Code and Data to Replicate Analyses

This package contains code and a subset of data to replicate the analyses in our paper, A process-independent explanation for the general form of Taylor's Law, by X. Xiao, K. J. Locey, and E. P. White. Our paper is available as preprint on arXiv (http://arxiv.org/abs/1410.7283).

Data

Data included in this package are exclusively compiled from the literature, and represent only a subset of what we used in the original analyses. The data file data _ literature.txt has five columns - data ID, Q, N, mean, variance. The data IDs are created in the form of study ID + " _ " + identifier within study. For detailed description on the procedure of the compilation, see *Methods* in our paper. For information on individual studies and their citations, see *Table A1* in *Appendix A*. Please note that these data may be derived from the data in the original publication, and could potentially contain introduced errors. Readers interested in using the data for purposes other than replicating our analyses are advised to obtain the raw data from the original sources.

Setup

Requirements: Python 2.x, and the following Python modules: `numpy`, `scipy`, `matplotlib`, `mpl_tookits`, `multiprocessing`, and `pyper`. In addition, the following custom Python modules are also required: `pypartitions` (https://github.com/klocey/partitions) and `macroecotools` (https://github.com/weecology/macroecotools)

Replicate Analyses

Our analyses can be replicated by running the following command from the command line:

```
python TL_analysis_subset.py
```

By default, the output files will be saved to the subdirectory /out_files/.

To obtain summary statistics of the results (equivalent to Table 2 in our paper), run the command

```
python TL_print_summary_subset.py
```

which prints the output to the screen.

To create Figures 1-3, run

```
python TL_plot_subset.py
```