```r
library(rprime)
```

```
## Warning: package 'rprime' was built under R version 3.5.2
```

```r
library(lme4)
```

```
## Loading required package: Matrix
```

```r
library(lmerTest)
```

```
##
## Attaching package: 'lmerTest'
```

```
## The following object is masked from 'package:lme4':
##
##     lmer
```

```
## The following object is masked from 'package:stats':
##
##     step
```

```r
library(EMAtools)
```

```
## Warning: package 'EMAtools' was built under R version 3.5.2
```

```r
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 3.5.1
```

```r
library(cowplot)
```

```
##
## Attaching package: 'cowplot'
```

```
## The following object is masked from 'package:ggplot2':
##
##     ggsave
```

```r
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 3.5.1
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
library(readxl)
library(MOTE)
```

```
## Warning: package 'MOTE' was built under R version 3.5.2
```

```r
theme = theme(panel.grid.major = element_blank(),
              panel.grid.minor = element_blank(),
              panel.background = element_blank(),
              axis.line = element_line(colour = "black"),
```

```
              legend.key = element_rect(fill = "white"),
              text = element_text(size = 15))

##############################################################################################
big_face = read.csv('face_data.csv')
aged = read.csv('face_data_age.csv')
aged$age[aged$age == -999] = NA

big_face2 = big_face[complete.cases(big_face),]
big_face2 = subset(big_face2, partno != 1170)
tdata = distinct(big_face2[,c('partno','sub_sex')])

table(tdata$sub_sex)
```

```
##
##   0   1
## 228 192
```

```
tdata = merge(tdata, aged, by='partno')
with(tdata, tapply(age, list(sub_sex),mean,na.rm=T))
```

```
##        0        1
## 18.78509 19.32804
```

```
with(tdata, tapply(age, list(sub_sex),sd,na.rm=T))
```

```
##         0         1
## 0.9674648 1.5152792
```

```
summary(big_face2$rt)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##       5    1310    1754    2366    2633  157366
```

```
big_face2 = subset(big_face2, rt > 500) # response minimum
big_face2 = subset(big_face2, rt < 45001) # task length


######################### Response Times & accuracy overall
big_face2$sub_sex = factor(big_face2$sub_sex)

rtzscore = scale(big_face2$rt)
summary(abs(rtzscore) < 3)
```

```
##      V1
##  Mode :logical
##  FALSE:238
##  TRUE :13245
```

```
rt_noout = subset(big_face2, abs(rtzscore) < 3)

mod1 = lmer(rt ~ sub_sex + (1 | partno), data = rt_noout)
summary(mod1)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: rt ~ sub_sex + (1 | partno)
```

```
##    Data: rt_noout
##
## REML criterion at convergence: 229516.4
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.7670 -0.6142 -0.3135  0.2598  4.9386
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept)  116052   340.7
##  Residual             1901734  1379.0
## Number of obs: 13245, groups:  partno, 419
##
## Fixed effects:
##             Estimate Std. Error      df t value Pr(>|t|)
## (Intercept)  2210.70      27.72  409.67  79.740   <2e-16 ***
## sub_sex1       85.62      41.09  422.14   2.084   0.0378 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.670
```

```
lme.dscore(mod1, data = big_face2, type='lme4')
```

```
##                t       df         d
## sub_sex1 1.95396 433.2287 0.1877531
```

```
mod2 = lmer(acc ~ sub_sex + (1 | partno), data = big_face2)
summary(mod2)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: big_face2
##
## REML criterion at convergence: 17626.1
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.8078 -1.3125  0.5790  0.7192  1.3582
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.00753  0.08677
##  Residual             0.21114  0.45950
## Number of obs: 13483, groups:  partno, 419
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   0.696745   0.007845 389.574395  88.815  < 2e-16 ***
## sub_sex1     -0.047885   0.011645 399.411539  -4.112 4.77e-05 ***
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.671
```

```
lme.dscore(mod2, data = big_face2, type='lme4')
```

```
##                  t       df          d
## sub_sex1 -4.111934 399.4115 -0.4114962
```

```
######################## RT & Acc for male faces
Mfacert = subset(rt_noout, stim_sex == 'Male')
Mfaceac = subset(big_face2, stim_sex == 'Male')

mod3 = lmer(rt ~ sub_sex + (1 | partno), data = Mfacert)
summary(mod3)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: rt ~ sub_sex + (1 | partno)
##    Data: Mfacert
##
## REML criterion at convergence: 116569.2
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.6637 -0.6142 -0.3160  0.2632  4.6861
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept)  106413   326.2
##  Residual             1888006  1374.0
## Number of obs: 6728, groups:  partno, 419
##
## Fixed effects:
##             Estimate Std. Error      df t value Pr(>|t|)
## (Intercept)  2205.82      31.34  409.29  70.373   <2e-16 ***
## sub_sex1      107.47      46.42  415.02   2.315   0.0211 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.673
```

```
lme.dscore(mod3, data = Mfacert, type='lme4')
```

```
##                 t     df       d
## sub_sex1 2.314977 415.02 0.22727
```

```
mod4 = lmer(acc ~ sub_sex + (1 | partno), data = Mfaceac)
summary(mod4)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
```

```
##    Data: Mfaceac
##
## REML criterion at convergence: 8500
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.8445 -1.3819  0.5339  0.6766  1.2002
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.007733 0.08794
##  Residual             0.196592 0.44339
## Number of obs: 6836, groups:  partno, 419
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   0.735374   0.009321 402.929659  78.896  < 2e-16 ***
## sub_sex1     -0.051741   0.013802 406.237165  -3.749 0.000203 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.674
```

```
lme.dscore(mod4, data = Mfaceac, type='lme4')
```

```
##                  t       df          d
## sub_sex1 -3.748836 406.2372 -0.3719946
```

```
######################## RT & Acc for female faces
Ffacert = subset(rt_noout, stim_sex == 'Female')
Ffaceac = subset(big_face2, stim_sex == 'Female')

mod5 = lmer(rt ~ sub_sex + (1 | partno), data = Ffacert)
summary(mod5)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: rt ~ sub_sex + (1 | partno)
##    Data: Ffacert
##
## REML criterion at convergence: 112628.4
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.6917 -0.6075 -0.3125  0.2576  4.8478
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept)  113811   337.4
##  Residual             1928734  1388.8
## Number of obs: 6492, groups:  partno, 418
##
## Fixed effects:
```

```
##             Estimate Std. Error      df t value Pr(>|t|)
## (Intercept)  2213.86      32.16  403.81  68.838   <2e-16 ***
## sub_sex1       71.93      48.11  420.54   1.495    0.136
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.666
```

```
lme.dscore(mod5, data = Ffacert, type='lme4')
```

```
##                 t      df         d
## sub_sex1 1.495206 420.544 0.1458228
```

```
mod6 = lmer(acc ~ sub_sex + (1 | partno), data = Ffaceac)
summary(mod6)
```

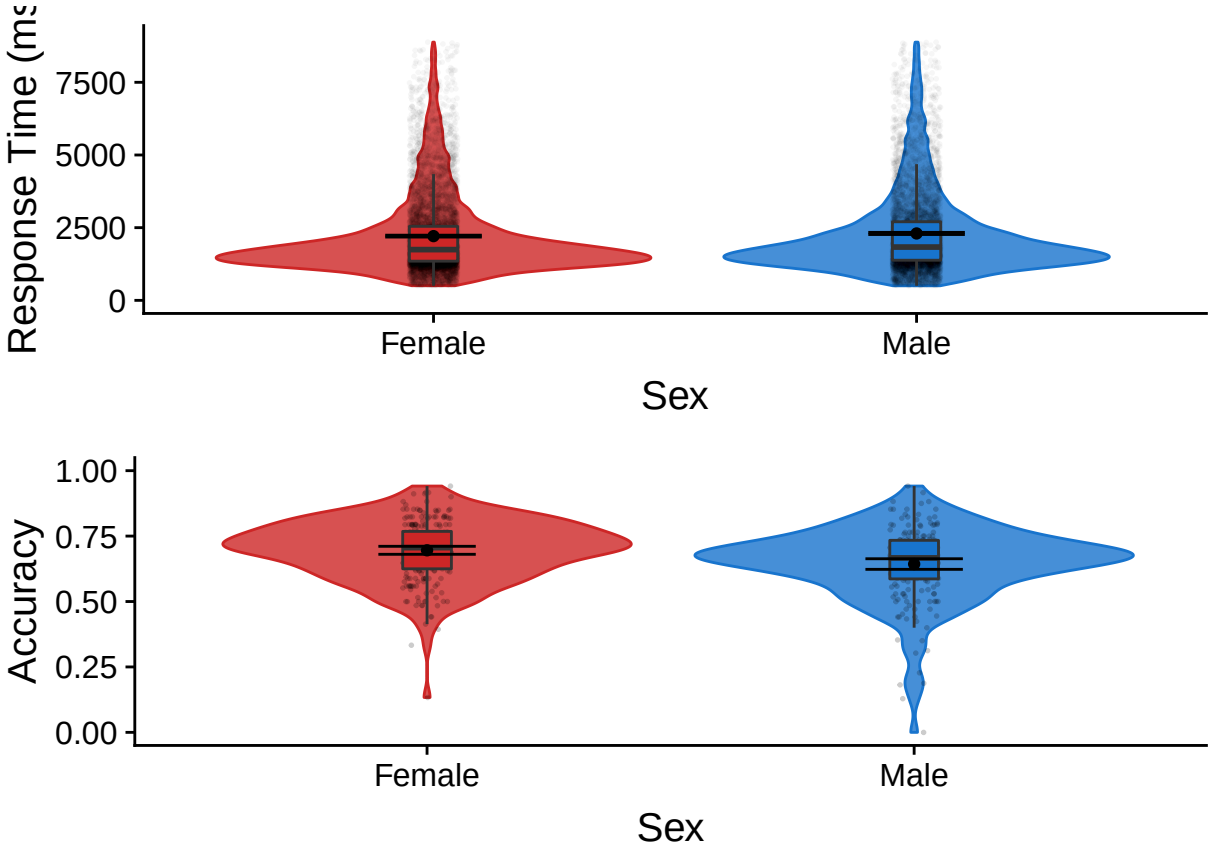
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: Ffaceac
##
## REML criterion at convergence: 9072.6
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.5020 -1.2760  0.6959  0.7578  0.9946
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.003339 0.05778
##  Residual             0.226963 0.47641
## Number of obs: 6622, groups:  partno, 418
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   0.659118   0.008736 390.688171  75.451  < 2e-16 ***
## sub_sex1     -0.046286   0.013108 403.276453  -3.531 0.000461 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.666
```

```
lme.dscore(mod6, data = Ffaceac, type='lme4')
```

```
##                  t       df          d
## sub_sex1 -3.531223 403.2765 -0.3516849
```

```
###################################################################### PLOTS for overall
dodge = position_dodge(width = 0.8)

r1 = ggplot(rt_noout, aes(sub_sex,y=rt, fill = sub_sex)) +
  geom_violin(aes(fill=sub_sex,color=sub_sex),alpha=.8) +
  geom_point(color="black", size=0.3, position = position_jitter(w=0.05),alpha=.04) +
```

```
  geom_boxplot(width=.1, outlier.shape = NA)+
  stat_summary(fun.y = mean,
               geom = "point",
               fill = "White",
               color = "Black") +
  stat_summary(fun.data = mean_cl_normal,
               geom = "errorbar",
               position = position_dodge(width = 0.90),
               width = 0.2) +
  theme + theme(legend.position='none')+
  xlab("Sex") +
  ylab("Response Time (ms)") + coord_cartesian(ylim=c(0,9000)) +
  scale_x_discrete(labels = c('Female','Male')) +
  scale_fill_manual(values=c('firebrick3','dodgerblue3')) +
  scale_color_manual(values=c('firebrick3','dodgerblue3'))

mean_acc = data.frame(cbind(as.numeric(names(with(big_face2, tapply(acc, list(partno),mean,na.rm=T)))),
                            unname(with(big_face2, tapply(acc, list(partno),mean,na.rm=T)))))
colnames(mean_acc) = c('partno','accuracy')
tt = distinct(big_face2[,c('partno','sub_sex')])
mean_acc2 = merge(mean_acc,tt,by='partno')


a1 = ggplot(mean_acc2, aes(sub_sex,y=accuracy, fill = sub_sex)) +
  geom_violin(aes(fill=sub_sex,color=sub_sex),alpha=.8) +
  geom_point(color="black", size=0.3, position = position_jitter(w=0.05),alpha=.2) +
  geom_boxplot(width=.1, outlier.shape = NA)+
  stat_summary(fun.y = mean,
               geom = "point",
               fill = "White",
               color = "Black") +
  stat_summary(fun.data = mean_cl_normal,
               geom = "errorbar",
               position = position_dodge(width = 0.90),
               width = 0.2) +
  theme + theme(legend.position='none')+
  xlab("Sex") +
  ylab("Accuracy") + coord_cartesian(ylim=c(0,1)) +
  scale_x_discrete(labels = c('Female','Male')) +
  scale_fill_manual(values=c('firebrick3','dodgerblue3')) +
  scale_color_manual(values=c('firebrick3','dodgerblue3'))

plot_grid(r1,a1, ncol = 1)
```




```
############## emotion * gender interaction
modx = lmer(rt ~ sub_sex*emotion + (1 | partno), data = rt_noout)
anova(modx)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method
##                    Sum Sq  Mean Sq NumDF   DenDF F value  Pr(>F)
## sub_sex           7085970  7085970     1   433.8  3.7782 0.05257 .
## emotion         341203220 56867203     6 12855.7 30.3209 < 2e-16 ***
## sub_sex:emotion  13650870  2275145     6 12855.7  1.2131 0.29594
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
modxy = lmer(rt ~ sub_sex*race + (1 | partno), data = rt_noout)
anova(modxy)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method
##                Sum Sq Mean Sq NumDF DenDF F value  Pr(>F)
## sub_sex       1052481 1052481     1 13213  0.5537 0.45683
## race         12777767 6388884     2 12985  3.3610 0.03473 *
## sub_sex:race   432666  216333     2 12985  0.1138 0.89243
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
mod2xy = lmer(acc ~ sub_sex*race + (1 | partno), data = big_face2)
anova(mod2xy)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method
##                Sum Sq Mean Sq NumDF DenDF F value Pr(>F)
```

```
## sub_sex       0.4549  0.4549     1 13463  2.1724 0.1405
## race         23.7124 11.8562     2 13237 56.6226 <2e-16 ***
## sub_sex:race  0.1775  0.0887     2 13237  0.4238 0.6546
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
mod2x = lmer(acc ~ sub_sex*emotion + (1 | partno), data = big_face2)
anova(mod2x)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method
##                   Sum Sq Mean Sq NumDF   DenDF  F value    Pr(>F)
## sub_sex            3.283  3.2829     1   414.2  16.5509 5.672e-05 ***
## emotion          161.176 26.8626     6 13082.8 135.4311 < 2.2e-16 ***
## sub_sex:emotion    8.509  1.4181     6 13082.7   7.1495 1.258e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
#split on race
angry = subset(big_face2, emotion == 'Angry')
disgust = subset(big_face2, emotion == 'Disgust')
fear = subset(big_face2, emotion == 'Fear')
happy = subset(big_face2, emotion == 'Happy')
neutral = subset(big_face2, emotion == 'Neutral')
sad = subset(big_face2, emotion == 'Sad')
surprise = subset(big_face2, emotion == 'Surprise')


mod_angry = lmer(acc ~ sub_sex + (1 | partno), data = angry)
summary(mod_angry)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: angry
##
## REML criterion at convergence: 2271.3
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.2932 -1.1949  0.7539  0.8522  0.8522
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.0000   0.0000
##  Residual             0.2386   0.4885
## Number of obs: 1609, groups:  partno, 416
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept) 5.837e-01  1.643e-02 1.607e+03  35.527   <2e-16 ***
## sub_sex1    4.801e-02  2.448e-02 1.607e+03   1.962     0.05 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
```

```
## sub_sex1 -0.671
```

```
lme.dscore(mod_angry, data = angry, type='lme4')
```

```
##                t   df          d
## sub_sex1 1.96165 1607 0.09786865
```

```
mod_disgust = lmer(acc ~ sub_sex + (1 | partno), data = disgust)
summary(mod_disgust)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: disgust
##
## REML criterion at convergence: 3413.1
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.4388 -1.2222  0.6619  0.7970  1.0641
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.006124 0.07825
##  Residual             0.226613 0.47604
## Number of obs: 2468, groups:  partno, 418
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   0.66086    0.01399 422.09008  47.225  < 2e-16 ***
## sub_sex1     -0.07476    0.02073 418.57853  -3.607 0.000348 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.675
```

```
lme.dscore(mod_disgust, data = disgust, type='lme4')
```

```
##                 t       df          d
## sub_sex1 -3.60666 418.5785 -0.3525711
```

```
mod_fear = lmer(acc ~ sub_sex + (1 | partno), data = fear)
summary(mod_fear)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: fear
##
## REML criterion at convergence: 2303.2
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.0686 -0.9992 -0.8420  0.9754  1.1543
##
```

```
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.002749 0.05243
##  Residual             0.245586 0.49557
## Number of obs: 1587, groups:  partno, 417
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   0.51736    0.01702 397.96323  30.396  < 2e-16 ***
## sub_sex1     -0.08141    0.02558 409.00900  -3.182  0.00157 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.665
```

```
lme.dscore(mod_fear, data = fear, type='lme4')
```

```
##                t      df          d
## sub_sex1 -3.1822 409.009 -0.3146959
```

```
mod_happy = lmer(acc ~ sub_sex + (1 | partno), data = happy)
summary(mod_happy)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: happy
##
## REML criterion at convergence: 1759.7
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -2.4946  0.3860  0.3860  0.4241  0.4241
##
## Random effects:
##  Groups   Name        Variance  Std.Dev.
##  partno   (Intercept) 8.578e-16 2.929e-08
##  Residual             1.205e-01 3.472e-01
## Number of obs: 2420, groups:  partno, 418
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)  8.660e-01  9.606e-03  2.418e+03  90.151   <2e-16 ***
## sub_sex1    -1.322e-02  1.416e-02  2.418e+03  -0.934    0.351
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.678
```

```
lme.dscore(mod_happy, data = happy, type='lme4')
```

```
##                t   df          d
```

```
## sub_sex1 -0.93374 2418 -0.03797763
```

```
mod_neutral = lmer(acc ~ sub_sex + (1 | partno), data = neutral)
summary(mod_neutral)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: neutral
##
## REML criterion at convergence: 2708
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.8443 -1.1772  0.4751  0.6699  1.3370
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.02404  0.1551
##  Residual             0.18235  0.4270
## Number of obs: 2185, groups:  partno, 395
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   0.75136    0.01600 386.21877  46.951  < 2e-16 ***
## sub_sex1     -0.11473    0.02428 392.22471  -4.726  3.2e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.657
```

```
lme.dscore(mod_neutral, data = neutral, type='lme4')
```

```
##                 t       df          d
## sub_sex1 -4.725722 392.2247 -0.4772333
```

```
mod_sad = lmer(acc ~ sub_sex + (1 | partno), data = sad)
summary(mod_sad)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: sad
##
## REML criterion at convergence: 1989.3
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.8857 -1.1080  0.3909  0.5947  1.2990
##
## Random effects:
##  Groups   Name        Variance Std.Dev.
##  partno   (Intercept) 0.02837  0.1684
##  Residual             0.16988  0.4122
```

```
## Number of obs: 1659, groups:  partno, 418
##
## Fixed effects:
##             Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   0.75818    0.01778 417.45303  42.648  < 2e-16 ***
## sub_sex1     -0.07268    0.02620 411.22882  -2.774  0.00579 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.677
```

```
lme.dscore(mod_sad, data = sad, type='lme4')
```

```
##                  t       df          d
## sub_sex1 -2.773988 411.2288 -0.2735853
```

```
mod_surprise = lmer(acc ~ sub_sex + (1 | partno), data = surprise)
summary(mod_surprise)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: acc ~ sub_sex + (1 | partno)
##    Data: surprise
##
## REML criterion at convergence: 2118.3
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.3853 -1.3471  0.7132  0.7514  0.7514
##
## Random effects:
##  Groups   Name        Variance  Std.Dev.
##  partno   (Intercept) 2.924e-16 1.710e-08
##  Residual             2.271e-01 4.765e-01
## Number of obs: 1555, groups:  partno, 418
##
## Fixed effects:
##              Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    0.66014    0.01617 1553.00000  40.814   <2e-16 ***
## sub_sex1      -0.01822    0.02433 1553.00000  -0.749    0.454
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##          (Intr)
## sub_sex1 -0.665
```

```
lme.dscore(mod_surprise, data = surprise, type='lme4')
```

```
##                   t   df           d
## sub_sex1 -0.7486141 1553 -0.03799289
```

```
p_values = c(0.05,0.000348,0.00157,0.351,3.2e-06,0.00579,0.454)
p.adjust(p_values,method='bonferroni')
```

```
## [1] 0.3500000 0.0024360 0.0109900 1.0000000 0.0000224 0.0405300 1.0000000
```