Phonetic fieldwork and experiments with `phonfieldwork` package for R

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15 November 2019

Science seminar,
NRU HSE, School of linguistics, Moscow

Presentation is available here: tinyurl.com/yzd2yjr5

Most phonetic research consists of the following steps:

1. Formulate a research question. Think of what kind of data is necessary to answer this question, what is the appropriate amount of data, what kind of annotation you will do, what kind of statistical models and visualizations you will use, etc.
2. Create a list of stimuli.
3. Elicite list of stimuli from speakers who signed an Informed Consent statement, agreeing to participate in the experiment to be recorded on audio and/or video.
4. Annotate the collected data.
5. Extract the information from annotated data.
6. Create visualizations and evaluate your statistical models.
7. Report your results.
8. Publish your data.

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The `phonfieldwork` package is created for helping with items 3, partially with 4, and 5 and 8.

Why/when do you need the `phonfieldwork` package?

These ideal plan hides some technical subtasks:

- creating a presentation for elicitation task
- renaming and concatenating multiple sound files recorded during a session
- automatic annotation in Praat TextGrids [Boersma and Weenink 2019]
- creating a searchable `.html` table with annotations, spectrograms and ability to hear sound
- converting multiple formats (Praat, ELAN [Brugman et al. 2004] and EXMARaLDA [Schmidt and Wörner 2009])

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All of these tasks can be solved by a mixture of different tools:

- any programming language can handle automatic file renaming
- Praat contains scripts for concatenating and renaming files

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`phonfieldwork` provides a functionality that will make it easier to solve those tasks independently of any additional tools. You can also compare the functionality with other R packages:
`rPraat` [Bořil and Skarnitzl 2016] and `textgRid` [Reidy 2016].

Philosophy of the `phonfieldwork` package

- each stimulus as a separate file
- researcher carefully listens to consultants to make sure that they are producing the kind of speech they wanted
- in case a speaker does not produce three clear repetitions, researcher ask them to repeat the task

There are some phoneticians who prefer to record everything, for language documentation purposes. I think that should be a separate task. If you insist on recording everything, it is possible to run two recorders at the same time: one could run during the whole session, while the other is used to produce small audio files. You can also use special software to record your stimuli automatically on a computer (e.g. `PsychoPy` [Peirce et al. 2009]).

Let's go through **phonfieldwork** functionality

Let's go through **phonfieldwork** functionality:

- install the package
- create a presentation based on a list of stimuli
- rename collected data
- merge all data together
- automatically annotate your data
- extract data from annotation
- visualize your data
- create an **.html** viewer
- cite the package

Install the package

- Install the package from CRAN:

```
install.packages("phonfieldwork")
```

- ...or install it from Github:

```
install.packages("devtools")
devtools::install_github("agricolamz/phonfieldwork")
```

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- Load the package:

```
library("phonfieldwork")
packageVersion("phonfieldwork")

## [1] '0.0.3'
```

Create a presentation based on a list of stimuli

There are several ways to enter information about a list of stimuli into R:

- listing stimuli with the `c()` function inside R

```
c("tip", "tap", "top")
```

```
[1] "tip" "tap" "top"
```

- importing `.csv` file inside R using the `read.csv()` function:

```
read.csv("my_stimuli_df.csv")
```

```
  stimuli vowel
1     tip     ɪ
2     tap     æ
3     top     ɒ
```

- importing data from `.xls` or `.xlsx` file inside R using the `read.csv()` function:

```
read.csv("my_stimuli_df.csv")
```

```
  stimuli vowel
1     tip     ɪ
2     tap     æ
3     top     ɒ
```

Create a presentation based on a list of stimuli

- Now we are ready for creating a presentation for elicitation:

```
create_presentation(stimuli = my_stimuli$stimuli,
                    output_file = "first_example",
                    output_dir = getwd())
```

  Here is the result.

- Here is another example with translations:

```
create_presentation(stimuli = my_stimuli$stimuli,
                    translation = my_stimuli$translation,
                    output_file = "first_example",
                    output_dir = getwd())
```

  Here is the result.

Rename collected data

Merge all data together

Automatically annotate your data

Extract data from annotation

Create an `.html` viewer

Cite the package

Send me a letter!

agricolamz@gmail.com

Presentation is available here:

tinyurl.com/y3wtkcbq

References

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