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# **Selfinfiltration Experiment Documentation**

***Release 1.0***

**Neurolab/UOS**

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## Contents

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This is the technical documentation and manual for the EPrime 2 experimental procedure used in the [Research on the Neural Correlates of Self-Infiltration](#) conducted at the Motivation Lab at University of Osnabrueck/Germany.

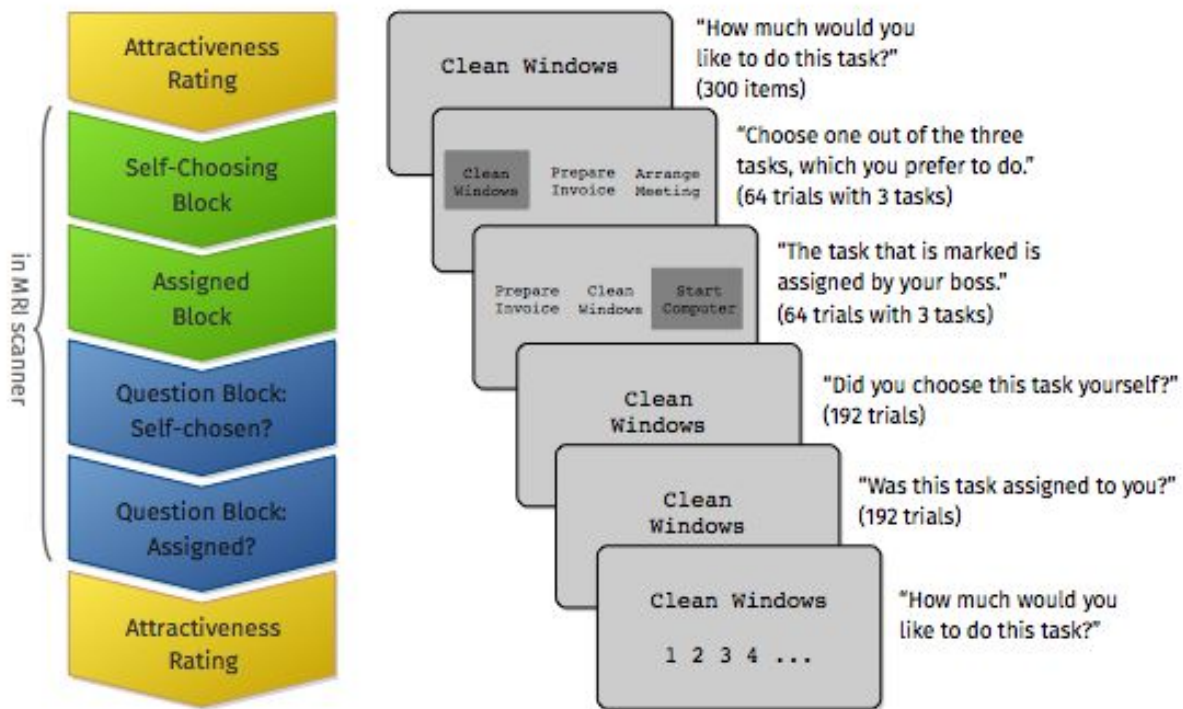
The experiment itself or the data from the study are not hosted online. You can however obtain a copy for your work by directly contacting the staff of the [Motivation Lab UOS](#).



## Table of Contents

### Introduction

The experiment is comprised of a pre-rating phase outside of the scanner, two task phases inside the MRI scanner (as well as a resting state phase) and a post-rating phase again outside of the scanner.



## Phase 1 - Pre-Rating

In the pre-rating phase all items loaded from the item list files are presented to the participant in random order. For each item the participant is instructed to rate the attractiveness of the particular item on a scale from 0-9 (how much the participant would like to execute the activity presented). The phase starts with screens giving instructions on how to do the rating.

The best rated third of the items will not be used in the later phases.

## Phase 2 - Choice/Assignment

The choice/assignment phase is sub-divided into two parts that are each preceded by screens giving instructions for the tasks. This phase is conducted in the scanner.

In the **choice phase** the participants are presented with three items from the item lists. They are instructed to indicate which of the three tasks they are choosing to do by pressing one of three buttons. The chosen item is marked by a gray box after an item has been selected.

In the **assignment phase** three items are presented to the participant and after some seconds delay one of the items is marked as being assigned to the participant by a gray box like those that gave the feedback in the choice phase. The participant is instructed to acknowledge the assignment by pressing the button corresponding to the assigned item's position.

## Phase 3 - Report

The report phase is sub-divided into two parts that are each preceded by screens giving instructions for the tasks. This phase is conducted in the scanner.

In **choice report phase** the participant is presented with one item per screen that has either been chosen by the participant or was neither chosen nor assigned. The participant is instructed to indicate if the item was chosen or not.

In **assignment report phase** the participant is presented with one item per screen that has either been assigned by the computer or was neither chosen nor assigned. The participant is instructed to indicate if the item was assigned by the computer or not.

## Phase 4 - Post-Rating

The post-rating phase works exactly the same way as the pre-rating phase and is conducted as the last phase of the experiment, again outside of the scanner.

## Resting State Phase

The resting state scan is being done between the choice/assignment phase and the report phase. The participant is instructed to relax and not think of anything special while watching a slide show of photos and listening to relaxing music.

## Directory Structure

The experiment consists of the following files and directories:



```

Pictures                : directory containing images used in phase 3
itemlist_<name>.txt      : item list files
phase1_pre-rating.ebs2   : runnable file for phase 1
phase1_pre-rating.es2    : source file for phase 1
phase2_assignment.ebs2   : runnable file for phase 2
phase2_assignment.es2    : source file for phase 2
phase3_report.ebs2       : runnable file for phase 3
phase3_report.es2        : source file for phase 3
phase4_post-rating.ebs2  : runnable file for phase 4
phase4_post-rating.es2   : source file for phase 4
resting_state.ebs2       : runnable file for resting state phase
resting_state.es2        : source file for resting state phase

```

The *.ebs2* files are the runnable EPrime procedures for each of the five phases. EPrime will create several other files upon running a phase. They are not important, you can ignore them.

## Subject specific directory

The experiment creates a sub-directory in the experiment directory for each subject. The directory name reflects the subject number and the session number (usually 1 because this experiment has only one session per participant).

Example:

```
subject_<subject number>_session_1
```

**Attention** In order to achieve correct data collection all phases must write the data for a subject into the same sub-directory. It is important that the correct subject and session numbers are set at the beginning of each phase. Also note that the session number should always be 1 - the session number does NOT reflect the phase in the experiment.

When the phases haven been run the content of a subject specific directory may look the following:

```

list_data.dat           : List data in Eprime data format (loaded by experiment)
list_data.csv           : List data in CSV format (Excel compatible)
item_data_phaseN.dat    : Item table after phase N in EPrime data format (loaded by_
↳ experiment)
item_data_phaseN.csv    : Item table after phase N in CSV format (Excel compatible)
phaseN.debug            : Debug output of phase N

Additional .edat2, .txt and .xml files are generated by EPrime.

```

Each phase loads the item table (*.dat*) saved by the phase before and writes the item table extended by the data collected during the phase to a different file having *\_pahseN* at the end. The *.dat* files are used by the experiment to save the data. If you need to work with the data you can load the *.csv* version of the file directly into MS Excel or Matlab.

The *.txt* contain the EPrime event logs from the execution of the phases. You can use these logs to analyse the answer timing of the participant. The log files can be transformed into *.csv* form with the [EPrime Log File Parser](#).

The *.debug* files contain the messages written to the ‘Debug’ Window in EPrime during execution of the phase.

## Running phases on different computers

The experiment consists of phases conducted inside the MRI scanner as well as outside of the scanner. Thus the different phases will most likely run on disparate machines. Because later phases depend on data from earlier phases the subject specific directory has to be copied over to the machine running the next phase before commencing execution of the next phase.

## Item Lists

The list of items used in the experimental procedure is generated from the item list files found in the experiment directory (see `directory_structure`). This is done every time the experiment is started. Thus it is important to use the same set of item list files for all subjects in a study.

### Item list files

Item list files are ordinary text files (`.txt`) that can be edited with any text editor. An item list file must obey the following naming scheme in order to be recognized and loaded by the experiment:

```
itemlist_<name>.txt
```

The part of the filename between the first underscore and the dot before the extension is considered the name of the item list.

Example:

```
itemlist_office.txt    -->    item list is named 'office'
```

### Item list definition

The item list text files define one item per line.

Example:

```
write invoices
prepare meeting
update timetable
```

**Attention** Empty lines in the file lead to items for which nothing is shown on screen. So avoid empty lines in the file. Empty lines are often found at the end of a file after editing. Use the arrow-down key on the keyboard to move the cursor to the end of the file to see if there are any empty lines.

## Data Tables

### Item List Table

The item list data table is also written as a CSV file to the subject specific directory. The semantics of the columns is explained below:

**UID** Unique identification number of the item list

**Name** Name of the item list (extracted from the filename)

**ItemCnt** Number of items in the item list

**DiscardedCnt** Number of items in this list that have been discarded after the first rating

## Item Table

The item data table is also written as a CSV file to the subject specific directory. The semantics of the columns is explained below:

**UID** Unique identification number of the item

**Task** Task text

**ListID** Identification number of the list the item belongs to

**Block** -1: Item was discarded after the first rating 1: Item was presented in the first report block 2: Item was presented in the second report block

**RatingBefore** Rating value acquired in phase 1

**RatingAfter** Rating value acquired in phase 4

**ChoiceTrial** Number of self-choice trial in which the item was presented (trial numbers start with 1)

**AssignmentTrial** Number of assignment trial in which the item was presented (trial numbers start with 1)

**PositionChoice** Position in which the item was presented in the self-choice trial (1:left, 2:middle, 3:right)

**PositionAssignment** Position in which the item was presented in the assignment trial (1:left, 2:middle, 3:right)

**SelfAssigned** Number of self-choice trial in which the item was chosen (0 if item was never chosen)

**OtherAssigned** Number of assignment trial in which the item was assigned (0 if the item was never assigned)

**ReportedSelf1** 0: time limit in report block 1 exceeded <0: -1 \* number of the trial in report block 1 in which the item was reported as self chosen >0: number of the trial in report block 1 in which the item was reported as not self chosen

**ReportedOther1** 0: time limit in report block 1 exceeded <0: -1 \* number of the trial in report block 1 in which the item was reported as assigned >0: number of the trial in report block 1 in which the item was reported as not assigned

**ReportedSelf2** 0: time limit in report block 2 exceeded <0: -1 \* number of the trial in report block 2 in which the item was reported as self chosen >0: number of the trial in report block 2 in which the item was reported as not self chosen

**ReportedOther2** 0: time limit in report block 2 exceeded <0: -1 \* number of the trial in report block 2 in which the item was reported as assigned >0: number of the trial in report block 2 in which the item was reported as not assigned

## Operation

The following is a guide on how to run the experiment as intended by the original authors of the study. However this guide does only cover the aspects of the procedure that are connected to running the software, it does not cover the operation of the MRI equipment nor the procedure applied to the participants.

**Preparing the experiment**

**Running the phases**

**Collecting the data**

**FAQ**

Best FAQs grow naturally, so please if you have a question send it to the owner of this documentation!