


Let's Have Fun with SPSS

Two-Way ANOVA (Factorial Design)

The Linear Model

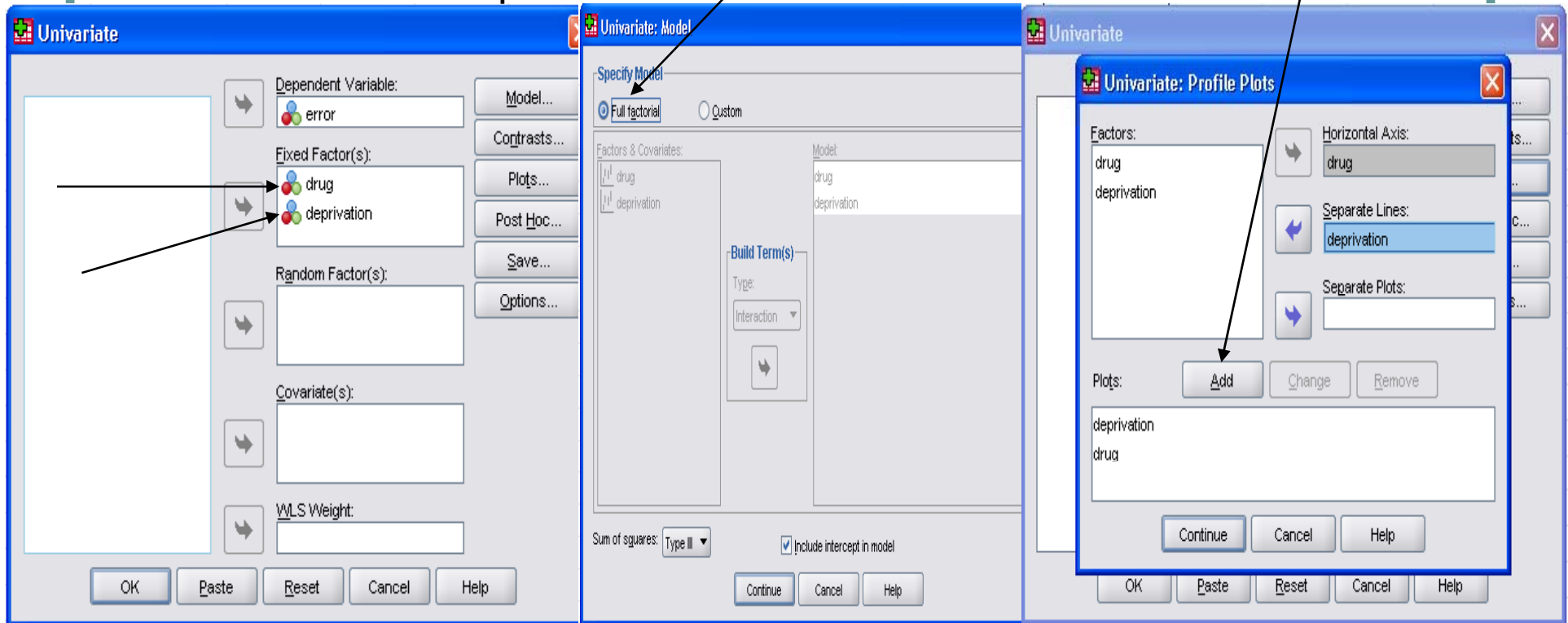
- Two main effects and an interaction effect


$$Y_{ijk} = \mu_T + \alpha_j + \beta_k + (\alpha\beta)_{jk} + E_{ijk}$$
$$= \mu_T + (\mu_j - \mu_T) + (\mu_k - \mu_T) + (\mu_{jk} - \mu_j - \mu_k + \mu_T) + (Y_{ijk} - \mu_{jk})$$

- Three Scenarios
 - Two One-Way ANOVAs
 - Two-Way ANOVA with Interaction
 - Two-Way ANOVA w/o Interaction
- Why bother?

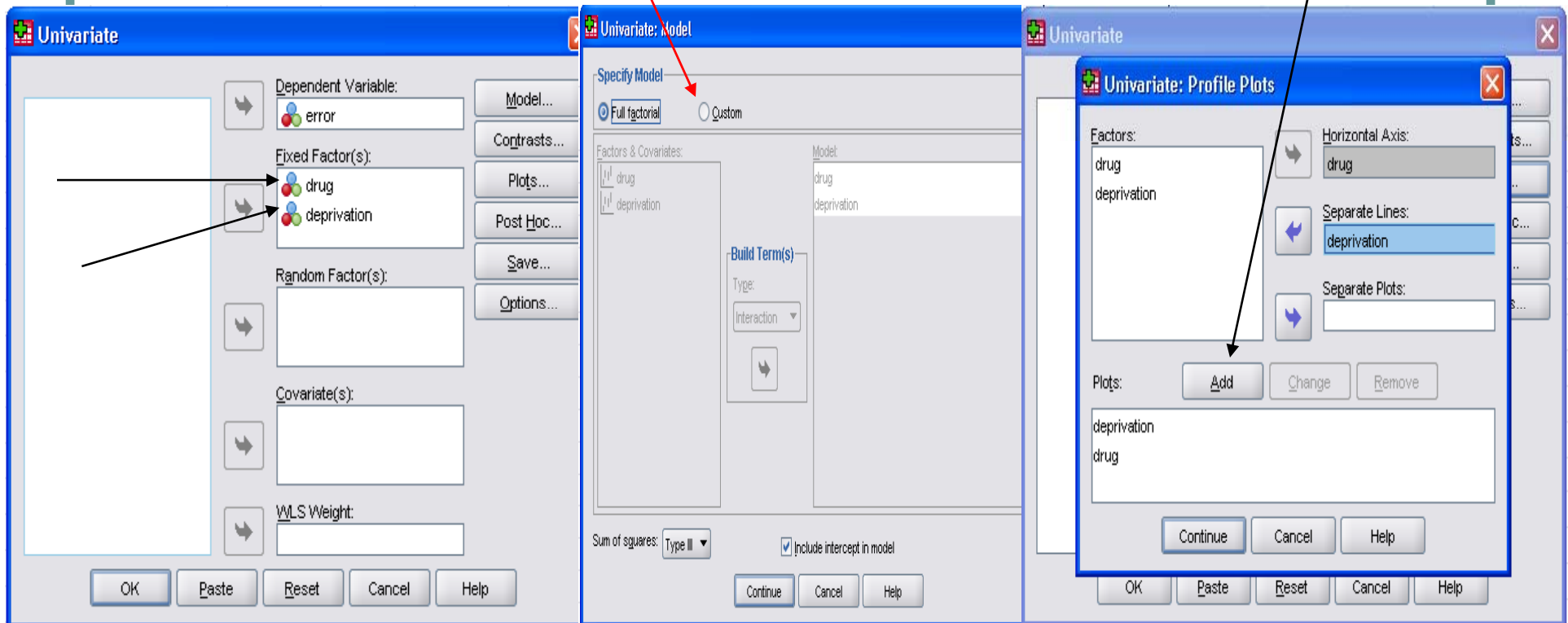
Two-Way ANOVA w/ interaction

- General Linear Model
 - Univariate: Why?
 - Interaction
 - Main effects
 - Simple Effects



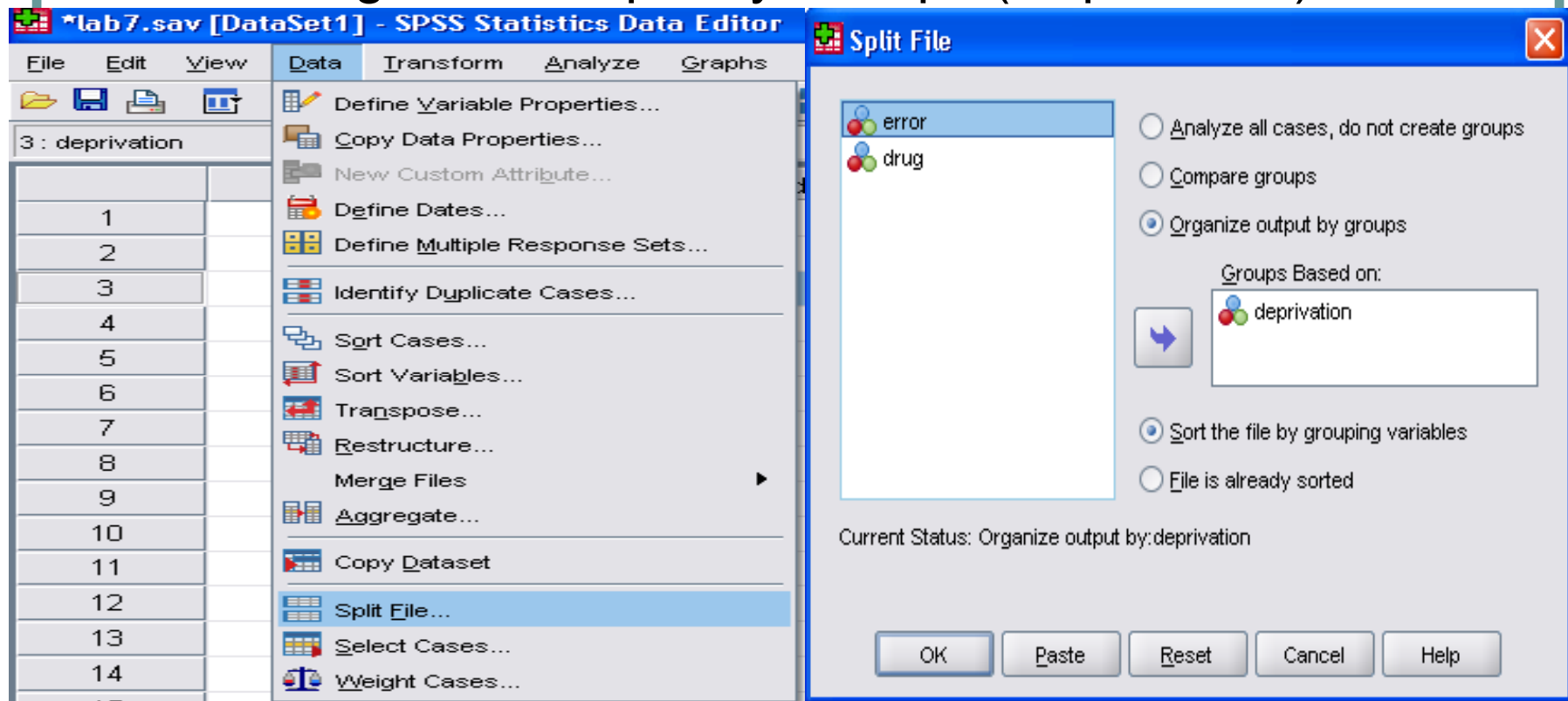
Two-Way ANOVA w/o interaction

- General Linear Model
 - Univariate:
 - **Model: custom**



Two-Way ANOVA Simple Effect

- Split File
 - Data → Split File →
 - Organize Output by Groups (Deprivation) → OK



Comparison and Summary

- Results [lab7.xls](#)
- In summary:
 - It is all about standard error: The smaller, the better
 - A simple effect is the effect of one independent variable within one level of a second independent variable **with the error term and df from the whole design.**
- Questions or concerns?