

NOTES FOR EXERCISES IN SESSION 9
----------------------------------

- \* add9:2; add10:2,3; add9:1(b); add10:1 (note suggested order).

Schedule today:

- \* review exercise (Marina): add9:1(a),
- limited review of random effects models (L9–10/11/12),
- you work on the exercises on your own.

Notes on the software for random effects models:

- Minitab/SAS: the General Linear Model menu/`proc glm` give:
  - \* correct ANOVA table and estimates of variance components,
  - \* (least squares) means but no standard errors,only for balanced or almost balanced data,
- Stata: the `anova` command gives:
  - \* by specific request (see do-files), a correct ANOVA table,
  - \* no variance components or (least squares) means,only for balanced data,
- Stata/R: the `mixed` command/library `nlme` give: all statistics correctly for hierarchical data structures (possibly unbalanced),
- Minitab/SAS/R: the Mixed Effects Model menu/`proc mixed`/library `lme4` give: all statistics correctly.

What you should be able to do after today's session...

- recognise cross-over designs and discuss carry-over effects in design and analysis.
- construct ANOVA table outlines for and analyse basic, balanced random effects designs.