Data for the Paper "Cholinergic and Dopaminergic Effects on Prediction Error and Uncertainty Responses during Sensory Associative Learning"

Neuromodulatory effects on sensory learning

Dataset

Author(s):
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README file for the data published in:

Iglesias S, Kasper L, Harrison SJ, Manka R, Mathys C, & Stephan KE (2020). Cholinergic and dopaminergic effects on prediction error and uncertainty responses during sensory associative learning. *NeuroImage*, 117590
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Author: Sandra Iglesias
Created: December 2020

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This README contains information on the data of study 1 and study 2 published in the paper "Cholinergic and dopaminergic effects on prediction error and uncertainty
responses during sensory associative learning".

Contributors / Roles

Project lead / analysis:	Sandra Iglesias (PhD)
Supervising Prof.:	Prof. Klaas Enno Stephan (MD Dr. med., PhD)
Abbreviation:	ADPRSI (study acronym)
Date:	December, 2020

The project was conducted at the Translational Neuromodeling Unit (TNU).

Reference

Iglesias S, Kasper L, Harrison SJ, Manka R, Mathys C, & Stephan KE (2020). Cholinergic and dopaminergic effects on prediction error and uncertainty responses during sensory associative learning. *NeuroImage*, 117590

Data Information

- fMRI study1 (antagonist study) is stored in folder: antfMRI_ssl/raw
  - subject IDs: DPRSI_A0101-DPRSI_A0181
  - no data available from one subject due to claustrophobia
- fMRI study2 (enhancing drugs) is stored in folder: agfMRI_ssl/raw
  - subject IDs: DPRSI_A0201-DPRSI_A0281
  - no data available from three subjects due to claustrophobia, nausea, or no task data.

data is stored in the following folders:

- raw behavioural data: a*fMRI_ssl/raw/DPRSI_A.../behavior/ssl

Information behavioural data:

the behvioural data structure contains the following entries:
- alldata
- block (blockwise behavioural data)
- param

Information "alldata" and "block(index).exp_data" columns:

- alldata(1) = typeSound; % 0 = low tone (352Hz); 1 = high tone (576Hz)
- alldata(2) = typeTarget; % 0 = House; 1 = Face
- alldata(3) = ReactionTime; % reaction time
- alldata(4) = key_press; % prediction: 0 = House; 1 = Face
- alldata(5) = correctness; % 0 = wrong; 1 = correct
- alldata(6) = block; % block index (total = 10 blocks)
- alldata(7) = time_present_sound; % time of cue presentation
- alldata(8) = time_present_target; % time of target presentation
- alldata(9) = time_press; % time of response
- alldata(10)= key_number; % key ID
- alldata(11)= TargetImageCodes; % ID target stimuli: 8 different faces: 1-8; 8 different houses: 17-24
- alldata(12)= typeProb; % p(face|high tone) = p(house|low tone)
- alldata(13)= ProbBlock; % blockwise probability
- alldata(14)= time_present_iti; % time of intertrial interval (ITI)
- alldata(15)= Times_ITI; % length of intertrial interval (ITI)

Information "param":

- block_length: number of trials per block
- freq: frequency of auditory stimuli (low and high tone)
- probs_face_high_t: per block probability of a face given a high tone
- probs_face_low_t: per block probability of a face given a low tone
- scanstart: start of fMRI data acquisition

Information group data "ADPRSI_a*fMRI_ssl.mat":

- age: participant's age at time of data acquisition
- behav.KSS: Karolinska Sleepiness Scale; sleepiness scores
- drug: pharmacological substance
- group: group assignment:
  0 = placebo;
  1 = dopaminergic substance;
  2 = cholinergic substance
- subj: participant's project ID
- weight: participant's weight at time of data acquisition

Acronyms:

- (A)DPRSI: - project acronym
- KSS: - Karolinska Sleepiness Scale
- SSL: - sensory-sensory learning