**Documentation:**

**Legend:**

matlab scripts (.m)

matlab saved (.mat)

CSV

variables & cells, arrays, tables

# Generate wordlist (folder):

new\_descriptor\_assignment.m: is the main script that was used to generate the new descriptors for the dual task. It is adapted from Angus’s original script. This script generates:

* Used in the dual task experiment
  + /descriptors
  + /descriptor\_assignment
* Used in generating inquisit wordlist:
  + ‘convert\_to\_inquisit.mat’ composed of:
    - word\_list cell array of all the words in Zhao’s experiment in alphabetical order
    - df\_sg struc with an image ID per row with corresponding global and specific words from ‘word\_generation\_slope\_... \_two\_or\_more\_soa.csv’ and all the present words with frequency\_cutoff determined by script compiled from ‘maria\_stem\_words.csv’

for\_inquisit\_script.m: converts the present and absent words to put into inquisit

* loads ‘convert\_to\_inquisit.mat’
* produces: inq\_list\_absent.txt and inq\_list\_present.txt derived from

generate\_wordlist\_analysis.m: generate the word list of the 3 global and 3 specific words in a table from word\_generation\_slope\_by\_report\_proportion\_two\_or\_more\_soa.csv.

* produces: ‘slope\_table\_first 41.csv
* produces: ‘generate\_wordlist\_analysis.mat’ which has the ‘slope\_table’ of only the first 41 image IDs and the 3 most global and 3 most specific and ‘global\_specific\_df’ with all the words from Zhao classified as global or specific
* USED: in data analysis later

# Online experiment:

txt files are pasted into inquisit scripts

DT\_Pilot-1: Pilot of the experiment

* 80Q – 66 and 266 ms
* 10Q random global/specific words: DT\_Pilot\_1.0-10Q\_GS\_Periph\_133

MOST\_GS: recognition task with three most global and three most specific words

* DT\_Pilot\_2-12Q\_MOST\_GS\_66
* DT\_Pilot\_2-12Q\_MOST\_GS\_266

Subjective\_GS\_assignment: both versions (fully seen and 266masked) of the subjective rating experiment

* DT\_Subjective\_GS\_266
* DT\_Subjective\_GS\_fullyseen

# Data analysis

## Raw Data:

All raw data in the excel spreadsheets and analysis of pilot 1 & 2 in excel + analysis of experiment 3 in excel

## Pilot analysis scripts (draft)

Analysing recognition experiment for the first time

Analysis\_mean\_decision\_confidence.m: the first version analysing the mean decision confidence from the raw data MOST\_GS\_ALL\_SOA.csv

* Derives a scatterplot , scatter\_SOA266 of mean decision x confidence of all participants for each word of an image vs. the unique slope value
* sorted\_table\_all are all the words of an image in order from highest to lowest mean decision x confidence (the higher the mean dxc the better recognised)

Analysis\_histogram.m: the first version of creating a histogram analysis using raw data from the raw data MOST\_GS\_ALL\_SOA.csv

## Analysis (use this folder to get analysis)

analysis\_ALL\_TABLE.m: the preliminary analysis of all the data files in one script (this was later split up).

* Derives ALL\_TABLE\_sorted\_gs of the mean across all the different
  + Subjective rating of Globalness (yes\_4 = 8) which means max number is most global
* Derives a colour\_scatter comparing mean dxc 66 vs. mean dxc 266 per word image

Formatting\_the\_ALL\_table\_trial.m: loads the ALL\_table.mat for the ALL\_TABLE variable and adjusts everything to change up the order of the data. This was used in part to make the excel image file, maybe, but essentially – never used

raw\_table\_filtered.m: sorts the raw data (MOST\_GS\_ALL\_SOA.csv, slope\_table\_first41.csv, dt\_subjective\_gs\_MASTER\_raw.csv) into 4 tables called merged\_tables

* Produces raw\_tables\_filtered.mat:
  + slope\_raw\_table
  + merged\_tables\_SOA66
  + merged\_tables\_SOA266
  + merged\_tables\_subj\_266masked
  + merged\_tables\_subj\_fullyseen
    - columns are: subject ID, response, image, word, slope

finding\_mean.m: loads raw\_tables\_filtered.mat – have to choose and **state which merged\_table** to use at the start. The script works for all the merged tables but some small number changes must be made depending on recognition (called performance) experiment or subjective rating experiment type.

* This script makes
  + average\_img\_table: average aggregated for all responses of that image
  + average\_img\_type\_table: average aggregated for each type (global and specifc) of each image
  + average\_subj\_type: average of all global and all specific words within each participant
  + average\_word\_img\_table : average for each unique word of image across all participants
  + table\_img\_word\_by\_subject: all responses sorted by subject ID.
  + ‘transposed tables’ for easy transfer into graphpad

subj\_rating\_with\_recognition\_per\_image\_mean: loads raw\_tables\_filtered.mat – have to choose and **state which subjective rating experiment to** use at the start and then choose **which recognition task (SOA66 or SOA266)** to combine this with.

* Basically does the same as finding\_mean for each type of each image above but the words are tagged by the global or specific from the mean rating outcome of the subjective rating experiment chosen
* Results in: average\_subjective\_img\_type\_table (77x3) 🡨 not 80 because some images have all specific or all global ratings

subj\_rating\_with\_recognition\_per\_subject\_mean: loads raw\_tables\_filtered.mat – have to choose and **state which subjective rating experiment to** use at the start and then choose **which recognition task (SOA66 or SOA266)** to combine this with.

* Does the same as the one above but for each subject generates the mean dxc for all the global and then all the specific words.
* Results in: average\_subj\_type\_table if SOA266 🡨 10 subjects x2 categories – if SOA66 = 18x3 🡨 9 subjects x2 categories

per\_subject\_correction.m: loads raw\_tables\_filtered.mat – have to choose and **state which merged\_table** to use at the start. The script gets the mean and standard deviation of each subjects dxc and then calculates the z-score for each response of the participants.

* per\_subject\_correction.mat that has a table\_corrected\_subj can be put into ‘finding\_mean.m’ to find mean of normalised scores.
* Not used

Performance\_per\_subject.m: loads raw\_tables\_filtered.mat – have to choose and **state which merged\_table** to use at the start. The script works for all the merged tables and forms a matrix with all the subject\_ID as the column headings and then all the responses that subject made. (new\_table) – never used

raw\_table\_filtered\_with\_trialcode.m: sorts the raw data of MOST\_GS\_ALL\_SOA.csv keeping the trial code and the response (absent or present) to be able to get the accuracy from this after using …..

* produces raw\_tables\_filtered\_with\_trialcode.mat:
  + tables\_SOA266\_alltrials
  + tables\_SOA66\_alltrials
    - columns are: subject ID, trialcode, response, image, word, type (absent, specific, global)

Raw\_by\_absent\_present.m: loads raw\_tables\_filtered\_with\_trialcode.mat – have to choose and **state which table\_SOAxx\_alltrials** to use at the start.

* Essentially does what ‘finding\_mean.m’ does but for accuracy (hits and misses) rather than for dxc.
  + average\_img\_table: average accuracy aggregated for all responses of that image
  + average\_subj\_table: average of all accuracy for each participant
  + average\_word\_img\_table : average accuracy for each unique word of image across all participants
  + ‘transposed tables’ for easy transfer into graphpad

Line\_graph.m: loads raw\_tables\_filtered\_with\_trialcode.mat – have to choose and **state which table\_SOAxx\_alltrials** to use at the start.

* Creates the line graph histograms of the present and absent

Line\_graph\_global\_local.m: loads raw\_tables\_filtered\_with\_trialcode.mat – have to choose and **state which table\_SOAxx\_alltrials** to use at the start.

* Creates line graph histogram of the absent and global and specific (determined by slope because of the tag, but could easily change it to be tagged according to subjective experiment)
* Not used in results ☹

cbrewer.m & changejet.m & interpolate\_cbrewer.m & plot\_brewer\_cmap.m : not made by me, used to generate pretty colours in the figures of line graph (above)