

# Praat Scripting

## Final exercises

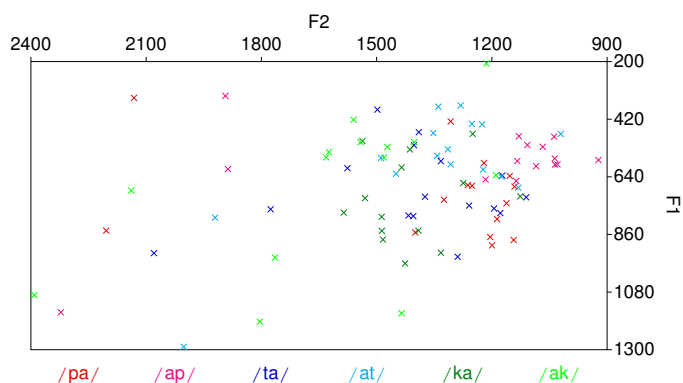
For the final exam all four questions have to be answered. In addition to the script detailed comments are required. Please save each script as a Praat file: `exercise123_NAME.praat`.

You have 12 weeks to work on the exercises. Final deadline is **Sunday, 01 November 2015, 6 pm**. Please send your answers to [juegler@coli.uni-saarland.de](mailto:juegler@coli.uni-saarland.de)

Write a script that...

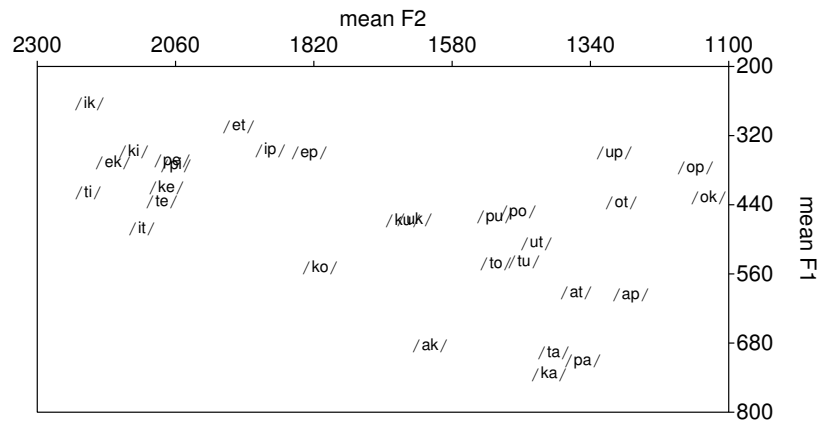
- reads in the recordings `S11.wav` - `S15.wav` as well as the respective TextGrids from the OLLO Korpus as a list
  - measures F1 and F2 of the vowels /i e a o u/ at the beginning, the center, and the end of each vowel, determines the preceding and following sounds, and saves everything as a table file
  - examines whether the preceding and following plosives /p t k/ have an influence on formant frequencies (only for stop-vowel and vowel-stop combinations, like /pi/, /ip/, /ak/, /tu/ ... (see Figure 1)); for preceding stops relating to formants at the beginning and for following stops relating to formants at the end of the vowel
    - creates individual scatter plots for all vowel-stop combinations, i.e. one scatter plot for /u/ (/tu pu ku ut up uk/), one for /i/ (ti pi ki it ip ik) etc. (Please use different colors and/or symbols<sup>1</sup> to distinguish the individual subcategories more clearly.)
    - calculates to what extent the formant values at the beginning and end differ from the values at the center
    - calculates means of each subcategory and creates an additional scatter plot for all stop-vowel/vowel-stop combination (overall 30 mean values) (see Figure 2)
    - creates an additional scatter plot for the means of the formants measured in the center: pap, kak, tat, pip, kik, ... (15 mean values).
    - saves the scatter plots as EPS or PDF file

Figure 1: Example scatter plot for all subcategories of a.



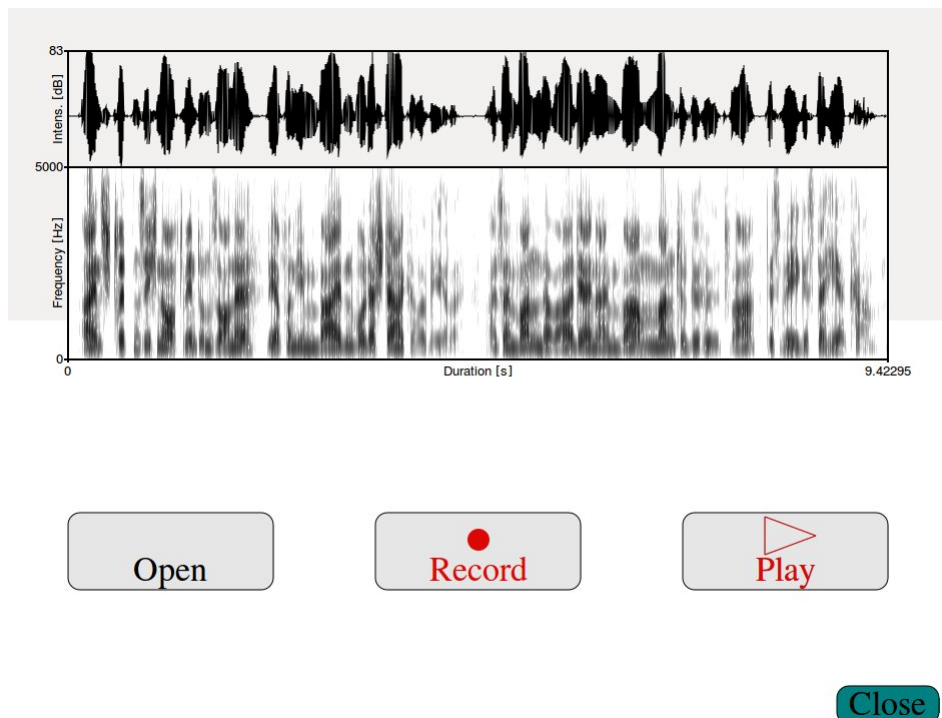
<sup>1</sup>Please note that you need to create a key when using symbols.

Figure 2: Example scatter plot for the mean values of each subcategory.

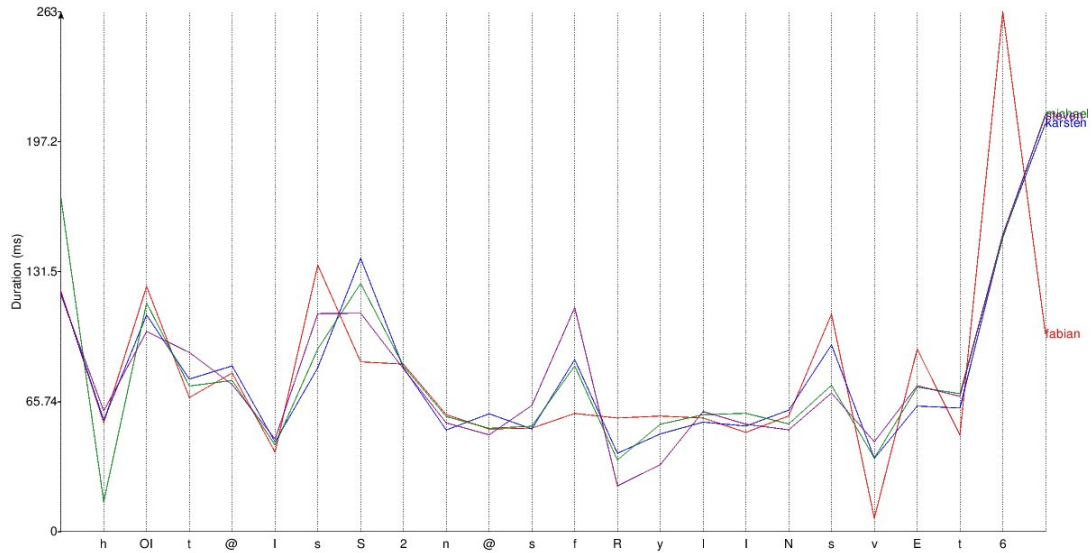


2.
  - performs the following tasks with the help of the Demo Window (see Figure 3)
    - Creates four buttons in the lower half of the screen: **Open**, **Record**, **Play** and **Close**
    - If the user clicks on **Open** s/he should be able to choose a sound file from a directory
    - If the user clicks on **Record** a sound file with the length of 5 seconds should be recorded (see **Record Sound (fixed time)**)
    - If the user clicks on **Play** the recorded or opened sound file should be played once
    - If the user clicks on **Close** a message should appear to indicate that the user can close the Demo Window
    - Additionally, after opening or recording a sound file the respective oscillogram and spectrogram should be displayed in the upper half of the screen
    - Include min and max values for intensity (oscillogram), frequency (spectrogram), and duration; name the axes accordingly

Figure 3: Example Demo Window.



3. Download the four TextGrids *michael.TextGrid*, *karsten.TextGrid*, *fabian.TextGrid* und *steven.TextGrid*. Write a script that reads in the duration and label of the individuals sounds of the phrase *Heute ist schönes Frühlingswetter* for all four TextGrids (which need to have the same number of intervals on the same tier). Draw a *curve* that displays the duration of all intervals by the four speakers. The x-axis should display the labels. Additionally, each TextGrid should be displayed in a different colour and labelled with the associated name (see graphic below). Save your picture as a EPS or PDF file.



4. Record the phrase "Guten Morgen/Good morning" individually in different speaking styles

- a) declarative normal
- b) question
- c) declarative low fundamental frequency
- d) declarative high fundamental frequency
- e) monotone

Cut them into shape so that all five recordings have the same duration (e.g. one second) starting right from the beginning of the articulated plosive [g] of <guten>/<good>.

Write a Praat script that gives the user the possibility to choose which speaking style should be displayed (only one to all five). The script should analyze the fundamental frequencies and display them in one picture using different colors for the different speaking styles. Add captions to both axes and use dotted lines for the y-axis with a distance of 100 Hz between each line. Additionally, create a key that shows what color illustrates which speaking style (see below).

Save your picture as EPS or PDF file.

