Praat scripting workshop

Session 3

Mini quiz
More like a revision… ;)

1. What is the difference between a string and a numeric variable?

Variables

- A **variable** works like a named bucket that can store an arbitrary value and return it when you call the bucket's name.

- The variable is on the left side of the equals operator (=) and the value of that variable is on the right side

```
# in Praat, a variable assignment
looks like this:
greeting$ = "world!"
```

- We can read this as: the string variable 'greeting' is defined as the string constant "world!"

Mini quiz
More like a revision… ;)

1. What is the difference between a string and a numeric variable?

2. What does "$" indicate?

3. Can you name a variable "1variable"?

4. What is the difference between "writeFileLine" and "writeInfoLine"?

General reminder/advice

- Use descriptive names for variables
  - variable1 vs. f1_a
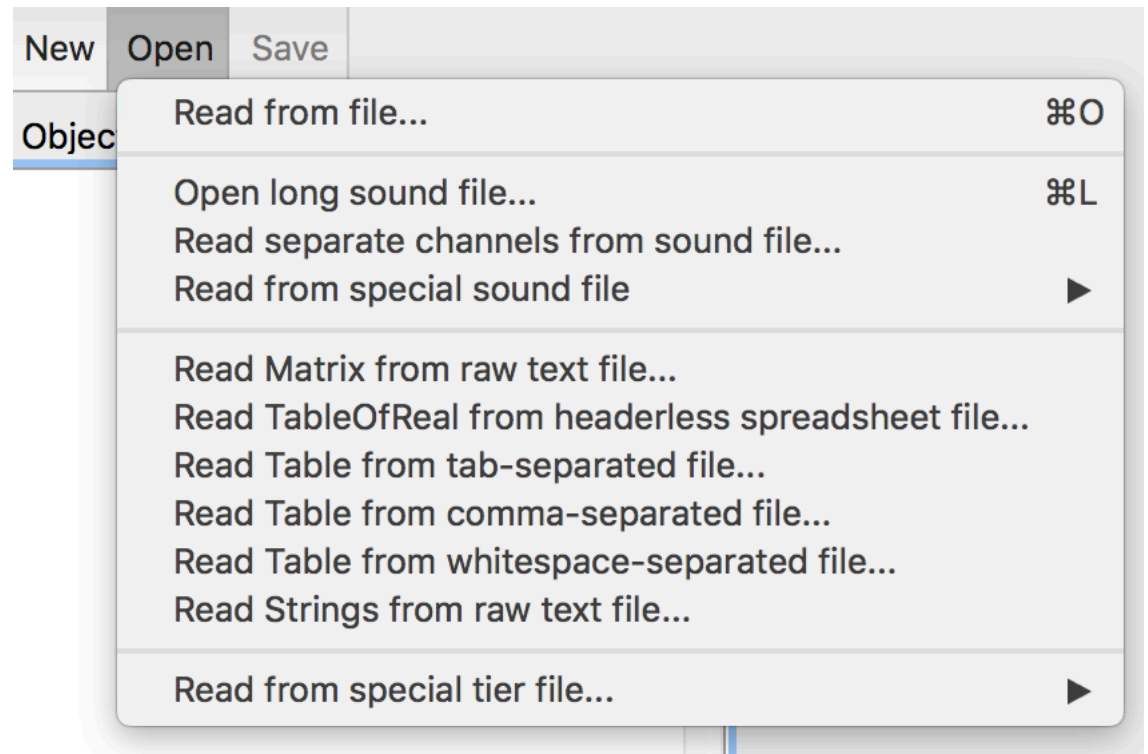- Keep names of variables short-ish

More Script Elements

- Commands
- Built-In Functions
- Objects
- Control Structures
- Forms

Commands

Read from file…

Write to file…

Play

Commands

1. Begin with Upper Case

2. May have spaces

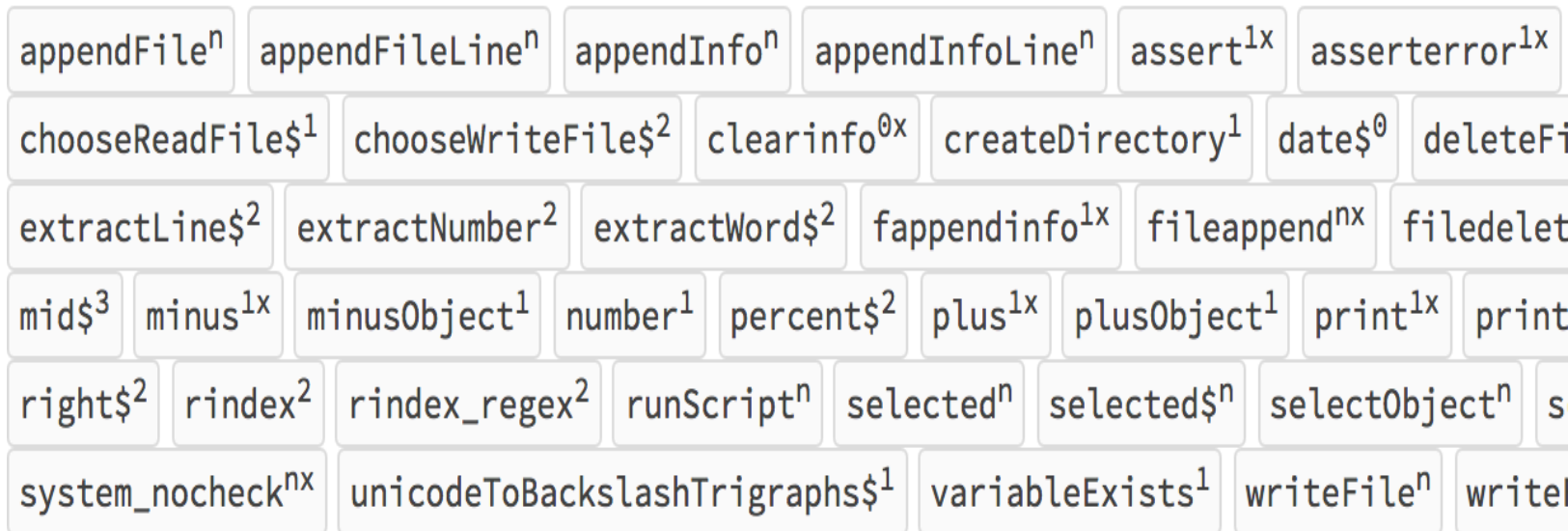3. Functions that take arguments have DOTS

Write to file…

Remove

Built-In Functions

appendFile

extractNumber

extractWord$

$appendFile^n$	$appendFileLine^n$	$appendInfo^n$	$appendInfoLine^n$	$assert^{1x}$	$asserterror^{1x}$
$chooseReadFile\$^1$	$chooseWriteFile\$^2$	$clearinfo^{0x}$	$createDirectory^1$	$date\$^0$	deleteFi
$extractLine\$^2$	$extractNumber^2$	$extractWord\$^2$	$fappendinfo^{1x}$	$fileappend^{nx}$	filedelet
$mid\$^3$	$minus^{1x}$	$minusObject^1$	$number^1$	$percent\$^2$	$plus^{1x}$	$plusObject^1$	$print^{1x}$	print
$right\$^2$	$rindex^2$	$rindex\_regex^2$	$runScript^n$	$selected^n$	$selected\$^n$	$selectObject^n$	s
$system\_nocheck^{nx}$	$unicodeToBackslashTrigraphs\$^1$	$variableExists^1$	$writeFile^n$	write

http://www.bibiko.de/praat/wizard/func.html

Built-In Functions

1. Begin with lower case

2. One word

3. Can have arguments

```
textfile$ = "/Users/olgascrivner/Desktop/results.txt"

resultline$ = "F1'tab$'F2'newline$'"

fileappend "'textfile$'" 'resultline$'
```

How many arguments in fileappend?

Built-In Functions or Command?

1. Find functions; which functions have arguments?
2. Find commands; how many arguments?

```
# Read in the Sound and TextGrid files

Read from file... /Users/Caracas_files/CA1FC87.TextGrid
Read from file... 'textDir$'/'baseFile$'.TextGrid
Open long sound file... 'soundDir$'/'baseFile$'.wav

# Go through tiers and extract info

select TextGrid 'baseFile$'
```
What is the role of TextGrid here?
```
nTiers = Get number of tiers
```

It is an argument and Object

Objects in PRAAT

Let's go to see the WIZARD!

http://www.bibiko.de/praat/wizard/

PRAAT Wizard

Praat's Command Wizard beta   About   Help   Download

Functions

Search through 3922 Praat commands (based on version 5401) and assemble the list of parameters if required.

Show Commands for Target: All
Exclude "hidden": ☑ | Exclude "deprecated": ☑

Show 10 ⇕ entries   Search: Write ⊗   Other columns

Command		of Object(s)
Write selected sound to AIFC file...		TimeSoundEditor
Write selected sound to AIFF file...		TimeSoundEditor
Write selected sound to FLAC file...		TimeSoundEditor
Write selected sound to Next/Sun file...		TimeSoundEditor

Type in Search: Append

http://www.bibiko.de/praat/wizard/

Objects

- Formant
- Pitch
- Intensity
- TextGrid
- Sound
- LongSound

select TextGrid 'baseFile$'
select Sound 'baseFile$'
select Intensity 'soundName$'

Control Structures

- for

- if

- while

- repeat

Loops

- Allow the same commands and functions to be executed **over and over again** (list of files, tiers etc)

- Created with:

  1. **for**

  2. **repeat**

For Loops

Let's say we have 5 intervals and we need to extract their numbers.

for number to 5
      count = number
      appenInfoLine(count)
endfor

file: smallForLoop.praat

Conditions

Let's add conditions

if condition1
　　　do this
else
　　　do that
endif

file: smallForLoop.praat (uncomment second part)

Conditions

Let's add conditions

```
for  number to 5
        count  = number
        if number < 5
                appendInfoLine("First half...", count)
        else
                appendInfoLine("Second half...", count)
        endif
endfor
```

More Conditions

Let's add more conditions with **elsif** (or elif)

```
for  number to 5
        count  = number
        if number < 3
                appendInfoLine("First half...", count)
        elsif number = 3
                appendInfoLine("Exception...", count)
        else
                appendInfoLine("Second half...", count)
        endif
endfor
```

uncomment third group in script

Repeat until Condition

1. Block executes until the condition is true

2. It is possible to create infinite loops

3. The condition is tested at the end of each loop

4. the same applies to **while .... endwhile**

While... endwhile

1. Block executes **while** the condition is true

2. It is possible to create infinite loops

3. The condition is tested at the beginning of each loop

Repeat until Condition Practice

1. let's clear our info window

2. create a number
number = 15

3.repeat
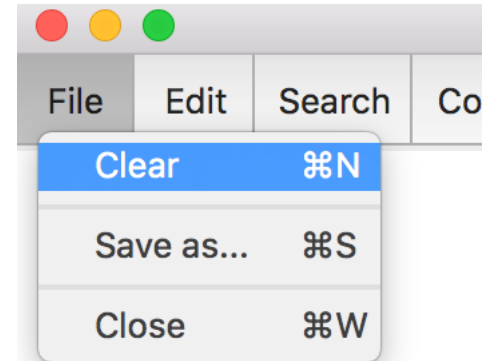   **if** number < 5
        number = number / 0.5
        appendInfoLine("F1...",number)
    else
        appendInfoLine("F2... ",number)
    endif
until number >10

Forms

- **form .... endform**

- Creates a dialog box which will come up upon execution for user input

form Title

    comment Directory

    sentence inDir /Users/name/Desktop

endform

    script: forms.praat

Forms

```
form Title
    comment Directory
    sentence inDir /Users/name/Desktop
    choice speaker: 1
    button Female
    button Male
endform
```
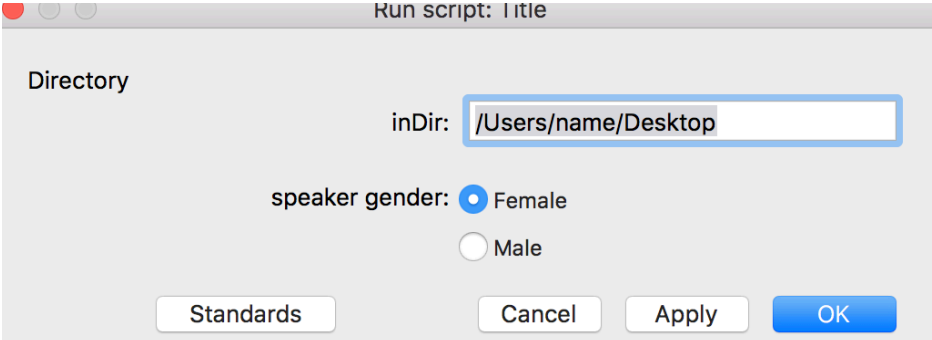
script: forms.praat

Real Data

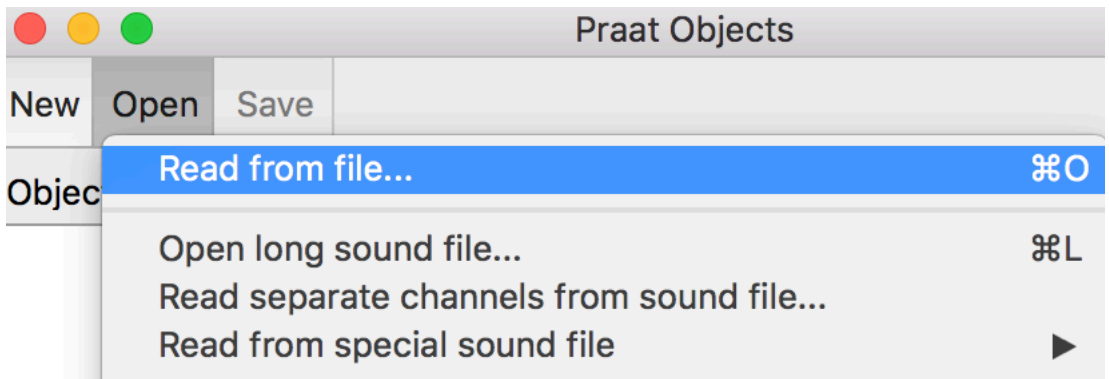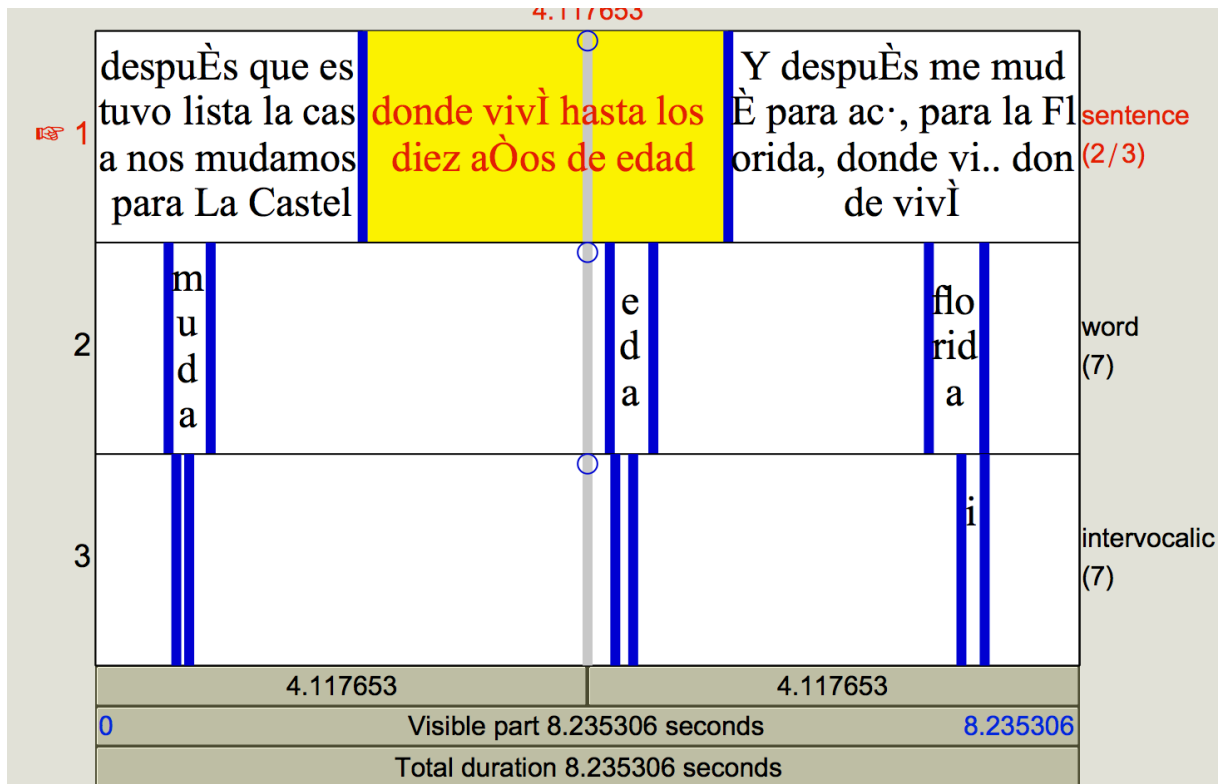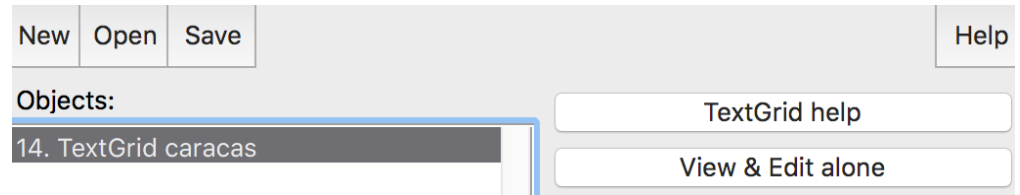- Upload TextGrid – caracas

- Load script extractlabels.praat

Real Data

- View and Edit alone

Real Data

```
form Title
    comment Directory
    sentence textDir /Users/olgascrivner/Desktop/
     comment Specify Tier number
    positive Number 2
    comment Enter basename of textgrid
     sentence baseFile caracas
endform
```

Select and Run Selection

Real Data

```
# Read in TextGrid file

    Read from file... 'textDir$'/'baseFile$'.TextGrid

# extract tier info

    numberInterv = Get number of intervals... 2

        for i from 1 to 'numberInterv'

            lab$ = Get label of interval... 2 'i'

            if lab$ != ""

                appendInfoLine (lab$)

            endif

        endfor
```

Exercise

- Canvas>Session 3>Scripts
- In groups of 2 or 3.
- Open the script.
  - You will notice some comments have been taken out
  - Add the comments (i.e. explain in prose what's Praat doing)
    - You can write as much as you can, but remember that comments should begin with # --you may want to use multiple lines.
  - Add a title to the script

Texteditor for Praat scripting

- We recommend using Sublime
  - https://www.sublimetext.com/
- Praat plug-in
  - https://github.com/mauriciofigueroa/praatSublimeSyntax

```praat
46
47     # INSERT COMMENT HERE --WHAT AM I DOING?
48     Create Strings as file list... list 'sound_directory$'*'sound_file_extension$'
49     numberOfFiles = Get number of strings
50
51     # INSERT COMMENT HERE --WHAT AM I DOING?
52     for ifile to numberOfFiles
53         select Strings list
54         fileName$ = Get string... ifile
55         Read from file... 'sound_directory$''fileName$'
56         soundname$ = selected$ ("Sound", 1)
57
58         # INSERT COMMENT HERE --WHAT AM I DOING?
59         gridfile$ = "'textGrid_directory$''soundname$''textGrid_file_extension$'"
60         if fileReadable (gridfile$)
61             Read from file... 'gridfile$'
62
63         # INSERT COMMENT HERE --WHAT AM I DOING?
64         select Sound 'soundname$'
65         To Formant (burg)... 0 'numberform' 'maxform' 0.025 50
66         duration_of_file=Get total duration
67
68         # INSERT COMMENT HERE --WHAT AM I DOING?
69         select TextGrid 'soundname$'
70         numberOfIntervals = Get number of intervals... tier_analysis
71
72             # INSERT COMMENT HERE --WHAT AM I DOING?
73             for interval from 1 to numberOfIntervals
74                 label$ = Get label of interval... tier_analysis interval
75
76                     # INSERT COMMENT HERE --WHAT AM I DOING?
77                     if label$ <> ""
78
79                         # INSERT COMMENT HERE --WHAT AM I DOING?
80                         begin_target = Get starting point... tier_analysis interval
81                         end_target = Get end point... tier_analysis interval
82                         duration = end_target - begin_target
83                         pointsPerInterval = round ((duration/milliseconds)*1000)
84
85                         # INSERT COMMENT HERE --WHAT AM I DOING?
86                         if measurement_type = 1
87                             for j to time_points
88                                 call GetFormantsNorm
89                                 call PrintResults
90                             endfor
91                         elif measurement_type = 2
92                             for i to pointsPerInterval
93                                 call GetFormantsNonNorm
94                                 call PrintResults
95                             endfor
```

comment4.praat

Line 1, Column 1   Tab Size: 4   Praat

Praat scripting manuals

- [Praat 'official' manual](#)
- [Save the vowels](#) –Will Styler
- [Mauricio Figueroa](#)