**Analysis of segmental features of utterances.**

1. Please provide [**SAMPA**](http://www.phon.ucl.ac.uk/home/sampa/english.htm) transcriptions for the [words](http://www.phonetics.ucla.edu/vowels/chapter3/bbcenglish.html) in the table below.

The IPA – SAMPA conversion in available [here](http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&ved=0CFAQFjAG&url=http%3A%2F%2Fwww.phon.ucl.ac.uk%2Fhome%2Fsampa%2Fipasam-x.pdf&ei=_DJlVKTlKsjiO76hgKAO&usg=AFQjCNGIckkgVfK2dLwVXa0n6QZduthXrg&sig2=B-Y6rxv1sKhiTZOUqk4ewA&cad=rja).

|  |  |  |  |
| --- | --- | --- | --- |
| word (ortography) | SAMPA | word (ortography) | SAMPA |
| bead | bi:d | booed |  |
| bid | bId | bud |  |
| bed |  | fie |  |
| bad |  | thigh |  |
| bard |  | sigh |  |
| body |  | shy |  |
| bawd |  |  |  |
| buddist |  |  |  |

1. In *Praat* please perform phonetic transcription & segmentation of words containing British English vowels: <http://www.phonetics.ucla.edu/vowels/chapter3/english.aiff> and fricative consonants: <http://www.phonetics.ucla.edu/vowels/chapter6/soundsvowels.html>.

Save the resulting *TextGrids* as short text files (we need them to complete the next exercises!).

1. For the words/vowels in the table below please perform measurements of **F0** – first manually and then automatically. Compare the results and save them.

|  |  |  |
| --- | --- | --- |
| word/vowel | manual F0 | automatic F0 |
| bead |  |  |
| bid |  |  |
| bed |  |  |
| bad |  |  |
| body |  |  |

1. For the 11 vowels from the previous exercise please calculate automatically the frequency of the **F1** (first formant) **and F2** (second formant). Save the results in the table below and then export them to *Excel* and illustrate in a graph. What kind relation between formant frequency and vowel type can be observed?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| word | vowel | front-back | high-low  | F1 | F2 |
| bead | i: | front | high |  |  |
| bid | I | front centralised | lowered high |  |  |
| bed | E | front | lowered mid |  |  |
| bad | { | front | raised low |  |  |
| bard | A: | back | low |  |  |
| body | Q | back | low |  |  |
| bawd | O: | back | mid |  |  |
| buddist | U | back centralised | lowered high |  |  |
| booed | u: | back | high |  |  |
| bud | V | central | lowered mid |  |  |

1. Please measure energy distribution (*center of gravity* parameter) in the spectra of English fricatives: /f/, /θ/, /s/, /ʃ/. Save the results in the table. What kind of relation can be observed between energy distribution and place of articulation of the fricatives?

|  |  |  |
| --- | --- | --- |
| word/fricative | *Center of gravity*  | place of articulation |
| fie |  |  |
| thigh |  |  |
| sigh |  |  |
| shy |  |  |

1. On the basis of the segmentation results (task 1) please determine duration of phonemes in the words given in the table. Present the results as in the example below.

|  |  |
| --- | --- |
| #$p  | 0,076213862 |
| x  | 0,085185881 |
| a | 0,098359634 |
| r  | 0,096668638 |
| ts | 0,147772832 |
| e | 0,096078711 |
| S  | 0,257665634 |

|  |  |
| --- | --- |
| utterance | duration of the phones |
| fie |  |
| thigh |  |
| sigh |  |
| shy |  |