Homework #3: Exploring the "alphabet of sound"

The aim of this homework to explore the acoustic information present in connected speech. The best way to do this is to play around with actual speech records. You will be using freely available audio editing software to do this.

As before, this homework will be group-based. Please indicate all group members on your submitted items.

Audio editing software, "Audacity" is available for Mac or Windows here: http://web.audacityteam.org/

Here's the assignment. Numbered items are to be turned in. Written items are numbered W1, W2...; these can be submitted in a single document that should be about a page long, single spaced, font size = 12. The audio item is indicated as A1. This will be a sound file that you need to turn in.

First: Record the following utterance into the editing program. Have one member of your group speak it naturally at a normal rate. To make new recording, open Audacity and in the File Menu select New. Then click the red record button, wait about a second and then start talking. Click the square 'stop' button to stop the recording.

> "One thing was certain, that the WHITE kitten had had nothing to do with it:—it was the black kitten's fault entirely. For the white kitten had been having its face washed by the old cat for the last quarter of an hour (and bearing it pretty well, considering)"

[*No need to turn this file in.*]

W1 (10 pts). This utterance contains many individual speech sounds. Notice that based on the written form, you can use individual letters and rearrange them to make new words. E.g., the word 'tiger' can be spelled from the *t* in fault, the *i* in white, the *g* in nothing, the *e* in the, and the *r* in entirely. Using the editing software, cut out these sounds from the utterance and stitch them together in a new audio document to make the acoustic word 'tiger'. Make a new audio document File>New. To cut out the sounds select pieces of audio use the selection tool (it looks like an upper case 'I' and is right next to the record button). Highlight what you want to cut out, select Copy from the Edit Menu and then Edit>Paste it into the new document. Select, then Copy your second sound, then go back to your new document, *use the selection tool to position where you'd like to place the new snippit, then Paste.* Repeat for all sounds. *Write a short paragraph describing how well this worked. Note that "Good" or "not very good" are not examples of a paragraphs. Please provide some details.*

A1 (10 pts). Do the same exercise in #2 using your own target word (i.e., not 'tiger'). *Export the sound file and turn this in*. Use your target word as the file name. Use File>Export then use the 'WAV, AIFF and other uncompressed types' as the export type.

W2 (10 pts). Now find the boundary between each word in your recording and insert 500msec of silence between them. To insert silence, use the selection tool to selection where you'd like to insert the silence. Under the Generate Menu select Silence... then select the option that has '+milliseconds' at the end. Change the duration to 0 hours, 0 minutes, and .5 seconds (=500 msec). It should look like this:
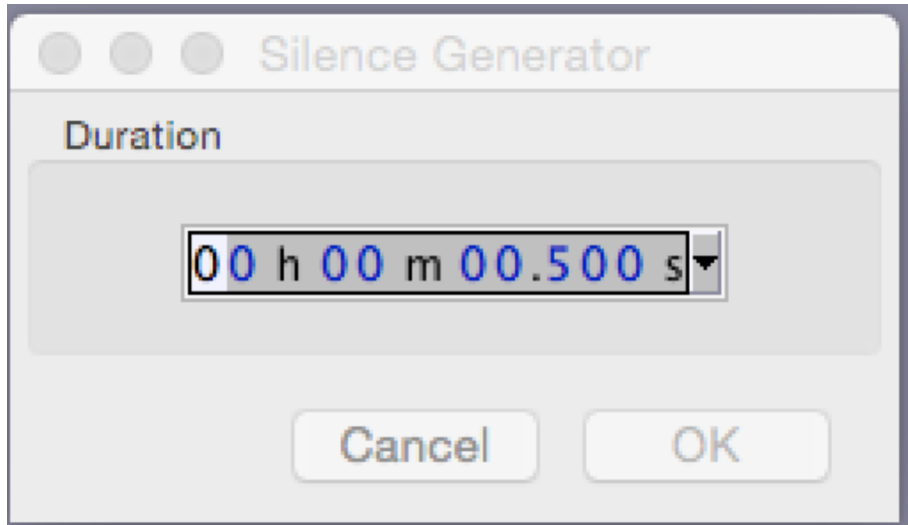
Click OK. Repeat for each word boundary as best you can.

What does it sound like? *Write a short paragraph describing what you notice. Note that "it was hard" is not a paragraph.*

W3 (10 pts). There are 17 /t/ sounds in the utterance. Cut each one out and paste each in a new sound file, one after the other, with 100msec in between. Listen to them in sequence. What do you notice? *Write a short paragraph describing your observations. Note that "weird" is not a paragraph.*

W4 (15 pts). In a paragraph or two, summarize what you learned about the acoustic nature of speech in this exercise. *Note that "A lot. Speech is cool" is not two paragraphs or even one paragraph.* If you need a prompt, try this: compare and contrast... no just compare but don't contrast... wait, maybe contrast but don't compare... *wait, WTF is the difference between compare and contrast? Isn't comparing kind of like contrasting? Why do they always say compare and contrast? Would they notice if I just "compared"?* Fine, just say something thoughtful [here's the prompt] about how spoken and written language differ. Or write about something else you noticed about the acoustic properties of speech.