

Alpha version of G-Pie

Introduction

These instructions accompany the α -version of G-Pie, a new python-based computer program for Generalizability Analysis. The package is offered on a courtesy basis to a selected group of knowledgeable individuals on a non-disclosure basis. It is hoped that they pass on their usage experience to the author at ralph.bloch@bell.net.

Although the program sports a graphical user interface, it must be started from a terminal window on one of the three major platforms – Windows, Mac, or Linux. It requires the installation of Python 3.10.12 and several additional Python libraries.

The author has experimental evidence that G-Pie is significantly more accurate than urGENOVA, its ANSI-C cousin.

Package

Altogether, the package contains only 3 items:

1. the instructions (these pages)
2. the software in zipped form (13kb) *Gpie.zip*
3. some samples of control, and datafiles in zipped form for playing around. *Samples.zip*

Installation

As mentioned, some software installation may be involved that is best done in 3 steps:

Installing Python

There are several methods of installing. In my experience (limited, as it is), installing the newest version for your platform from <https://www.python.org/downloads/> is the easiest.

After installing Python check the installation in the terminal:

```
python --version
```

Installing Python Libraries

G-Pie uses 7 Python libraries that may require separate installation, preferably using ‘pip’, which should be installed automatically with Python. But check for its presence:

```
pip -version
```

The first time you try to run G-Pie, it may complain that something is missing. You correct this by entering the corresponding instruction:

- `pip install csv`
- `pip install linecache`
- `pip install math`
- `pip install numpy`
- `pip install os`
- `pip install pandas`
- `pip install pickle`
- `pip install statistics`
- `pip install sys`
- `pip install time`
- `pip install tkinter`
- `pip install ttkbootstrap`

Installing G-Pie

Decompress G-Pie.zip into its own directory(folder), that you can name, as you see fit. Also decompress 'samples.zip' into an easy-to-find directory, possibly adjacent to the G-Pie directory

Using G-Pie_α

You start G-Pie by opening a terminal into its directory, and enter:

```
python G-Pie.py
```

A graphical user interface window should open. G-Pie allows you to perform two separate operations (processes): (i) to analyze an existing data set, or (ii) to generate a synthetic dataset.

Either of these operations requires a short control file in .txt format. For analysis you use the Brennan format, you can also generate this control file using [G-String](#), or you can take one of the samples and adapt it. For synthesizing an artificial dataset, you have to add two lines to the control file:

```
ANCHORS . . . . and
```

```
VARIANCES . . . . (check the samples)
```

In fact, you can use the synthesizing control file also for analysis. G-Pie simply ignores the two additional lines.

For analysis you enter first the control file, then the data file using the corresponding 'File' – option. Then you click on the analysis process.

For synthesis you enter the control file, and then click on the synthesis process. The software will prompt you for where you want the synthetic data file (.csv) saved.

The processing time for either operation depends on the size of the analysis (sample sizes)

Feedback

This being an α -version, problems can be expected. Your [feedback](#) is important for gradually making the software more stable. The more information, you can provide, the faster I can fix them. If problems arise, after you have entered control and/or data files, it would be helpful, if you also send me those files, together with eventual error messages (they will be in the terminal window).

Thank you!

Ralph Bloch, July 30. 2024