Speech Prosody 2020 Tutorial

Prosodic Analysis of Speech Corpora Using Praaline and R

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Tutorial Description

This is a hand-on tutorial where participants will discover tools and techniques for constituting and analysing a speech corpus, with a special emphasis on automatic prosodic analysis. The software tool *Praaline* and several of its plug-ins will be demonstrated; the tutorial will also focus on interfacing with *Praat* and the *R* statistical software package. The following topics will be covered:

- Corpus constitution: organising your recordings, creating a corpus in Praaline and adding metadata, importing data from other software (including Praat, ELAN and others), stimuli presentation in an experimental setting, importing a corpus from an institutional repository (e.g. CLARIN).
- Automatic speech-text alignment: transcribing data aided by automatic speech recognition; using an available transcription (e.g. text or subtitle files) and performing long sound-text alignment.
- Analysis of speech temporal dynamics: extracting statistics from your corpus on aspects such as silent pause distribution, speech rate, dialogue dynamics (turns, overlaps, etc.).
- Performing pitch modelling and stylisation using various models, including INTSINT, ToBI, Prosogram, and others; creating visualisations of the results, comparing different models of intonation.
- Automatic annotation of prosody: attributing labels for prominence, prosodic boundaries/breaks and pitch movements using machine learning tools. Statistical models for different languages and different annotation systems will be demonstrated, along with pointers on how to create your own automatic annotators.
- Feature extraction: creating datasets of phonetic and prosodic features and using them to study different speaking styles, conditions in an experiment, sociolinguistic variation, etc.
- Integrated analysis of multiple signals: processing a corpus with synchronised recordings from varied data sources (e.g. video, multiple sound sources, electro-articulography data, eye-tracker recordings).
- Presenting your results using R Markdown documents along with Praaline visualisations.
- Preparing a speech/multi-modal corpus for submission to an institutional repository, and publishing the corpus on the Internet (automatic website construction).
- For more advanced users, pointers will be given on how to write your own analysis scripts in Python.

Use a Speaking Style Corpus or Bring Your Own Corpus

Participants will work on a corpus that will be made available during the tutorial. The corpus covers multiple languages and speaking styles. Part of the corpus is transcribed; participants will learn how to perform a fully-automatic analysis on the non-transcribed sub-corpus, and additional, fine-grained analyses on the transcribed sub-corpus. Participants may also bring their own corpus (e.g. data on which they are working for their thesis) to follow along and test the techniques presented. If you intend to work on your own corpus, please contact the presenter (some data preparation may be needed).

Target Audience: Young researchers (PhD and MA students, post-docs) who are seeking tools and techniques to constitute, organise and analyse their speech corpora. Any other experienced researcher who would like to discover new working methods and tools. Some familiarity with computer tools is expected, but step-by-step instructions will be given throughout the tutorial.

Duration: 3 hours (with one 20-minute break)

Technical Requirements: participants will be asked to bring their own computers and will be given instructions on how to install the necessary software before the tutorial.