Assignment 3

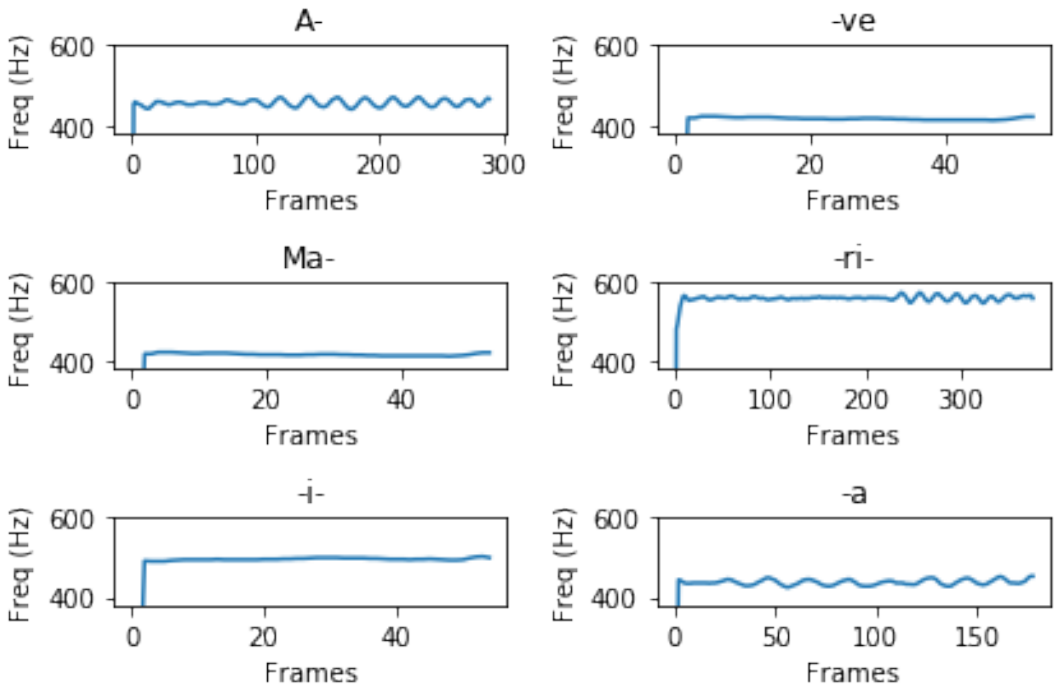
Due Monday October 22th by 11:59pm

1. Read: Bello, J. P., et al. (2005). "A tutorial on onset detection in music signals." IEEE TRANSACTIONS ON SPEECH AND AUDIO 13(5): 1035–1047.

   Briefly answer the following questions:

   i. What is the difference between an attack and an onset?
   ii. Why is preprocessing is typically done to the signal?
   iii. What is the purpose of reduction?
   iv. What is the role of peak picking?

2. Create a jupyter notebook to generate the following plot using the audio files avmA.wav, avmVe.wav, avmMa.wav, avmRi.wav, avmI.wav, avmA2.wav



The notebook should include two functions

- One to extract the f0 data from each audio file
- One to plot each subplot

The f0 extraction function should accept arguments (default values, if needed, specified in parentheses) for:

Filename
sampling rate (44100)
down sampling (1)f

f0 estimation method (“yin”)
tolerance (0.1).

In the f0 extraction function, you should set the following parameters:

win_s = 1764 // downsample
hop_s = 441 // downsample

The subplot function should accept the following arguments (no default values):

subplot number
vector of values to plot
title
y label
x label
y limit values