

# Examples of LMMs for Factorial Designs

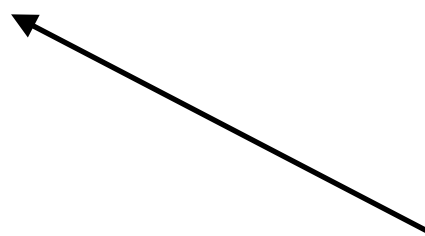
- In the first case, we will look at a model where we have one factor with three levels. We have two sets of data we want to analyse - one is eye gaze duration data, the other is the number of times people re-read a section of text.
- In the second case, we will look at a model for a  $2 \times 2$  repeated measures design - this time just with eye gaze duration data as people read a section of text.

# One factor with Three levels

- We are going to analyse eye movement data associated with reading a segment of text in one of three conditions - Positive, Negative, or Neutral.

```
1 #install the lme4, lsmeans and lmerTest packages first
2 install.packages ("lme4")
3 install.packages ("lmerTest")
4 install.packages ("emmeans")
5 library (lme4)
6 library (lmerTest)
7 library(emmeans)
```

```
9 #C1 = Neutral condition
10 #C2 = Negative condition
11 #C3 = Positive condition
```



The *lmerTest* package gives us  $p$ -values for our fixed effects, while the *emmeans* allows us to conduct pairwise comparisons.