Report of CCVR03

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PDF created on, Tue Jun 29 14:32:58 2021

Summary of the DESIGN of the experiment

The main control of the pattern generation is found in "CreatePats.m" in the experiment code folder

Set 1 - Near target repeated configurations Set 2 - Far target repeated configurations Set 3 - Near target random configurations
Set 4 - Far target random configurations

Analysis report

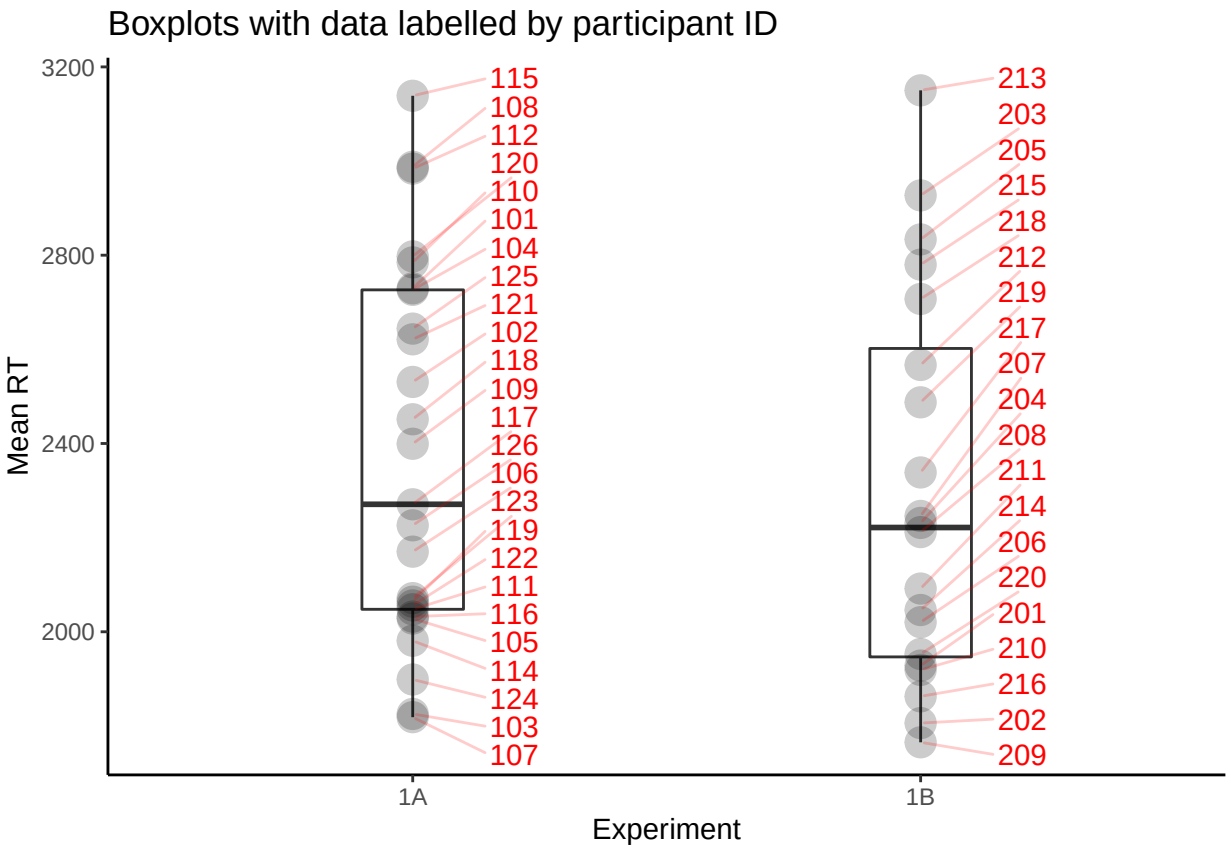
There were 25 participants in Experiment 1A and 20 in Experiment 1B.

Summary statistics for RTs and number of responses made:

sub_exp	stat	value
1A	mean_RT_mean	2957.12
1A	mean_Extra_Resp_mean	0.64
1A	perc_Rs_Over1_mean	0.25
1A	perc_Rs_Over2_mean	0.10
1A	mean_RT_sd	719.97
1A	mean_Extra_Resp_sd	0.69
1A	perc_Rs_Over1_sd	0.15
1A	perc_Rs_Over2_sd	0.10
1B	mean_RT_mean	2698.45
1B	mean_Extra_Resp_mean	0.49
1B	perc_Rs_Over1_mean	0.27
1B	perc_Rs_Over2_mean	0.10
1B	mean_RT_sd	572.61
1B	mean_Extra_Resp_sd	0.23
1B	perc_Rs_Over1_sd	0.09
1B	perc_Rs_Over2_sd	0.06

The major procedural differences between Experiment 1A and 1B was an improvement in the target detection method and the inclusion of a timeout of 10s in the latter.

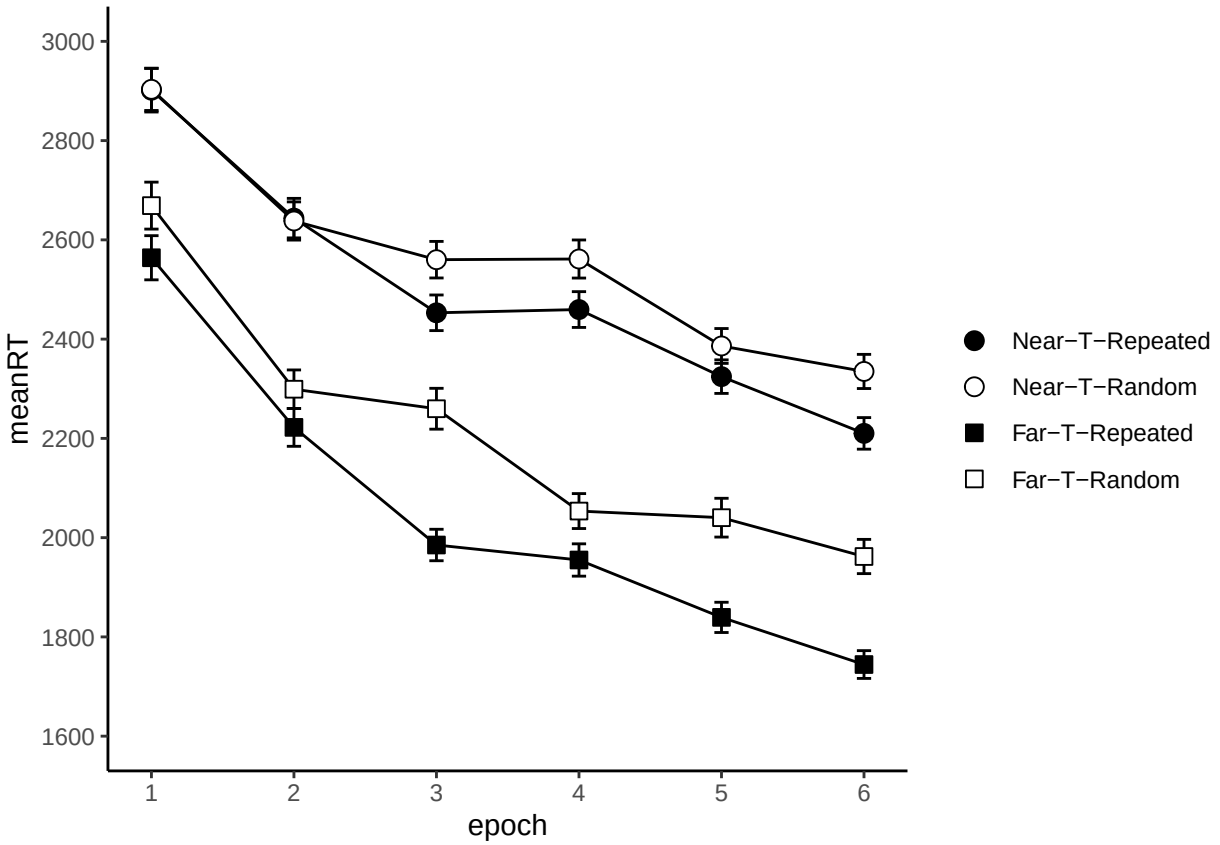
Data processing: trials which led to timeouts, and trials that had more than one additional responses (i.e., up to 2 responses allowed) were removed. Following this, RTs greater or less than 2.5 SDs from the participant mean RT were removed. On average this resulted in the loss of 12.6% of trials. Normalised RT was computed in order to create within-subject error bars in all plots.



Mean RTs for each participant were computed and the mean across the sample was 2337 ms (SD = 401). No participants were identified as outliers in terms of RT.

An ANOVA revealed that the sub-experiment factor (1A/1B) was not significant ($F < 1$) and did not interact with any other factor. We therefore simplified the analysis to combine the data across the sub-experiment factor.

RTs were analysed by averaging the data across five consecutive blocks, producing 6 epochs of 80 trials. As can be seen from the figure, RTs were slower for near targets compared to far targets. A contextual cuing effect appears to be present for both the set of repeated configurations paired with near targets and those paired with far targets. Numerically the CC effect looks larger for those configurations paired with far targets.




```
## Anova Table (Type 3 tests)
##
## Response: meanRT
##                 Effect           df       MSE         F   ges p.value
## 1                   TT        1, 44 157213.69 20.08 ***  .011   <.001
## 2          targ_depth        1, 44 462737.30 84.48 ***  .124   <.001
## 3               epoch 3.28, 144.15 237201.00 79.60 ***  .183   <.001
## 4       TT:targ_depth        1, 44 128497.45    4.98 *  .002    .031
## 5            TT:epoch 4.33, 190.63  48797.61  4.70 ***  .004   <.001
## 6    targ_depth:epoch 3.79, 166.70  76036.02  4.99 ***  .005   <.001
## 7 TT:targ_depth:epoch 4.11, 180.65  78655.05      0.30 <.001    .880
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '+' 0.1 ' ' 1
##
## Sphericity correction method: GG
```

ANOVA revealed main effects of trial type (a CC effect: faster RTs to Repeated than to Random configurations), target depth (faster RTs to far targets compared to near targets), and epoch (RTs decreased across epochs). The trial type by target depth interaction was significant, suggesting that the CC effect was greater in the case of configurations that had far targets compared to near targets. The trial type by epoch interaction was significant, indicating that RTs decreased more for repeated configurations compared to random configurations. The target depth by epoch interaction was also significant, indicating that RTs decreased more for configurations with far targets compared to those for near targets. The three way interaction was not significant.