

Categorical Perception Lab Instructions
Homework designed by Toby Mintz, USC
modified in irrelevant ways here by D. Byrd for USC Ling 580

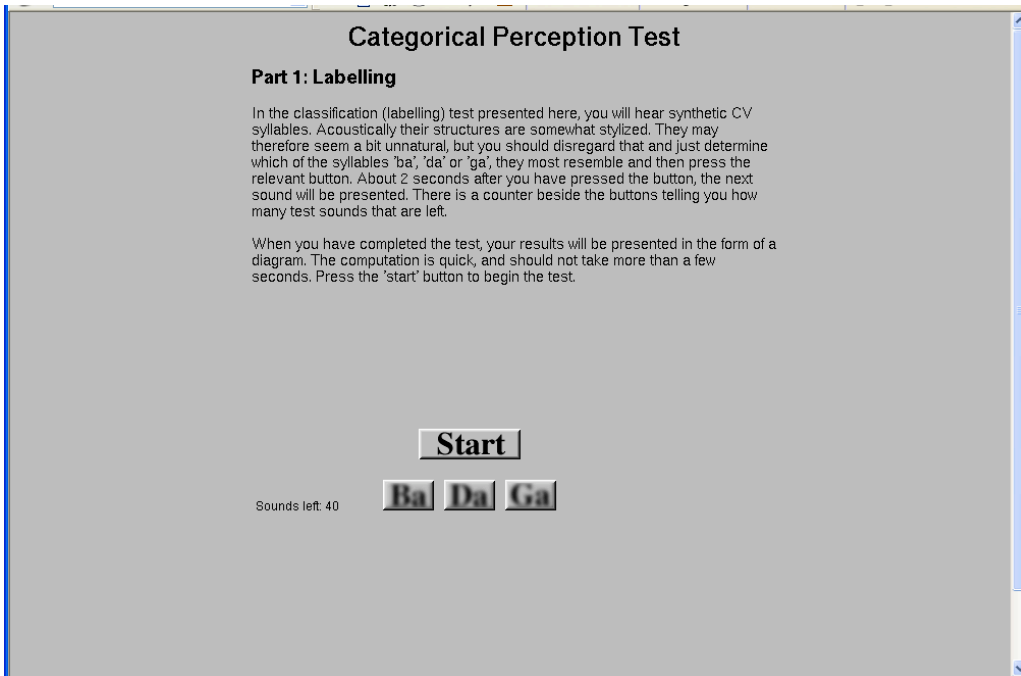
For this lab assignment you will carry out two experiments on yourself. The experiments are demonstrations of Categorical Perception. You will need to use a Java-enabled browser (all computer lab browsers are Java-enabled), and you will need to use headphones so that you can clearly hear the stimuli and so you can block out other noise in the room as much as possible. (If you decide to repeat this experiment at home or elsewhere, please use headphones!) The instructions will walk you through each experiment in turn, including the procedure for entering your results in an Excel worksheet that we have provided for you. After you carry out each experiment once, complete both of them a second time. For each experiment, the Excel worksheets will compute and graph the average of your first and second time.

After you carry out the experiments and record the data, you will write a brief report about the study, following the outline on the homework sheet.

1. First go to the following website:
<http://www.ling.gu.se/~anders/KatPer/Applet/index.eng.html>. (If you are reading this on a computer you can just click on the link.) The introduction should be review for you, for the most part. You can read it, or go directly to the link at the bottom of that page, which starts the experiment.

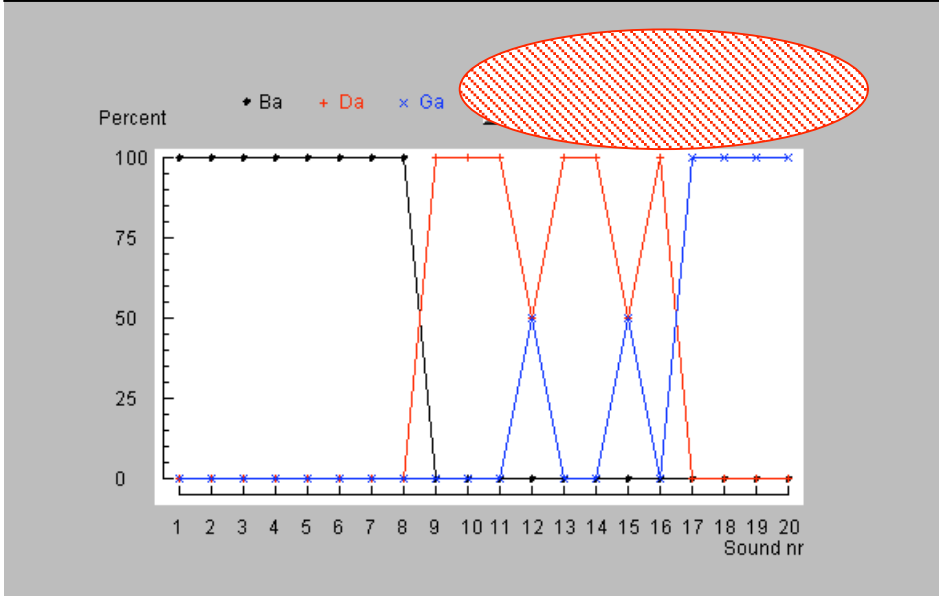
Note: The experiment page might take a 10 or 20 seconds to startup.

2. You then should get a page that looks like the figure below. The directions describe the first experiment, in which you will hear one of three syllables, and you have to indicate which one. Read the directions, then press the Start button near the bottom of the screen to begin the experiment.



When you complete the 40 trials, a graph of the results will appear in a figure like the one below.

Note: The "Discrimination test" button is not a label for this graph. It is a button that will take you to the next experiment and this graph will disappear, so don't click on it until you enter the data for the labeling experiment into Excel (see below).



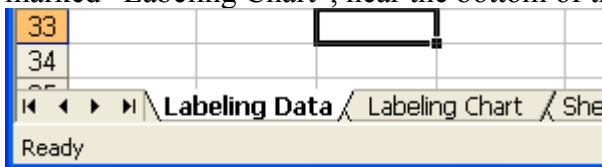
The x-axis shows the number label for each stimulus (but not the order in which you heard them). There were 20 different stimulus items, and each was played twice. The y-axis shows the percentage of time that you responded in each of the three possible ways for each item. (Of course, since there are only two items, these values can only be 0, 50, or 100!)

- At this point, it's time to enter your results into the Excel worksheet that is provided on Blackboard as part of this assignment. If it's easier, you can first record the results on paper, and then type them into Excel. In any case, you will need to enter the response percentage for "Ba," "Da," and "Ga," for each of the 20 stimulus types. The Excel worksheet provided has clearly marked spaces for you to enter this information. Enter 0, 50, or 100, without the '%' symbol.

Notes:

- The worksheet has two places to label the results of this experiment: "First Time", and "Second Time". This is so you can run the experiment twice and enter your results for each run through. (Remember, having more data decreases the influence of noise!) The purple columns under "Average" will automatically show the average for each stimulus across the two runs. Of course, if you only enter the results for "First Time," the "Average" scores will be half of your "First Time" scores. You will have a chance to repeat this experiment after you complete the second experiment.*
- The Excel worksheet will not allow you to change any of the colored cells.*

- After you enter your responses in the Labeling Data worksheet, click on the tab marked "Labeling Chart", near the bottom of the Excel window:



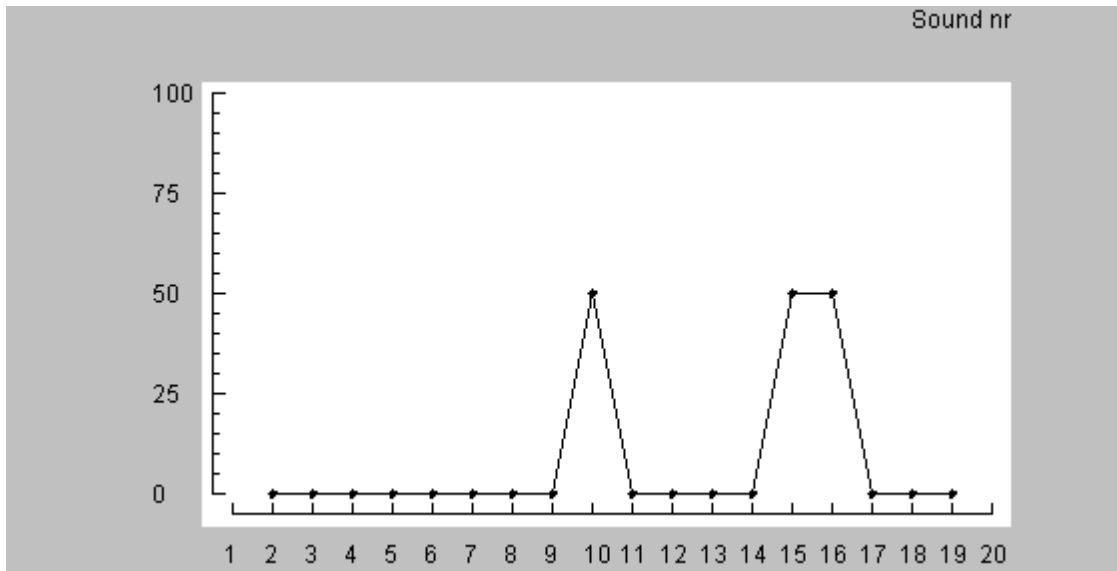
You should see a chart of your labeling data, much like the one that you saw in the web experiment.

»»Now is a good time to save your Excel work!««

- Return to the experiment in your web browser and click the button labeled "Discrimination Test". In this experiment you'll be comparing two synthesized syllables that have almost identical formant transitions. Many pairs will sound the same to you, but some will sound different. Which pairs should be easiest to discriminate? Press the start button to run the experiment.

Note: Don't second guess yourself when responding. For example, don't answer "same" just because you answered "different" a lot recently; give the response that corresponds with what you hear.

When you've compared all the stimulus items, the graph of your results will be displayed, and will look something like this:



Here, the numbers on the x-axis indicate one of the members of the pairs; the other member is the stimulus one position to the left. So, the value '2' on the x-axis represents the comparison of stimulus 1 and stimulus 2, and '19' represents the comparison of stimulus 18 and stimulus 19. You judged each pair twice, and y-axis represents the percentage of time you gave a "Different" response for each pair.

6. Now go to the "Discrimination Data" worksheet (using the tabs at the bottom of the sheet), and enter your discrimination data under the "First Time" column. As before, there is space for you to enter the results from a second pass through the experiment. The worksheet will automatically average your data and make a graph for you in the worksheet "Discrimination Chart". It should be similar to the one displayed in the experiment web page.
7. After saving your data, you can run through the experiment again by clicking on the original link you used to access it. Enter your new data in the relevant columns under "Second Time".
8. Save your Excel file, and email it to yourself and/or back it up. 'CC' the Excel file to Prof. Byrd. **Please use the subject line "CP Data" when emailing Prof. Byrd.**