

# Praat: doing phonetics by computer

## Introductory tutorial

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# Information on Praat

- Download Praat:

<http://www.praat.org>

Windows, Macintosh, Linux/FreeBSD,  
SGI/Solaris/HPUX

- Praat User List:

<http://uk.groups.yahoo.com/group/praat-users/>

# Frequently Asked Questions (FAQ)

- On Praat website:

How to cite Praat

Formant analysis

Pitch analysis

Spectrograms

Scripts

# What you can do with Praat

- Speech analysis
- Labelling and segmentation
- Speech synthesis
- Listening experiments
- Speech manipulation
- Learning algorithms
- Statistics, Graphics, Scripting, etc.

# Speech analysis

- Spectrograms
- Pitch analysis
- Formant analysis
- Intensity analysis
- Voice analysis: Jitter, shimmer, voice breaks
- Cochleagram: Excitation pattern of basilar membrane in the inner ear

# Speech synthesis

- From pitch, formant, and intensity
- Articulatory synthesis

## Listening experiments

- Identification and discrimination tests

# Labelling and segmentation

- Label intervals and time points on multiple tiers
- Use phonetic alphabets
- Use sound files up to 2 Gbytes (3 hours)

# Speech manipulation

- Change pitch and duration contours
- Filtering

# Learning algorithms

- Feedforward neural networks
- Discrete and stochastic Optimality Theory

## Statistics

- Multidimensional scaling
- Principia component analysis
- Discriminant analysis

# Graphics

- High quality graphics for your articles and thesis
- Produce Encapsulated PostScript files
- Integrated mathematical & phonetic symbols

# Programmability

- Easy programmable scripting language
- Communicate with other programs
- Create hypertext manuals with sound I/O

# Where to find tutorials

- On Praat website

Choose *Intro* from Praat's *Help* menu

More manuals/tutorials in Praat's *Help* menu

Beginner's manuals by Sidney Wood

<http://www.ling.lu.se/persons/Sidney/praate/>

Paul Boersma's publications on algorithms and tutorials

<http://www.fon.hum.uva.nl/paul/praat.html>

# Where to find example scripts

- *Files* link in Praat Users Group
- Pauline Welby's Praat page  
<http://ling.osu.edu/~welby/praat.html>
- Kyuchul Yoon's Praat script page  
<http://ling.osu.edu/~kyoon/scripts/praat/>

# More scripts

- Type "praat script" in search engines

<http://www.ling.lu.se/persons/JohanF/PRAATSCRIPTS/>

<http://www.ling.rochester.edu/people/cross/scripts.html>

<http://www.ling.ed.ac.uk/~bert/praatscripts.html>

[http://www.cphling.dk/~johtnd/praat/my\\_praat.htm](http://www.cphling.dk/~johtnd/praat/my_praat.htm)

<http://www.phonetiklabor.de/Phonetiklabor/Inhalt/PraatScripts/PraatScripts.html>

<http://home.myuw.net/ssetsuko/praat.html>

<http://www.sinkstate.com/praat/praat.html>

<http://www.french.uiuc.edu/sertling/praat.htm>

<http://www.coli.uni-saarland.de/~steiner/?page=praat.scripts&lang=en>

<http://www.lpl.univ-aix.fr/~auran/english/ressources.html#Praat>

# Basics 1

- Downloading Praat
- Running Praat
- Praat windows (Objects & Picture)
- Menus in Objects window
- Sound recorder
- Sound editor  
Spectrogram, pitch, intensity, formant, pulse  
*Help* on Sound editor window

# Basics 2

- How to change spectrogram settings

In Sound editor window

*Spectrum* menu  $\Rightarrow$  *Spectrogram settings...*

View range (Hz): 0 ~ 5000/8000/11000

Window length (s): 0.005

Dynamic range (dB): 70/60/50/45/...

"Standards" button for defaults values

# Basics 3

- How to turn on/off analyses

In Sound editor window

Spectrogram: *Spectrum* ⇒ *Show spectrogram*

Pitch: *Pitch* ⇒ *Show pitch* (Light blue)

Intensity: *Intensity* ⇒ *Show intensity* (Yellow)

Formant: *Formant* ⇒ *Show formants* (Red)

Pulses: *Pulse Show* ⇒ *pulses* (Dark blue)

- How to edit sound file  
copy/cut/paste/undo with selection (mouse dragging)

# Basics 4

- Read & Write sound files

In Praat Objects window

Reading a sound file (Opening a file)

*Read* ⇒ *Read from file...*

Writing to WAV file (Saving a file)

*Write* ⇒ *Write to WAV file...*

(Be sure to check .wav)

- Rename/Remove objects

Select an object and press *Rename/Remove* button (With CARE!)

# Basics 5

- Opening/Running a Praat script

In Praat Objects window

*Praat* ⇒ *Open Praat script...*

After a script is open,

In Script editor window

*Run* ⇒ *Run*

- Viewing "history" of the commands

In Script editor window, *Edit* ⇒ *Paste history*

# Advanced 1

- Writing your own script starts with  
Checking your command "history",  
Checking other people's scripts,  
Getting help from people who know scripting  
and  
Working day and night!

# Advanced 2

- Demonstration of Praat scripts
  1. Creating labelling files (.TextGrid)
  2. Determining start of aspiration
  3. Imposing native prosody on nonnative utterance
  4. Peak detection in spectra

# All the files are in...

- [ling.osu.edu/~kyoon/scripts/praat/KNU-tutorial-3-2006](http://ling.osu.edu/~kyoon/scripts/praat/KNU-tutorial-3-2006)

including this presentation file (.pdf) and the demonstration files.