

Lab 4: Vowel formants

The lab is due next Friday, Oct. 9.

Part I: Measuring and plotting vowel formants

1. Recording: The word list includes three repetitions of the following words: *beat*, *bit*, *bet*, *bat*, *hot*, *bought*, *good*, *boot*, *about*.
2. Measure the first two formants of the vowels in all three repetitions of the words for all speakers (Note that you only need to measure the schwa for the word *about*). You should measure at a point where the vowel is least affected by its neighbouring consonants, e.g., the center of the vowel.
3. Average the formant frequencies of the three repetitions for each vowel and each speaker.
4. Plot the averaged formant frequencies on the formant chart (or using a software package such as R, Matlab, Excel, Praat, etc.), with x-axis showing F2 and y-axis showing F1 (on a log scale). Use colors and plot symbols to distinguish different speakers and vowels.

Part II: Estimating the length of your vocal tract

There are three repetitions (tokens) of the word *about* in your own recording. Check the spectrogram and the formants of the schwa in these tokens. Find a portion where the first three formants are most evenly spaced. Calculate the length of your vocal tract using these formant values. Assume that the speed of sound is 350 m/s.