

Quality Analysis

2023-06-25

```
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.2 --
## v ggplot2 3.4.2      v purrr  1.0.1
## v tibble  3.2.1      v dplyr  1.1.1
## v tidyr   1.3.0      v stringr 1.5.0
## v readr   2.1.2      v forcats 0.5.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()

library(rstatix)

##
## Attaching package: 'rstatix'
##
## The following object is masked from 'package:stats':
##
##   filter

library(ggplot2)
library(ggpubr)

load('/Users/admin/Documents/Quality/quality_all.RData')
quality_all$t_group[quality_all$group %in% c("ss", "ps")] <- "s"
quality_all$t_group[quality_all$group %in% c("pp", "sp")] <- "p"

prop<-quality_all %>%
  filter(phase >1)

bl<-quality_all %>%
  filter(phase == 1 & session >27) %>%
  group_by(id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  dplyr::select(id, mean)

prop$bl <- bl$mean[match(prop$id, bl$id)]

prop$prop_bl<-prop$target_rate/prop$bl

quality_all_1<-quality_all %>% filter(i_group == "p")
quality_all_2<-quality_all %>% filter(i_group == "s")
prop_1<- prop %>% filter(i_group == "p")
prop_2<- prop %>% filter(i_group == "s")

#Baseline ## Exp. 1
```

```

#Levene's test for equal variance
quality_all_1 %>% filter(phase == 1) %>%
  filter(session >27) %>%
  group_by(t_group,id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)

## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.

## # A tibble: 1 x 4
##   df1    df2 statistic      p
##   <int> <int>      <dbl> <dbl>
## 1      1     16    0.0884 0.770

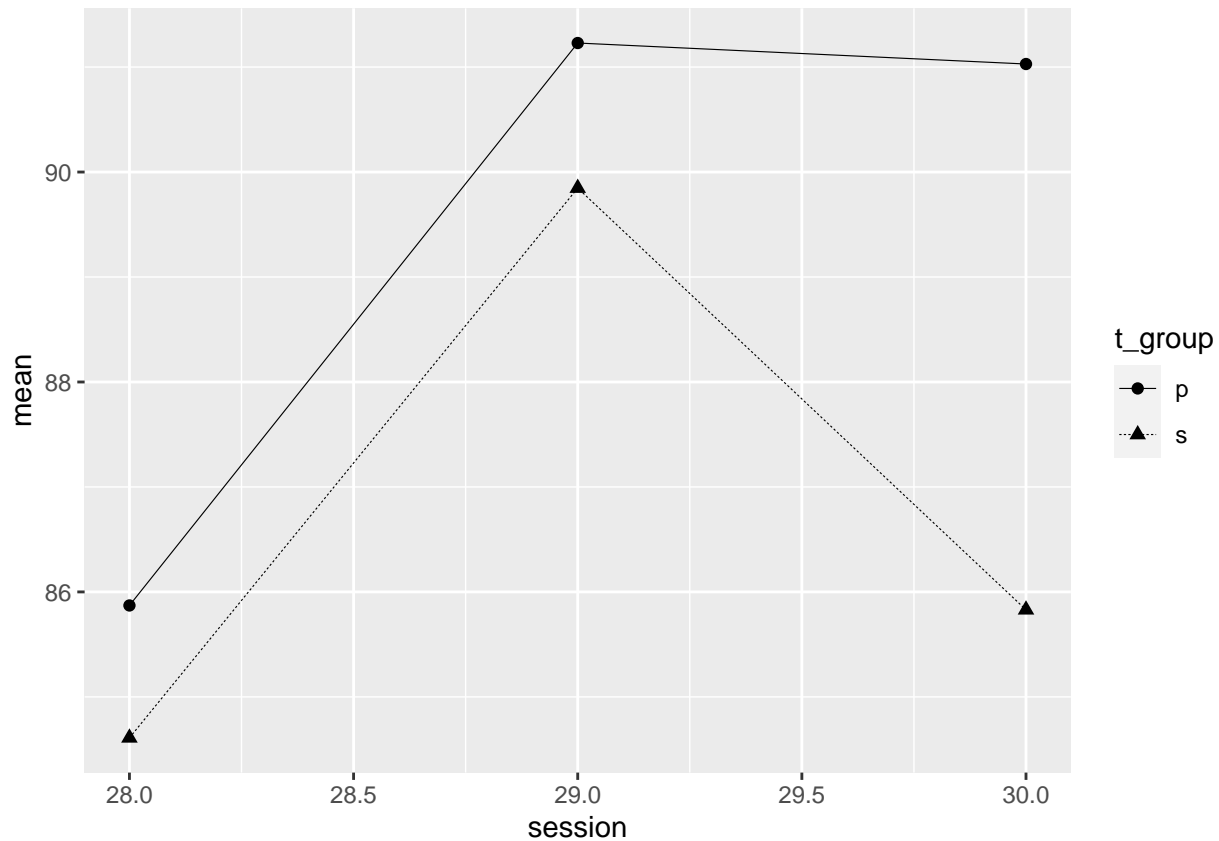
#t-tests confirming that baseline was not different within s and p groups
quality_all_1 %>% filter(phase == 1) %>%
  filter(session >27) %>%
  group_by(t_group,id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  t_test(mean~t_group, var.equal = TRUE,
    data = .
  )

## # A tibble: 1 x 8
##   .y. group1 group2    n1    n2 statistic    df      p
## * <chr> <chr> <chr> <int> <int>      <dbl> <dbl> <dbl>
## 1 mean p      s      8    10    0.263    16 0.796

quality_all_1 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 1) %>%
  filter(session>27) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean))+
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25)+
  geom_line(aes(linetype=t_group), size = .2)

## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.

```



```
##Exp. 2
```

```
#Levene's test for equal variance
```

```
quality_all_2 %>% filter(phase == 1) %>%
  filter(session > 27) %>%
  group_by(t_group, id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)
```

```
## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.
```

```
## # A tibble: 1 x 4
##   df1 df2 statistic      p
##   <int> <int>     <dbl> <dbl>
## 1     1    16    0.0442 0.836
```

```
#t-tests confirming that baseline was not different within s and p groups
```

```
quality_all_2 %>% filter(phase == 1) %>%
  filter(session > 27) %>%
  group_by(t_group, id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  t_test(mean~t_group, var.equal = TRUE,
    data = .
  )
```

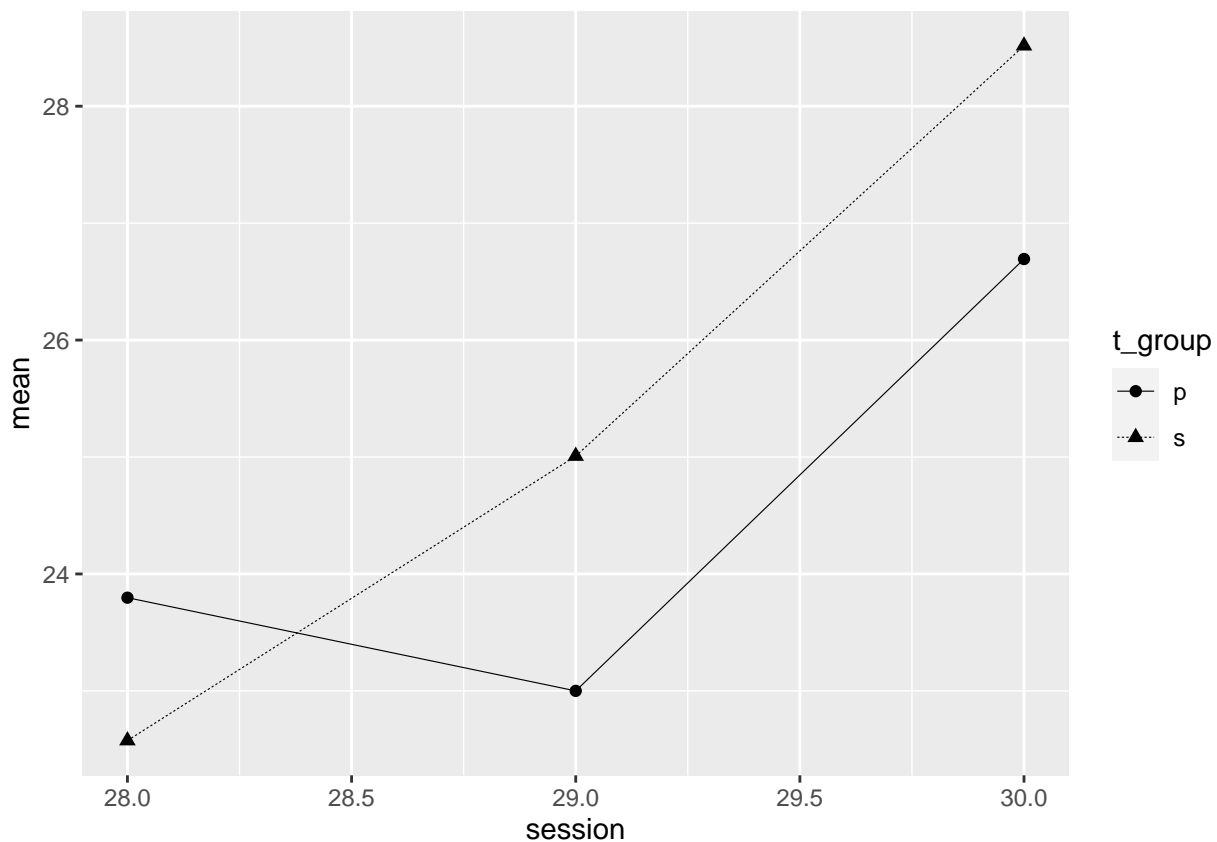
```
## # A tibble: 1 x 8
##   .y. group1 group2    n1    n2 statistic   df      p
## * <chr> <chr> <chr> <int> <int>     <dbl> <dbl> <dbl>
```

```
## 1 mean p s 10 8 -0.113 16 0.912
```

```
quality_all_2 %>% filter(phase == 1) %>%
  filter(session > 27) %>%
  group_by(t_group, id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  cohens_d(mean~t_group, var.equal = TRUE,
    data = .
  )
```

```
## # A tibble: 1 x 7
##   .y. group1 group2 effsize n1 n2 magnitude
## * <chr> <chr> <chr> <dbl> <int> <int> <ord>
## 1 mean p s -0.0535 10 8 negligible
```

```
quality_all_2 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 1) %>%
  filter(session > 27) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
  geom_point(aes(shape = t_group), size = 2, stroke = 0.25) +
  geom_line(aes(linetype = t_group), size = .2)
```



```
#Last/First P1/P2 ##Exp. 1
```

```
# 2 x 2 (Group x Phase)
```

```
quality_all_1 %>%
```

```

  filter((session == 30 & phase == 1) | (session == 1 & phase == 2)) %>%
anova_test(
  data = ., dv = target_rate, wid = id,
  between = t_group, within = phase
) %>%
get_anova_table()

```

```
## ANOVA Table (type III tests)
```

```
##
##          Effect DFn DFd      F      p p<.05    ges
## 1      t_group   1  16   8.274 1.10e-02    * 0.267
## 2      phase     1  16 241.831 4.44e-11    * 0.817
## 3 t_group:phase   1  16  32.648 3.20e-05    * 0.376
```

Exp. 2

```

# 2 x 2 (Group x Phase)
quality_all_2 %>%
  filter((session == 30 & phase == 1) | (session == 1 & phase == 2)) %>%
anova_test(
  data = ., dv = target_rate, wid = id,
  between = t_group, within = phase
) %>%
get_anova_table()

```

```
## ANOVA Table (type III tests)
```

```
##
##          Effect DFn DFd      F      p p<.05    ges
## 1      t_group   1  16   0.185 0.673000    0.007000
## 2      phase     1  16 24.688 0.000139    * 0.389000
## 3 t_group:phase   1  16   0.011 0.917000    0.000289
```

```

q3cor<-quality_all_2 %>%
  filter((session == 30 & phase == 1) | (session == 1 & phase == 2))
save(q3cor,
  file = "/Users/admin/Documents/Quality/q3cor.RData")

```

```
#Phase 2 ## Exp. 1 ### Target
```

```

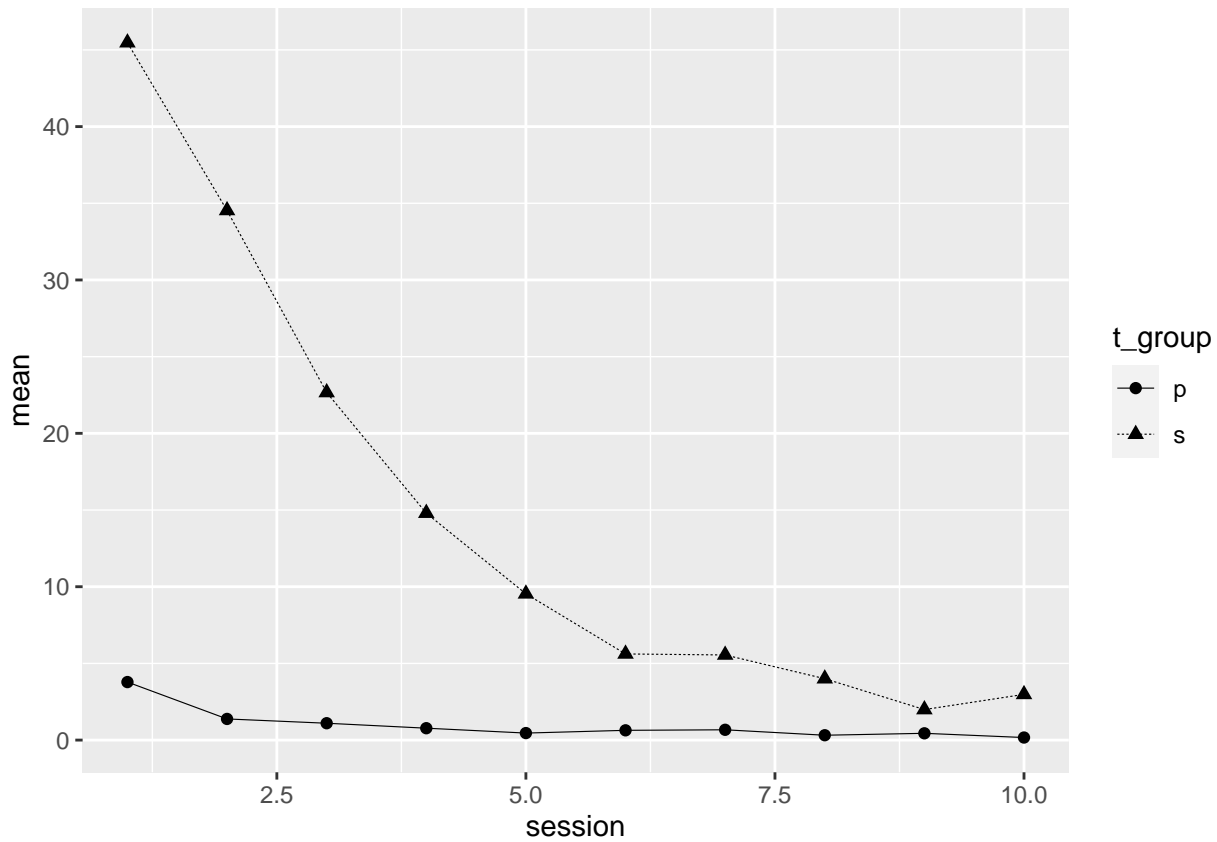
# 2 x 10 (Group x Session) Mixed ANOVA
quality_all_1 %>% filter(phase == 2) %>%
anova_test(
  data = ., dv = target_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()

```

```
## ANOVA Table (type III tests)
```

```
##
##          Effect DFn DFd      F      p p<.05    ges
## 1      t_group 1.00 16.00 56.989 1.17e-06    * 0.599
## 2      session 2.57 41.14 49.726 5.89e-13    * 0.643
## 3 t_group:session 2.57 41.14 38.599 2.63e-11    * 0.583
```

```
quality_all_1 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 2) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25) +
  geom_line(aes(linetype=t_group), size = .2)
```



T-test on Last Day of P2

```
quality_all_1 %>% filter(phase == 2) %>%
  filter(session == 10) %>%
  group_by(t_group, id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)
```

```
## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.
```

```
## # A tibble: 1 x 4
##   df1 df2 statistic    p
##   <int> <int>   <dbl> <dbl>
## 1     1    16     3.10 0.0976
```

```
quality_all_1 %>% filter(phase == 2) %>%
  filter(session == 10) %>%
  t_test(
```

```

data = ., target_rate~t_group, var.equal = TRUE
)

## # A tibble: 1 x 8
##   .y.      group1 group2    n1    n2 statistic    df      p
## * <chr>    <chr>  <chr>  <int> <int>    <dbl> <dbl>  <dbl>
## 1 target_rate p      s      8    10    -3.91    16 0.00125

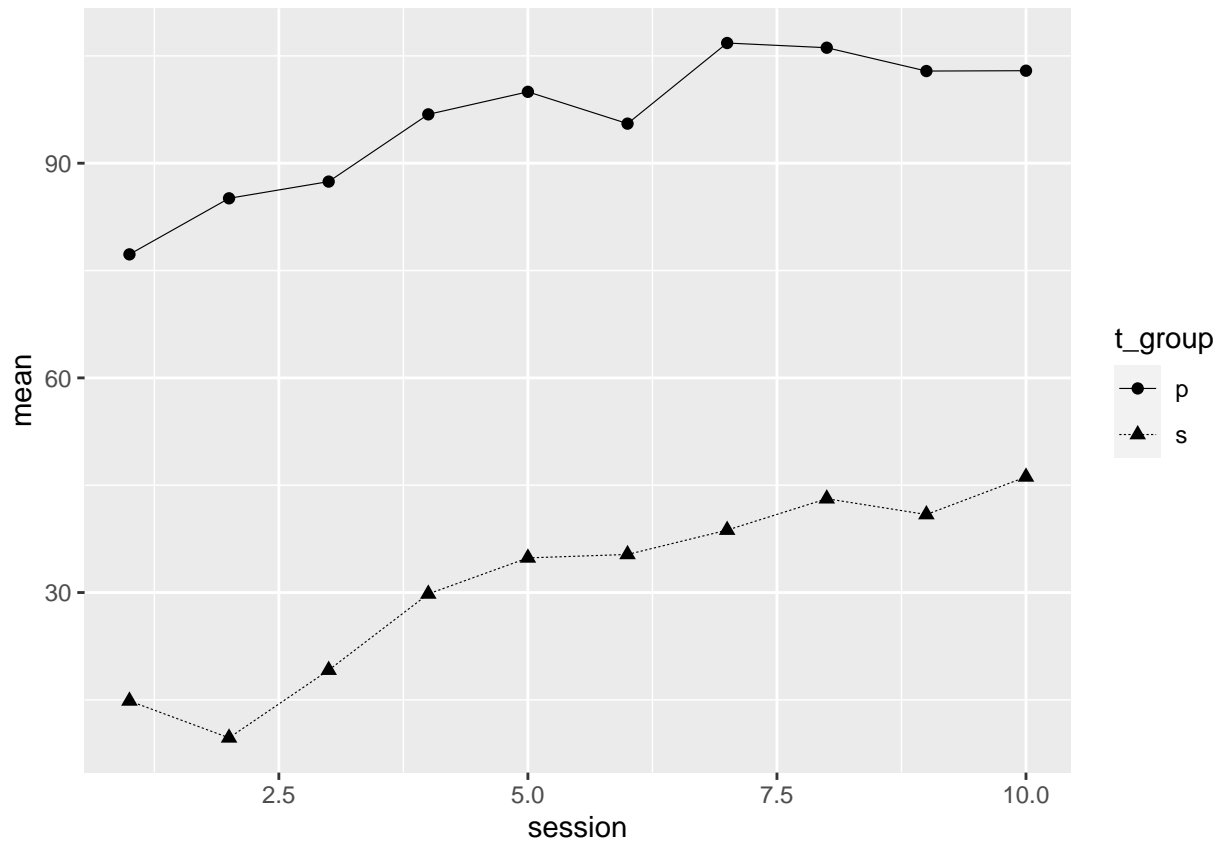
####Alt

# 2 x 10 (Group x Session) Mixed ANOVA
quality_all_1 %>% filter(phase == 2) %>%
anova_test(
data = ., dv = alt_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()

## ANOVA Table (type III tests)
##
##      Effect  DFn  DFd      F      p p<.05  ges
## 1      t_group 1.00 16.00 59.096 9.26e-07 * 0.724
## 2      session 3.24 51.78 14.976 2.07e-07 * 0.214
## 3 t_group:session 3.24 51.78  0.835 4.88e-01    0.015

quality_all_1 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 2) %>%
  group_by(t_group, session) %>%
  get_summary_stats(alt_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean))+
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25)+
  geom_line(aes(linetype=t_group), size = .2)

```



Exp. 2

Target

```
# 2 x 10 (Group x Session) Mixed ANOVA
quality_all_2 %>% filter(phase == 2) %>%
```

```
filter(id != "Q21" | session != 8) %>%
anova_test(
  data = ., dv = target_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()
```

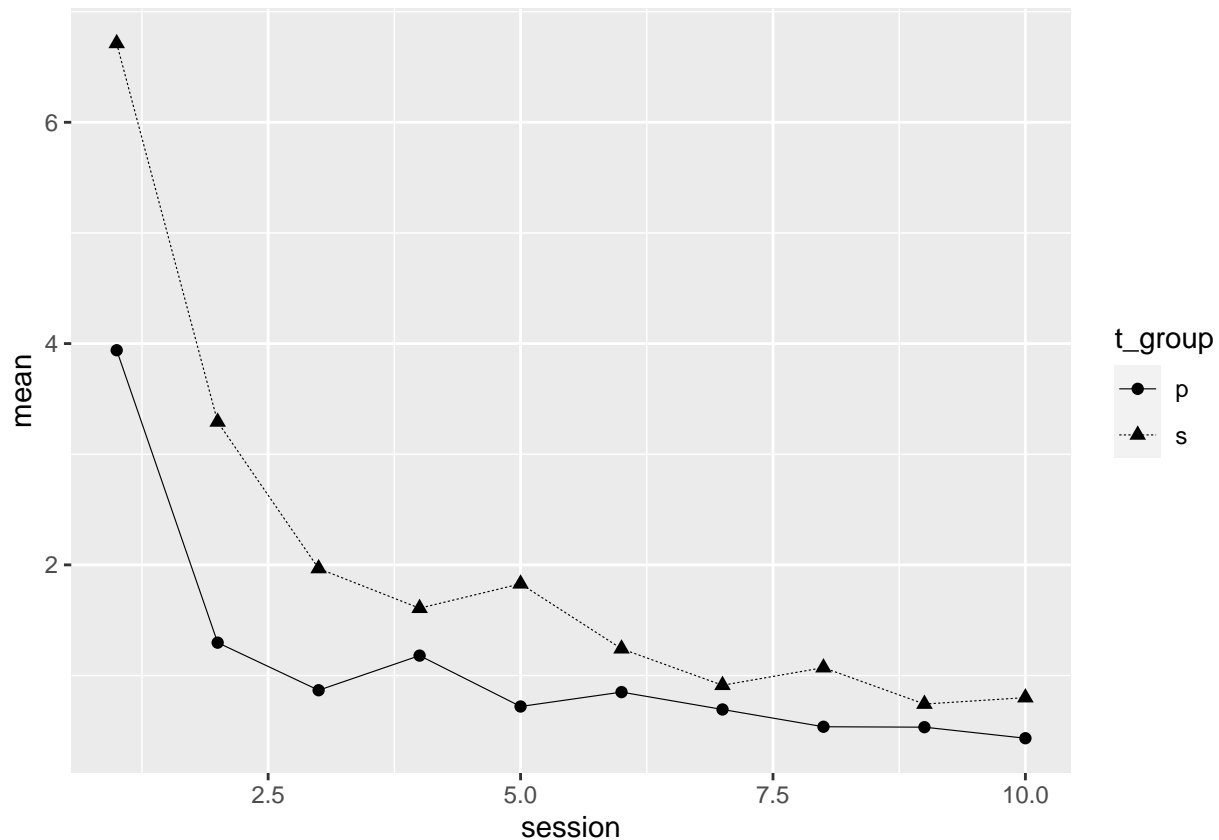
```
## ANOVA Table (type III tests)
```

```
##
##          Effect  DFn  DFd    F      p  p<.05  ges
## 1          t_group  1.00 15.00  9.185 8.00e-03 * 0.165
## 2          session  1.78 26.74 29.127 3.95e-07 * 0.568
## 3 t_group:session  1.78 26.74  3.186 6.30e-02   0.126
```

```
quality_all_2 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 2) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
```



```
geom_point(aes(shape=t_group), size = 2, stroke = 0.25)+
geom_line(aes(linetype=t_group), size = .2)
```



```
# One Way on Last Day of P2
quality_all_2 %>% filter(phase == 2) %>%
  filter(session == 10) %>%
  anova_test(
    data = ., dv = target_rate, wid = id,
    between = t_group
  ) %>%
  get_anova_table()
```

```
## Coefficient covariances computed by hccm()
```

```
## ANOVA Table (type II tests)
```

```
##
```

```
##      Effect DFn DFd      F      p p<.05  ges
## 1 t_group   1   16 2.333 0.146      0.127
```

```
# T-test on Last Day of P2
```

```
quality_all_2 %>% filter(phase == 2) %>%
  filter(session == 10) %>%
  group_by(t_group,id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)
```

```
## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.
```

```

## # A tibble: 1 x 4
##   df1 df2 statistic p
##   <int> <int> <dbl> <dbl>
## 1     1     16     1.02 0.328

quality_all_2 %>% filter(phase == 2) %>%
  filter(session == 10) %>%
  t_test(
    data = ., target_rate~t_group, var.equal = TRUE
  )

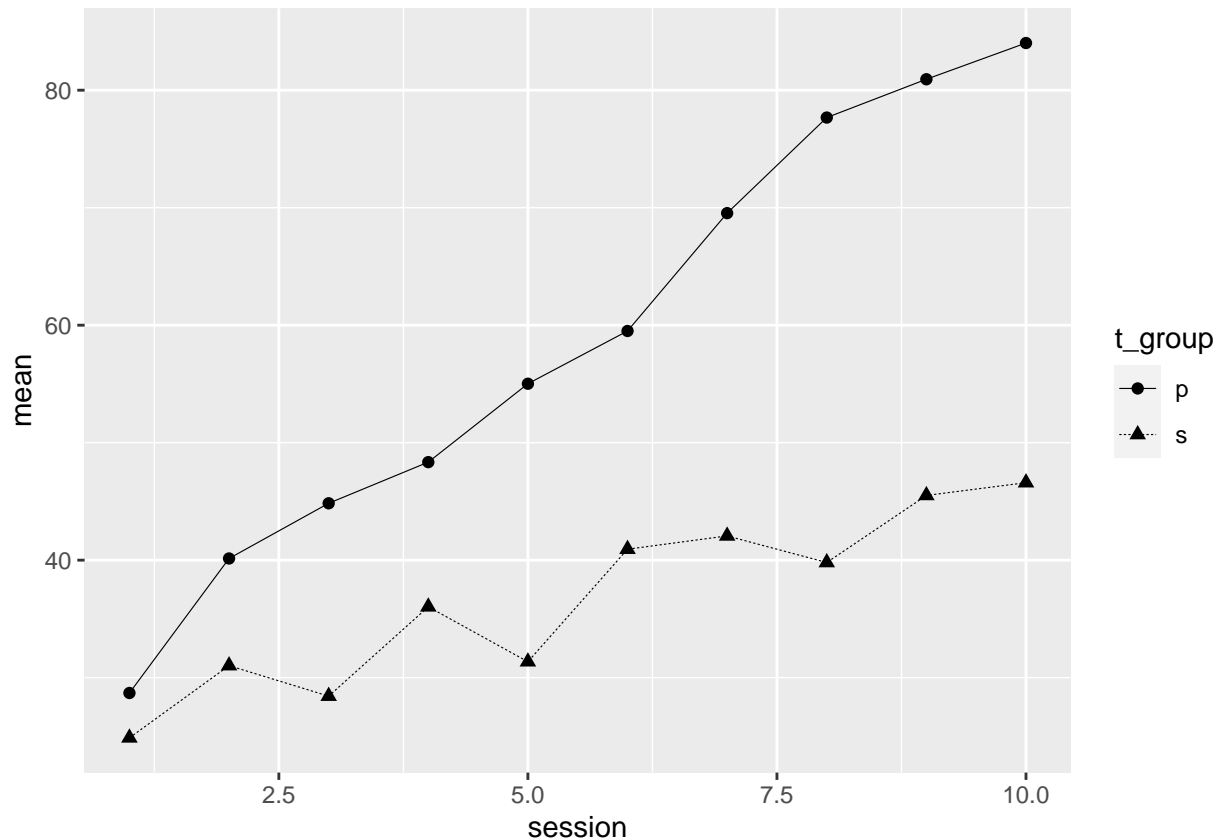
## # A tibble: 1 x 8
##   .y.      group1 group2  n1  n2 statistic  df    p
## * <chr>      <chr> <chr> <int> <int> <dbl> <dbl> <dbl>
## 1 target_rate p      s      10    8    -1.53    16 0.146

###Alt
# 2 x 10 (Group x Session) Mixed ANOVA
quality_all_2 %>% filter(phase == 2) %>%
  filter(id != "Q21" | session != 8) %>%
  anova_test(
    data = ., dv = alt_rate, wid = id,
    between = t_group, within = session
  ) %>%
  get_anova_table()

## ANOVA Table (type III tests)
##
##           Effect DFn  DFd      F      p p<.05 ges
## 1          t_group 1.0 15.00  4.030 6.30e-02 0.181
## 2          session 2.9 43.53 25.155 1.86e-09 * 0.232
## 3 t_group:session 2.9 43.53  3.866 1.60e-02 * 0.044

quality_all_2 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 2) %>%
  group_by(t_group, session) %>%
  get_summary_stats(alt_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean))+
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25)+
  geom_line(aes(linetype=t_group), size = .2)

```



```
#Last/First ## Exp. 1
```

```
quality_all_1 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  anova_test(
    data = ., dv = target_rate, wid = id,
    between = t_group, within = phase
  ) %>%
  get_anova_table()
```

```
## ANOVA Table (type III tests)
```

```
##
##      Effect DFn DFd      F      p p<.05  ges
## 1      t_group   1  16  0.480 4.98e-01    0.018
## 2      phase     1  16 39.752 1.05e-05    * 0.497
## 3 t_group:phase   1  16  4.634 4.70e-02    * 0.103
```

```
##Follow-up t-tests for Each Group
```

```
quality_all_1 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "p") %>%
  t_test(
    data = ., target_rate ~ phase, paired = TRUE
  )
```

```
## # A tibble: 1 x 8
```

```
##   .y.      group1 group2   n1   n2 statistic    df      p
## * <chr>      <chr> <chr> <int> <int>    <dbl> <dbl>    <dbl>
## 1 target_rate 2      3      8     8    -5.72     7 0.000718
```

```
quality_all_1 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "p") %>% cohens_d(target_rate ~ phase, paired = TRUE)
```

```
## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>    <dbl> <int> <int> <ord>
## 1 target_rate 2      3      -2.02     8     8 large
```

```
quality_all_1 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "s") %>%
  t_test(
    data = ., target_rate ~ phase, paired = TRUE
  )
```

```
## # A tibble: 1 x 8
##   .y.      group1 group2    n1    n2 statistic    df      p
## * <chr>      <chr> <chr>  <int> <int>    <dbl> <dbl> <dbl>
## 1 target_rate 2      3      10    10     -3.09     9 0.0129
```

```
quality_all_1 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "s") %>% cohens_d(target_rate ~ phase, paired = TRUE)
```

```
## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>    <dbl> <int> <int> <ord>
## 1 target_rate 2      3     -0.978    10    10 large
```

##Exp. 2

```
quality_all_2 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  anova_test(
    data = ., dv = target_rate, wid = id,
    between = t_group, within = phase
  ) %>%
  get_anova_table()
```

```
## ANOVA Table (type III tests)
##
##      Effect DFn DFd      F      p p<.05  ges
## 1      t_group  1  16  3.215 0.092000    0.102
## 2      phase   1  16 20.520 0.000342    * 0.358
## 3 t_group:phase  1  16  7.679 0.014000    * 0.173
```

##Follow-up t-tests for Each Group

```
quality_all_2 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "p") %>%
  t_test(
    data = ., target_rate ~ phase, paired = TRUE
  )
```

```
## # A tibble: 1 x 8
##   .y.      group1 group2    n1    n2 statistic    df      p
```

```
## * <chr>      <chr> <chr> <int> <int>      <dbl> <dbl>      <dbl>
## 1 target_rate 2      3      10      10      -4.24      9 0.00216

quality_all_2 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "p") %>% cohens_d(target_rate ~ phase, paired = TRUE)

## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>      <dbl> <int> <int> <ord>
## 1 target_rate 2      3      -1.34    10    10 large

quality_all_2 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "s") %>%
  t_test(
    data = ., target_rate ~ phase, paired = TRUE
  )

## # A tibble: 1 x 8
##   .y.      group1 group2    n1    n2 statistic    df      p
## * <chr>      <chr> <chr>      <int> <int>      <dbl> <dbl> <dbl>
## 1 target_rate 2      3          8      8      -3.09      7 0.0177

quality_all_2 %>%
  filter((session == 10 & phase == 2) | (session == 1 & phase == 3)) %>%
  filter(t_group == "s") %>% cohens_d(target_rate ~ phase, paired = TRUE)

## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>      <dbl> <int> <int> <ord>
## 1 target_rate 2      3      -1.09      8      8 large

#Phase 3 ## Exp. 1 ### Target

# 2 x 7 (Group x Session) Mixed ANOVA
quality_all_1 %>% filter(phase == 3) %>%
  anova_test(
    data = ., dv = target_rate, wid = id,
    between = t_group, within = session
  ) %>%
  get_anova_table()

## ANOVA Table (type III tests)
##
##           Effect DFn  DFd      F      p p<.05 ges
## 1          t_group 1.00 16.00  5.024 4.00e-02 * 0.134
## 2          session 3.29 52.66 10.586 8.35e-06 * 0.251
## 3 t_group:session 3.29 52.66  0.343 8.12e-01    0.011

##Follow-up t-tests for Each Group
quality_all_1 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>%
  group_by(t_group, id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)
```

```
## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.
```

```
## # A tibble: 1 x 4
##   df1 df2 statistic      p
##   <int> <int>      <dbl> <dbl>
## 1     1    16    0.0437 0.837
```

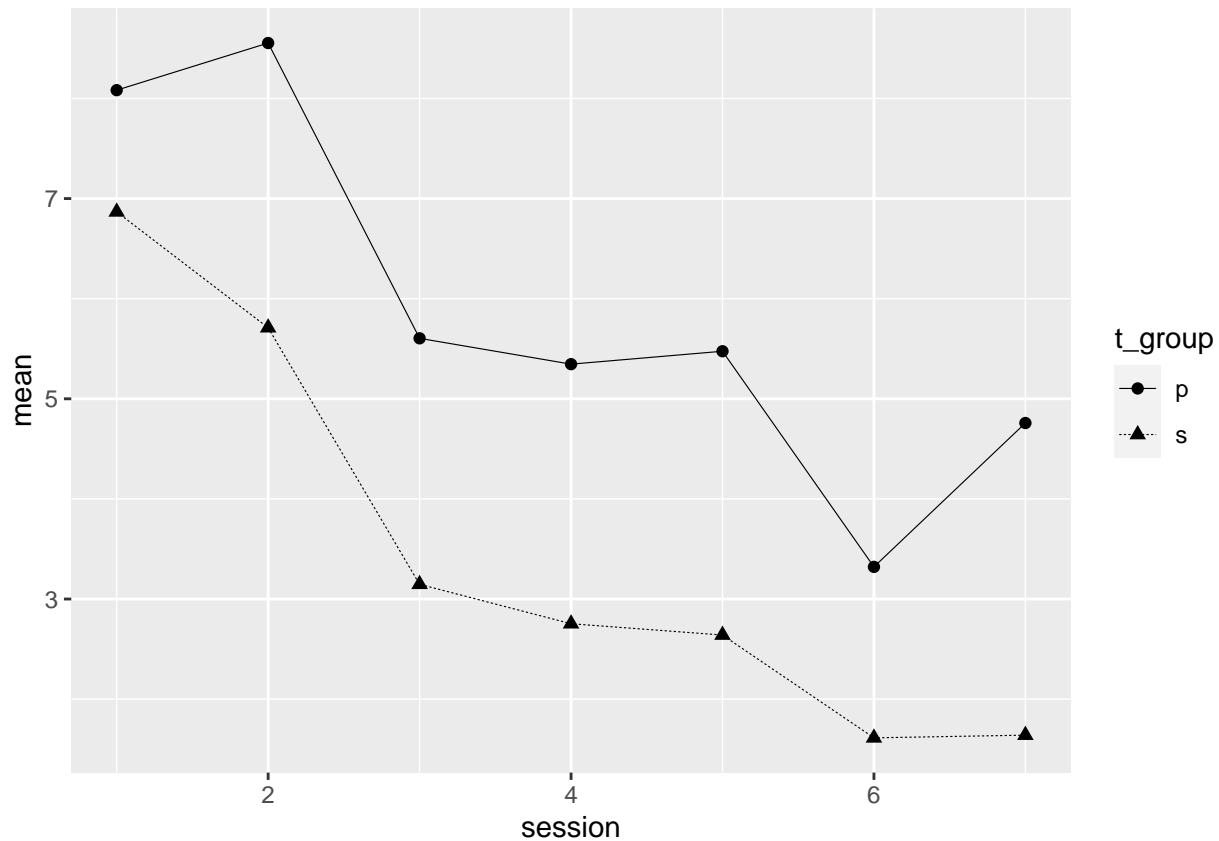
```
quality_all_1 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>%
  t_test(
    data = ., target_rate ~ t_group,
    var.equal = TRUE
  )
```

```
## # A tibble: 1 x 8
##   .y.      group1 group2   n1    n2 statistic    df      p
## * <chr>      <chr> <chr> <int> <int>      <dbl> <dbl> <dbl>
## 1 target_rate p      s      8    10    0.617    16 0.546
```

```
quality_all_1 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>% cohens_d(target_rate ~ t_group)
```

```
## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>      <dbl> <int> <int> <ord>
## 1 target_rate p      s    0.294     8    10 small
```

```
quality_all_1 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 3) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean))+
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25)+
  geom_line(aes(linetype=t_group), size = .2)
```



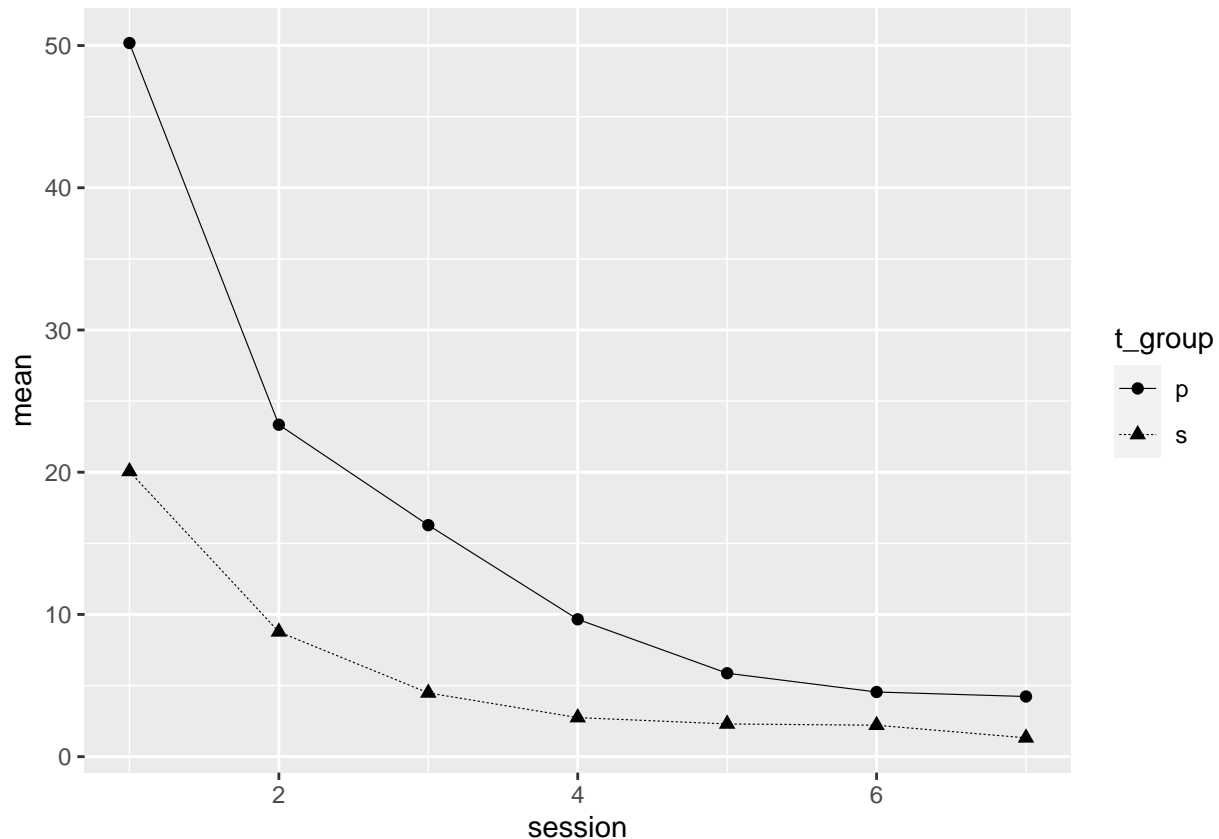
Alt

```
# 2 x 7 (Group x Session) Mixed ANOVA
quality_all_1 %>% filter(phase == 3) %>%
anova_test(
  data = ., dv = alt_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()
```

```
## ANOVA Table (type III tests)
```

```
##
##          Effect DFn  DFd    F      p p<.05  ges
## 1          t_group 1.00 16.00 14.262 2.00e-03 * 0.301
## 2          session 1.66 26.62 57.530 9.01e-10 * 0.650
## 3 t_group:session 1.66 26.62 10.522 7.84e-04 * 0.254
```

```
quality_all_1 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 3) %>%
  group_by(t_group, session) %>%
  get_summary_stats(alt_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25) +
  geom_line(aes(linetype=t_group), size = .2)
```



```
## Exp. 2 ### Target
# 2 x 7 (Group x Session) Mixed ANOVA
quality_all_2 %>% filter(phase == 3) %>%
anova_test(
  data = ., dv = target_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()

## ANOVA Table (type III tests)
##
##          Effect  DFn  DFd    F      p p<.05    ges
## 1          t_group  1.00 16.00  2.192 0.158      0.096
## 2         session  2.45 39.25  2.145 0.121      0.029
## 3 t_group:session  2.45 39.25  2.856 0.059      0.038

##Follow-up t-tests for Session 1
quality_all_2 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>%
  group_by(t_group,id) %>%
  get_summary_stats(target_rate, type = "mean_sd") %>%
  levene_test(mean~t_group, center = median)

## Warning in leveneTest.default(y = y, group = group, ...): group coerced to
## factor.

## # A tibble: 1 x 4
##       df1  df2 statistic      p
```



```
##    <int> <int>      <dbl> <dbl>
## 1      1     16      2.33 0.147

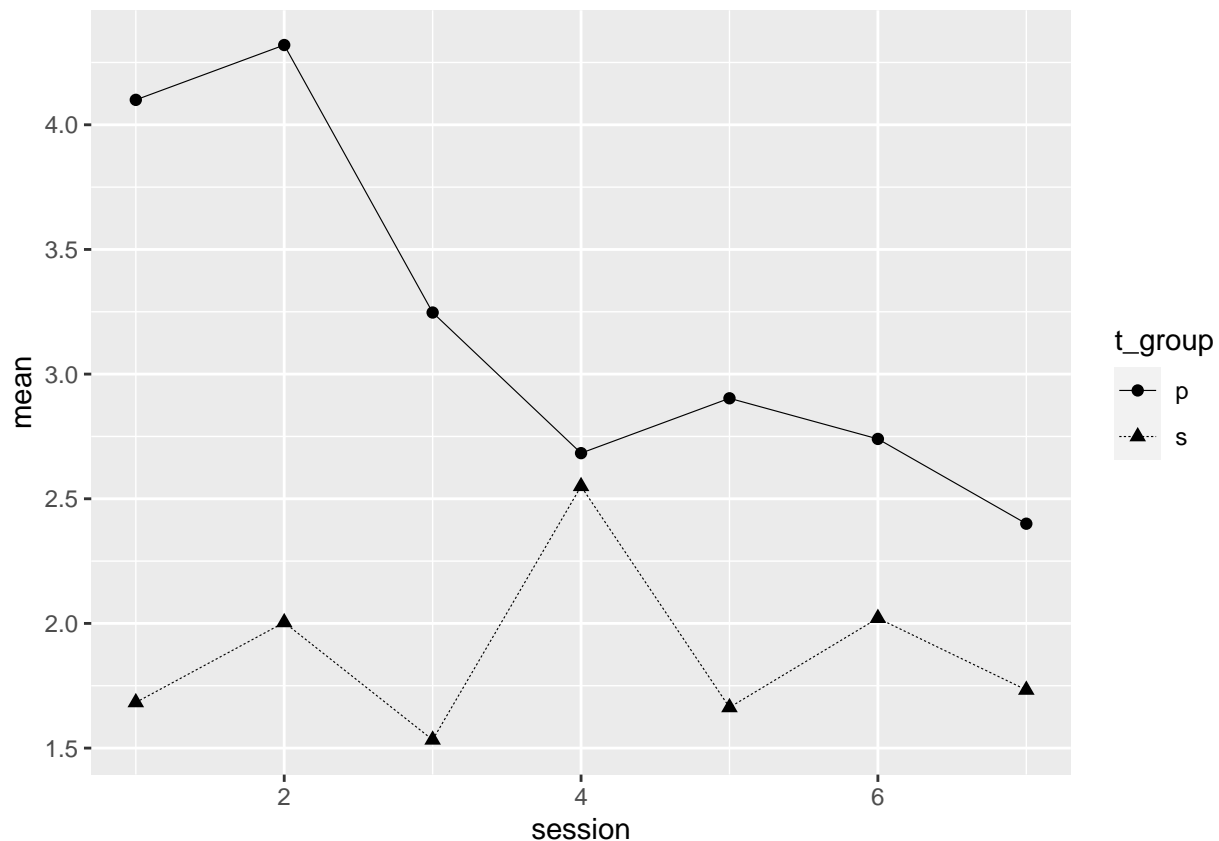
quality_all_2 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>%
  t_test(
    data = ., target_rate ~ t_group,
    var.equal = TRUE
  )

## # A tibble: 1 x 8
##   .y.      group1 group2    n1    n2 statistic    df    p
## * <chr>      <chr> <chr>  <int> <int>    <dbl> <dbl> <dbl>
## 1 target_rate p      s      10     8      2.30    16 0.035

quality_all_2 %>%
  filter(phase == 3) %>%
  filter(session == 1) %>% cohens_d(target_rate ~ t_group)

## # A tibble: 1 x 7
##   .y.      group1 group2 effsize    n1    n2 magnitude
## * <chr>      <chr> <chr>    <dbl> <int> <int> <ord>
## 1 target_rate p      s      1.15    10     8 large

quality_all_2 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 3) %>%
  group_by(t_group, session) %>%
  get_summary_stats(target_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25) +
  geom_line(aes(linetype=t_group), size = .2)
```



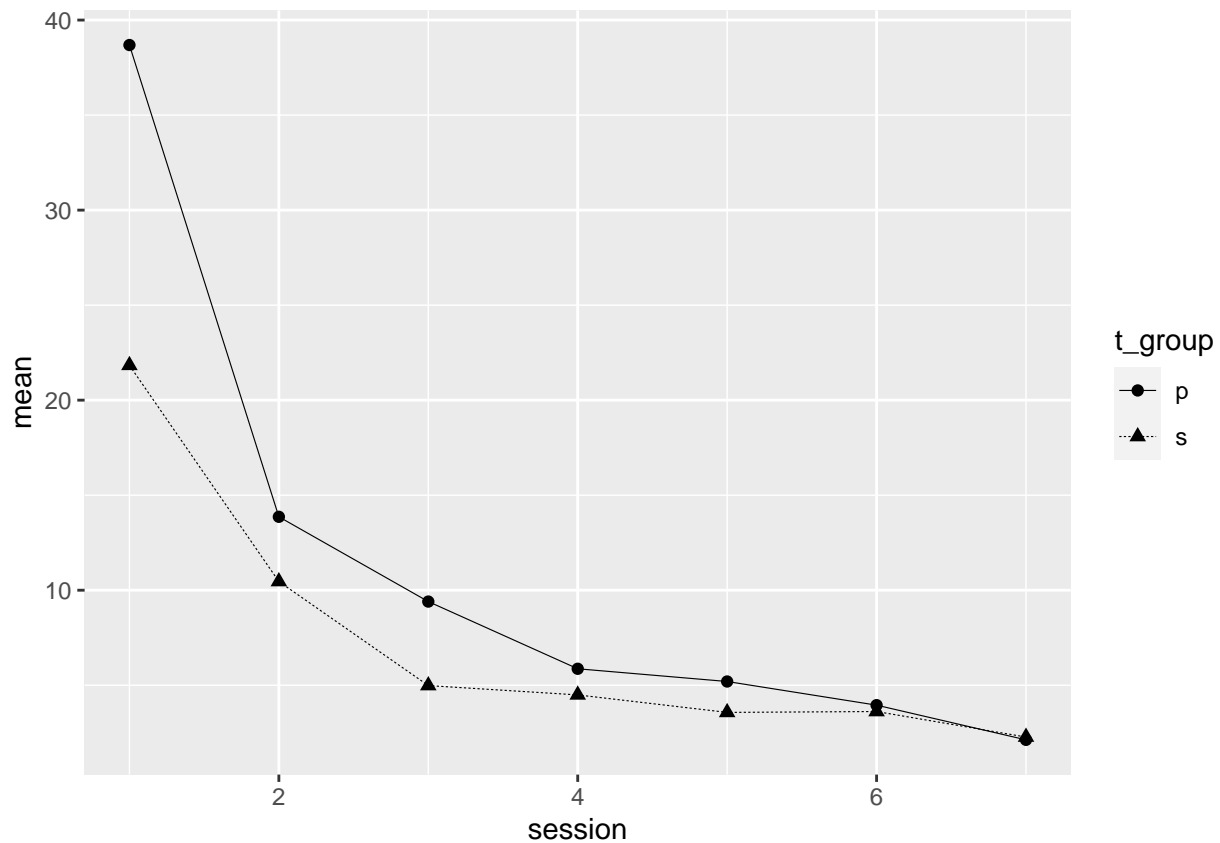
Alt

```
# 2 x 7 (Group x Session) Mixed ANOVA
quality_all_2 %>% filter(phase == 3) %>%
anova_test(
  data = ., dv = alt_rate, wid = id,
  between = t_group, within = session
) %>%
get_anova_table()
```

```
## ANOVA Table (type III tests)
```

```
##
##          Effect  DFn  DFd    F      p p<.05  ges
## 1          t_group 1.00 16.00  4.308 5.40e-02 0.101
## 2          session 1.38 22.06 63.663 7.78e-09 * 0.699
## 3 t_group:session 1.38 22.06  5.793 1.70e-02 * 0.174
```

```
quality_all_2 %>%
  mutate(t_group = as.factor(t_group)) %>%
  filter(phase == 3) %>%
  group_by(t_group, session) %>%
  get_summary_stats(alt_rate, type = "mean_se") %>%
  ggplot(data = ., aes(x = session, y = mean)) +
  geom_point(aes(shape=t_group), size = 2, stroke = 0.25) +
  geom_line(aes(linetype=t_group), size = .2)
```



#Dip Train

```
mpc_b<-function(x, array, endarray) {
  # parsing text array into a data frame
  if (stringr::str_detect(array, "[:upper:]") == FALSE) {
    array <- toupper(array)
  }

  if (stringr::str_detect(endarray, "[:upper:]") == FALSE) {
    endarray <- toupper(endarray)
  }

  startarray <- paste(array, ":", sep = "")
  endarray <- paste(endarray, ":", sep = "")
  new_vec <- vector("list", length(x))
  for (c in seq_along(x)) {
    text_data <- data.frame()
    text_data <- rbind(text_data, x[[c]])

    suppressWarnings(split_data <- tidyr::separate(text_data,
      col = 1,
      into = c(
        "Col1", "Col2", "Col3", "Col4", "Col5",
        "Col6", "Col7"
      ),
      sep = " +"
    ))
    id <- split_data[3, 2]
```

```

start_row <- which(split_data$Col1 == startarray)
end_row <- which(split_data$Col1 == endarray)
filtered_data <- dplyr::filter(
  split_data,
  dplyr::row_number() %in% (start_row + 1):(end_row - 1)
)
wide_data <- data.frame()
col_index <- 1
for (i in seq_len(nrow(filtered_data))) {
  for (j in 3:7) {
    wide_data[1, col_index] <- filtered_data[i, j]
    col_index <- col_index + 1
  }
}
wide_data<-wide_data[ , colSums(is.na(wide_data))==0]
wide_data<-wide_data %>% dplyr::mutate_if(is.character,as.numeric)

colnames(wide_data) <- paste(array,c(0:(ncol(wide_data)-1)), sep = "")
new_vec[[c]] <- wide_data
}

# merge data frames from list into one data frame
merged_df <- do.call(rbind, Map(cbind, session = seq_along(new_vec), new_vec))
merged_df$id <- id
#reorder columns so id is visible
merged_df<-merged_df[,c(ncol(merged_df),1:ncol(merged_df)-1)]
return(merged_df)
}

```

```

train_raw<-Lab.Data.Prep::extract("Q",c(1:40),filepath = '/Users/admin/Documents/Quality/Raw/Train/')

```

```

train_raw<-compact(train_raw)

```

```

train_raw_b<-list()
for (i in 1:length(train_raw)) {
  train_raw_b[[i]]<-mpc_b(train_raw[[i]],"b","d")
  print(i)
}

```

```

## [1] 1
## [1] 2
## [1] 3
## [1] 4
## [1] 5
## [1] 6
## [1] 7
## [1] 8
## [1] 9
## [1] 10
## [1] 11
## [1] 12
## [1] 13

```

```
## [1] 14
## [1] 15
## [1] 16
## [1] 17
## [1] 18
## [1] 19
## [1] 20
## [1] 21
## [1] 22
## [1] 23
## [1] 24
## [1] 25
## [1] 26
## [1] 27
## [1] 28
## [1] 29
## [1] 30
## [1] 31
## [1] 32
## [1] 33
## [1] 34
## [1] 35
## [1] 36
```

```
train<-do.call("rbind", train_raw_b)
train<-train[,c(1,2,15,16)]
colnames(train)[which(names(train) == 'B13')]<-"good_dips"
colnames(train)[which(names(train) == 'B12')]<-"total_dips"
train$dip_percent<-(train$good_dips/train$total_dips)*100

sum(train$dip_percent>80)
```

```
## [1] 22
```