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AASPAA-Overview-Pipeline

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AASPAA : Automatic Alignment & Segmentation -Plus- Automatic Analysis

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Pipeline:

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Audio

* No => obtain audio [find, copy, record, …]
* Yes => proceed

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Orthographic transcription [matching to audio]

* No =>
  + ASR + manual post-processing
  + manually create an orthographic transcription
  + for read speech – if there are prompts, try to use them
* Yes => proceed

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Audio + [matching] orthographic transcription

* Forced Alignment to obtain automatic segmentations
* OOV: out-of-vocabulary words
  + check for OOV: out-of-vocabulary words
  + obtain phonemic transcriptions for OOV words: G2P
  + add OOV words to vocabulary
* carry out Forced Alignment

Result: autom. segm.

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[Optional] Check and correct autom. segm. => checked segm.

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[acoustic phonetic] Analysis, using the [autom. or checked] segm.:

* Praat scripts
  + At word or phoneme level
  + Python script to convert Praat output to Excel
* Other software … [e.g. of Wei Xue]

Result: [acoustic phonetic] features

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[Optional] Intelligibility scores

* No => obtain with tool Wei Xue & Micha Hulsbosch
* Yes => compare Intelligibility scores with [acoustic phonetic] features
  + Using e.g. …

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Brief overview

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Pipeline - for speech [audio] + orthographic transcription,

called AASPAA : Automatic Alignment & Segmentation -Plus- Automatic Analysis :

[1] FA - forced alignment [for Dutch & Eng.] => autom. segm. at phone level

[2] MC - manual check => improved segm. at phone level

[3] APA - ac. phon. anal., e.g. with PRAAT scripts: word or phoneme level => AP features

and optionally:

[4] Compare AP features to Intelligibility scores

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This pipeline has already been used for different types of [a-typical] speech:

non-native, pathological, kids, elderly, etc. & 'normal' for comparison.

At the moment, Dutch and English speech can be processed, analysed.

Adding a new language is possible, but requires some research [and thus maybe also some funding].

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The pipeline can be used for new [Dutch and English] speech / audio.

The results can then be compared to previous results obtained with these tools.

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