

Tonight we will illustrate how to

1. multiple One-Way ANOVA
2. Two-Way ANOVA (1) w/, (2) w/o interaction and (3) simple effect test

1. Let's two One-Way ANOVAs:

Drug	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	106.083		53.042	2.163	
Within Groups	514.875		24.518		
Total	620.958	23			

Deprivation

Between Groups	26.042		26.042	.963	
Within Groups	594.917		27.042		
Total	620.958	23			

2. Next, let's do Two-Way ANOVA :

a. General Linear Model

i. Univariate

1. Dependent variable
2. Fixed Factor(s)
3. Model: Full factorial
4. Plots
 - a. Drug
 - b. Deprivation
 - c. Drug*deprivation

b. Output

i. **Between-Subjects Factors:** Check whether the data set is correctly read

ii. **Tests of Between-Subjects Effects:** Check interaction effect first

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	282.208 ^a	5	56.442	2.999	.038
Intercept	2420.042	1	2420.042	128.593	.000
drug	106.083	2	53.042	2.818	.086
deprivation	26.042	1	26.042	1.384	.255
drug * deprivation	150.083	2	75.042	3.987	.037
Error	338.750	18	18.819		
Total	3041.000	24			
Corrected Total	620.958	23			

R Squared = .454 (Adjusted R Squared = .303)

iii. **Profile Plots:** Check main and interaction effects in a visual mode.

3. What if the interaction is significant?

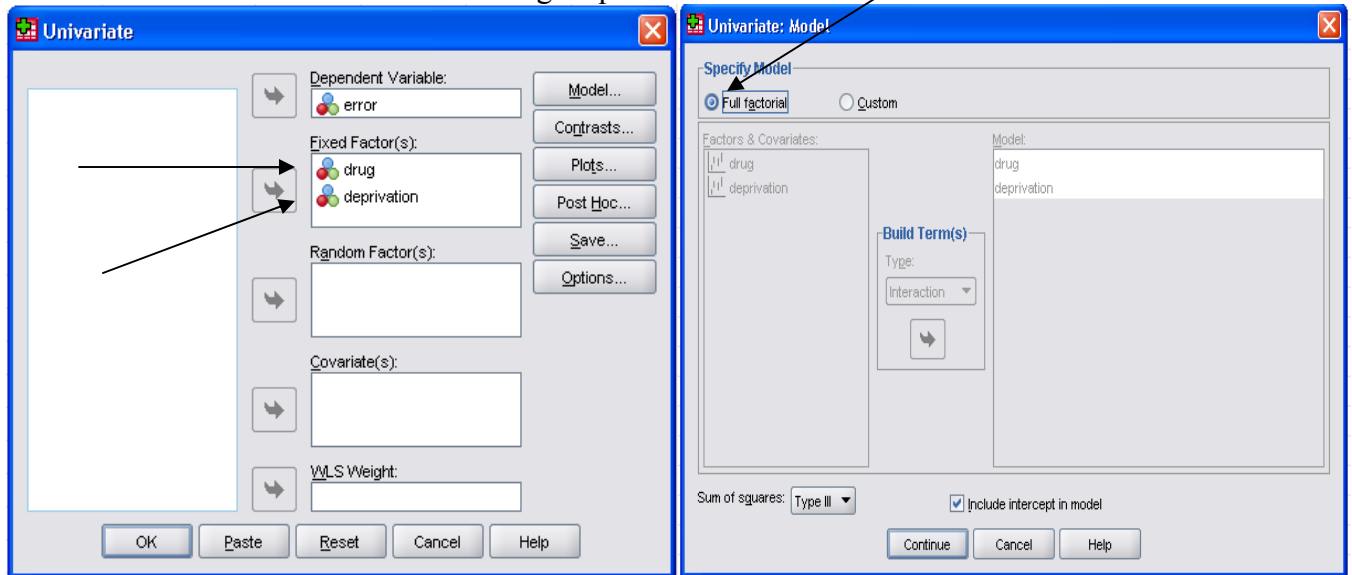
a. General Linear Model

i. Univariate

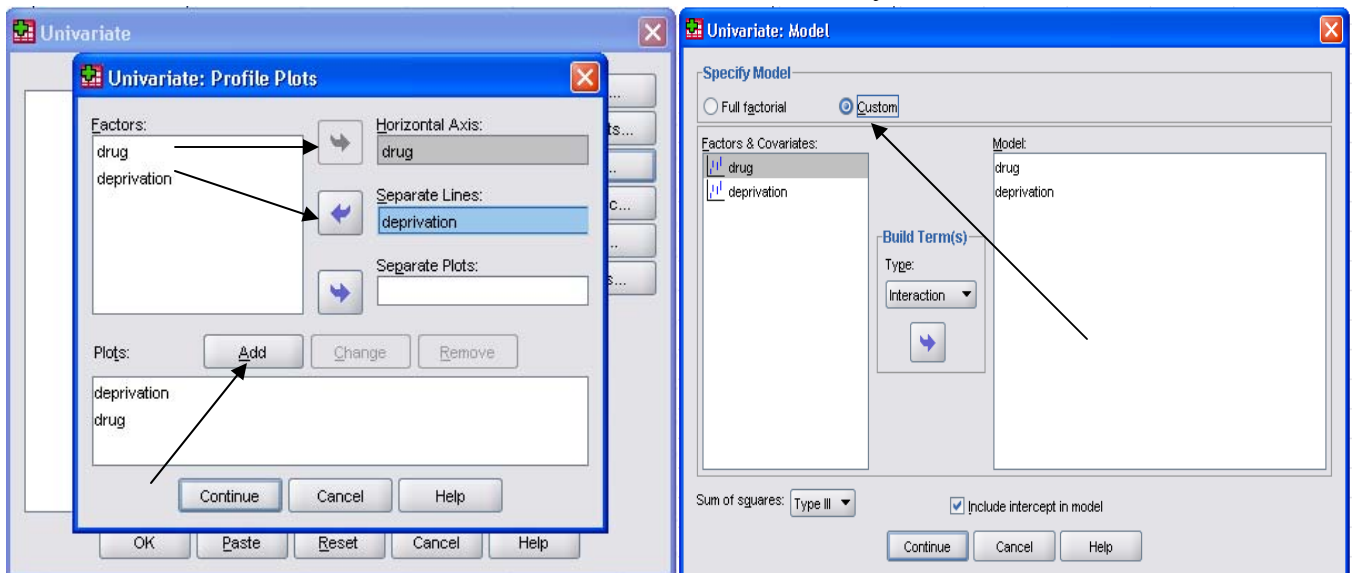
Model: Custom

HELP

1. Two One-Way ANOVAs
2. Two-Way ANOVA :
 - a. General Linear Model
 - ii. Univariate
 1. Dependent variable
 2. Fixed Factor(s)
 3. Model: Full factorial
 4. Plots
 - a. Drug
 - b. Deprivation
 - c. Drug*deprivation



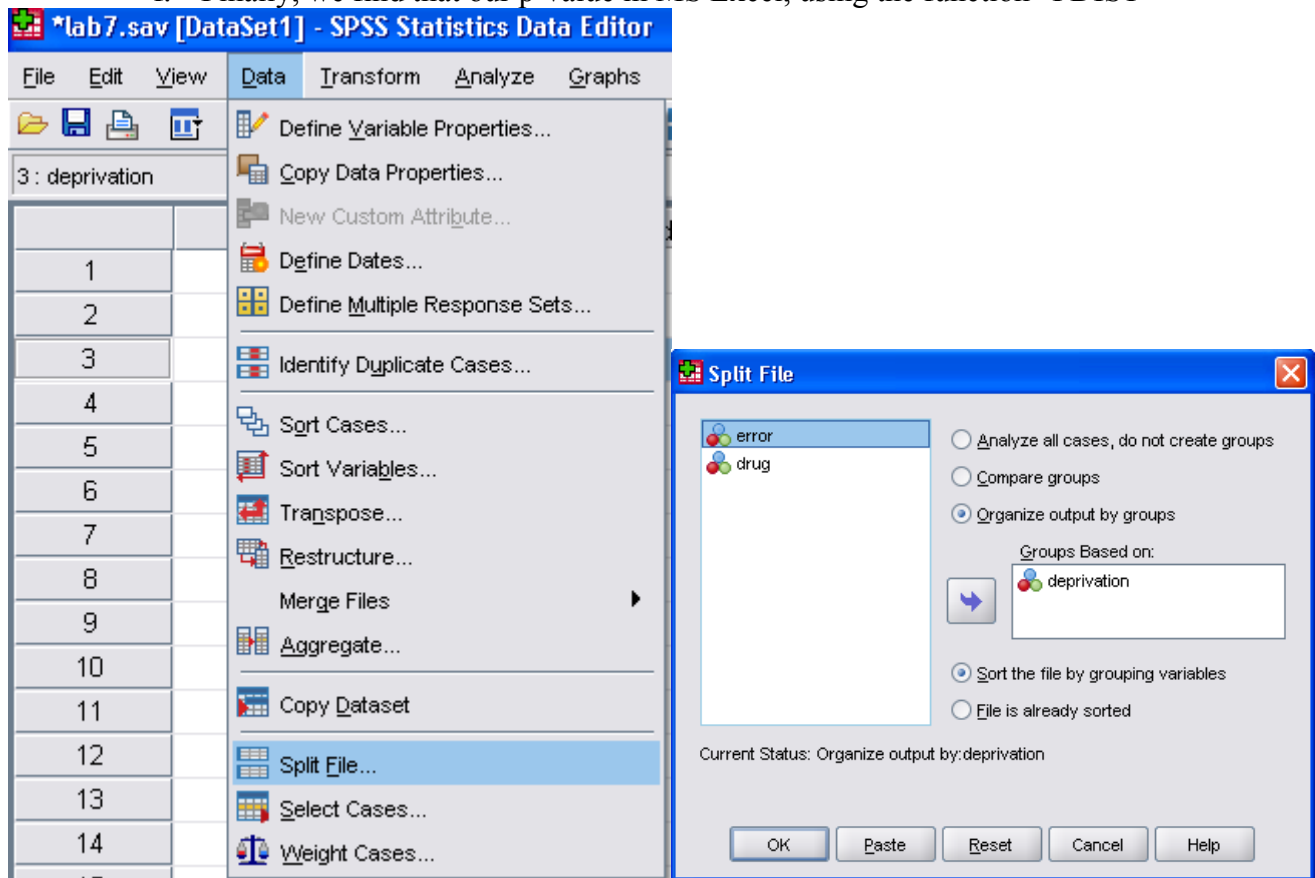
3. Two-Way ANOVA without interaction effect



4. How do we do a simple effect test?

How to test simple effects of Drug for Deprivation 1 and 2 using SPSS?

- Run the overall factorial ANOVA and write down the MS_{error} that you get.
- Split File
Data → Split File → Organize Output by Groups (Deprivation) → OK
- Run one-way ANOVA for each Deprivation level
Analyze → Compare Means → One-Way ANOVA
- Note that we are ONLY interested in the SS and MS for the effect (again, the error term in this analysis is the wrong one).
- We divide this MS (124/ 4.083) by the MS_{error} (18.819 with $df=18$) from the overall factorial ANOVA.
- Finally, we find that our p-value in MS Excel, using the function “FDIST”



simple effect with correct MS/error and df

Deprivation for Deprivatoin 1	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	248.000	2	124.000	6.589	.007
Within Groups	144.000	18	18.819		
Total	392.000	11			
Deprivation for Deprivatoin 2					
Between Groups	8.167	2	4.083	.217	.807
Within Groups	194.750				
Total	202.917	11			