

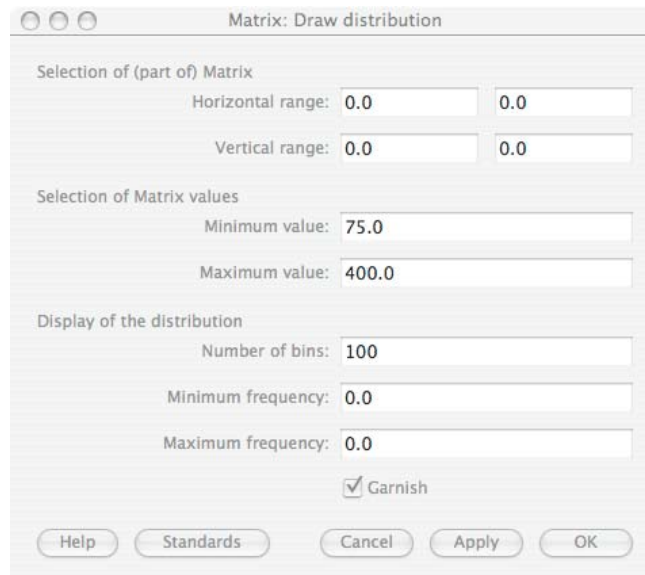
Lab 6 Prosodic features – Part I

The purpose of this lab is to learn how to analyze prosodic features using Praat. We will continue our study President Obama’s speech in this lab, from the following aspects: overall F0 distribution; F0 contours; and the contrast between stressed and unstressed vowels (in Part II). We will use the recordings of lab 1.

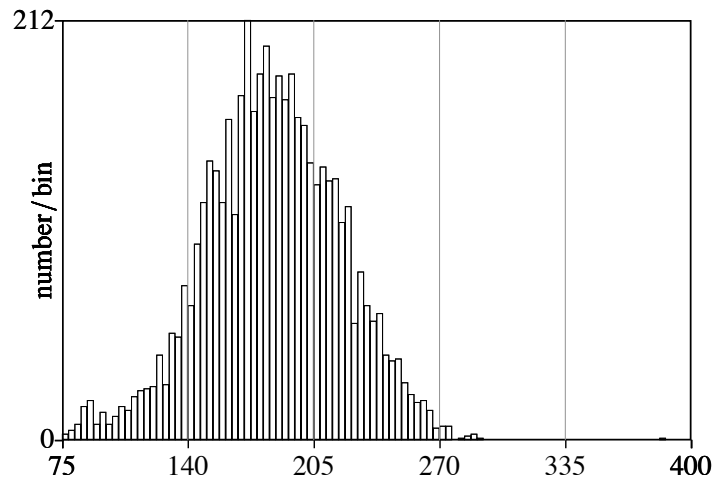
A. F0 distribution

We will first study whether the distribution of the fundamental frequencies of Obama’s speech looks different from ours. To do this, you need to generate a F0 data file using Praat, and then plot histograms of Obama’s F0s and yours to compare. You may follow the steps below:

1. Open Praat, read in Obama’s speech file;
2. In the object window, select “Periodicity – ” -> “To Pitch ...”, set the parameters of Pitch floor and Pitch Ceiling as follows: male (75, 300), female (100, 400), click on OK. A Pitch object will be generated in the object window, under your Sound object;
3. Click on “To Matrix” in the object window, then a Matrix object will show up;
4. Select ‘Draw - ’ -> “Draw distribution...”, set the Minimum Matrix value to be 75 and the Maximum value to be 400, and the Number of bins to be 100, as shown below:



5. Click on OK. A histogram will be plotted in the picture window. Go to the Picture window, select “Margins” -> “Marks” -> “Marks bottom” -> OK. Your histogram will look like the following:



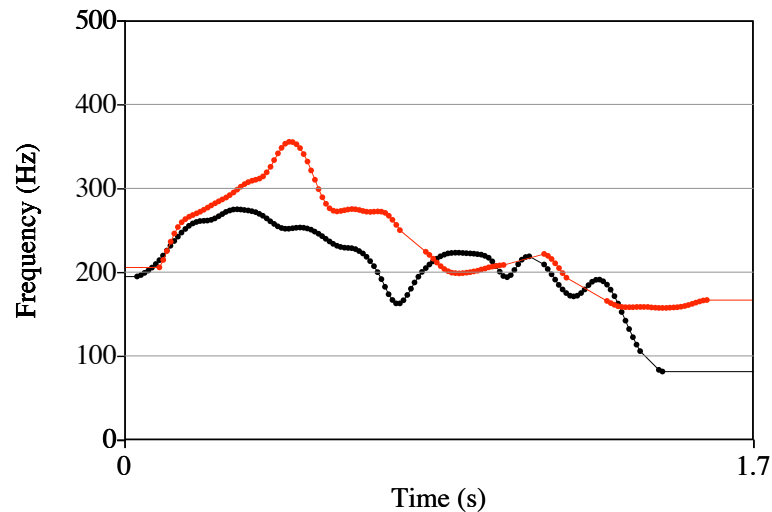
- Now repeat the steps 1 to 5 to draw F0 histograms of your own speech and the others'. Compare these histograms, does the histogram of Obama's or any of yours have a different shape from the others? If so, what does it suggest?

B. F0 contour

Compare Obama's speech to your own recording, and select five utterances and five words that you think are most different in prosody between you and the president. Plot F0 contours of the selected words and utterances. Each plot should contain two contours of the same word/utterance, one for you and the other for Obama. You may follow the steps below:

- Read in Obama's recording and yours, click Edit, make sure that in the Sound window "Pitch" -> "Show pitch" is checked on;
- Examine the F0 contour of the target word/utterance. If there are doubling or halving errors, change the pitch range values from "Pitch" -> "Pitch settings..." in the Sound window until the errors are gone. Record these pitch range values.
- Select the target word/utterance in the Sound window, then click "File" -> "Extract selected sound (time from 0)". A new Sound called "untitled" will appear in the object window. You will have two "untitled" sounds in the object window, one from your own speech and the other from Obama's.
- Select the "untitled" sound cut from Obama's speech, then select "Periodicity -" -> "To Pitch ...", use the pitch range values in step 2 for the settings of Pitch floor and Pitch ceiling, and click OK;
- Click "Smooth...", keep the default/standard settings, and then click OK.
- Click "Down to PitchTier".
- Repeat the steps 4 to 6 for your own target word/utterance. You will then have two "PitchTier untitled" in the project window. Click on each of them, then "Query" -> "Query time domain" -> "Get total duration", record the duration of longer one.
- Click on the first "PitchTier untitled" (Obama's), then "Draw..." -> the Time range should be set from 0.0 to the longer duration recorded in 7. -> OK. You

- may need to click on “Edit” -> ‘Erase all” in the picture window before plotting a pitch contour. You can also change the dimension of the picture before plotting onto it.
9. Select “Pen” in the picture window, and select Red (or your favorite color, but it cannot be black or white).
 10. Select the second “PitchTier untitled” (yours), and repeat the step 8. Select “Margins” -> “Marks” -> “Marks left...” -> OK. Your graph should look like the following:



11. Compare the 10 pairs of contours of yours and Obama’s. Discuss how the contours are different. What is Obama’s speech style that we can see from the pitch contours? Is it consistent with your impression?

The lab is due next Friday, Oct. 23.