**RouaultDayanFleming**

This repository contains analysis code for the following paper:

Rouault M., Dayan P. & Fleming S. M. **Forming global estimates of self-performance from local confidence**. *Nature Communications* (2019)

Script and data files are included in the repository to enable replication of data analyses and rapid generation of the figures in the paper.

The folder *DATA* contains anonymised behavioral data files for each of the three experiments of the paper, providing the summarised individual data for all plots and statistics, and one file containing the material for running the hierarchical learning model simulations:

* Exp1.mat
* Exp2.mat
* Exp3.mat
* DESIGN.mat

It also contains a file (perf\_data\_for\_jasp.csv) allowing replication of Bayesian t-tests under JASP (https://jasp-stats.org/).

The folder *SCRIPTS* contains three main scripts to enable replication of statistical analyses and rapid generation of the figures for each of the three experiments in the paper:

* BehaviorGroupExp1.m
* BehaviorGroupExp2.m
* BehaviorGroupExp3.m

The folder SCRIPTS also a script running the hierarchical learning model simulations (Group\_simulations.m), and a number of helper scripts, for instance for ANOVA and regressions.

To measure metacognition, we make use of previous work. Metacognitive efficiency can be measured by analysing the correspondence between accuracy and confidence, for instance using a signal detection theoretic metric, meta-d' (<http://www.columbia.edu/~bsm2105/type2sdt/>) (Maniscalco & Lau, 2012). Metacognitive efficiency can also be estimated hierarchically (<https://github.com/metacoglab/HMeta-d>) (Fleming, 2017).

The folder SCRIPTS also contains a file generating the meta-d’ recovery for hierarchical vs. MLE fit (metacog\_recovery.m).

License.

This code is being released with a permissive open-source license. You should feel free to use or adapt the utility code as long as you follow the terms of the license, which are enumerated below. If you make use of or build on the analyses, we would appreciate that you cite the paper.

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