


```
25 model.null <- lmer (Gaze ~ (1 + Condition| Subject) + (1 + Condition| Item), data=DV, REML=TRUE)
26 model.full <- lmer (Gaze ~ Condition + (1 + Condition| Subject) + (1 + Condition| Item), data=DV, REML=TRUE)
27 anova (model.null, model.full)
28 summary (model.full)
```

- Line 25 creates a variable called model.null associated with just random effects of Subjects and Items. Note there is no fixed effect.
- Line 26 create a variable called model.full which includes both the random and fixed effects.
- Line 27 tests where the model.full is a better fit to our data and model.null. If it is, it means adding the fixed effect means we are able to explain our data better than if we don't add it.
- Line 28 then asks for the model.full parameters to be displayed.

The Output

```
> anova(model.null, model.full)
refitting model(s) with ML (instead of REML)
Data: DV
Models:
object: Gaze ~ (1 + Condition | Subject) + (1 + Condition | Item)
..1: Gaze ~ Condition + (1 + Condition | Subject) + (1 + Condition |
..1: Item)
      Df    AIC    BIC logLik deviance Chisq Chi Df Pr(>Chisq)
object 14 8773.4 8834.4 -4372.7   8745.4
..1    16 8771.2 8840.8 -4369.6   8739.2 6.236     2   0.04425 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```



For model comparisons, a different parameter estimator must be used (R will do this for you). REML should be used to estimate parameters when you report them.

- Our two models differ significantly from each other. The one that fits our data the best has the lower AIC value. AIC is the Akaike Information Criterion and measures how much ‘information’ is not captured by our model (values that are relatively lower are better). NOTE - absolute AIC values cannot be interpreted - they have to be compared with the AIC value of another model.