Analyses in Progress or Disregarded

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Overview

This document contains any other tests conducted that were disregarded. I put them here, just in case the need for them ever arises in the future.

Relate to: AnalysesSupp - Justification for pooling data across participants from all groups

4) Unsure tests/ Work in progress

Lastly, we conducted some extra tests to investigate the dataset further. First, if a relationship is considered spurious, one remedy would be to use a more robust correlation test, such that outliers will not affect the results. The Winsorized correlation test sets the values at the tails to a certain percentile value (20% is the default). We conducted the Winsorized correlation test for proprioception and aftereffects.

```
getRAEPropWinCorr()
```

```
## Call:
## wincor(x = dat$reachdeviation, y = dat$prop_recal)
##
## Robust correlation coefficient: -0.5343
## Test statistic: -5.9295
## p-value: 0
```

We found that the correlation becomes stronger (r = -0.53, p = 0). We did the same test for predictions and aftereffects.

```
getRAEPredWinCorr()
```

```
## Call:
## wincor(x = dat$reachdeviation, y = dat$pred_update)
##
## Robust correlation coefficient: -0.3572
## Test statistic: -3.5872
## p-value: 0.00074
```

We found that the correlation also becomes stronger (r = -0.36, p = 0.0007).

As a last test, we also tried to incorporate group in our model. Dummy coding is automatically implented within R (using model.matrix will reveal contrasts created: res <- model.matrix(~group, data = newdf)). Given that an ANOVA is a special case of regression, we can just pull out the typical Anova table. Note that we used the Anova() function from the car package, as this automatically takes care of unbalanced designs.

```
getPropPredGroupGLM()
```

```
## Anova Table (Type II tests)
##
## Response: RAE
##              Sum Sq Df F value    Pr(>F)
## prop_recal   242.47  1  18.273 5.029e-05 ***
## pred_update  143.94  1  10.848  0.001449 **
## group        740.56  3  18.603 2.416e-09 ***
## Residuals   1114.63 84
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Call:
## lm(formula = RAE ~ prop_recal + pred_update + group, data = newdf)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -8.3023 -2.5615 -0.3836  2.8469  8.0510
##
## Coefficients:
##                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)      9.60367    0.93417  10.280  < 2e-16 ***
## prop_recal      -0.30488    0.07132  -4.275 5.03e-05 ***
## pred_update     -0.41970    0.12743  -3.294  0.00145 **
## group30explicit -1.95543    1.15397  -1.695  0.09387 .
## groupcursorjump -3.25038    1.15409  -2.816  0.00605 **
## grouphandview   -7.80832    1.09067  -7.159 2.84e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.643 on 84 degrees of freedom
## Multiple R-squared:  0.575,  Adjusted R-squared:  0.5497
## F-statistic: 22.73 on 5 and 84 DF,  p-value: 2.353e-14
```

We see that proprioception, predictions, and group are all significant, confirming the presence of a group effect. The second output table allows for the interpretation of contrasts for the group variable. Only the Hand View and Cursor Jump group are significant at alpha level = 0.05.