# Reversal Learning

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## Setup

* OS: Windows
* Software: Python 3
* Toolbox: PsychoPy v3.1.2

## Peripherals

1. Photodiode
2. External keyboard (optional)

Timing

* ~30 minutes total
* Two self-paced breaks, splitting the task up into three ~10 minute sections.

Reversal learning overview:

Subjects try to learn associations between objects and locations through trial and error. Four object-location associations are learned concurrently, resulting in 90 ‘mini-blocks’ of four objects pseudo-randomly shuffled. After a variable number of repetitions, or times a specific object was encountered (8-11), the correct location for that object is changed (reversed), and subjects attempt to learn the new correct location for that object. After a variable number of post-reversal repetitions (4-6) the object is phased out and replaced by a new object.

There are two self-paced breaks splitting the task up into three evenly spaced ~10 minute sections. Please note that the brakes have no effect on which object-location associations are currently being learned, i.e. new object-location associations will not be introduced after the breaks.

## Procedure

1. Boot computer into Windows
2. Set up PHOTODIODE and external KEYBOARD (if available)
3. Test photodiode to make sure the signal is good
4. Go to “Dropbox/Rebecca\_ste/reversalLearningTask” folder (or wherever this folder is located on your testing laptop), double-click reversal\_learning.py
5. Run in PsychoPy (click green man)
6. Fill in session information in GUI
   1. Subject ID (letters and numbers ok, e.g. IR97)
   2. Session number
      1. 1 if it is the first time you have run this task with the subject, 2 if the subject is able to do the task a second time or if there was some issue with the first session (will load different stimuli)
   3. iEEG: leave this checked if you are running on an intracranial subject
7. Read instructions on screen aloud. There is no practice, but it is self-paced and fairly straightforward.
8. Ask them to use hand contralateral to motor coverage if possible (not important so if they would prefer to use their other hand that is fine)

\*\*If you are running this task for the first time on a testing laptop please try running the task prior to testing the patient

* 1. Please check to make sure that the black rectangle for the photodiode is positioned correctly. If it isn’t, you can either text me to alter the script (504-710-1026) or, if you are familiar with coding, you can change the parameters yourself at lines 20-22.
  2. If you put 999 as the subject number it will quickly run through the whole task in just a few seconds

## Responses

* Exit: Press ‘escape’ to exit the task when response options (boxes) are on the screen
* Pause: Press ‘space’ to pause the task
* Restarting: if you need to restart, please use a different session number (e.g. 2 instead of 1). This will start a new session with new stimuli.

## Logs

* Logs will be automatically saved in the “reversalLearningTask/logs” folder in the format “subjectID\_sessionNumber\_log
* Logs will not be overwritten if task is rerun with the same parameters. The existing log will be renamed “subjectID\_sessionNumber\_log\_dateTime”