

Removing/adding interaction in ANOVA/ANCOVA in SPSS

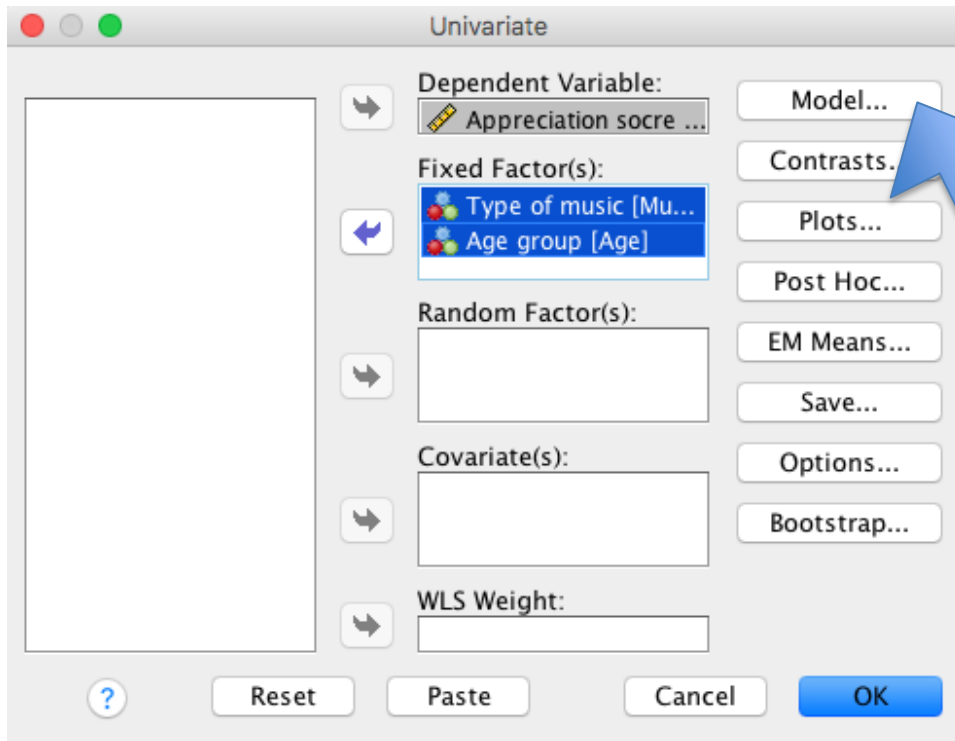
ANOVA *without* interaction

- When running a 2-way ANOVA in SPSS, the interaction term is added automatically.
 - But what if you didn't include an interaction in your hypothesis? Or if the interaction is not significant?
- Manually remove it from the model

ANOVA *without* interaction

In SPSS:

Analyze → General Linear Model → Univariate



Add your dependent variable in the 'Dependent Variable' box.

Add your categorical predictors in the 'Fixed Factor(s) box

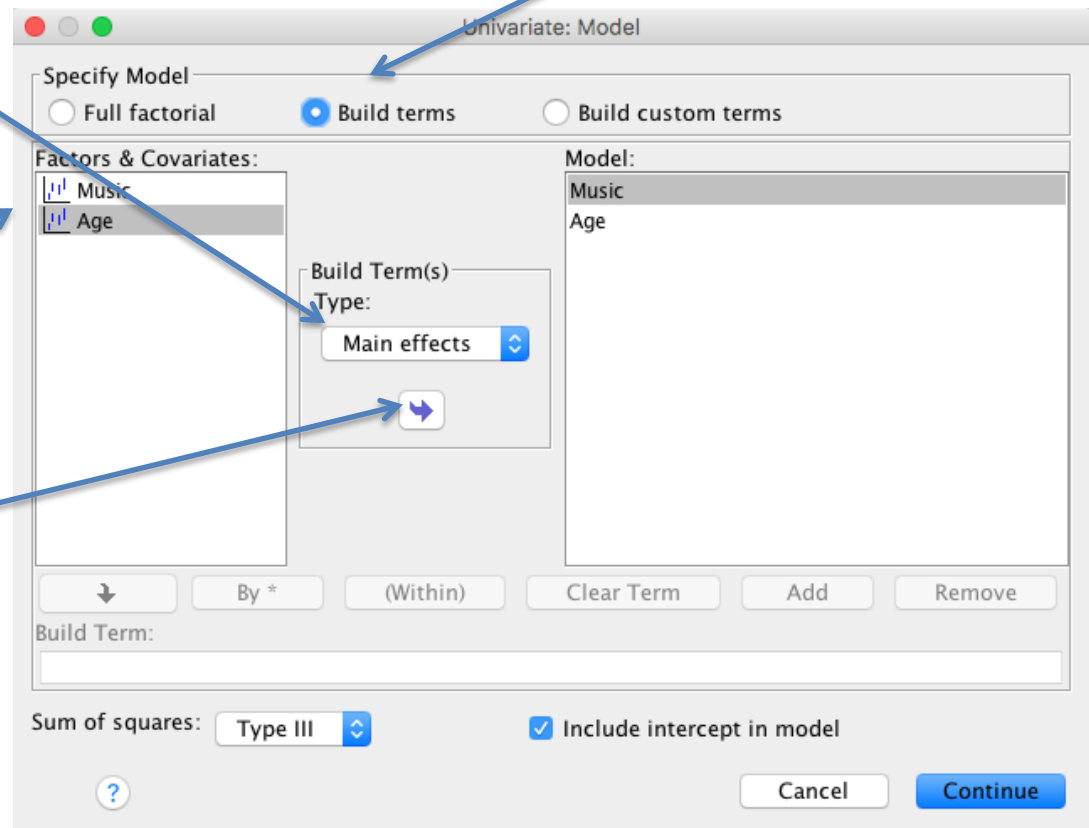
Click on 'Model'

ANOVA *without* interaction

1. Instead of 'Full factorial', check 'Build terms'

2. Choose 'Main effects' instead of interaction

3. Select both your predictors and click on the arrow to put them in the model



ANOVA *without* interaction

This will give you an ANOVA output table without the interaction term in there:

Tests of Between-Subjects Effects

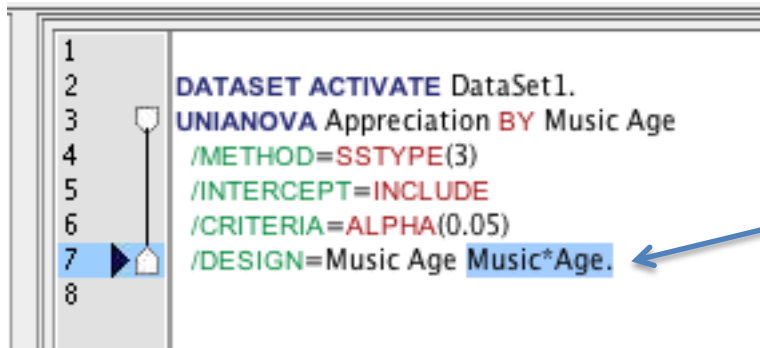
Dependent Variable: Appreciation socre

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	81864,778 ^a	3	27288,259	6,835	,000
Intercept	34339,600	1	34339,600	8,601	,004
Music	81864,067	2	40932,033	10,253	,000
Age	,711	1	,711	,000	,989
Error	343343,622	86	3992,368		
Total	459548,000	90			
Corrected Total	425208,400	89			

a. R Squared = ,193 (Adjusted R Squared = ,164)

ANOVA *without* interaction

- Alternatively, you could use the syntax to remove it.



```
1  
2 DATASET ACTIVATE DataSet1.  
3 UNIANOVA Appreciation BY Music Age  
4 /METHOD=SSTYPE(3)  
5 /INTERCEPT=INCLUDE  
6 /CRITERIA=ALPHA(0.05)  
7 /DESIGN=Music Age Music*Age.  
8
```

The screenshot shows the SPSS syntax editor with line numbers 1 through 8 on the left. The syntax code is as follows: Line 1: DATASET ACTIVATE DataSet1.; Line 2: UNIANOVA Appreciation BY Music Age; Line 3: /METHOD=SSTYPE(3); Line 4: /INTERCEPT=INCLUDE; Line 5: /CRITERIA=ALPHA(0.05); Line 6: /DESIGN=Music Age Music*Age.; Line 7: (blank). The text 'Music*Age.' on line 6 is highlighted in blue. A blue arrow points from the text 'Removing the selected term will take it out of the model' to this highlighted text.

Removing the
selected term
will take it out
of the model

→ If you do this when you want to remove the interaction because it is not significant, be sure to copy the syntax first, and remove the interaction from the copy, so that both models are still in your syntax.

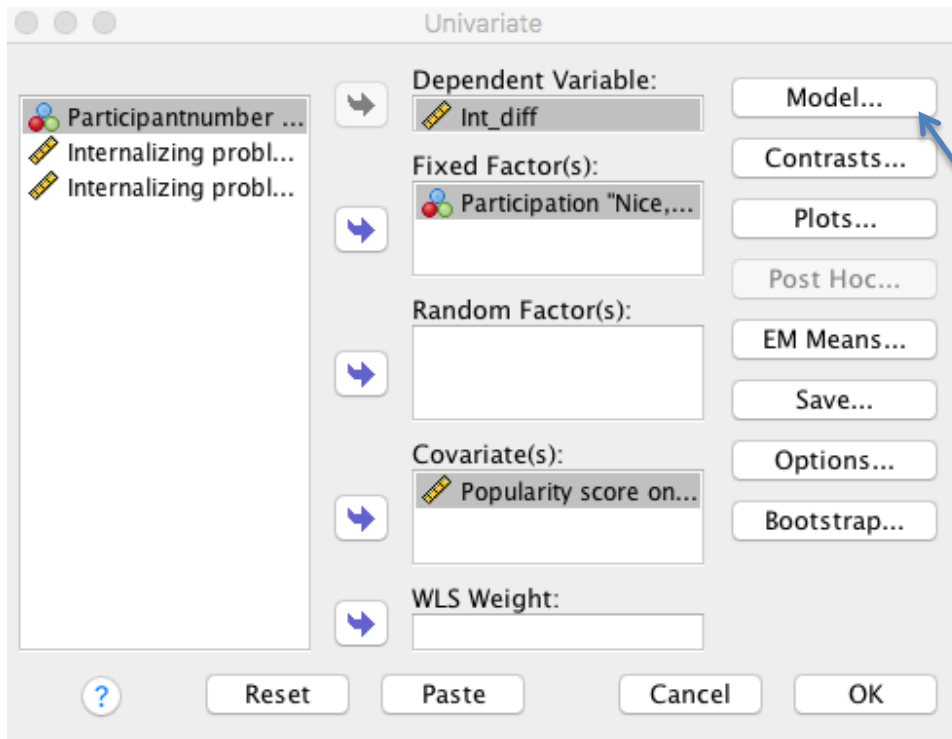
ANCOVA *with* interaction

- When running an ANCOVA as explained in the workbook, the interaction won't automatically be added. But what if you do want to test it?
 - Like with the ANOVA, you could alter the syntax, and add the interaction term yourself
 - If you don't feel confident working in the syntax, you can use the Model building function again, see next slide

ANCOVA *with* interaction

In SPSS:

Analyze → General Linear Model → Univariate



Add your categorical predictor to 'Fixed Factor(s)'

Add your quantitative predictor/covariate to 'Covariates'

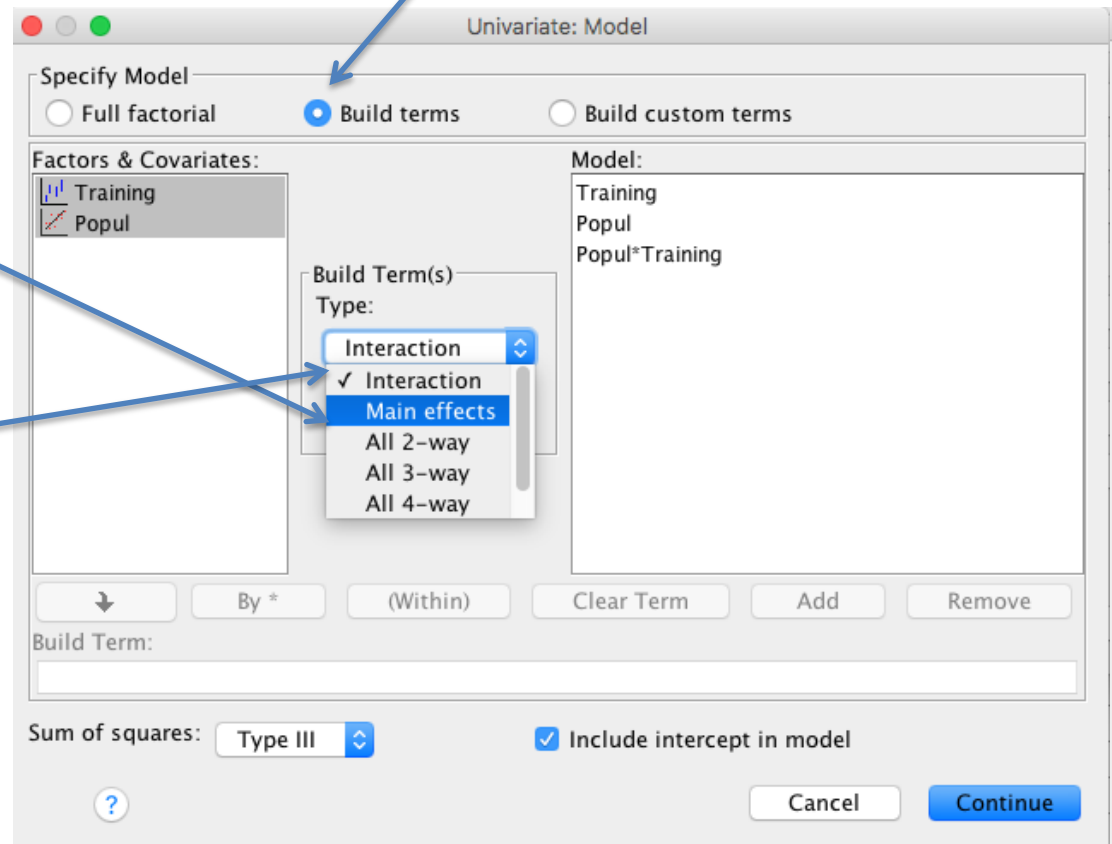
Click on 'Model'

ANCOVA *with* interaction

1. Click on 'Build terms' instead of 'Full Factorial'

2. First add both predictors as Main effects

Then select both of them at the same time and add the interaction term



ANCOVA *with* interaction

- This should provide you with a model that includes an interaction term

Tests of Between-Subjects Effects

Dependent Variable: Int_diff

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	131,792 ^a	3	43,931	3,966	,014
Intercept	138,001	1	138,001	12,457	,001
Training	13,147	1	13,147	1,187	,282
Popul	72,685	1	72,685	6,561	,014
Training * Popul	3,728	1	3,728	,337	,565
Error	509,588	46	11,078		
Total	807,000	50			
Corrected Total	641,380	49			

a. R Squared = ,205 (Adjusted R Squared = ,154)