

RP_GlobalPrior

Global Prior in duration reproduction task

Progress

gantt

dateFormat YYYY-MM-DD

title Progress of the project

section Experiments

Experiment 1 (coding) :done, exp1, 2019-06-01, 2019-06-5

Experiment 2 (coding) :done, exp2, 2019-06-01, 2019-06-5

Experiment 1 (collect data) :done, exp1, 2019-06-05, 2019-07-25

Experiment 2 (collect data) :done, exp2, 2019-06-05, 2019-07-25

Experiment 3 Reproduction of two durations :done, exp3, 2019-10-15, 30d

section Analysis

Analysis of Exp.1 & 2 :done, anal1, after exp1, 145d

Analysis of Exp.3 :done, anal1, after exp3, 145d

RMarkdown report :done, Rmd1, after exp3, 145d

section Modelling

Model1 :done, anal1, after Rmd1, 360d

local-global model :done, anal1, after Rmd1, 350d

dual integration model :active, report1, after Rmd1, 250d

section Manuscript

Introduction :man1, 2019-06-25, 2020-04-25

Method section :man2, 2019-06-25, 2020-07-25

Modelling section :man3, 2019-06-25, 2021-07-25

revise Introduction : man4, after man1, 2022-07-25

Results : manresult, after man2, 2021-04-25

Discussion : active, after man2, 460d

revise Method : man6, after man2, 2022-04-25

revise Results : man7, after manresult, 2022-04-25

revise Discussion : man8, after man5, 2022-04-25

To-do tasks

- ☒ Experiments1
 - ☒ coding and debugging
 - ☒ collecting data
- ☒ Experiments2
 - ☒ coding and debugging
 - ☒ collecting data (2 data more)
- ☒ Modelling
 - ☒ code
 - ☒ simulation
- ☒ Data Analysis
 - ☒ Preliminary analysis
 - ☒ anova

- ☒ Generate a report
- ☒ analysis for Exp. 1 and 3
- ☒ writing result part
- ☒ writing discussion
- ☒ presentation of the results
- ☐ revise manuscript

Description

Experiment 1:

In this experiment, the short and long ranges were clearly separate. We adopted the left and right spatial separation for the short and long ranges, as used in Roach et al. (2017). In this experiment 2, the target intervals are the randomly selected elements from three groups of time intervals groups: the short (400-800ms), long (1200-1600ms), and the mixed group (400-800ms, 1200-1600ms).

- short group: 0.4000 0.4757 0.5657 0.6727 0.8000
- long group: 1.2000 1.4270 1.6971 2.0182 2.4000
- mixed group: 0.4000 0.4757 0.5657 0.6727 0.8000 1.2000 1.4270 1.6971 2.0182 2.4000

feedback: 1-5, respect to the reproduction error

480 trials takes 65 mins

Summary of the manipulated factors

1. condition: 1 = short group; 2 = long group; 3 = mixed group
2. stimulus set: 1 to 10

Experimental program: code/main_gp_ss_loc.m

Table head of Data (.csv files):

| index | table head | comments |
|-------|--------------|--|
| 1 | group | group type: 1 = short; 2 = long; 3 = mixed |
| 2 | Set | stimulus sets: 1:10 |
| 3 | targetDur | target duration |
| 4 | phyTargetDur | physical target duration |
| 5 | RP | reproduced duration |
| 6 | NSub | subject ID |
| 7 | NT | trial number |
| 8 | valid | valid |
| 9 | Exp | experiment version |
| 10 | NB | Block number |

Report: Report.Rmd

Experiment 2:

In this experiment, the short and long ranges were clearly separate. We adopted the left and right spatial separation for the short and long ranges, as used in Roach et al. (2017).

In this experiment 1, the target intervals are the randomly selected elements from the following groups: short group (491.2-732.8ms), long group (1310-1954ms), and mixed group

- short group: 0.4912 0.5429 0.6000 0.6631 0.7328
- long group: 1.3100 1.4478 1.6001 1.7683 1.9543
- mixed group: 0.4912 0.5429 0.6000 0.6631 0.7328 1.3100 1.4478 1.6001 1.7683 1.9543

feedback: 1-5, respect to the reproduction error

480 trials takes 65 mins

Summary of the manipulated factors

1. condition: 1 = short group; 2 = long group; 3= mixed group
2. stimulus set: 1 to 10

Experimental program: code/main_gp_loc.m

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Report: Report.Rmd

Model Version: ModelReportV(X).Rmd

Model Description:

- Model Baseline: models to estimate parameters for short and long groups, and prediction of the RP.
 - Baseline (ModelReportBaseline.Rmd): $Y_s[i] \sim \text{normal}(a_s + b_s * X_s[i], p_wf * X_s[i]); // \text{short groups}$ $Y_l[j] \sim \text{normal}(a_l + b_l * X_l[j], X_l[j] * p_wf); // \text{long groups}$
 - Baseline2 (ModelReportBaseline2.Rmd): $\mu_s \sim \text{normal}(xmean[1], p_wf^2 * xmean[1]^2); // \text{mean prior of short group}$ $\mu_l \sim \text{normal}(xmean[2], p_wf^2 * xmean[2]^2); // \text{mean prior of long group}$ $\text{real} < \text{lower} = 0 > p_wf; // \text{Weber Fraction of local prior}$ $\text{real} < \text{lower} = 0 > wf; // \text{Weber Fraction of sensory noise}$
 - Baseline3 (ModelReportBaseline3.Rmd):
 $\mu_s \sim \text{normal}(xmean[1], p_wf^2 * xmean[1]^2); // \text{mean prior of short group}$ $\mu_l \sim \text{normal}(xmean[2], p_wf^2 * xmean[2]^2); // \text{mean prior of long group}$ $\text{real} < \text{lower} = 0 > p_wf_s; // \text{Weber Fraction of local prior}$ $\text{real} < \text{lower} = 0 > wf_s; // \text{Weber Fraction of sensory noise}$ $\text{real} < \text{lower} = 0 > p_wf_l; // \text{Weber Fraction of local prior}$ $\text{real} < \text{lower} = 0 > wf_l; // \text{Weber Fraction of sensory noise}$
- Model: models to estimate parameters for mix groups, and prediction of the RP.
 - V1: (ModelReport.Rmd)
 - H1: prior short and prior long works independent
 - V2: (ModelReportV2.Rmd)
 - H2: A hierarchical local-global model
 - H3: Global prior (the dual integration model)