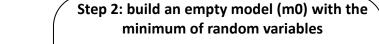
Install and load the NPL package: https://github.com/EricMenetre/NPL

Install and load the Ime4, ImerTest, emmeans and MuMIn packages

Cheat Sheet Linear Mixed Models

Step 1: investigate the normality of the different variables

Perform other plots if needed



Step 3: build several models adding always one fixed effect at a time

Do not add the interactions at this step. REML should be set to FALSE, see step 5



Step 6: add the interactions to the model

REML must be set as FALSE since we compare fixed effects here

Step 5: add the other eventual random effects

Do not add the interactions at this step. To compare models based on their fixed effects, we need to set REML = FALSE. When comparing interactions, REML must be TRUE

Step 4: for each model, check the postulates and estimate the marginal and conditional R²

All the plots should show normal distributions

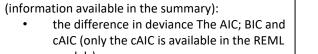
Dictionary:

- Fixed effects: same as the independant variables in the **ANOVA**
- **Random effects**: either random intercept or random slope \rightarrow part of the variance explained by the fact that a certain subject belongs to a certain group, or that a certain RT belongs to a certain subject
- Marginal R²: part of variance explained by the fixed effects
- Conditional R²: part of variance explained by the fixed and the random effects
- REML: adjustment method, either maximum likelihood (ML) or REML for restricted maximum likelihood.

Step 6: compare the models to find the best one

- Systamatically compare the models based on (information available in the summary):
 - models)
- Select the model with the **lowest** AIC; BIC or cAIC

Step 7: get the main effects and the post-hocs



The two R²

and the highest R²