Preliminary\_Analysis

Jennifer Ruttle

January 12, 2020

## ANOVA on Component Values

ANOVAanalysis(data1)

## $ANOVA  
## Effect DFn DFd F  
## 2 Object\_Type 1 22 5.0864923  
## 3 Component\_Value 1 22 898.2622041  
## 5 ROI\_Location 3 66 0.3441653  
## 4 Object\_Type:Component\_Value 1 22 3.8181884  
## 6 Object\_Type:ROI\_Location 3 66 2.7846548  
## 7 Component\_Value:ROI\_Location 3 66 4.1917153  
## 8 Object\_Type:Component\_Value:ROI\_Location 3 66 1.6535574  
## p p<.05 ges  
## 2 3.439722e-02 \* 0.040623388  
## 3 2.478731e-19 \* 0.885264514  
## 5 7.934597e-01 0.003159037  
## 4 6.352851e-02 0.031755189  
## 6 4.759481e-02 \* 0.024999871  
## 7 8.904045e-03 \* 0.074961125  
## 8 1.855503e-01 0.030976885  
##   
## $`Mauchly's Test for Sphericity`  
## Effect W p p<.05  
## 5 ROI\_Location 0.4439005 4.890584e-03 \*  
## 6 Object\_Type:ROI\_Location 0.4439005 4.890584e-03 \*  
## 7 Component\_Value:ROI\_Location 0.2401863 1.863219e-05 \*  
## 8 Object\_Type:Component\_Value:ROI\_Location 0.2401863 1.863219e-05 \*  
##   
## $`Sphericity Corrections`  
## Effect GGe p[GG] p[GG]<.05  
## 5 ROI\_Location 0.7004067 0.72104912   
## 6 Object\_Type:ROI\_Location 0.7004067 0.06960568   
## 7 Component\_Value:ROI\_Location 0.5922106 0.02633327 \*  
## 8 Object\_Type:Component\_Value:ROI\_Location 0.5922106 0.20643947   
## HFe p[HF] p[HF]<.05  
## 5 0.7760620 0.74235320   
## 6 0.7760620 0.06321801   
## 7 0.6405549 0.02312608 \*  
## 8 0.6405549 0.20427332   
##   
## $aov  
##   
## Call:  
## aov(formula = formula(aov\_formula), data = data)  
##   
## Grand Mean: 0.1498282  
##   
## Stratum 1: ID  
##   
## Terms:  
## Object\_Type Residuals  
## Sum of Squares 0.416887 1.803112  
## Deg. of Freedom 1 22  
##   
## Residual standard error: 0.2862859  
## 7 out of 8 effects not estimable  
## Estimated effects are balanced  
##   
## Stratum 2: ID:Component\_Value  
##   
## Terms:  
## Component\_Value Object\_Type:Component\_Value Residuals  
## Sum of Squares 75.96380 0.32289 1.86049  
## Deg. of Freedom 1 1 22  
##   
## Residual standard error: 0.2908049  
## 6 out of 8 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 3: ID:ROI\_Location  
##   
## Terms:  
## ROI\_Location Object\_Type:ROI\_Location Residuals  
## Sum of Squares 0.0312004 0.2524437 1.9944163  
## Deg. of Freedom 3 3 66  
##   
## Residual standard error: 0.1738345  
## 6 out of 12 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 4: ID:Component\_Value:ROI\_Location  
##   
## Terms:  
## Component\_Value:ROI\_Location  
## Sum of Squares 0.797825  
## Deg. of Freedom 3  
## Object\_Type:Component\_Value:ROI\_Location Residuals  
## Sum of Squares 0.314728 4.187342  
## Deg. of Freedom 3 66  
##   
## Residual standard error: 0.2518821  
## Estimated effects may be unbalanced

#ANOVAanalysis1(data1)

## ANOVA on Sensitivity for only shape Sensitive voxels

ANOVAanalysis(data2)

## $ANOVA  
## Effect DFn DFd F p  
## 2 Object\_Type 1 22 5.9569040 2.317091e-02  
## 3 Component\_Value 1 22 1.1368296 2.978851e-01  
## 5 ROI\_Location 3 66 13.4065596 6.252173e-07  
## 4 Object\_Type:Component\_Value 1 22 0.7093256 4.087306e-01  
## 6 Object\_Type:ROI\_Location 3 66 0.3471527 7.913094e-01  
## 7 Component\_Value:ROI\_Location 3 66 0.9449679 4.240712e-01  
## 8 Object\_Type:Component\_Value:ROI\_Location 3 66 11.6339179 3.265741e-06  
## p<.05 ges  
## 2 \* 0.154123811  
## 3 0.003061898  
## 5 \* 0.105239592  
## 4 0.001912676  
## 6 0.003036371  
## 7 0.003195450  
## 8 \* 0.037968226  
##   
## $`Mauchly's Test for Sphericity`  
## Effect W p p<.05  
## 5 ROI\_Location 0.6333898 0.09232049   
## 6 Object\_Type:ROI\_Location 0.6333898 0.09232049   
## 7 Component\_Value:ROI\_Location 0.8496709 0.64262920   
## 8 Object\_Type:Component\_Value:ROI\_Location 0.8496709 0.64262920   
##   
## $`Sphericity Corrections`  
## Effect GGe p[GG]  
## 5 ROI\_Location 0.7936558 6.602108e-06  
## 6 Object\_Type:ROI\_Location 0.7936558 7.448319e-01  
## 7 Component\_Value:ROI\_Location 0.9108530 4.179768e-01  
## 8 Object\_Type:Component\_Value:ROI\_Location 0.9108530 7.847603e-06  
## p[GG]<.05 HFe p[HF] p[HF]<.05  
## 5 \* 0.8964466 2.036622e-06 \*  
## 6 0.8964466 7.695908e-01   
## 7 1.0527061 4.240712e-01   
## 8 \* 1.0527061 3.265741e-06 \*  
##   
## $aov  
##   
## Call:  
## aov(formula = formula(aov\_formula), data = data)  
##   
## Grand Mean: 0.118409  
##   
## Stratum 1: ID  
##   
## Terms:  
## Object\_Type Residuals  
## Sum of Squares 0.0326862 0.1207165  
## Deg. of Freedom 1 22  
##   
## Residual standard error: 0.07407504  
## 7 out of 8 effects not estimable  
## Estimated effects are balanced  
##   
## Stratum 2: ID:Component\_Value  
##   
## Terms:  
## Component\_Value Object\_Type:Component\_Value Residuals  
## Sum of Squares 0.000550965 0.000343775 0.010662311  
## Deg. of Freedom 1 1 22  
##   
## Residual standard error: 0.02201478  
## 6 out of 8 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 3: ID:ROI\_Location  
##   
## Terms:  
## ROI\_Location Object\_Type:ROI\_Location Residuals  
## Sum of Squares 0.02109958 0.00054636 0.03462416  
## Deg. of Freedom 3 3 66  
##   
## Residual standard error: 0.02290433  
## 6 out of 12 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 4: ID:Component\_Value:ROI\_Location  
##   
## Terms:  
## Component\_Value:ROI\_Location  
## Sum of Squares 0.000575074  
## Deg. of Freedom 3  
## Object\_Type:Component\_Value:ROI\_Location Residuals  
## Sum of Squares 0.007079985 0.013388411  
## Deg. of Freedom 3 66  
##   
## Residual standard error: 0.01424271  
## Estimated effects may be unbalanced

#ANOVAanalysis1(data2)

## ANOVA on Sensitivity for ALL voxels

ANOVAanalysis(data3)

## $ANOVA  
## Effect DFn DFd F  
## 2 Object\_Type 1 22 9.1259793  
## 3 Component\_Value 1 22 123.0469514  
## 5 ROI\_Location 3 66 0.3307828  
## 4 Object\_Type:Component\_Value 1 22 16.0072695  
## 6 Object\_Type:ROI\_Location 3 66 2.8607139  
## 7 Component\_Value:ROI\_Location 3 66 15.6162878  
## 8 Object\_Type:Component\_Value:ROI\_Location 3 66 0.8494805  
## p p<.05 ges  
## 2 6.282184e-03 \* 0.213801463  
## 3 1.771686e-10 \* 0.259960418  
## 5 8.030987e-01 0.002764882  
## 4 6.018097e-04 \* 0.043701096  
## 6 4.343173e-02 \* 0.023416392  
## 7 8.850730e-08 \* 0.064555238  
## 8 4.718248e-01 0.003739914  
##   
## $`Mauchly's Test for Sphericity`  
## Effect W p p<.05  
## 5 ROI\_Location 0.7330587 0.266690632   
## 6 Object\_Type:ROI\_Location 0.7330587 0.266690632   
## 7 Component\_Value:ROI\_Location 0.4565047 0.006233834 \*  
## 8 Object\_Type:Component\_Value:ROI\_Location 0.4565047 0.006233834 \*  
##   
## $`Sphericity Corrections`  
## Effect GGe p[GG]  
## 5 ROI\_Location 0.8554697 7.719562e-01  
## 6 Object\_Type:ROI\_Location 0.8554697 5.269222e-02  
## 7 Component\_Value:ROI\_Location 0.7374684 2.908664e-06  
## 8 Object\_Type:Component\_Value:ROI\_Location 0.7374684 4.439481e-01  
## p[GG]<.05 HFe p[HF] p[HF]<.05  
## 5 0.9781588 7.987697e-01   
## 6 0.9781588 4.471505e-02 \*  
## 7 \* 0.8235011 9.232450e-07 \*  
## 8 0.8235011 4.541333e-01   
##   
## $aov  
##   
## Call:  
## aov(formula = formula(aov\_formula), data = data)  
##   
## Grand Mean: 0.0747253  
##   
## Stratum 1: ID  
##   
## Terms:  
## Object\_Type Residuals  
## Sum of Squares 0.1050857 0.2533301  
## Deg. of Freedom 1 22  
##   
## Residual standard error: 0.107308  
## 7 out of 8 effects not estimable  
## Estimated effects are balanced  
##   
## Stratum 2: ID:Component\_Value  
##   
## Terms:  
## Component\_Value Object\_Type:Component\_Value Residuals  
## Sum of Squares 0.13574301 0.01765891 0.02426997  
## Deg. of Freedom 1 1 22  
##   
## Residual standard error: 0.03321416  
## 6 out of 8 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 3: ID:ROI\_Location  
##   
## Terms:  
## ROI\_Location Object\_Type:ROI\_Location Residuals  
## Sum of Squares 0.00107138 0.00926565 0.07125642  
## Deg. of Freedom 3 3 66  
##   
## Residual standard error: 0.03285792  
## 6 out of 12 effects not estimable  
## Estimated effects may be unbalanced  
##   
## Stratum 4: ID:Component\_Value:ROI\_Location  
##   
## Terms:  
## Component\_Value:ROI\_Location  
## Sum of Squares 0.02666727  
## Deg. of Freedom 3  
## Object\_Type:Component\_Value:ROI\_Location Residuals  
## Sum of Squares 0.00145062 0.03756846  
## Deg. of Freedom 3 66  
##   
## Residual standard error: 0.02385831  
## Estimated effects may be unbalanced

#ANOVAanalysis1(data3)