165032_Sternberg_singleNEUROIMAGING.rnw

compiled November 27, 2018

This file summarizes 165032's behavioral performance on the DMCC Sternberg task, NEUROIMAGING version.

Quality Control: expected stimuli and responses?

The first block of code reads in the eprime output files (e-recovery or .csv), and then checks whether the expected number and types of trials was present in each run and block. Unless a run was known to end early, any error messages printed below should be investigated. NOTE: if you have more than two runs you will need to update this code.

This checks if for NN trials the probe word was not in the words of this trial or the previous; for NP trials the probe word was in the current trial but not the previous; for RN trials the probe word was in the previous trials but not the current.

```
## [1] "was there an error with the NN, NP, or RN trial words? FALSE"
```

This code checks if the number of trials in each run is correct (e.g., 9 NP list length 5 in baseline run 2).

```
## [1] "was there an error with the number of trials? FALSE"
```

This code checks if the expected words were presented.

```
## [1] "was there an error with the presented words? FALSE"
```

These plots show the time and type of every trial (blues and greens) and response (red and pink); black tick marks indicate correct trials. The trial types and responses should be random, and errors should be approximately equal across the runs within each session (check if a participant appears to have stopped responding or suddenly increased in errors). Proactive should have list lengths of 2, 3, 4, and 5; Baseline and Reactive should have list lengths of 5, 6, 7, and 8.

Sternberg baseline, 165032

Sternberg proactive, 165032


Sternberg reactive, 165032
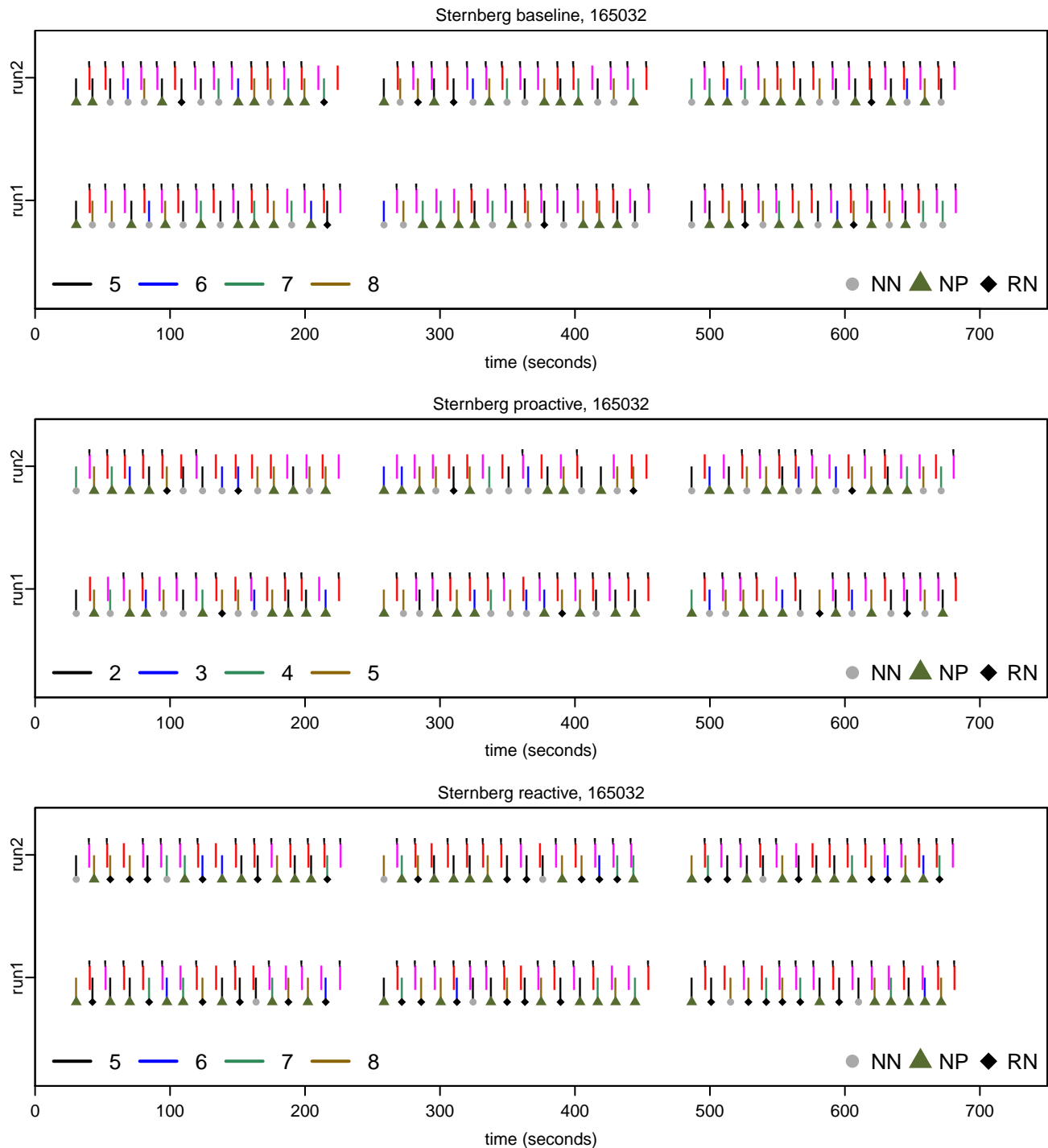
Single-subject statistics for 165032

We hope that the NN trials (blue) will have the lowest error rate, and that the RN (green) trials will be slower (bigger RT) than NN and NP trials. The error rate might be higher and RT slower with longer list lengths.

Robust statistics for RT? TRUE (Robust statistics never used for ERR, since typically very few errors.)
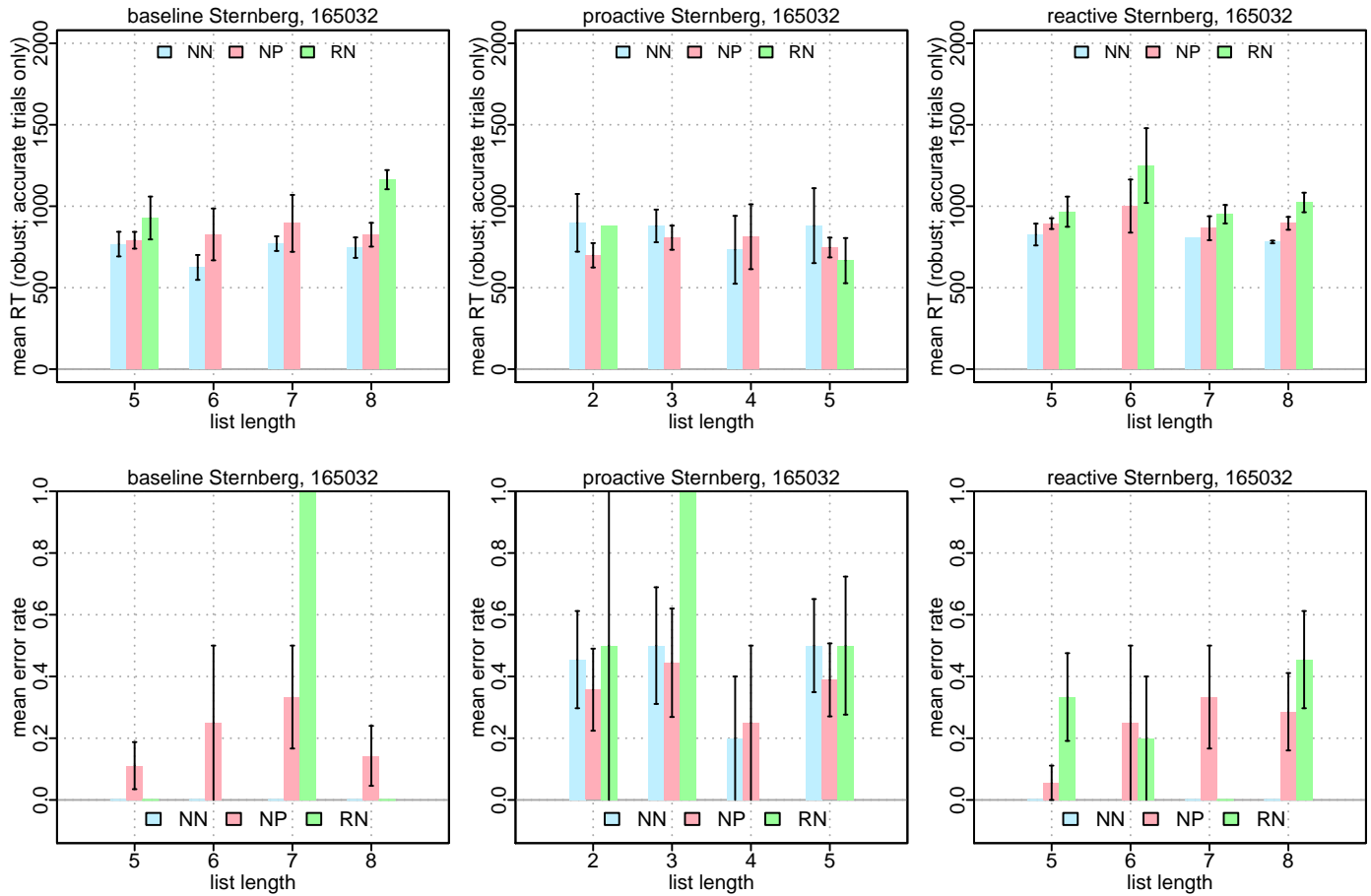
The following figures have the same means and SEMs as in the above barplots, rearranged to facilitate across-session comparisons.
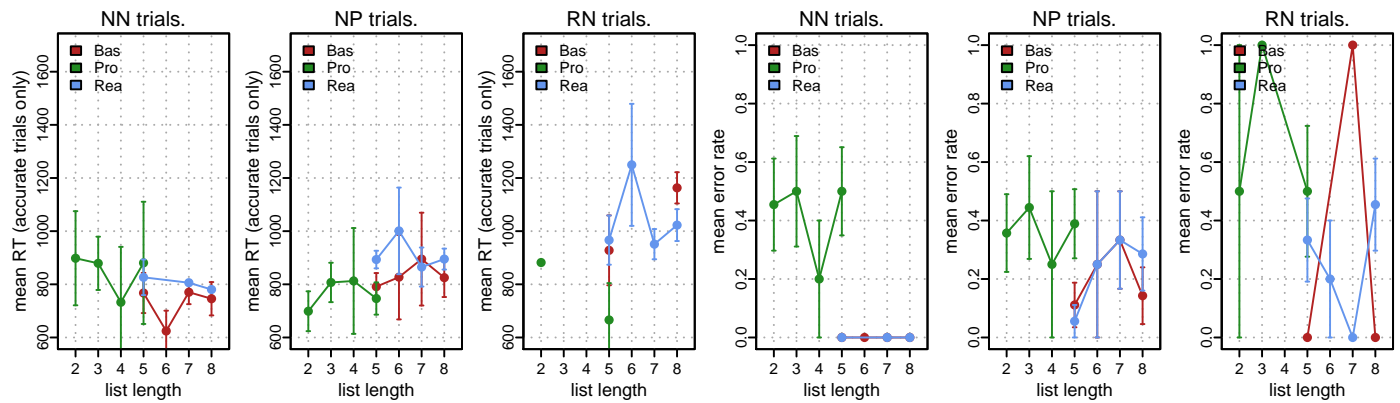
```
##        session trial.type list.len num.trials    ERR.mean   ACC.mean     ACC.sem    RT.mean
## 1    baseline         NN        5         12 0.00000000  1.0000000  0.00000000   767.4000
## 2    baseline         NN        6          5 0.00000000  1.0000000  0.00000000   624.4000
## 3    baseline         NN        7          8 0.00000000  1.0000000  0.00000000   770.2500
## 4    baseline         NN        8         11 0.00000000  1.0000000  0.00000000   745.7778
## 5    baseline         NP        5         18 0.11111111  0.8888889  0.07622159   791.0714
## 6    baseline         NP        6          4 0.25000000  0.7500000  0.25000000   827.0000
## 7    baseline         NP        7          9 0.33333333  0.6666667  0.16666667   894.8333
## 8    baseline         NP        8         14 0.14285714  0.8571429  0.09705232   825.1000
## 9    baseline         RN        5          6 0.00000000  1.0000000  0.00000000   927.8333
## 10   baseline         RN        7          1 1.00000000  0.0000000          NA        NaN
## 11   baseline         RN        8          2 0.00000000  1.0000000  0.00000000  1163.0000
## 12  proactive         NN        2         11 0.45454545  0.5454545  0.15745916   898.1667
## 13  proactive         NN        3          8 0.50000000  0.5000000  0.18898224   879.0000
## 14  proactive         NN        4          5 0.20000000  0.8000000  0.20000000   732.5000
## 15  proactive         NN        5         12 0.50000000  0.5000000  0.15075567   880.6667
## 16  proactive         NP        2         14 0.35714286  0.6428571  0.13289436   698.7778
## 17  proactive         NP        3          9 0.44444444  0.5555556  0.17568209   807.0000
## 18  proactive         NP        4          4 0.25000000  0.7500000  0.25000000   812.6667
## 19  proactive         NP        5         18 0.38888889  0.6111111  0.11823564   746.5556
## 20  proactive         RN        2          2 0.50000000  0.5000000  0.50000000   882.0000
## 21  proactive         RN        3          1 1.00000000  0.0000000          NA        NaN
## 22  proactive         RN        5          6 0.50000000  0.5000000  0.22360680   666.0000
## 23   reactive         NN        5          6 0.00000000  1.0000000  0.00000000   826.3333
## 24   reactive         NN        7          1 0.00000000  1.0000000          NA   806.0000
## 25   reactive         NN        8          2 0.00000000  1.0000000  0.00000000   780.5000
## 26   reactive         NP        5         18 0.05555556  0.9444444  0.05555556   893.2667
## 27   reactive         NP        6          4 0.25000000  0.7500000  0.25000000  1001.0000
## 28   reactive         NP        7          9 0.33333333  0.6666667  0.16666667   865.0000
## 29   reactive         NP        8         14 0.28571429  0.7142857  0.12529400   895.0000
## 30   reactive         RN        5         12 0.33333333  0.6666667  0.14213381   966.3750
## 31   reactive         RN        6          5 0.20000000  0.8000000  0.20000000  1249.5000
## 32   reactive         RN        7          8 0.00000000  1.0000000  0.00000000   951.1250
## 33   reactive         RN        8         11 0.45454545  0.5454545  0.15745916  1022.8333
```

Sternberg derived measures for 165032

Calculated from the mean RT and error rates in the above table.

```
## [1] "Critical Trial, baseline NN RT: 767.4 ERR: 0 IES: 767.4"
## [1] "Critical Trial, baseline NP RT: 791.071 ERR: 0.111 IES: 889.955"
## [1] "Critical Trial, baseline RN RT: 927.833 ERR: 0 IES: 927.833"
## [1] "Critical Trial, proactive NN RT: 880.667 ERR: 0.5 IES: 1761.333"
## [1] "Critical Trial, proactive NP RT: 746.556 ERR: 0.389 IES: 1221.636"
## [1] "Critical Trial, proactive RN RT: 666 ERR: 0.5 IES: 1332"
## [1] "Critical Trial, reactive NN RT: 826.333 ERR: 0 IES: 826.333"
## [1] "Critical Trial, reactive NP RT: 893.267 ERR: 0.056 IES: 945.812"
## [1] "Critical Trial, reactive RN RT: 966.375 ERR: 0.333 IES: 1449.562"
## [1]
## [1] "Recency Effect, baseline RT: 160.433 ERR: 0 IES: 160.433"
## [1] "Recency Effect, proactive RT: -214.667 ERR: 0 IES: -429.333"
## [1] "Recency Effect, reactive RT: 140.042 ERR: 0.333 IES: 623.229"
```