ABCD Analysis

An Nguyen

October 9, 2017

Compute RT for VSL

t.test for rt slope

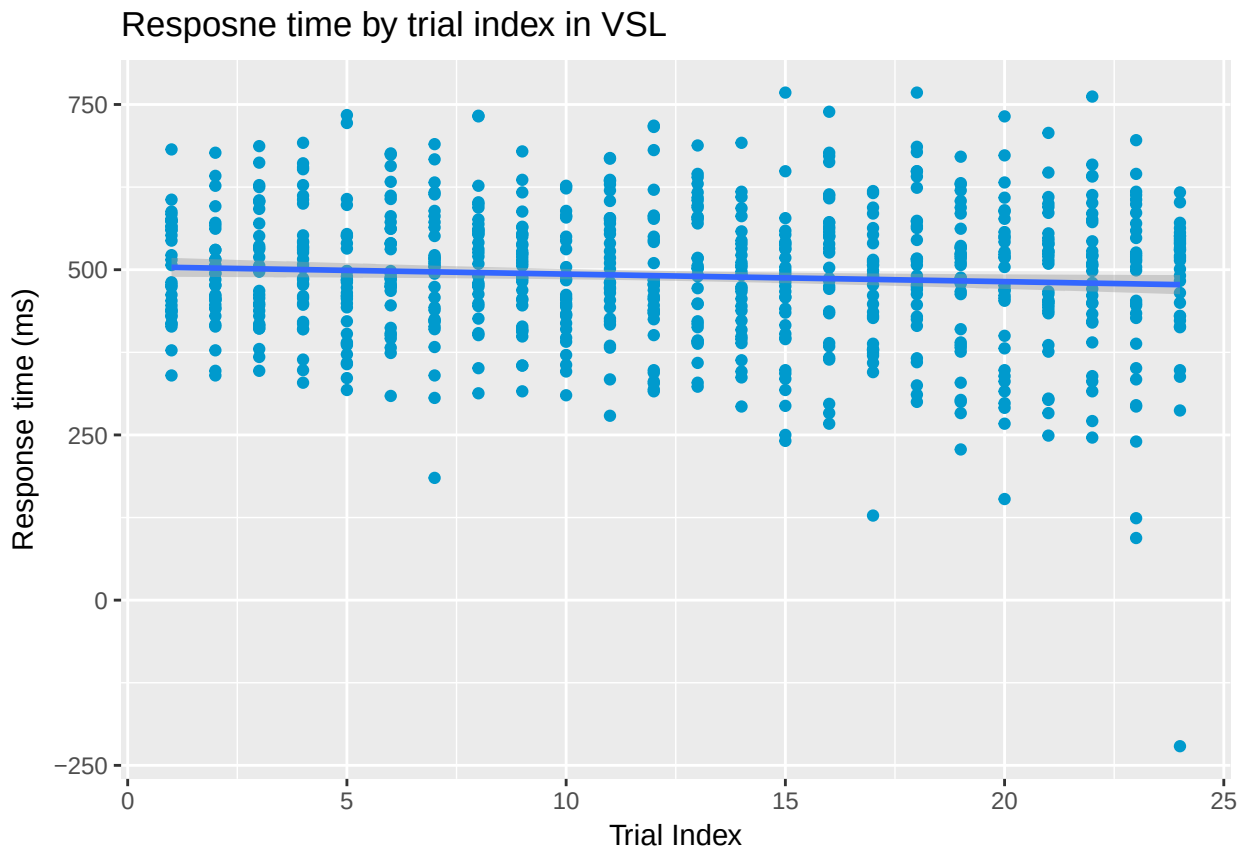
```
##
##  One Sample t-test
##
## data:  subj_table$rt_slope[subj_table$group == "DD"]
## t = -1.3523, df = 11, p-value = 0.1017
## alternative hypothesis: true mean is less than 0
## 95 percent confidence interval:
##       -Inf 0.4842415
## sample estimates:
## mean of x
## -1.476167
##
##
##  One Sample t-test
##
## data:  subj_table$rt_slope[subj_table$group == "TYP"]
## t = -1.1432, df = 20, p-value = 0.1332
## alternative hypothesis: true mean is less than 0
## 95 percent confidence interval:
##       -Inf 0.3877671
## sample estimates:
## mean of x
## -0.762381
```

Linear regression model

```
##
## Call:
## lm(formula = rt_col ~ reindex * group_cond, data = fam_trial_vsl)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -704.37  -62.71    1.69   67.26  290.78
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)             509.7167    13.0320  39.113   <2e-16 ***
## reindex                  -1.8052     0.9215  -1.959   0.0505 .
## group_condTYP            -7.7527    16.2512  -0.477   0.6335
## reindex:group_condTYP     1.0303     1.1463   0.899   0.3690
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 105.1 on 768 degrees of freedom
## Multiple R-squared:  0.00713,    Adjusted R-squared:  0.003251
## F-statistic: 1.838 on 3 and 768 DF,  p-value: 0.1387
```

Plot of VSL



Compute RT for TSL

t.test for RT Slope

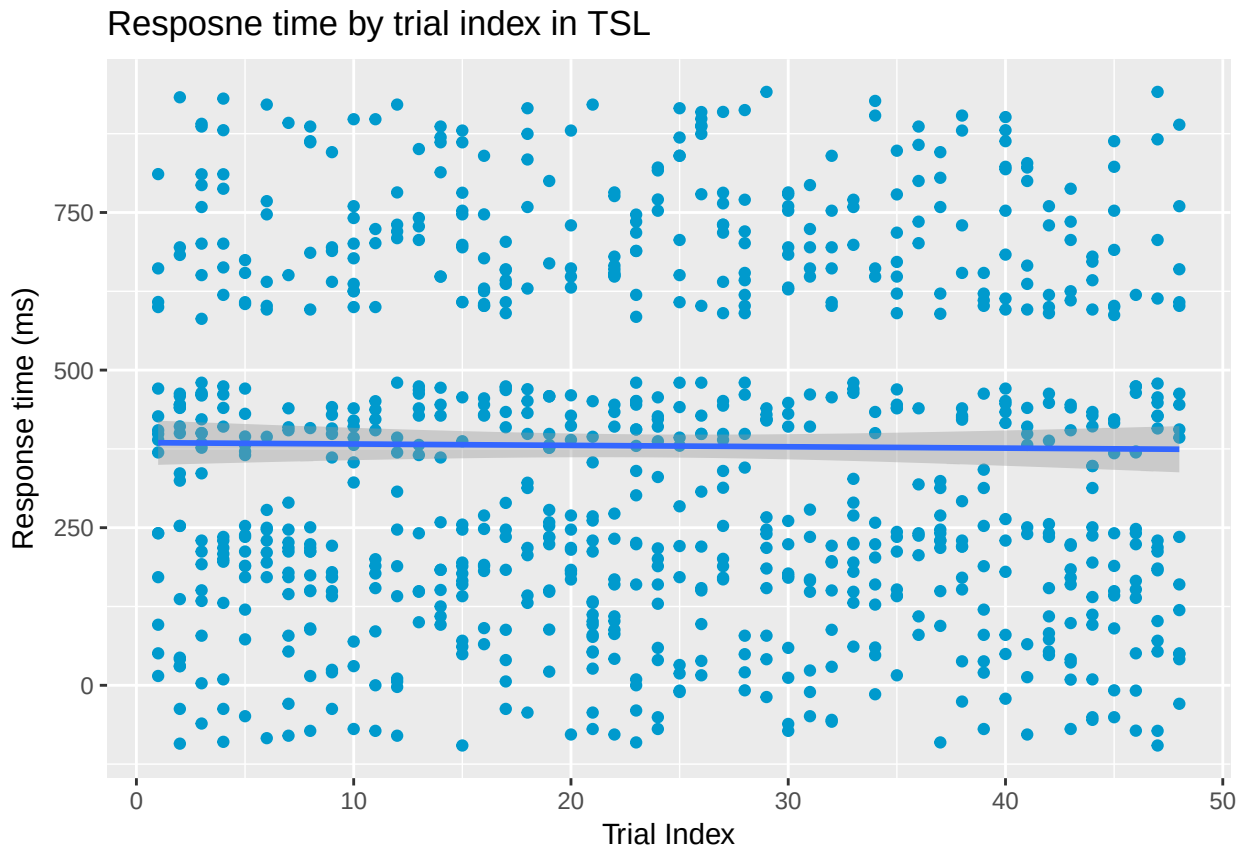
```
##
##  One Sample t-test
##
## data:  subj_table$rt_slope[subj_table$group == "DD"]
## t = -0.6498, df = 10, p-value = 0.2652
## alternative hypothesis: true mean is less than 0
## 95 percent confidence interval:
##      -Inf 2.137037
## sample estimates:
```

```
## mean of x
## -1.194364
##
##
##  One Sample t-test
##
## data:  subj_table$rt_slope[subj_table$group == "TYP"]
## t = 1.1526, df = 21, p-value = 0.869
## alternative hypothesis: true mean is less than 0
## 95 percent confidence interval:
##      -Inf 5.211346
## sample estimates:
## mean of x
##  2.090409
```

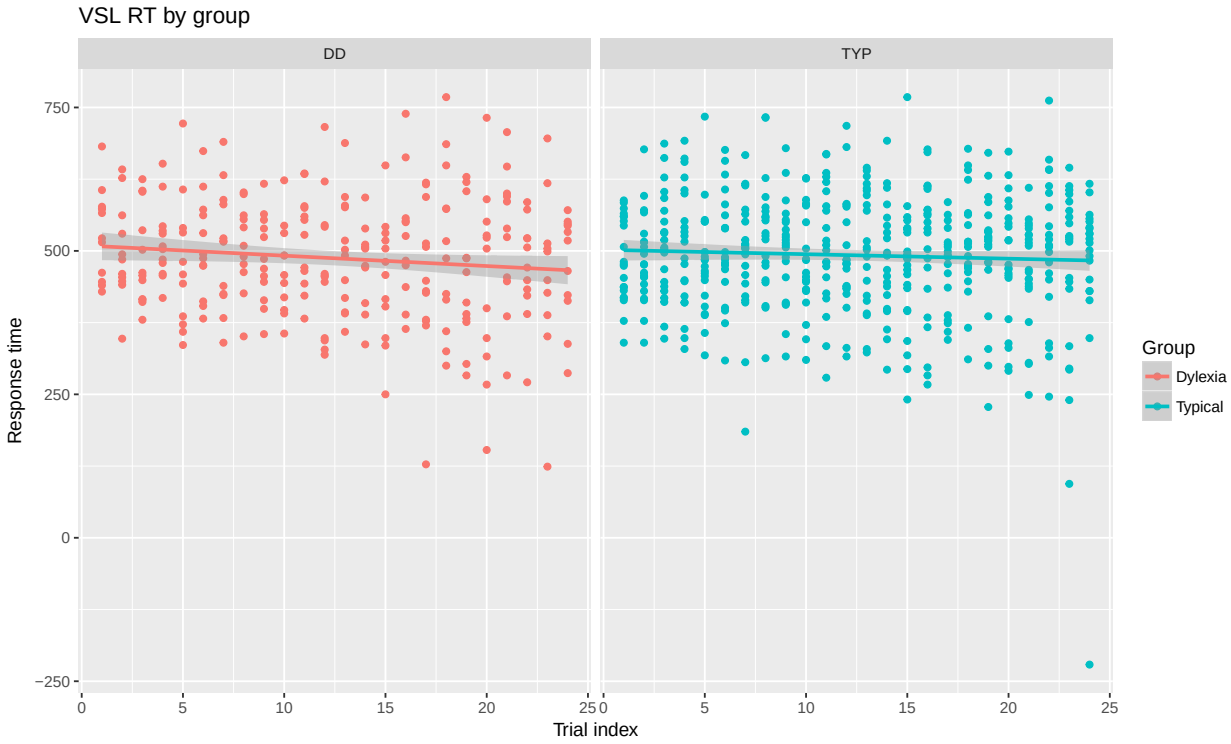
Linear regression model

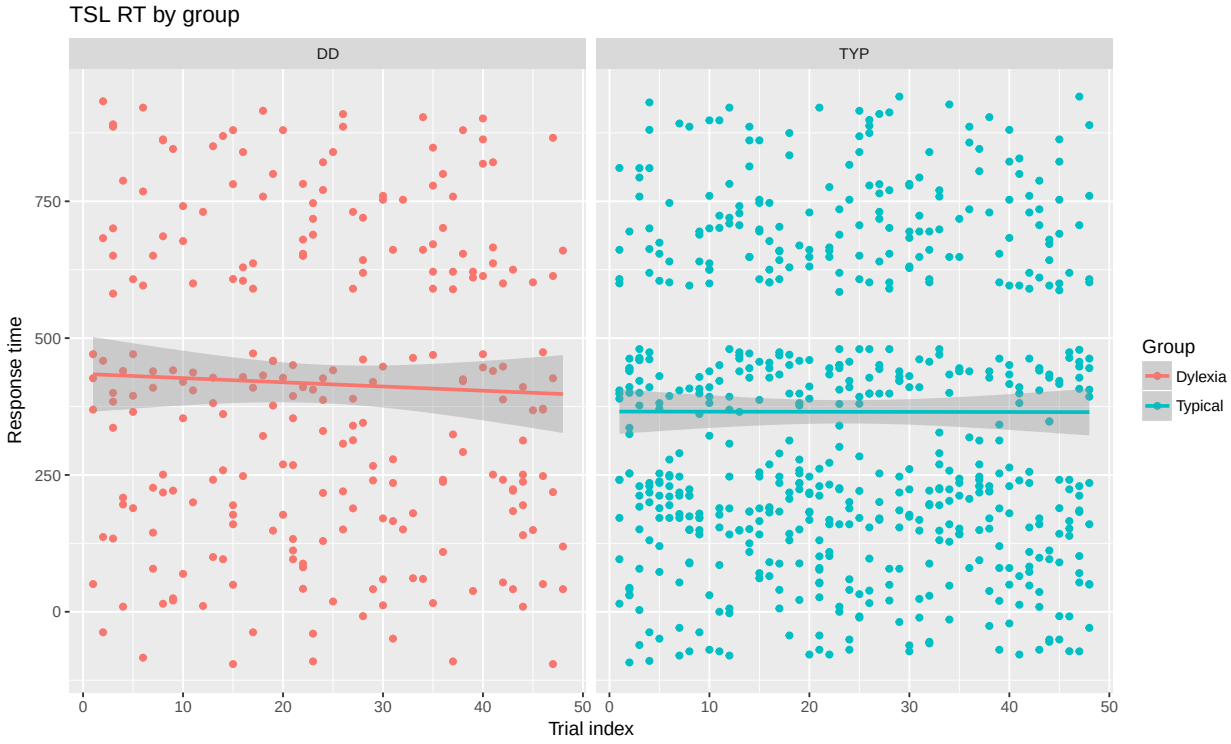
```
##
## Call:
## lm(formula = rt_col ~ reindex * group_cond, data = fam_trial_tsl)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -518.66 -210.79  -15.78  236.54  576.48
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           434.6617    35.0147  12.414   <2e-16 ***
## reindex                -0.7674     1.2710  -0.604   0.5461
## group_condTYP         -68.7974    41.1252  -1.673   0.0947 .
## reindex:group_condTYP   0.7460     1.4930   0.500   0.6174
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 270.8 on 850 degrees of freedom
## Multiple R-squared:  0.007584,   Adjusted R-squared:  0.004081
## F-statistic: 2.165 on 3 and 850 DF,  p-value: 0.09067
```

Plot of TSL


Resposne time by trial index in TSL
Response time (ms)
750
500
250
0
0
10
20
30
40
50
Trial Index

Plot by group





Compute accuracy

```
##
##  One Sample t-test
##
## data:  DD_acc_vsl
## t = 3.9753, df = 11, p-value = 0.001088
## alternative hypothesis: true mean is greater than 0.5
## 95 percent confidence interval:
##  0.61851     Inf
## sample estimates:
## mean of x
## 0.7161667
```

```
##
##  One Sample t-test
##
## data:  DD_acc_tsl
## t = 1.213, df = 10, p-value = 0.1265
## alternative hypothesis: true mean is greater than 0.5
## 95 percent confidence interval:
##  0.4831964       Inf
## sample estimates:
## mean of x
##     0.534
```

```
##
##  One Sample t-test
##
## data:  TYP_acc_vsl
## t = 3.4156, df = 20, p-value = 0.00137
## alternative hypothesis: true mean is greater than 0.5
## 95 percent confidence interval:
##  0.5884482       Inf
## sample estimates:
## mean of x
## 0.6786667
```

```
##
##  One Sample t-test
##
## data:  TYP_acc_tsl
## t = 6.3424, df = 21, p-value = 1.371e-06
## alternative hypothesis: true mean is greater than 0.5
## 95 percent confidence interval:
##  0.6252354       Inf
## sample estimates:
## mean of x
## 0.6718636
```

A t-test to compare between Dylexia and Typical group

In tsl

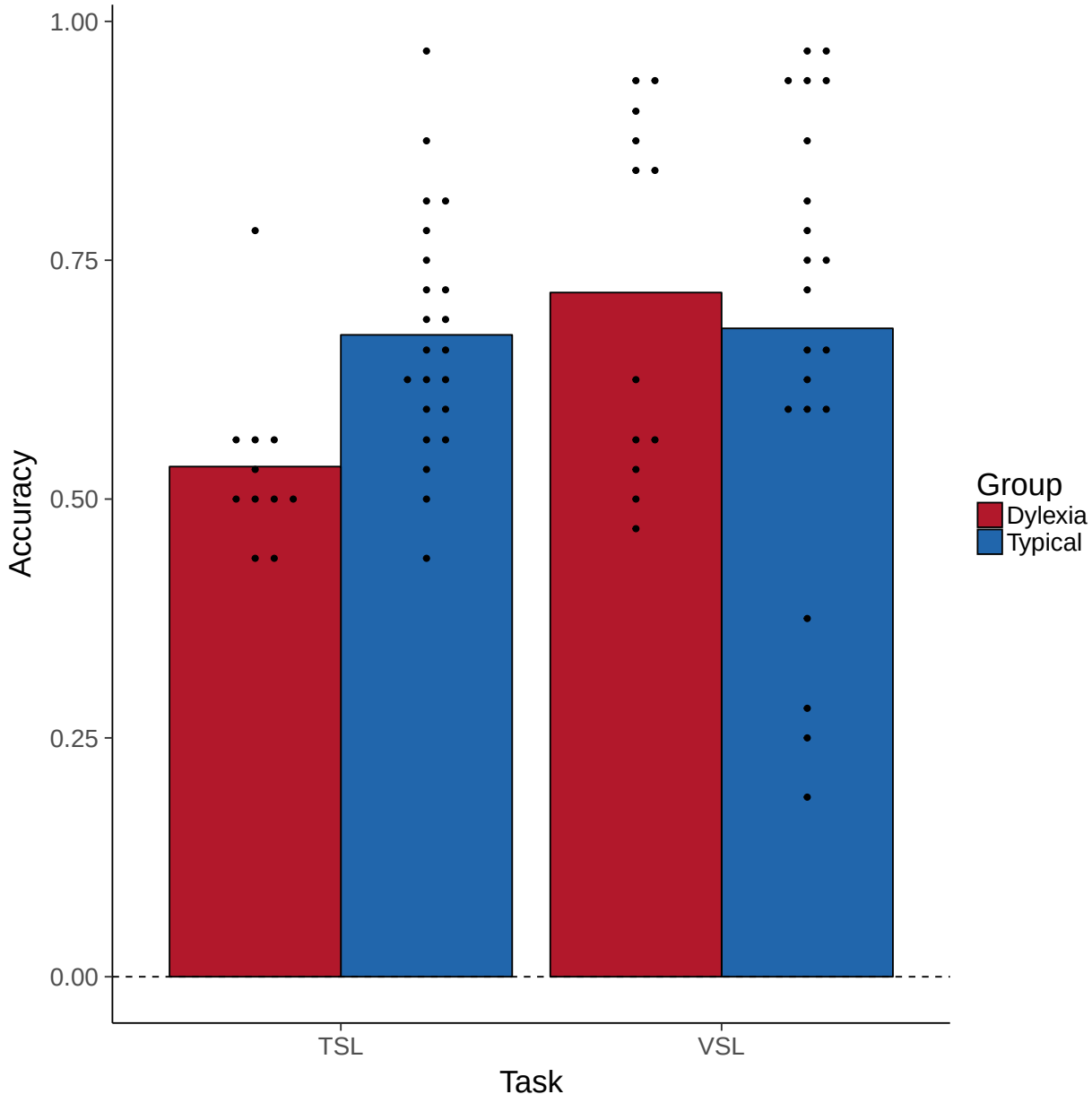
```
##
##  Welch Two Sample t-test
##
## data:  DD_acc_tsl and TYP_acc_tsl
## t = -3.5362, df = 26.432, p-value = 0.001521
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.21793862 -0.05778865
## sample estimates:
## mean of x mean of y
## 0.5340000 0.6718636
```

In vsl

```
##
##  Welch Two Sample t-test
##
## data:  DD_acc_vsl and TYP_acc_vsl
## t = 0.497, df = 27.721, p-value = 0.6231
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.1171292  0.1921292
## sample estimates:
## mean of x mean of y
## 0.7161667 0.6786667
```

```
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
```

```
## [1] FALSE
## [1] TRUE
## [1] FALSE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] FALSE
## [1] TRUE
## [1] FALSE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
## [1] TRUE
```


1.00
0.75
0.50
0.25
0.00
Accuracy
TSL
VSL
Task
Group
Dylexia
Typical