**Pupil analysis documentation**

This documentation lists all steps, data folders, and files needed for the analysis of pupil data. In scripts/syntax please ensure that the filepaths match your local directories/folders. To this end, set working directory in SPSS with command ‘cd’ to the folder containing your pupil analysis files:

example: cd 'D:\superfolder\subfolder\pupil analysis'.

You may also include all code/syntax and data in this same folder. The necesssary data folders are: SA gazefiles anonymized A, SA gazefiles anonymized B, SA anonCTRL face, SA anonCTRL noise, which can be downloaded from Zenodo. The Matlab code and SPSS syntax can be downloaded from GitHub and should include the ‘igazelib’ library for pupil/gaze analyses included in folder: ‘igazelib081b’.

**Active viewing experiment[[1]](#footnote-1)**

Anonymized data file are in folder: ‘SA gazefiles anonymized A’

Analysis steps for active viewing experiment, pupil constriction

1. run script: pupilAnalysis\_Eprime3.m

\*select data folder: ‘SA gazefiles anonymized A’

\*script produces output: EprimeConstriction.xls

2. import EprimeConstriction.xls to spss using syntax: Restructure data\_constr\_Eprime.sps

\*syntax produces files: Eprime\_constr\_accept.sav, Eprime\_constr\_aggr.sav, Eprime\_constr\_repeated.sav

3. create new vars to Eprime\_constr\_repeated.sav with syntax: Create vars repeated constr.sps

4. run statistical analysis with syntax: Constr stat analysis\_Eprime.sps

Analysis steps for active viewing experiment, pupil dilation

1. run script: pupilAnalysis\_Eprime2.m

\*select data folder: ‘SA gazefiles anonymized A’

\*script produces output: EprimeDilation.xls

2. import EprimeDilation.xls to spss using syntax: Restructure data\_dilat\_Eprime.sps

\*syntax produces files: Eprime\_dilation\_accept.sav, Eprime\_dilation\_aggr.sav, Eprime\_dilat\_repeated.sav

3. create new vars to Eprime\_dilat\_repeated.sav with syntax: Create vars repeated dilat.sps

4. run statistical analysis with syntax: Dilat stat analysis\_Eprime.sps

**Passive viewing experiment**

Anonymized data file are in folder: ‘SA gazefiles anonymized B’

Analysis steps for passive viewing experiment, pupil constriction

1. run script: pupilAnalysis\_Matlab.m

\*select data folder: ‘SA gazefiles anonymized B’

\*script produces output: MatlabConstriction.xls

2. import MatlabConstriction.xls to spss using syntax: Restructure data\_constr\_Matlab.sps

\*syntax produces files: Matlab\_constr\_accept.sav, Matlab\_constr\_aggr.sav, Matlab\_constr\_repeated.sav

3. create new vars to Matlab\_constr\_repeated.sav with syntax: Create vars repeated constr.sps

4. run statistical analysis with syntax: Constr stat analysis\_Matlabs.sps

Analysis steps for passive viewing condition, pupil dilation

1. run script: pupilAnalysis\_Matlab2.m

\*select data folder: SA gazefiles anonymizedB

\*script produces output: MatlabDilation.xls

2. import MatlabDilation.xls to spss using syntax: Restructure data\_dilat\_Matlab.sps

\*syntax produces files: Matlab\_dilation\_accept.sav, Matlab\_dilation\_aggr.sav, Matlab\_dilat\_repeated.sav

3. create new vars to Matlab\_dilat\_repeated.sav with syntax: Create vars repeated dilat.sps

4. run statistical analysis with syntax: Dilat stat analysis\_ Matlab.sps

**Comparison between the passive and active viewing experiments**

1. SPSS datafile: MatlabEprime\_dilat\_repeated.sav

\*this is merged (“add cases”) from Matlab\_dilat\_repeated.sav and Eprime\_dilat\_repeated.sav

2. run statistical analysis with syntax: Dilat\_MatlabEprime.sps

**Control experiment**

1. run scripts to analyze gaze data from folders:

1.1 script/function: pupilAnalysisCtrlFace.m, data folder: SA anonCTRL face

1.2 script/function: pupilAnalysisCtrlFace2.m, data folder: SA anonCTRL face

1.3 script/function: pupilAnalysisCtrlNoise.m, data folder: SA anonCTRL noise

1.4 script/function: pupilAnalysisCtrlNoise2.m, data folder: SA anonCTRL noise

\*scripts produce outputs: CtrlConstrictionFace.xls, CtrlDilationFace.xls, CtrlConstrictionNoise.xls, and CtrlDilationNoise.xls

2. Import to SPSS and restructure data using syntax files:

2.1 Restructure\_constr\_Ctrl\_Face.sps, Create vars repeated constr.sps

2.2 Restructure\_dilat\_Ctrl\_Face.sps, Create vars repeated dilat.sps

2.3 Restructure\_constr\_Ctrl\_Noise.sps, Create vars repeated constr.sps

2.4 Restructure\_dilat\_Ctrl\_Face.sps, Create vars repeated dilat.sps

3. Merge data (“add variables”) from face and control conditons with syntax:

3.1 Merge conditions FaceNoise\_constr.sps

3.2 Merge conditions FaceNoise\_dilat.sps

4. Analyze data with statistical tests with syntax:

4.1 Constr stat analysis\_Cntrl.sps

4.2 Dilat stat analysis\_Cntrl.sps

1. Data from active viewing experiment (affect labeling task) were acquired with E-prime software. Hence, the names of SPSS data files from the active experiment contain string ‘Eprime’. In contrast, the passive viewing experiment was run with Matlab and the corresponding SPSS datafiles contain string ‘Matlab’. [↑](#footnote-ref-1)