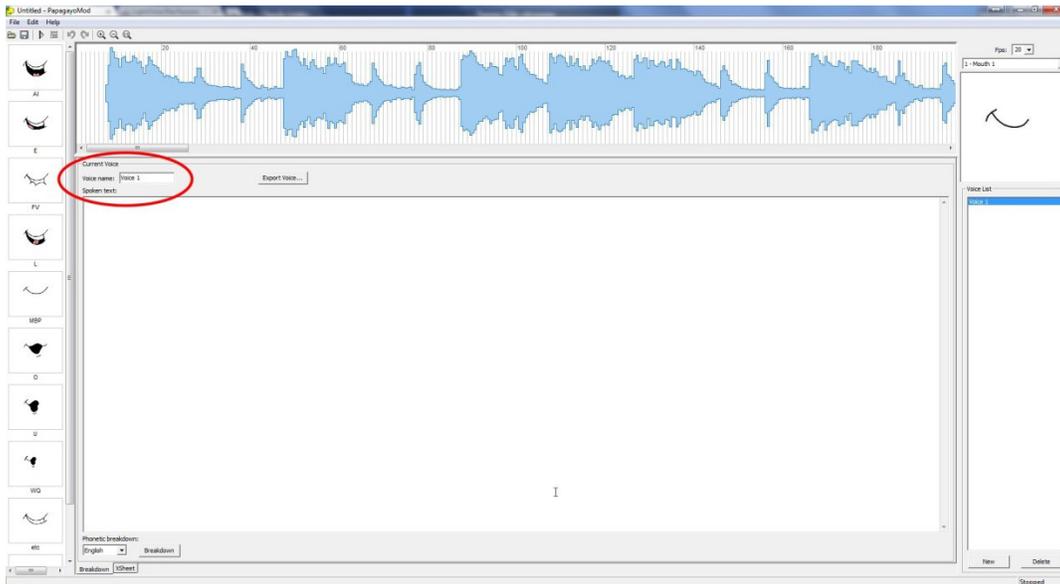
## SETTING UP THE PAPAGAYO FACE VOICE LIST

Now open the .pgo file that was created in the 'BASE PAPAGAYO SETUP PROCEDURE'.

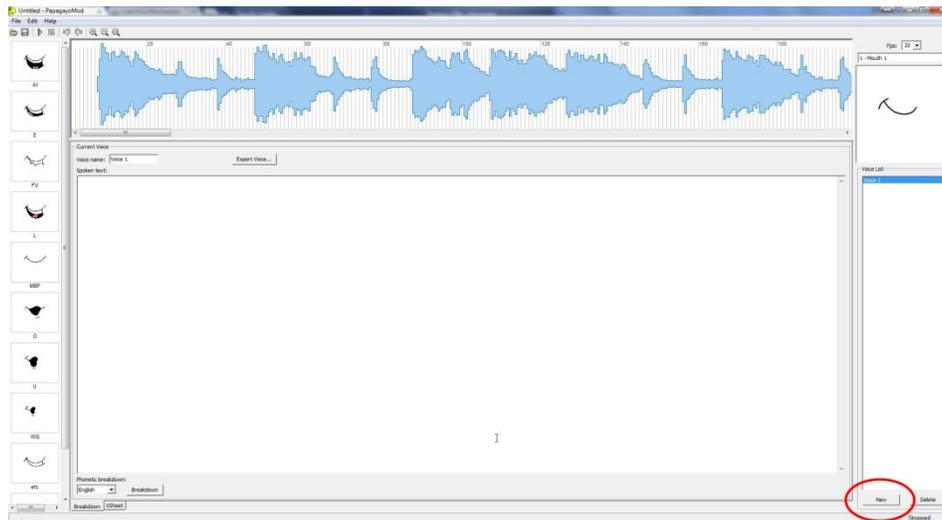
In Papagayo there is a 'Voice List' on the lower right hand side of the screen as shown below. Initially there will be one name in this list called 'Voice 1'. This is where all the voices/faces used in your song will be defined.



To begin adding voices the first one can be added by simply editing the initial sample voice. To do this simply change the text in the box beside the 'Voice name:' label as show below. As you change the text in the box the name in the list will change as well.



To add additional voices to this list click the 'New' button below the 'Voice List' for each additional voice to be added to the list.

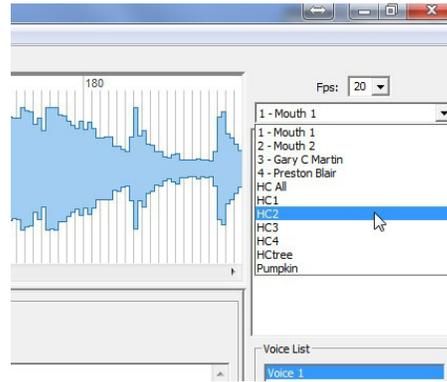
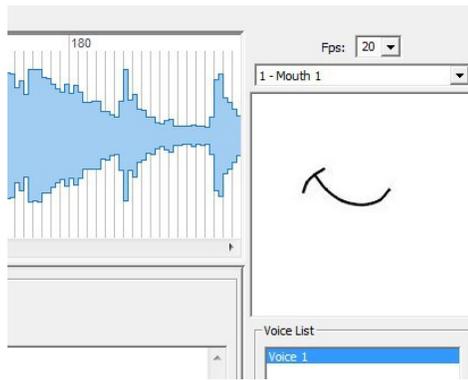


Each time you click the 'New' button a default name will be assigned and needs to change as done above. Once you have added all your voices I recommend that you save your current project.

### OPTIONAL FACE ASSIGNMENT PROCEDURE

Please note that Papagayo does not link a graphical face to any of these voice names. However a temporary assignment of a graphical face to a particular voice during the lyric editing process can be done but does not remain a permanent link.

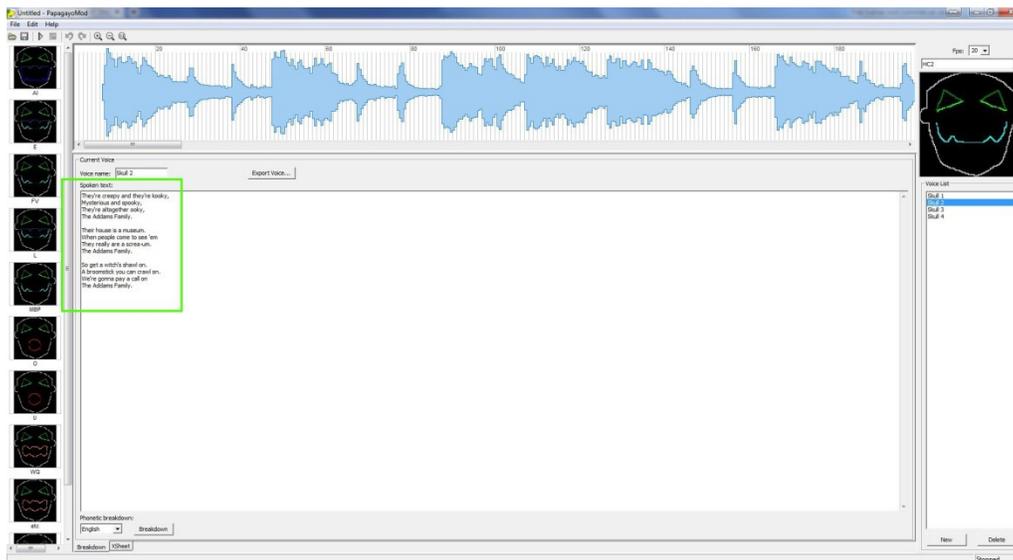
Further the face assignment does not change from one voice to another voice selection. However if you want to see what your particular face will actually look like performing it's lyrics it is accomplished by by using the drop down list above the face display on the right hand side of the screen, highlighting the desired name and mouse click on it. See the pictures below.



## ADDING LYRICS FOR VOICES

The next process is to add the lyrics text for a particular voice.

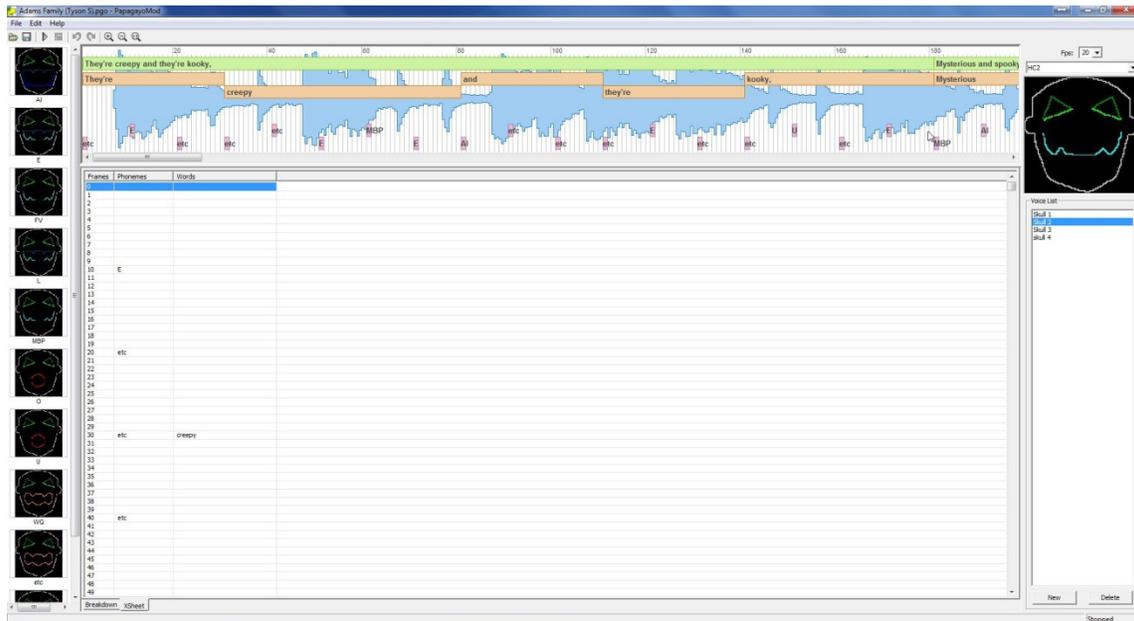
Select the voice from the 'Voice List' that you will be adding lyrics for. Open the corresponding lyrics text file, highlight all of the lyrics, type ctrl+C (copies the text) and paste it into the "Spoken text" field in the Papagayo window as shown.



Next click the 'Breakdown' button. Once Papagayo finishes you should repeat the 'Adding Lyrics for Voices' process for each of the voices in this song.

Upon completing adding all the voices you should save the newly entered lyrics saving the file by clicking either File > Save, Ctrl+S, or clicking the small disk icon on the menu.

At this point Papagayo has processed each of your lyric lists and a screen similar to the one below will be shown.



**Before doing anything else save your project.** This project file will be used as your master .pgo file in later steps.

If you play the audio by clicking on the 'Play' button it becomes quickly apparent that these lyrics are not properly placed on the audio waveform. The lyrics are also placed back to back with no spacing. Placing the text on the proper point in the waveform will now require a manual placement process.

The lyric phrases shown by the green line can be moved by right or left by clicking about in the center of the line and holding to move it to a new position. Clicking on either the beginning or end point of the green line will shorten or lengthen it. Please note that as you manipulate the green line of text the orange highlighted words will move, grow or shrink with the moving of the green highlighted area. When you right click and hold on either the green or orange area a red cursor appears which scrubs the audio as you move the lyric line or words. You will further note that the text moves one frame at a time. If you double click on the green highlighted area the audio covered by the whole sentence will be played. If you double click on a single orange highlighted word only that word will be played. This assists in fine tuning of the start and finish point of a whole lyric phrase or word. While fine tuning individual words, you cannot overlay one word's orange area onto another orange area.

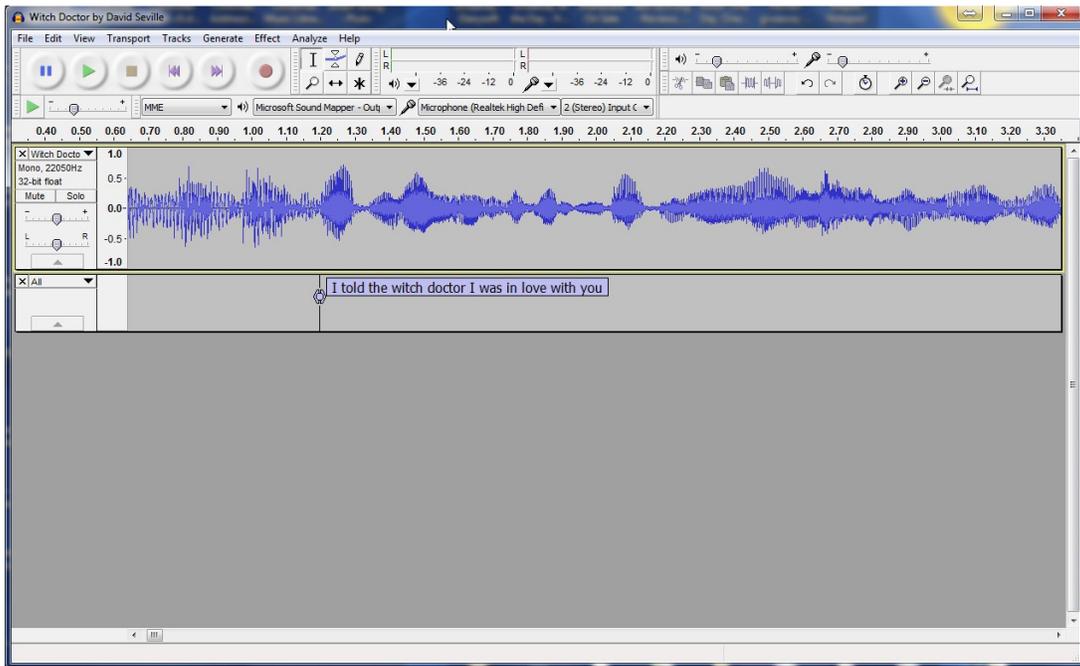
Without knowing the starting frame of each of the lyric lines it becomes a very time-consuming process to align the lyrics with the audio envelope. There has been a utility developed to assist with placing these lyrics in their correct positions. This utility does require the following steps to be accomplished first.

If you have made any changes close Papagayo WITHOUT saving these changes.

## **BUILDING AUDACITY LYRIC TIMING CHARTS**

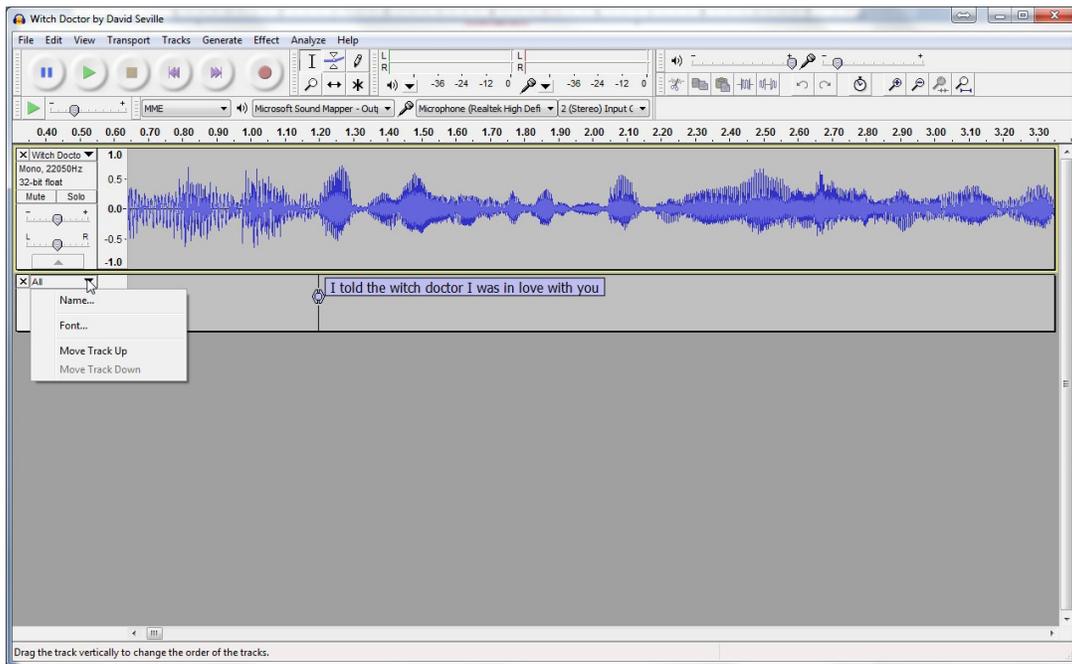
The first step is to open the same audio file used to build the Papagayo file with Audacity. This is being done in Audacity because it is much easier for processing the audio than doing it in Papagayo. This is because Audacity uses the standard play pause stop audio controls whereas Papagayo does not.

Using the complete song lyric list built at the beginning of this process, play (scrub) the song until you reach the start of the first lyric line. Fine adjust the time cursor to the best start point of the phrase. Then press ctrl+B. If a label track does not already exist a new label track will open and the first timing mark appears. Copy the first lyric phrase from the song lyric list and paste it into the label box. Now the screen should look something like this:



Do this for each and every phrase in the complete lyric list.

When all the lyrics have been entered right click on the label tracks drop down menu as shown below.



Then select 'Name ...' and enter the word 'All'.

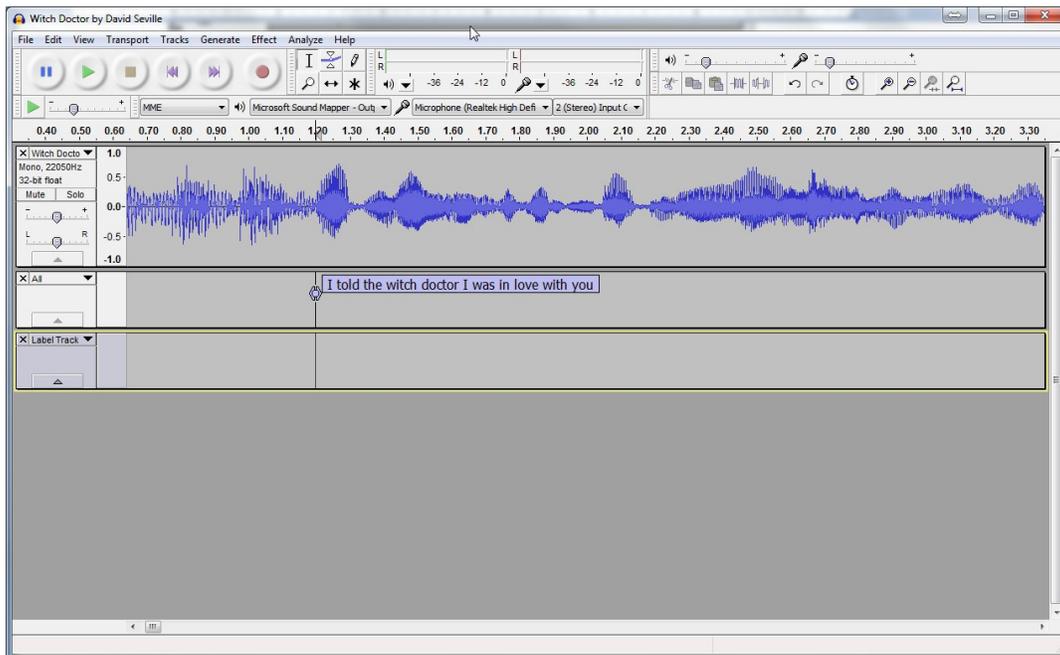
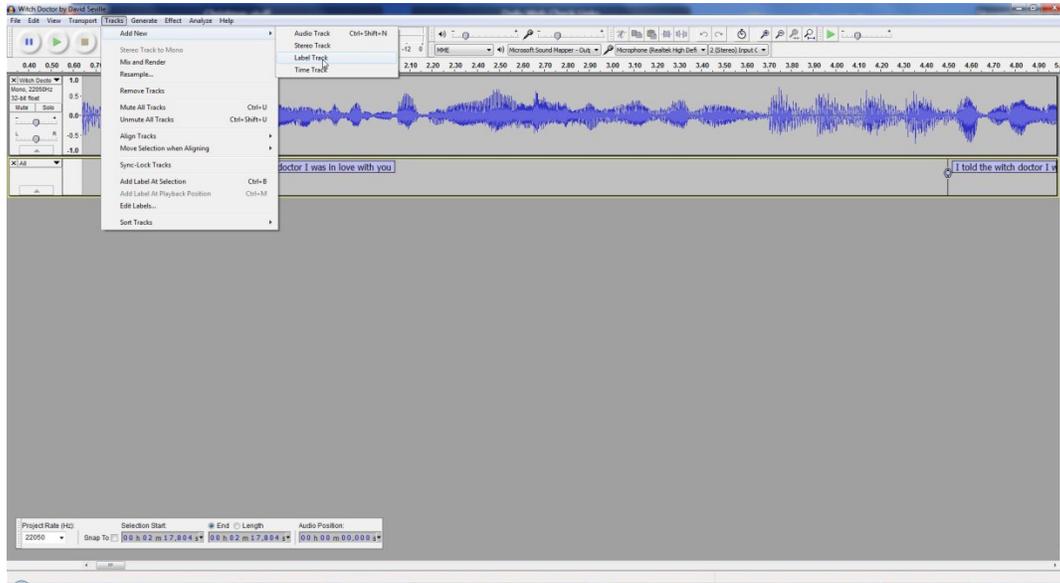
Since all the lyrics have been entered and the track name changed you need to save this as an audacity project file by selecting File > Save Project As..., when the warning box appears just click 'OK' then enter a name for the project, it is recommended that you use the same name as that of the audio file here and that you save the file in the same folder as your Papagayo project file.

Now save this project again but use the '(name of the song).face' as the filename. Repeat this saving of the project for each of the faces in this song.

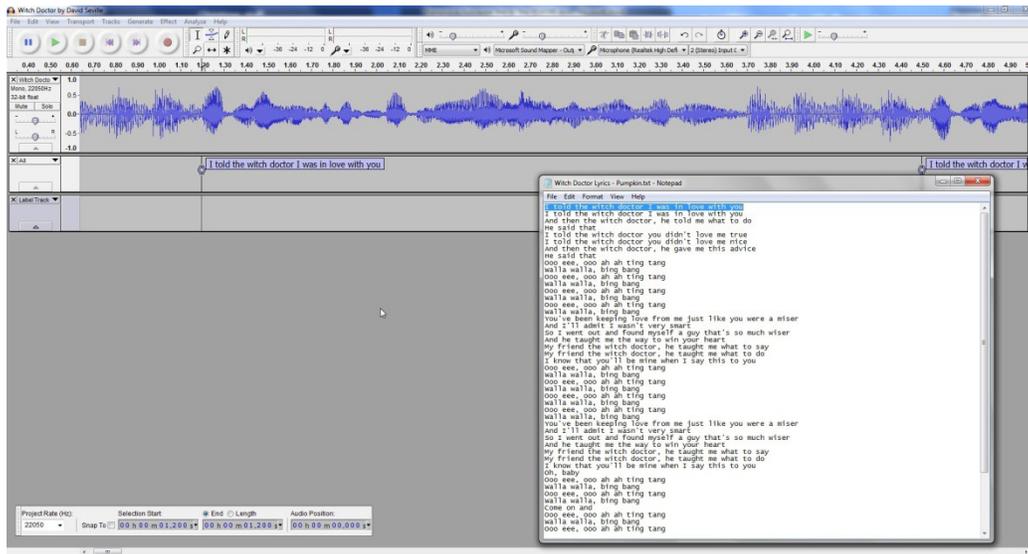
At this point you should have several Audacity project files each with the extension .aup.

## CREATING A PAPAGAYO TIMING REFERENCE FILE

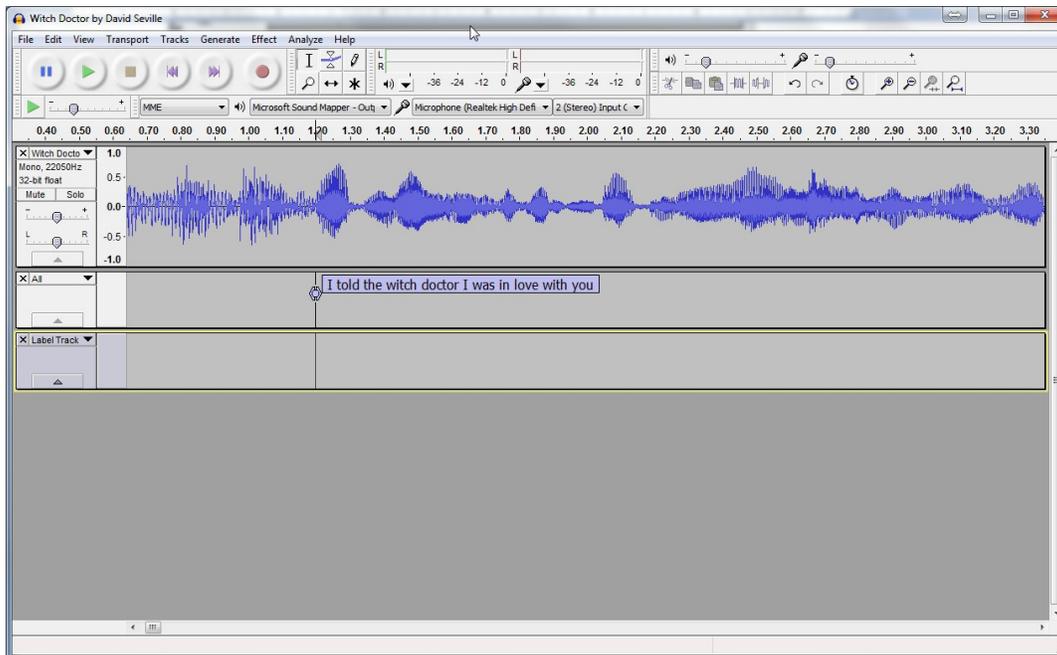
At this point Audacity should be still open to the last project file saved, if not open any one of the newly saved Audacity face project files. On the Audacity menu bar click Tracks > add new > Label Track. A new blank label track should open as shown.



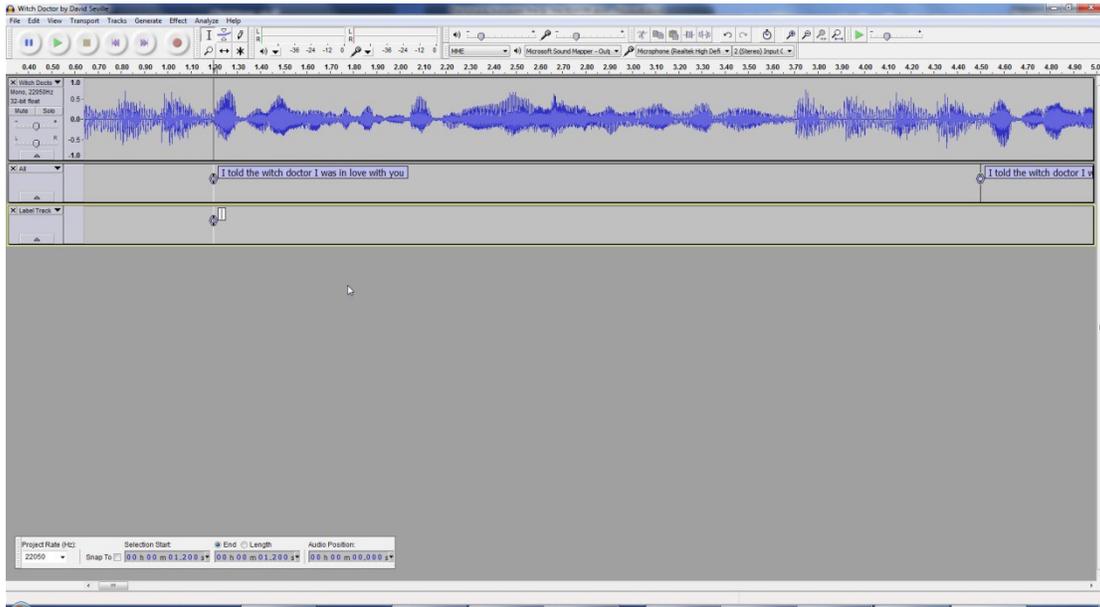
Now open the lyric text file associated with this projects face as shown.



Highlight and type 'Ctrl+C' to copy this lyric text. Now scroll through the audio track and find the first lyric in the 'All' label track that matches this lyric in this lyric text file. Click on the small circle associated with the label in the 'All' labeled track then place the cursor directly below this timing point and click the mouse. This will place a timing line in the newly created label track as shown below.



Then type 'Ctrl+b' which places a blank label mark directly below the one on the 'All' track as shown below.

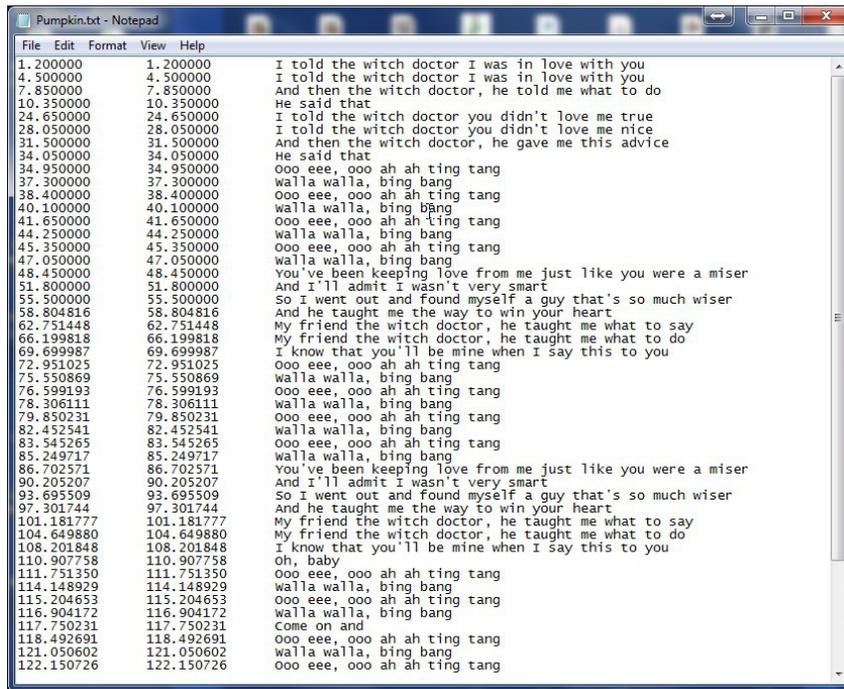


Now type 'Ctrl+V' or right click in the white box and select paste. This put the earlier copied lyric into the label of the newly created label mark.

Repeat this for all the lyrics in this faces lyric file. When finish entering all the lyrics do a File > Save.

Next right click on the newly created label tracks drop down menu, select 'Name ...' and enter the name as the face associated with these lyrics for example 'Skull1'. Now close the 'All' label track by clicking on the x besides the label track name. The only track left should now be the newly added Skull1 one. Again repeat doing a File > Save process. Next click on File > 'Export Labels...' an 'Export Labels As:' window now opens with a filename already inserted. The name should be the same as the name of the track which should be the name of the face with a .txt extension.

The structure of this exported file will be similar to the file shown below.



The first and second column are the time in seconds where that lyric is located in the timeline, the third column is the label which should be lyric located at that time point.

Repeat the above process for each of the faces/voices in your song. You should have an Audacity project file and exported label file for each of your faces at this point.

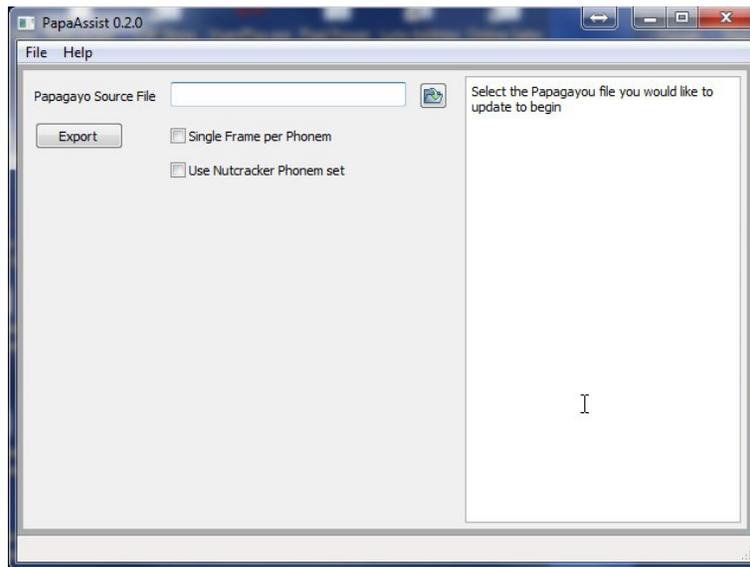
## PAPAGAYO LYRIC REPOSITIONING PROCESS

At this point you should have built the Papagayo base project file, Audacity master audio timing project file, Audacity audio timing project files for each of the voices, and exported Audacity text label file for each of your voices.

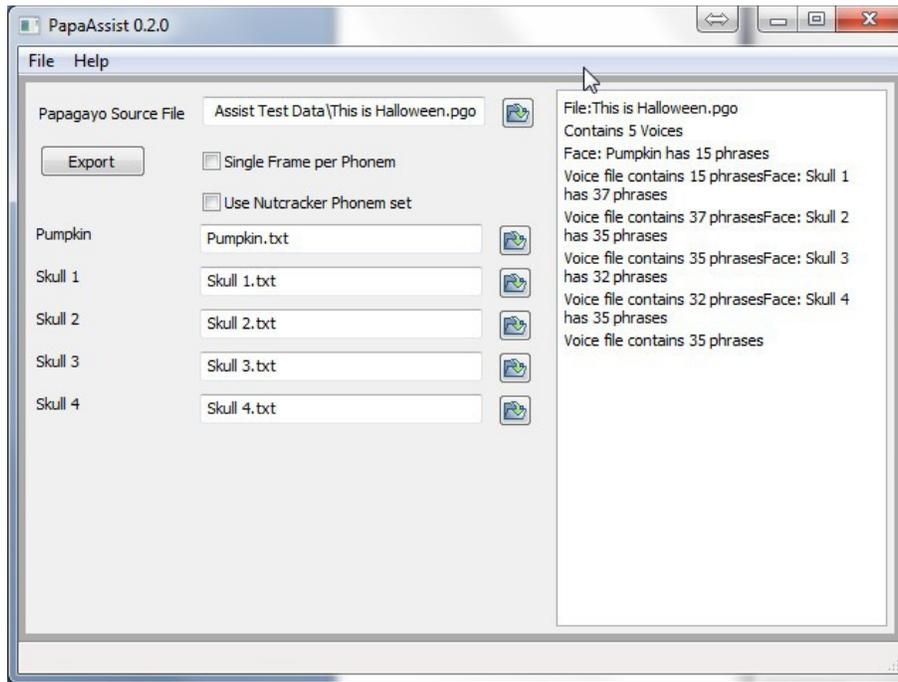
If you have not installed it you should install the Papa Assist program available from the xLights/Nutcracker Software page located here <http://nutcracker123.com/nutcracker/releases/>. Once you download the installation just double click on the file 'PapaAssistsetup.exe' file and follow the installation wizard. It will install an icon on your desktop called 'Papa Assist'.

Now create a temporary processing folder anywhere you like and copy the Papagayo base project file and each of the exported Audacity text label files for each voice into that processing folder.

Start the Papa Assist program. A window similar to the one shown below will appear.



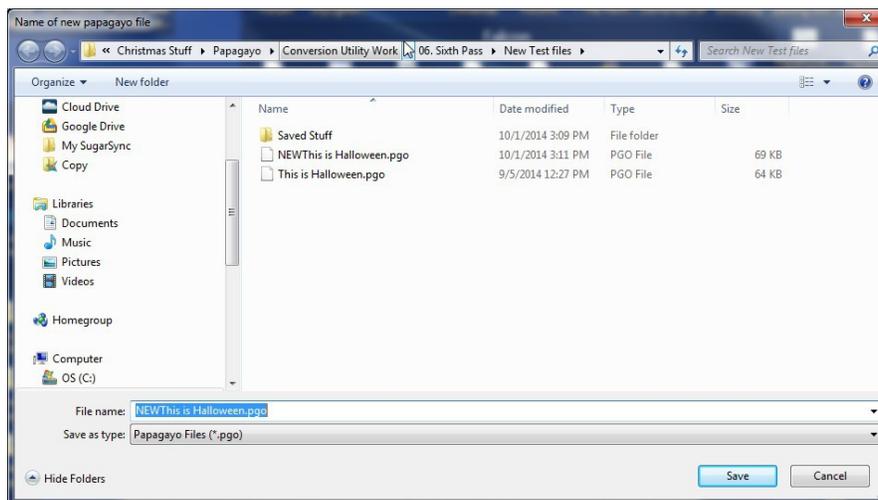
Click on the folder icon beside the 'Papagayo Source File' input box and browse to the temporary file processing folder. Then click on the Papagayo base project .pgo file. Then a list of the faces and the associated Audacity text label files should appear as shown. This screen will change from song to song depending on how many voices and associated text label files you have.



I recommend that you check the option box beside the 'Single Frame per Phonem'. This will give you more flexibility when doing the final adjustment in Papagayo.

Check the box beside the 'Use Nutcracker Phonem set' if you want to be sure that any phonemes in your converted file are cross referenced to the Nutcracker phoneme set.

Press the 'Export' button and the 'Name of new papagayo file' window appears. There is already a suggested name which is the original .pgo file name with NEW appended to the front end. As shown below. You have the option to change the name but I suggest for sake of consistency that you just accept the default and click 'Save'.



Now close all open programs.

Open up Papagayo. Then do a File > Open and browse to the temporary processing folder and locate the newly created .pgo file "NEW(song title).pgo" and click on it. Papagayo should now display each of the song phrases beginning at the correct location along the audio waveform. You will still need to drag the right hand end of each lyric to its correct termination point and check for the correct match of the phrase to the audio by double clicking on the green bar. If it matches up and the final step with each phrase is to check for the correct positioning of each word within the phrase. This is accomplished by clicking on the word in the orange ribbon. You can reposition the beginning and ending of

each word to best match up with the audio if needed by dragging the beginning and ending back and forth. Just remember that words cannot overlap each other or extend beyond the endpoints of the green phrase line.

Now you are ready to transfer your Papagayo information over to Nutcracker. The instructions for that process will be written just as soon as the Nutcracker Papagayo option is stabilized.