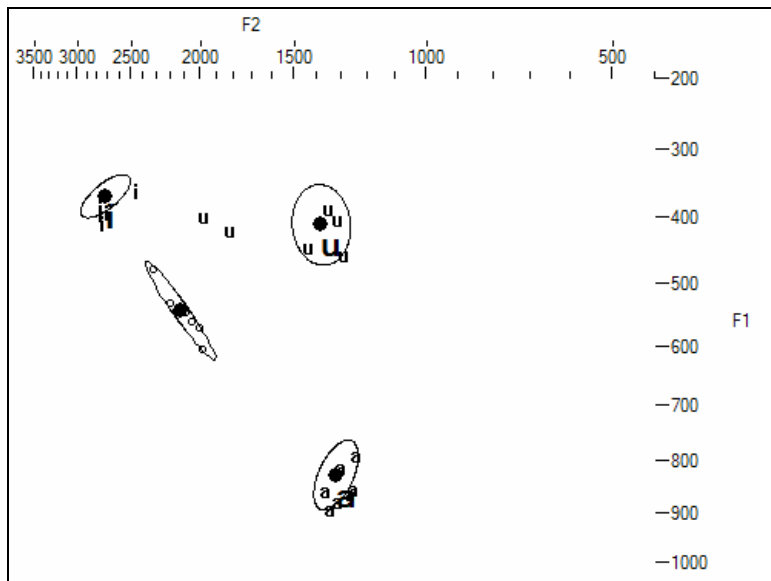


Plotting Formants

1 What is PlotFormants?

- PlotFormants is a free program that will plot vowels on an F1 by F2 vowel chart. Although there are some bugs in the program, it is easier than plotting vowels in Excel for several reasons. It is automatically formatted in the right direction with the right scale; it makes defining groups of vowels easy; it allows you to use letter labels; and it draws ellipses around vowel clusters.



2 Acquiring PlotFormants

- You can download PlotFormants for either PC or Mac at the following website:
[http://www.linguistics.ucla.edu/faciliti/facilities/acoustic.html](http://www.linguistics.ucla.edu/faciliti/facilities/acoustic/acoustic.html)
 - Scroll about halfway down the page to “formant plots”. (The shortcut link is not working.)
 - There are several programs listed. You may try any of them, but these directions are for the first program: PlotFormants.



- After downloading, open the folders until you find **SETUP**. Click on this to install.

3 Before you start... Formatting your log file

- Open your formant log file in Excel.
- Your file will need to be arranged so that there are 4 columns in order: F1, F2, F3, label.
- PlotFormants will only look at the first letter in the label column as a label *unless you put quotation marks around your label*. (It is actually even fussier than this—quotation marks added in Excel won't work, so arrange your data in Excel, save your file as text, and then open it in another text editor to add quotes.) It is also case-*insensitive*. So make sure each kind of vowel has a unique label that is either one letter long (with no capitalization) or in quotes.
 - E.g., a for /a/ “ai” for /ai/
- Save the new file as *text*.

4 Opening a log file in PlotFormants

- Open the formatted log file. (Click on the open folder icon, and then choose your file.)
- Your data should appear in a little spreadsheet with 5 columns:

F1	F2	F3	label	order
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- The order column will be blank (unless you added an extra column to your input spreadsheet). This is the column that sorts groups of vowels. (NB. Vowels are not necessarily automatically sorted by their label, but be warned that sometimes PlotFormants will re-order your rows, so make sure they are labeled.) To fill in the order column to correspond to your label grouping, make sure your items are grouped and choose “Assign order” in the “Edit” menu. You can also fill in the order by hand, using any unique number for all members of a given vowel grouping.

5 Plotting the vowels

- Before you plot the vowels, make sure the spreadsheet is ok.
 - Does it have the right number of rows?
 - Is there a label in every row?
 - Does every unique label have a unique order number?
 - It doesn't matter what the order # is as long as each vowel type has its own. All vowels with the same order # will be grouped together.
- To plot, go to the “Plot” menu. Choose the first option, F1 x F2.
- You will see a vowel chart with your vowels plotted on it. Each little letter represents a single token of a vowel. The big letters mark vowel means. (If not all vowels in an order have the same label, the big label will be “?”.) The ellipses surround the area for a given vowel type.

6 Some points of style

- You don't have to plot all of your vowels in every vowel plot. Choose only the vowels that are relevant for the comparisons you are trying to make (and perhaps an extra vowel or two for reference).
- You can group vowels by categories other than their phonemic label. E.g., you could assign different order numbers to /a/ before /i/ than to /a/ before /u/ to examine the effect of context on the vowel /a/. Or you could give them different labels but leave them in the same order.

7 Formatting the plot

- You can change the size of the plot window by dragging its edges.
- You can change the range of the axes by going to “Calculation/Display...” in the “Options” menu. (You will probably want to lower the upper end of the F1 range.)
- You can also remove the ellipses from this menu, if you should want to for some reason.

8 Exporting the plot and Saving

- You can either print your plot directly from PlotFormants or save it as a bitmap.
 - To print, simply select “Print...” from the “File” menu.
 - To save as a bitmap, select “Save as bitmap” from the “File” menu.
- You can also save the spreadsheet as text from within PlotFormants. This way, you can re-generate any plot quite easily.

9 Plotting in Excel

- In general, I find it hard to make good vowel plots in Excel (e.g., labeling is hard, and the axes are not properly configured). However, if you really want to, you can make a scatter plot with F2 on the x-axis and F1 on the y-axis and set the axes to increase in the reverse direction.