

Readme file for codes to analyze the data

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The following codes are provided to perform the analyses reported in the paper:

DivNorm_Analysis_DirRepl.m

Matlab-based analysis script for statistical analyses (frequentist and Bayesian) and model comparison (probit vs. divisive normalization) of the direct replication experiment.

DivNorm_Analysis_EyeTrack.m

Matlab-based analysis script for statistical analyses (frequentist and Bayesian) and model comparison (probit vs. divisive normalization) of the behavioral data of the eye-tracking experiment. The script also generates figures based on the eye-tracking data of this experiment.

DivNorm_R_EyeTrack.m

R-based analysis script for statistical analyses (frequentist) of the eye-tracking data.

behavdata_for_Matlab, fixdata_for_Matlab

These are data files created by the “DivNorm_R_EyeTrack.m” script (see above) to generate the eye-tracking related figures in Matlab with the “DivNorm_Analysis_EyeTrack.m” script (see above).

LogReg_V3_JAGS.txt

This file contains the hierarchical Bayesian logistic regression model for the analysis with JAGS.

get_CI_for_ES.m

This Matlab file computes 90% and 95% Confidence Intervals for the effect size Cohen’s d , which is required to perform the Small Telescopes analyses for direct replications according to Simonsohn (2015, Psychological Science).

gs_probit_fast.m, fs_probit_fast.m, gs_norm_fast.m, fs_norm_fast.m

These Matlab files contain the probit (“probit”) and divisive normalization (“norm”) models for performing grid search (“gs”) and simplex-based function minimization (“fs”) in Matlab. The term “fast” indicates that the ‘ArrayedValue’ function of the “integrate.m” function is used to speed up numerical integration.

fminsearchcon.m

Matlab-based script to perform constrained simplex minimization. Required to fit the probit and divisive normalization models.

Further information can be found in the headers of the scripts.