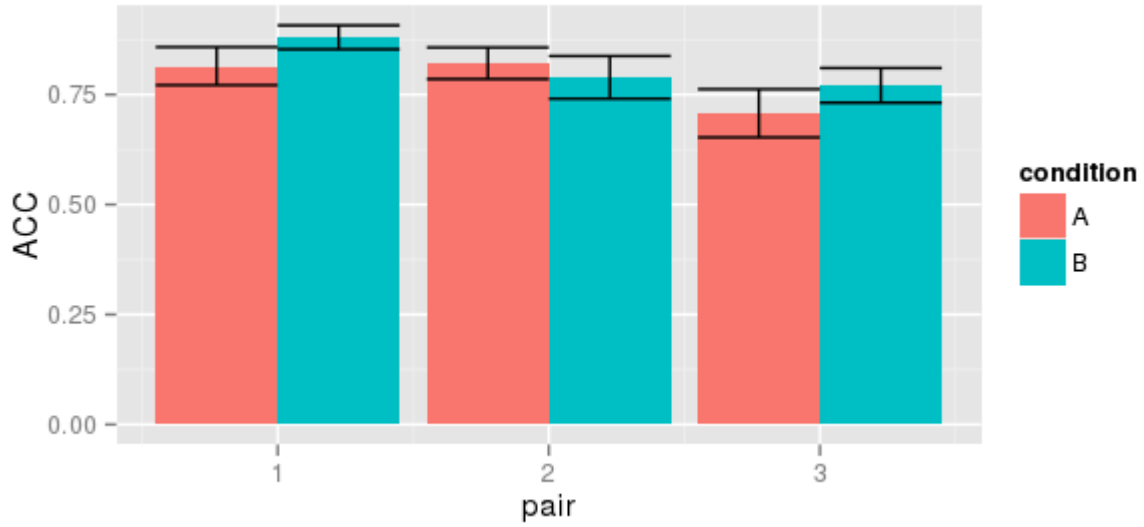
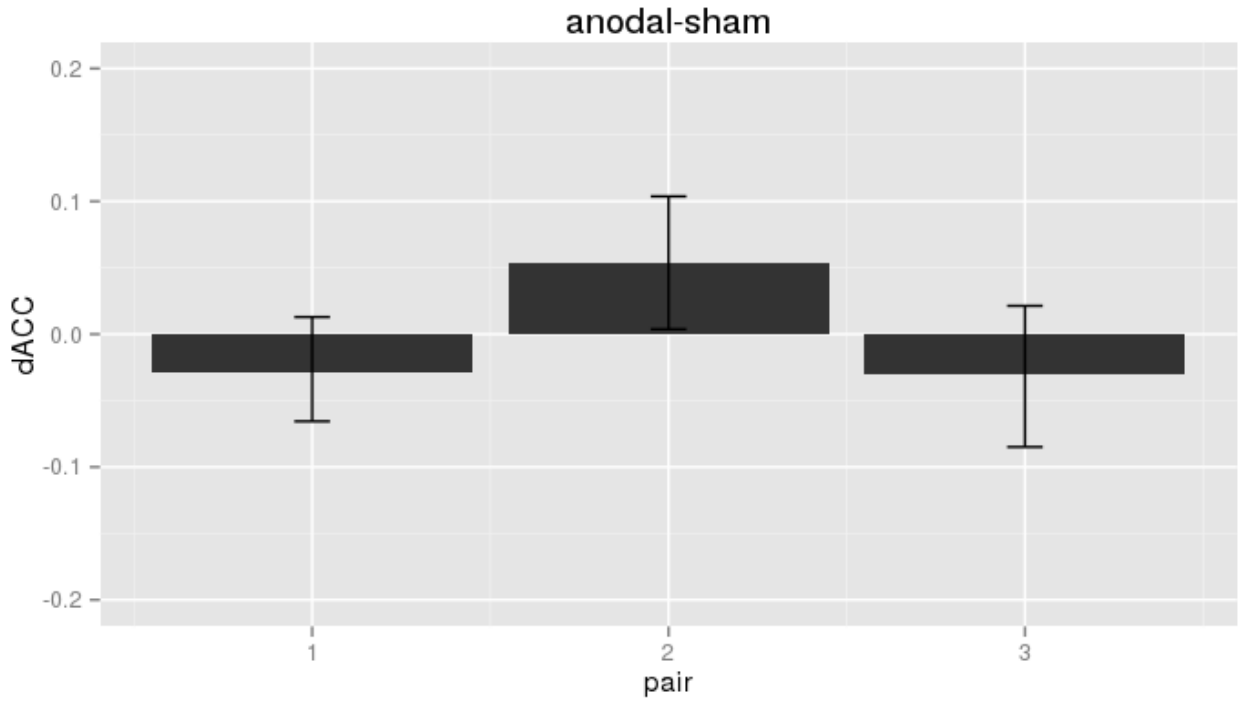
Cortex-data (script 01)
A=anodal
B=sham

Accuracy as function of pair and stimulation condition



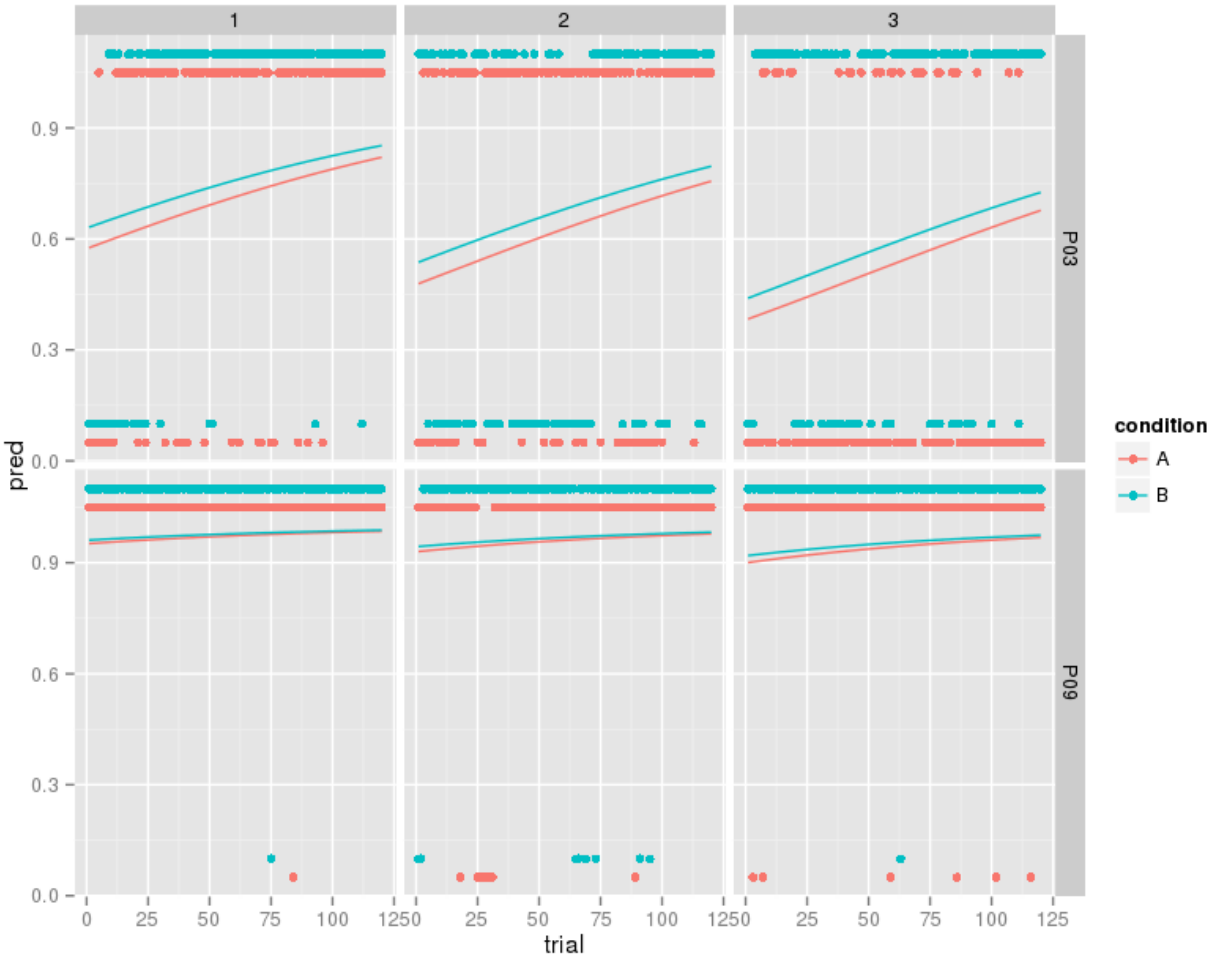
repeated measures, so more informative to look at means of differences (error bars are confidence limits)



Logistic regression (we did not include this but should have):

```
Formula: ACC ~ scale(trial) + as.numeric(pair) + condition + (1 | subj)

Fixed effects:
                   Estimate Std. Error z value Pr(>|z|)
(Intercept)        2.33403    0.24722   9.441  < 2e-16 ***
scale(trial)       0.35311    0.02565  13.767  < 2e-16 ***
as.numeric(pair) -0.39035    0.03131 -12.468  < 2e-16 ***
conditionB         0.23278    0.05044   4.615 3.93e-06 ***
```

all the usual suspects: later trials are more accurate (learning), higher pair number associated with lower accuracy (difficulty).
In addition, sham has a positive effect (i.e., anodal performs worse).
Here an illustrative plot with data from two random subjects and model fit:

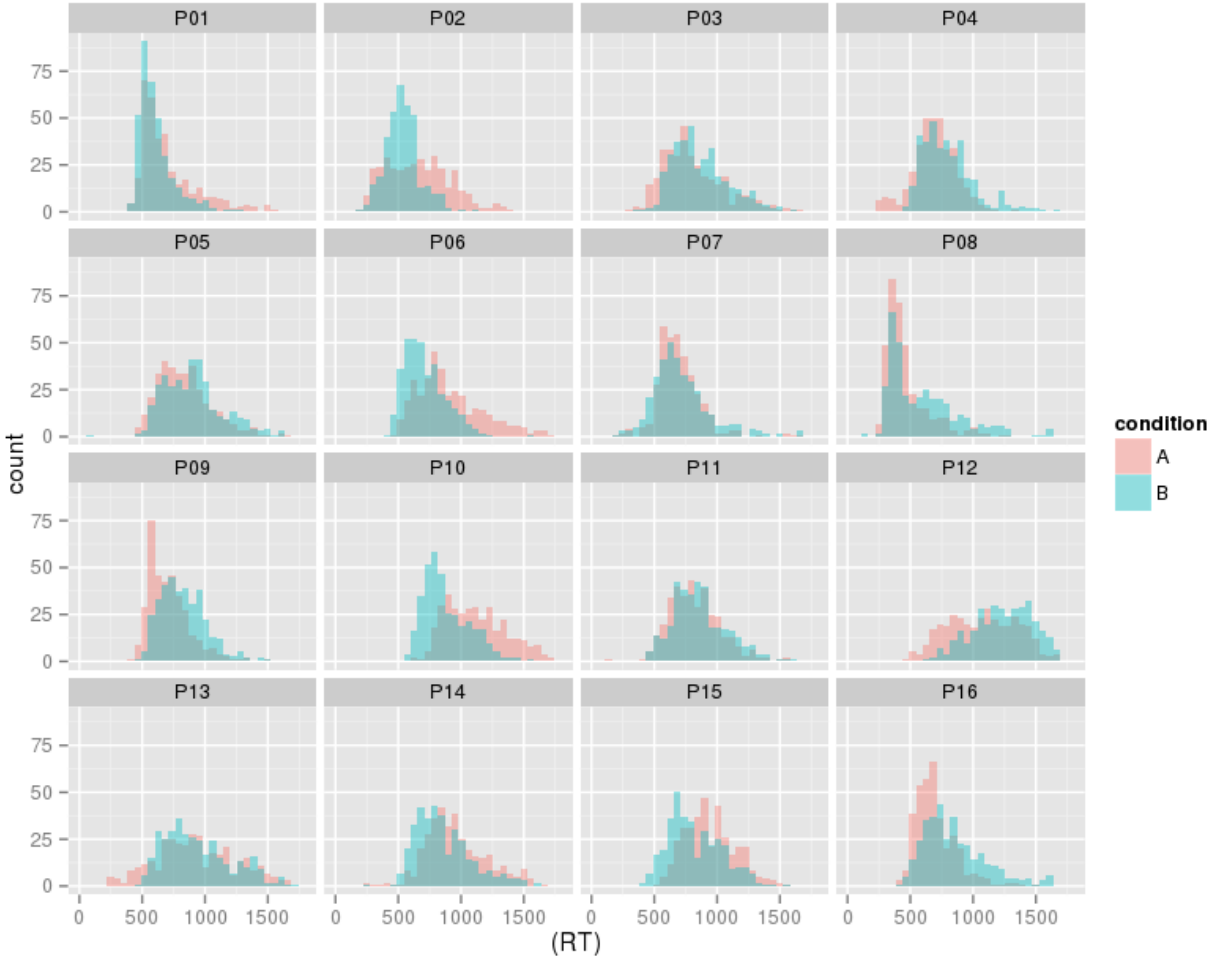


Reaction times do not appear to be influenced by stimulation (at least not the mean):

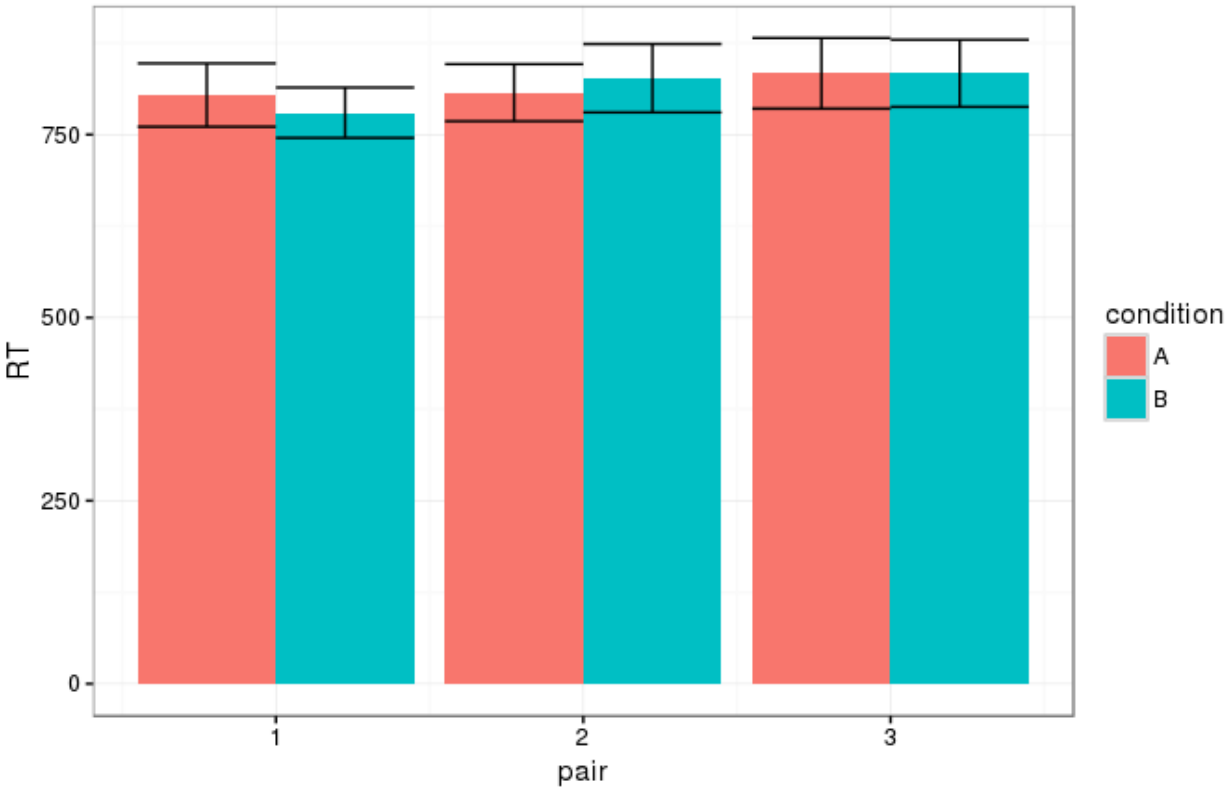
```
Formula: (RT) ~ scale(trial) + as.numeric(pair) + condition + (1 | subj)

Fixed effects:

                    Estimate Std. Error        df t value Pr(>|t|)
(Intercept)         773.225     38.655    16.000  20.003 1.53e-12 ***
scale(trial)        -69.966      2.039 11380.000 -34.322  < 2e-16 ***
as.numeric(pair)     20.705      2.496 11380.000   8.295  < 2e-16 ***
conditionB           -1.711      4.077 11380.000  -0.420    0.675
```

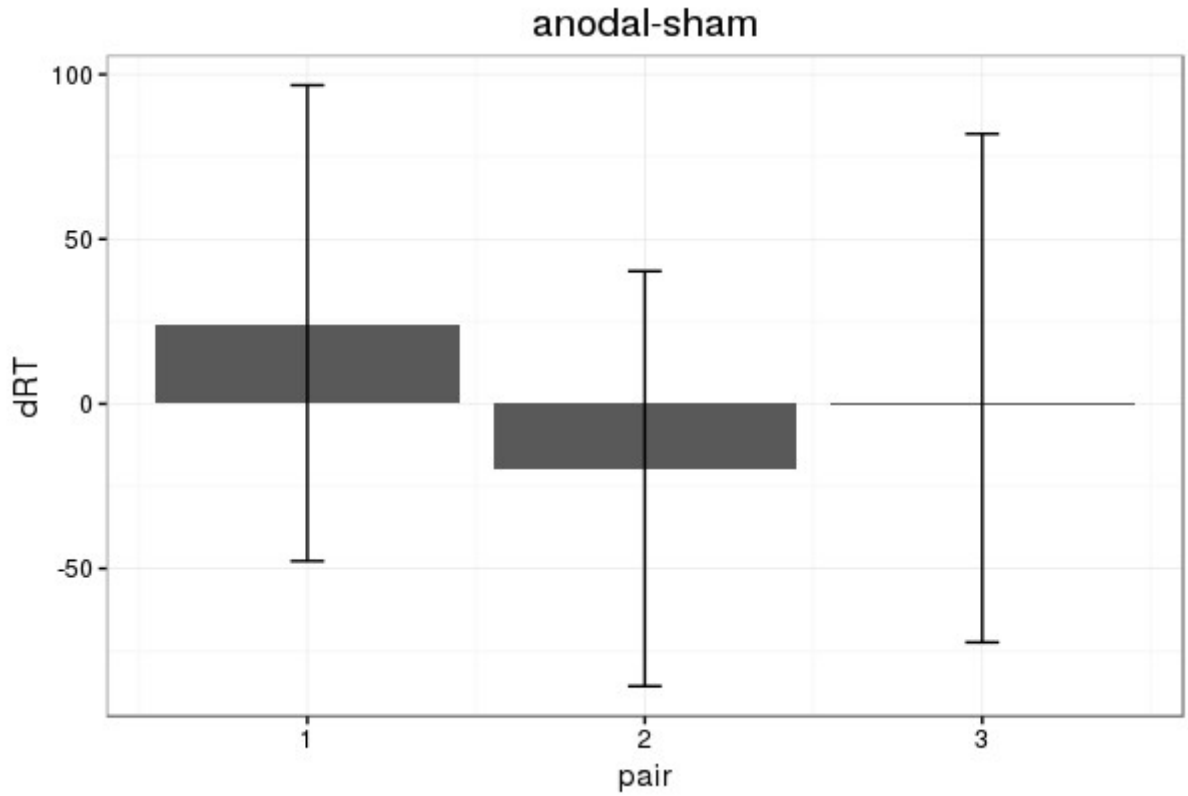
but effect of learning and difficulty still there.

Possible that anodal stimulation results in more variable Rts, though:



RTs per pair





Formula: (RT) ~ scale(trial) + as.factor(pair) * condition + (1 | subj)

Fixed effects:

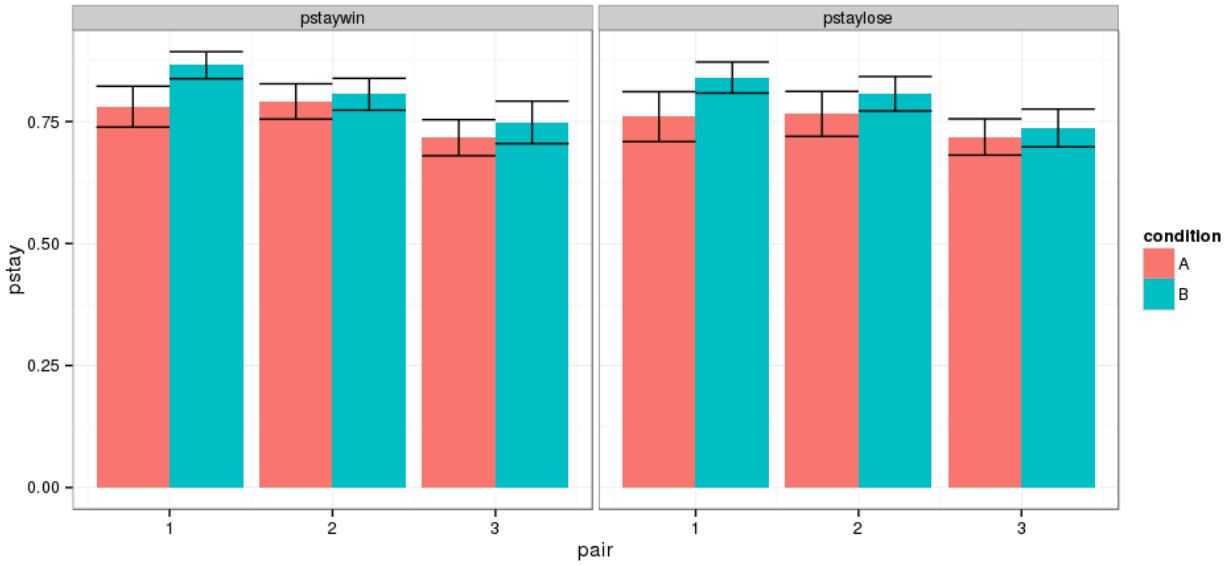
	Estimate	Std. Error	df	t value	Pr(>|t|)	
(Intercept)	803.842	38.555	15.000	20.849	1.01e-12	***
scale(trial)	-69.977	2.037	11364.000	-34.352	< 2e-16	***
as.factor(pair)2	3.187	7.061	11364.000	0.451	0.651731	

```
as.factor(pair)3               29.260      7.060 11364.000   4.144 3.43e-05 ***
conditionB                    -24.154      7.056 11364.000  -3.423 0.000621 ***
as.factor(pair)2:conditionB    43.166      9.980 11364.000   4.325 1.54e-05 ***
as.factor(pair)3:conditionB    24.200      9.977 11364.000   2.425 0.015305 *
```

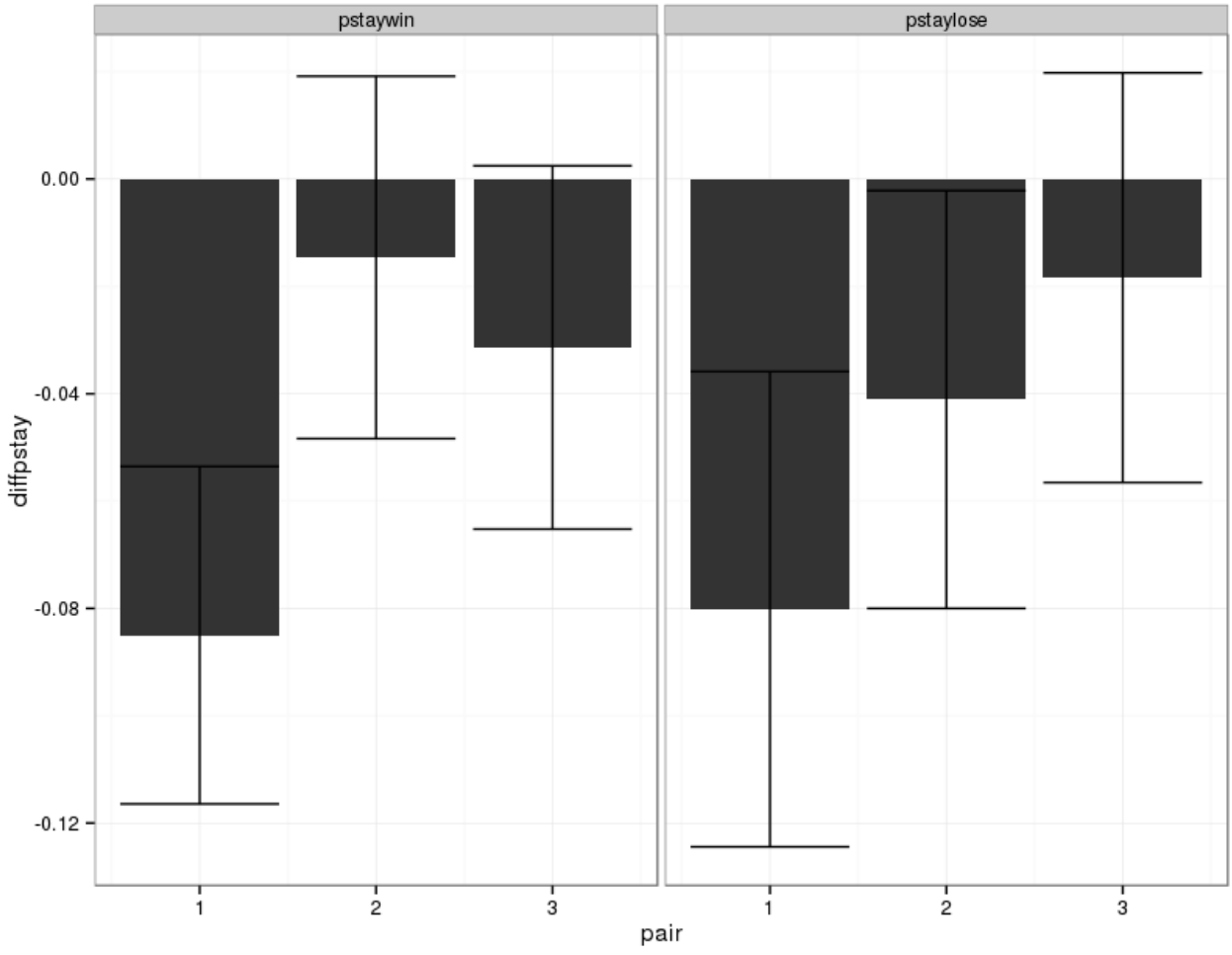
Interestingly, pair 2 is positively influenced by tDCS both in terms of ACC (more) and RT (faster) while the other pairs are impaired (hence the main effect).

P(stay|win) and p(stay|lose)

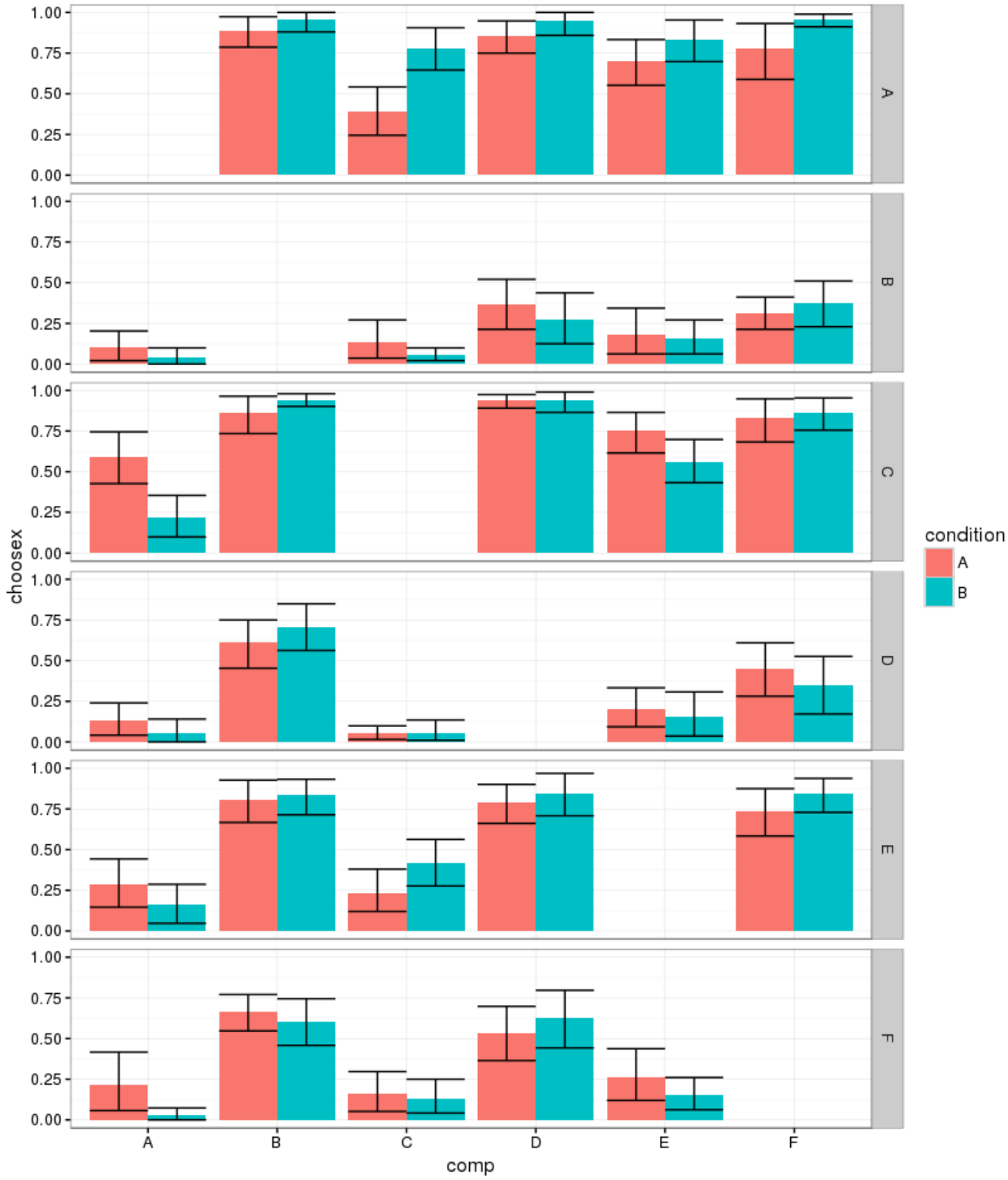
this reproduces table 2 from the paper (mean+SEM):

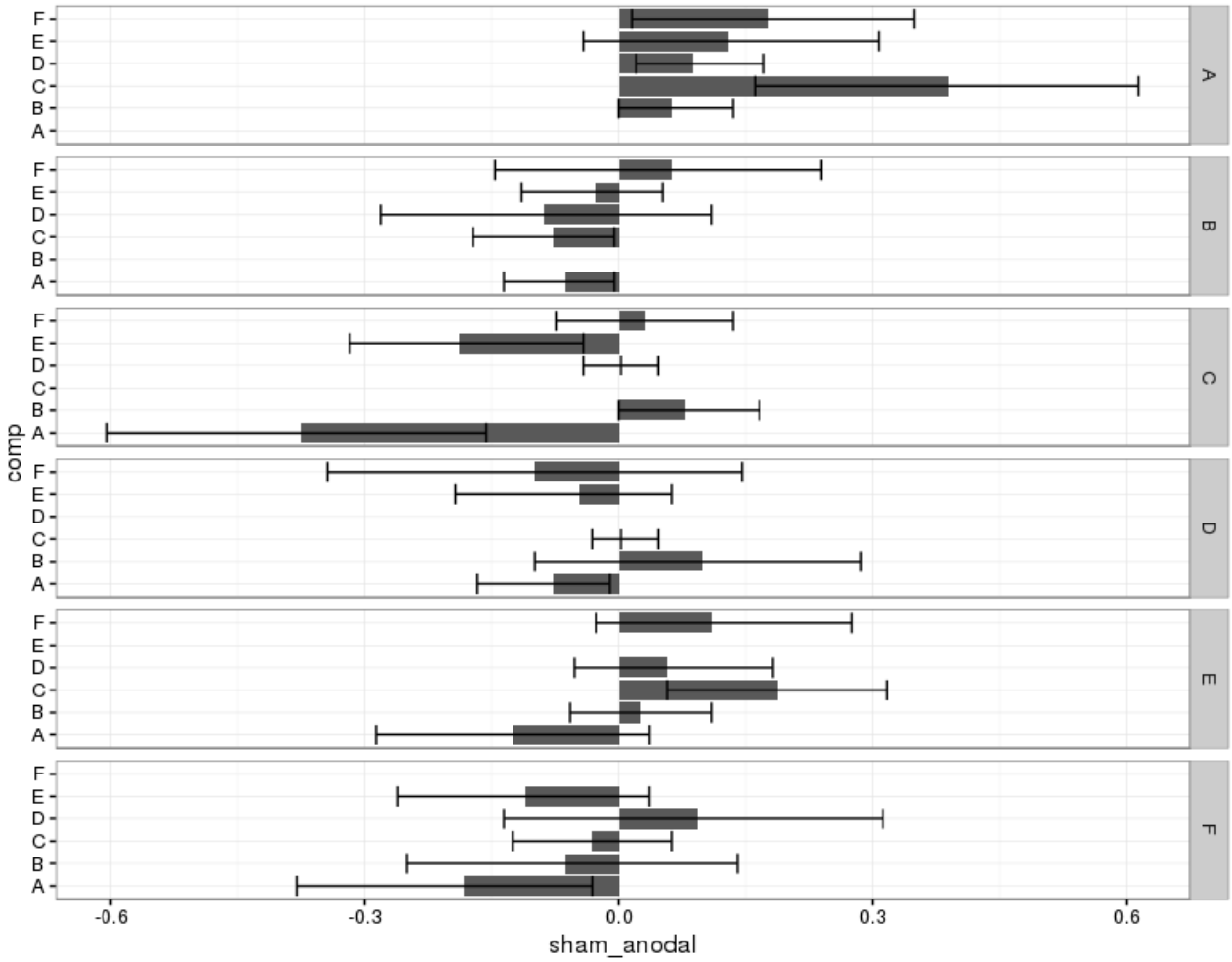


and the corresponding plot of differences (confidence limits), anodal-sham



Transfer phase




comp
F
E
D
C
B
A
A
B
C
D
E
F
-0.6
-0.3
0.0
0.3
0.6
sham_anodal