haptics

Analyze Haptics data

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
setwd("/Users/aspence/Documents/spencelab/haptics")
df <- read_excel('haptics.xlsx')
summary(df)
```

```
##     subject         trialnum  trial_type          prompt_num    prompt_type
##  Min.   : 1.00   Min.   :1   Length:108         Min.   :1.00   Min.   :1
##  1st Qu.: 3.75   1st Qu.:1   Class :character   1st Qu.:2.00   1st Qu.:3
##  Median : 6.50   Median :2   Mode  :character   Median :5.00   Median :5
##  Mean   : 6.50   Mean   :2                      Mean   :4.75   Mean   :5
##  3rd Qu.: 9.25   3rd Qu.:3                      3rd Qu.:7.00   3rd Qu.:7
##  Max.   :12.00   Max.   :3                      Max.   :9.00   Max.   :9
##    num_chars          time            WPM         error_rate
##  Min.   :102.0   Min.   : 24.0   Min.   : 9.106   Mode:logical
##  1st Qu.:107.0   1st Qu.: 48.0   1st Qu.:14.209   NA's:108
##  Median :108.0   Median : 71.5   Median :18.083
##  Mean   :107.8   Mean   : 71.8   Mean   :21.702
##  3rd Qu.:109.0   3rd Qu.: 91.0   3rd Qu.:27.062
##  Max.   :112.0   Max.   :141.0   Max.   :55.000
```

Prelim tests

You can also embed plots, for example:

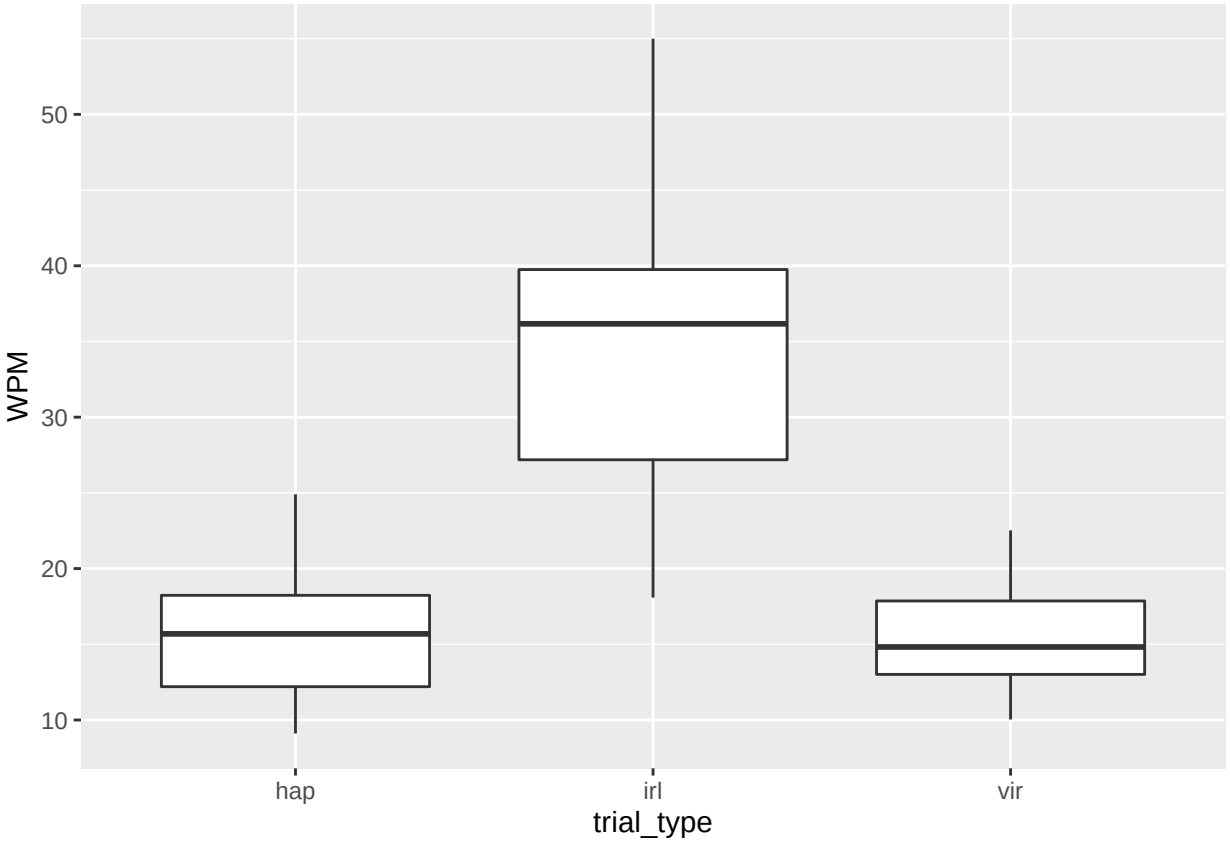
```
mod <- lme(WPM ~ trial_type, random = ~1 | subject/prompt_num,na.action=na.omit,data=df)
# Quote a significant main effect or interaction:
dataov <- anova(mod)
summary(mod)
```

```
## Linear mixed-effects model fit by REML
##   Data: df
##        AIC      BIC logLik
##   648.6001 664.5238 -318.3
##
## Random effects:
##  Formula: ~1 | subject
##         (Intercept)
## StdDev:    3.887285
##
##  Formula: ~1 | prompt_num %in% subject
##          (Intercept) Residual
## StdDev: 0.0003971124 4.259841
```

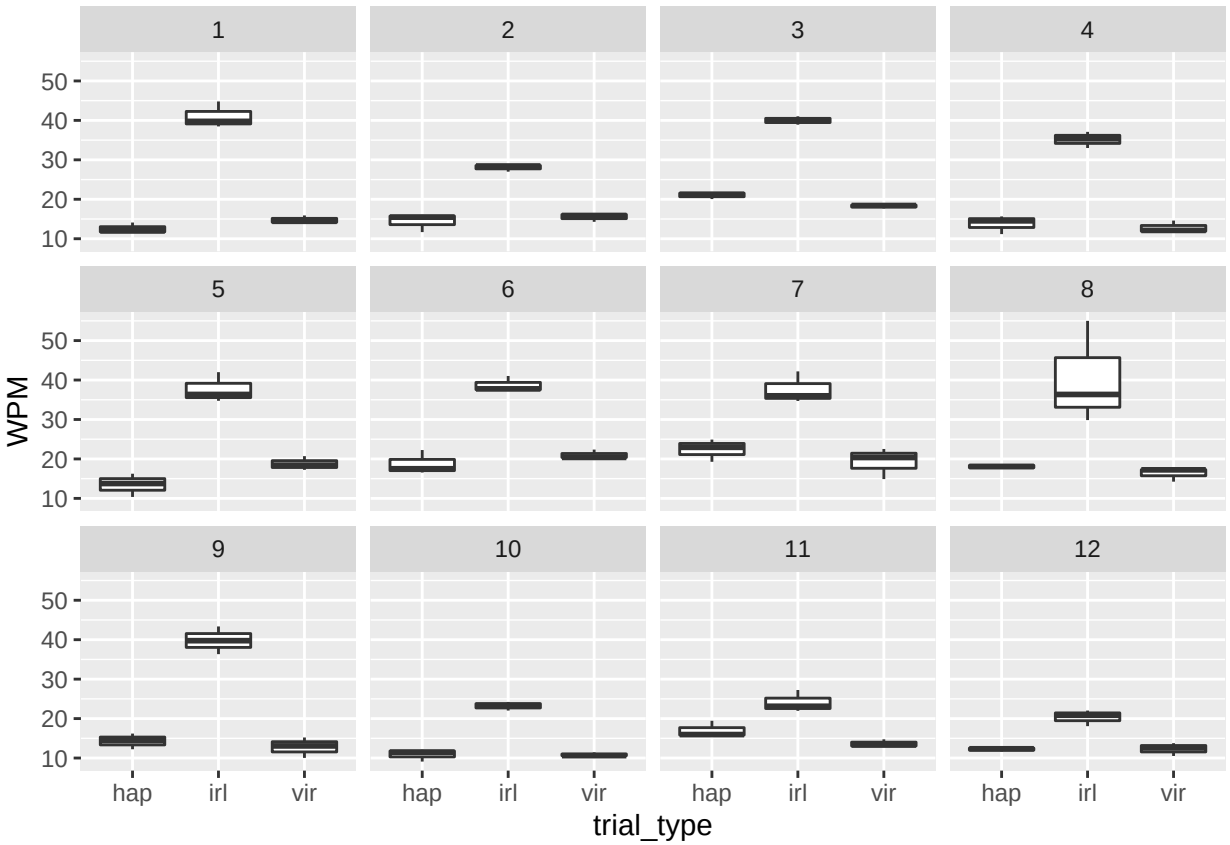
```
##
## Fixed effects:  WPM ~ trial_type
##                    Value Std.Error DF   t-value p-value
## (Intercept)   15.742772  1.327897 90 11.855414  0.0000
## trial_typeirl 18.096634  1.004054  4 18.023563  0.0001
## trial_typevir -0.220142  1.004054  4 -0.219253  0.8372
##  Correlation:
##               (Intr) trl_typr
## trial_typeirl -0.378
## trial_typevir -0.378  0.500
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -2.30071451 -0.59910569  0.03005441  0.56864620  4.30201813
##
## Number of Observations: 108
## Number of Groups:
##                  subject prompt_num %in% subject
##                       12                     102
```

Plots

```
pall <- df %>% ggplot(aes(x=trial_type, y=WPM)) + geom_boxplot()
pall
```




```
pby <- df %>% ggplot(aes(x=trial_type, y=WPM)) + geom_boxplot() + facet_wrap(~subject)
pby
```



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.