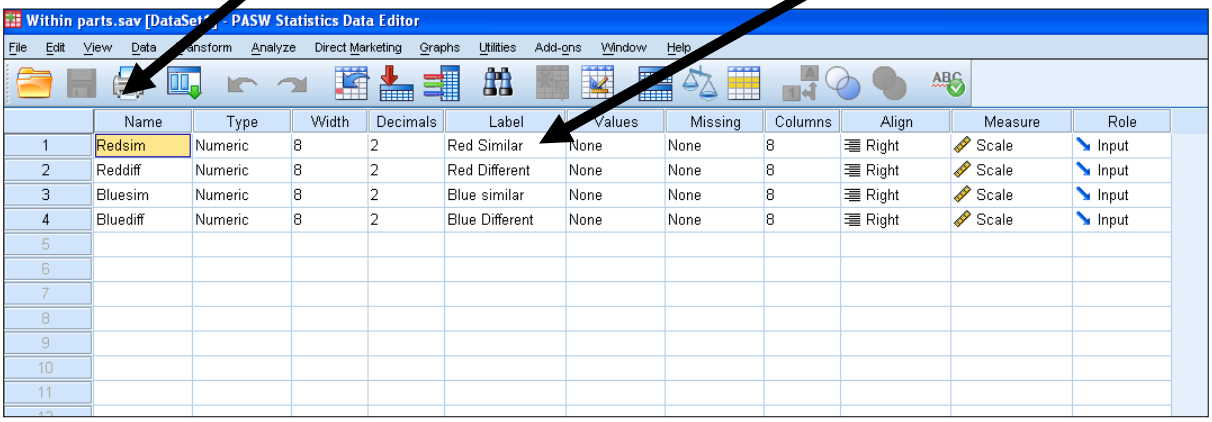
Within Subjects ANOVA

A. Arranging your data

Click on the 'Variable View' window

Give your variables names here. Maximum eight characters and no spaces

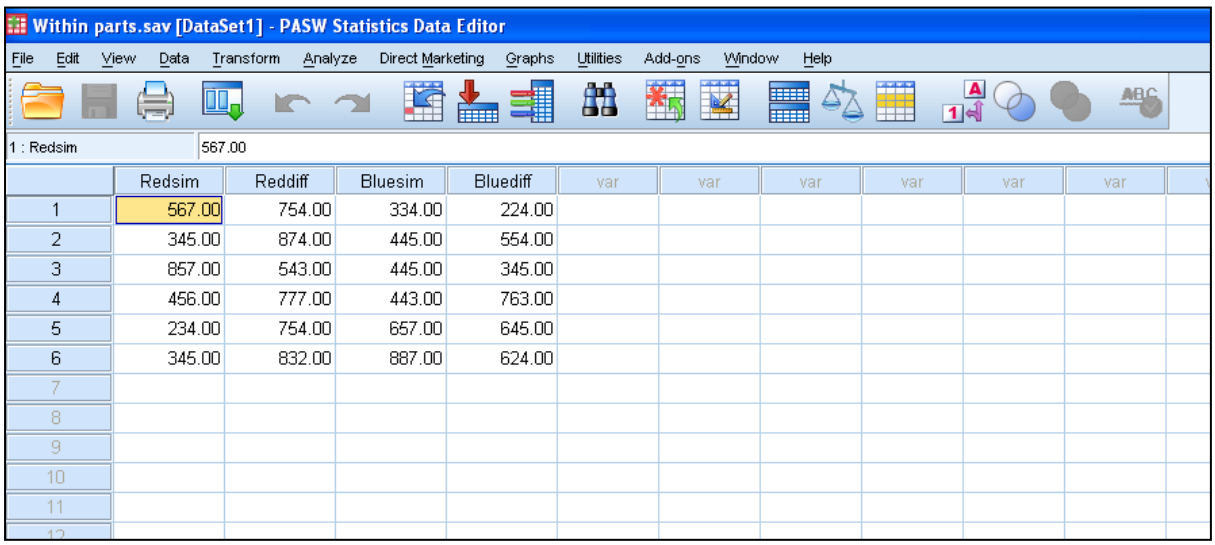
Give your variables proper labels here.



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Redsim	Numeric	8	2	Red Similar	None	None	8	Right	Scale	Input
2	Reddiff	Numeric	8	2	Red Different	None	None	8	Right	Scale	Input
3	Bluesim	Numeric	8	2	Blue similar	None	None	8	Right	Scale	Input
4	Bluediff	Numeric	8	2	Blue Different	None	None	8	Right	Scale	Input
5											
6											
7											
8											
9											
10											
11											

Click on the 'Data View' window

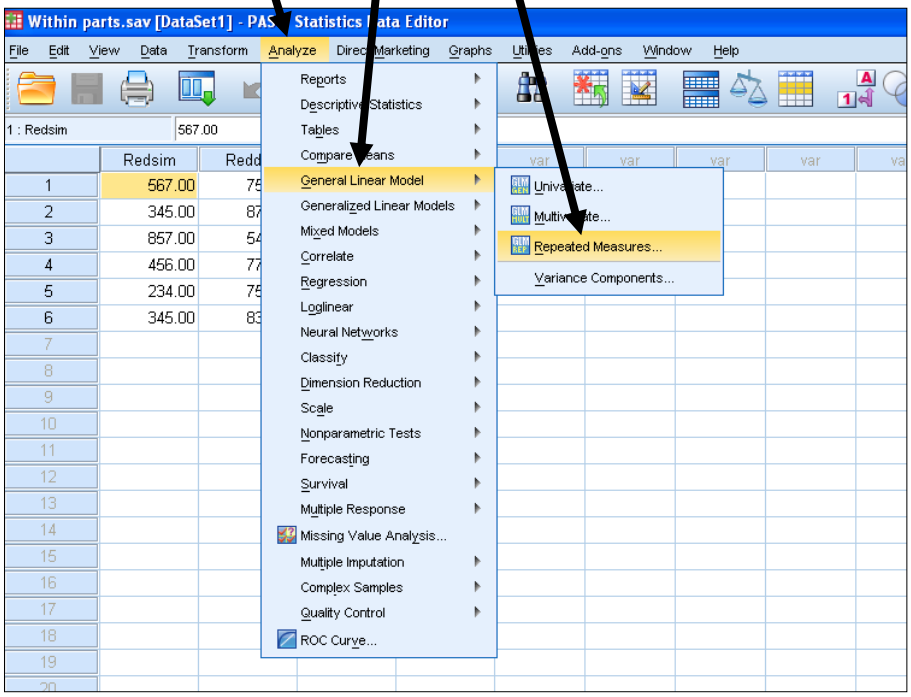
Because each row is a single participant, we enter all the data for each participant across the row. Each column represents a different condition for that participant



	Redsim	Reddiff	Bluesim	Bluediff	var	var	var	var	var	var
1	567.00	754.00	334.00	224.00						
2	345.00	874.00	445.00	554.00						
3	857.00	543.00	445.00	345.00						
4	456.00	777.00	443.00	763.00						
5	234.00	754.00	657.00	645.00						
6	345.00	832.00	887.00	624.00						
7										
8										
9										
10										
11										

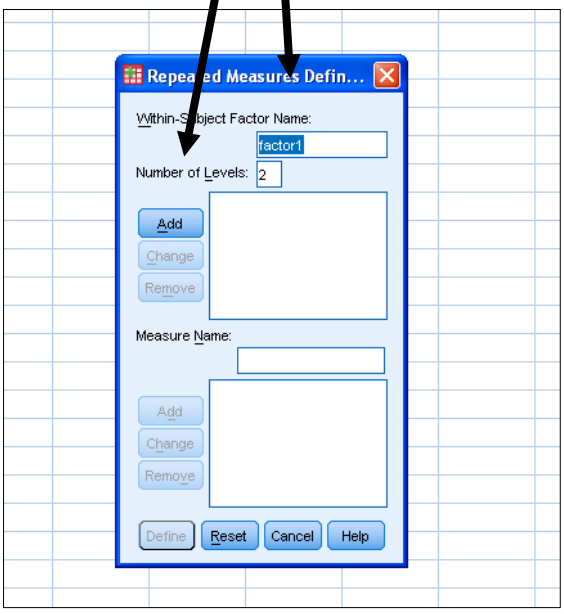
B. Running the ANOVA

Go to 'Analyse' across the top. 'General Linear Model' and 'Repeated Measures'

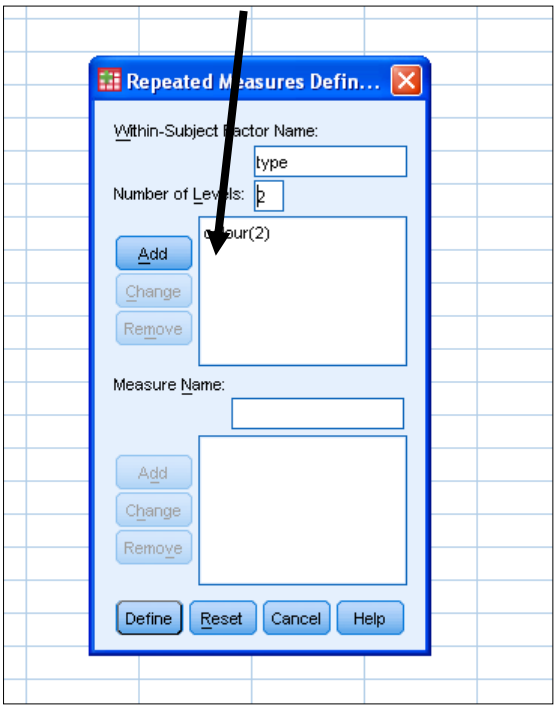


You will then see a box appear which looks like the one below

Double click where it says factor 1 and give the variable a name. In this case it is 'Colour' with '2' levels. Then click 'Add'

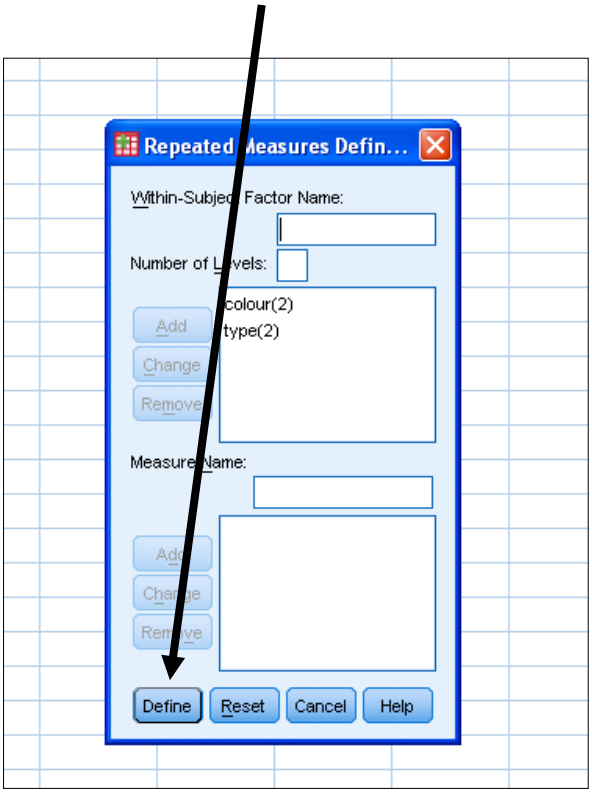


Type in the second variable name. In this example it is 'Type', also with '2' levels.

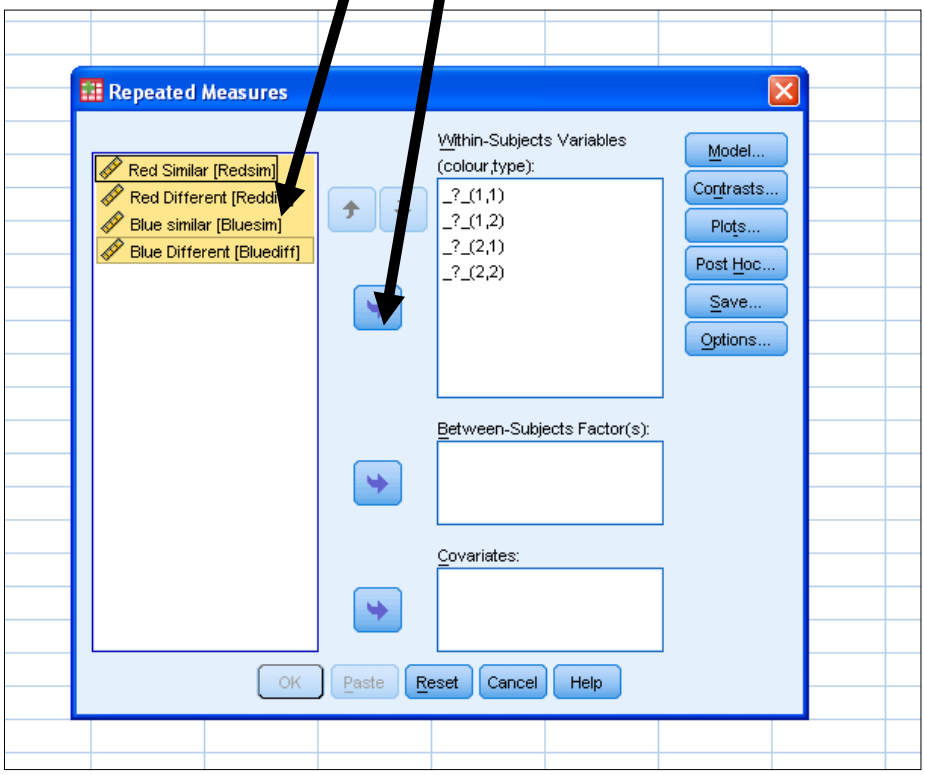


Click 'Add' and you should see a screen like the one below

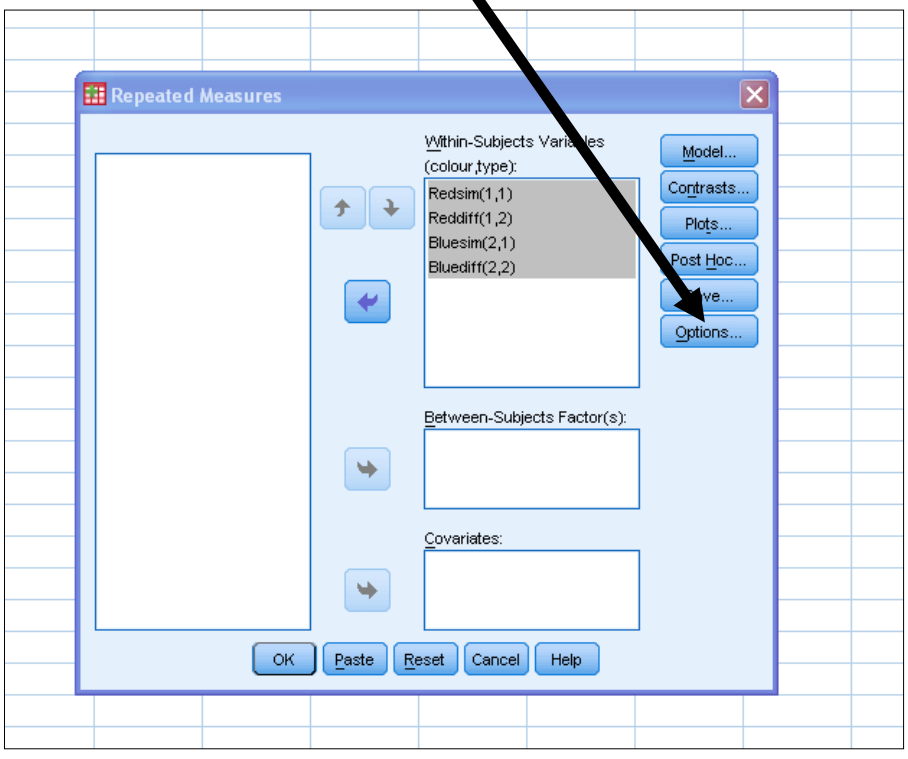
Click 'Define' to get to the next screen

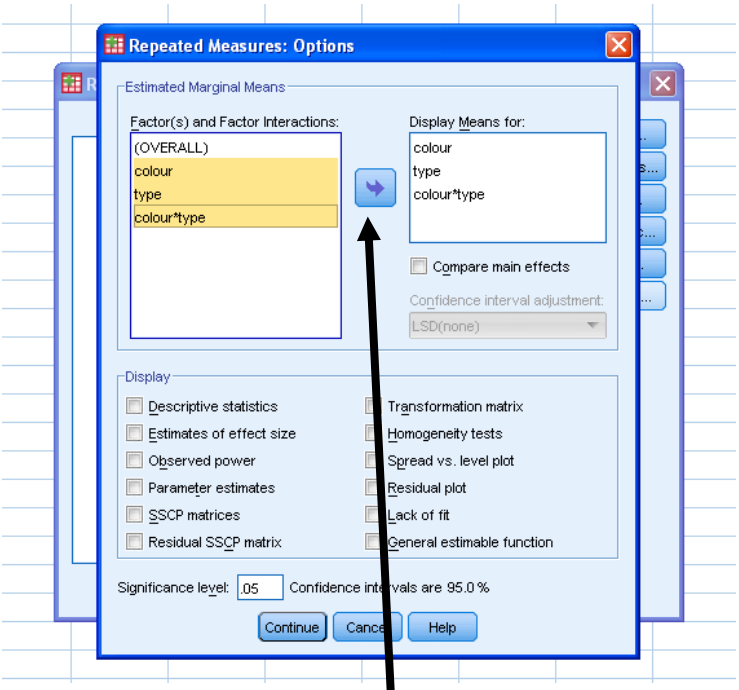


Highlight these, and then click the arrow



You will then see this screen. Click on 'Options'

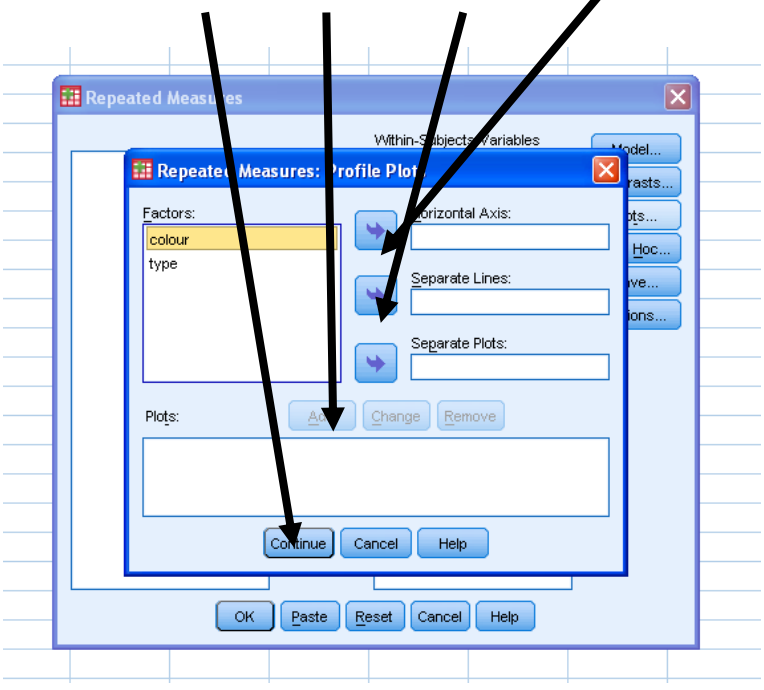




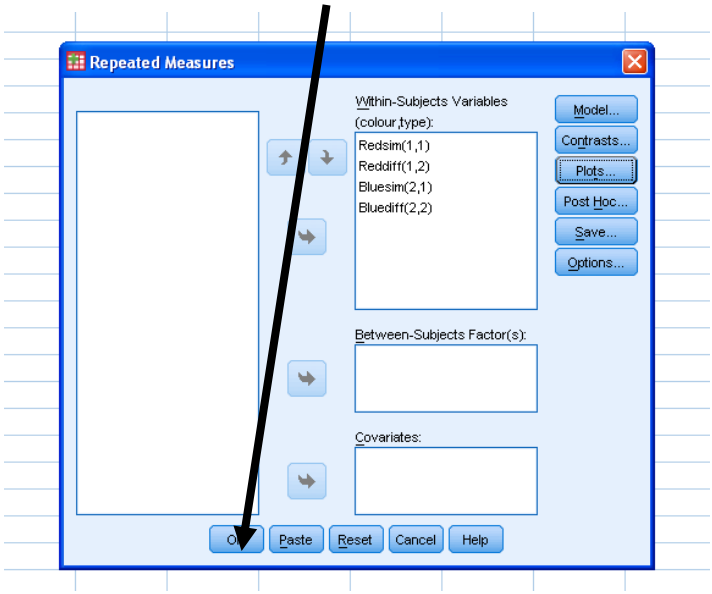
Highlight your variables and move them across with the arrow button. Click 'Continue'

Click on 'Plots' to get to the next screen

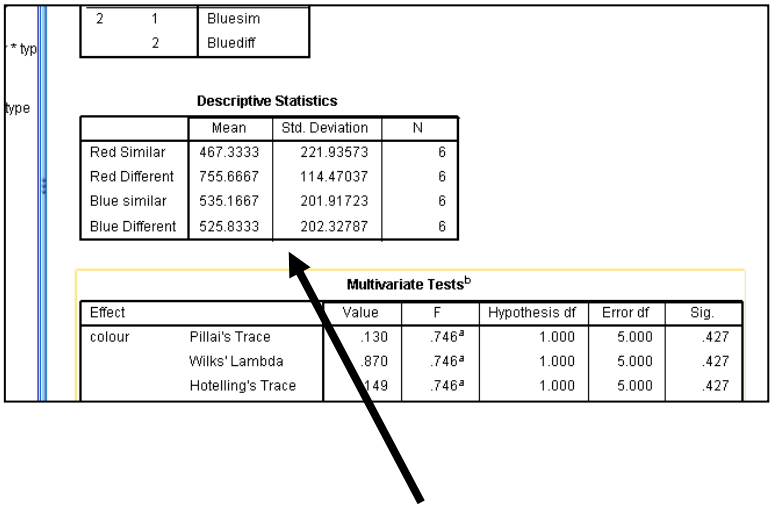
Move *colour* and *type* to the Horizontal Axis box and Separate Lines box and click 'Add' and 'Continue'



Back to this screen and click on 'OK'



The Output



2	1	Bluesim
	2	Bluediff

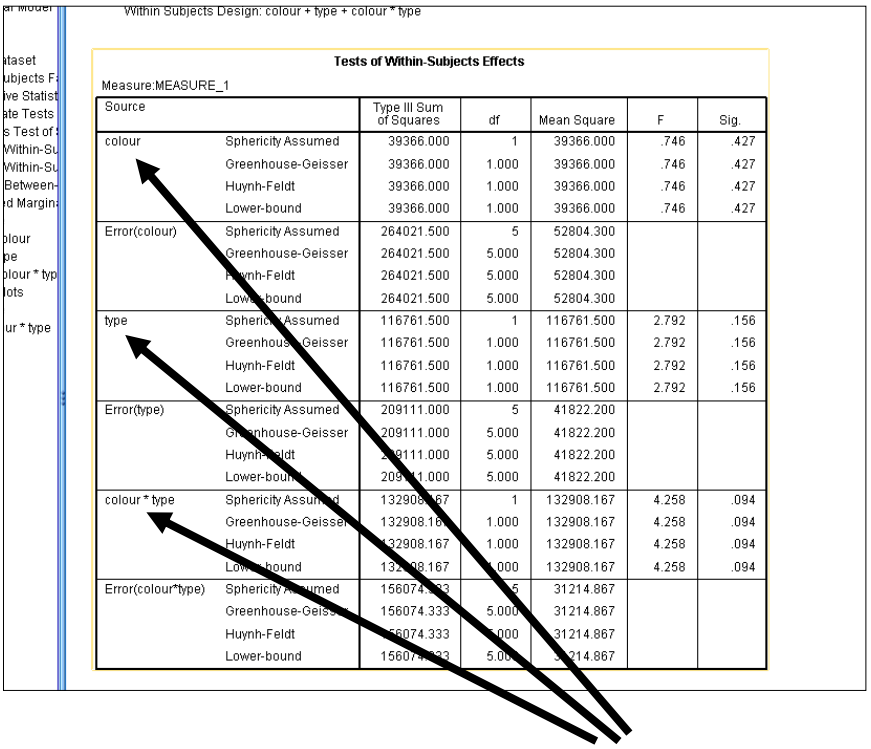
Descriptive Statistics

	Mean	Std. Deviation	N
Red Similar	467.3333	221.93573	6
Red Different	755.6667	114.47037	6
Blue similar	535.1667	201.91723	6
Blue Different	525.8333	202.32787	6

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
colour	Pillai's Trace	.130	.746[a]	1.000	5.000	.427
	Wilks' Lambda	.870	.746[a]	1.000	5.000	.427
	Hotelling's Trace	.149	.746[a]	1.000	5.000	.427

On this part of the output, look at the table of means, labelled 'Descriptive Statistics'



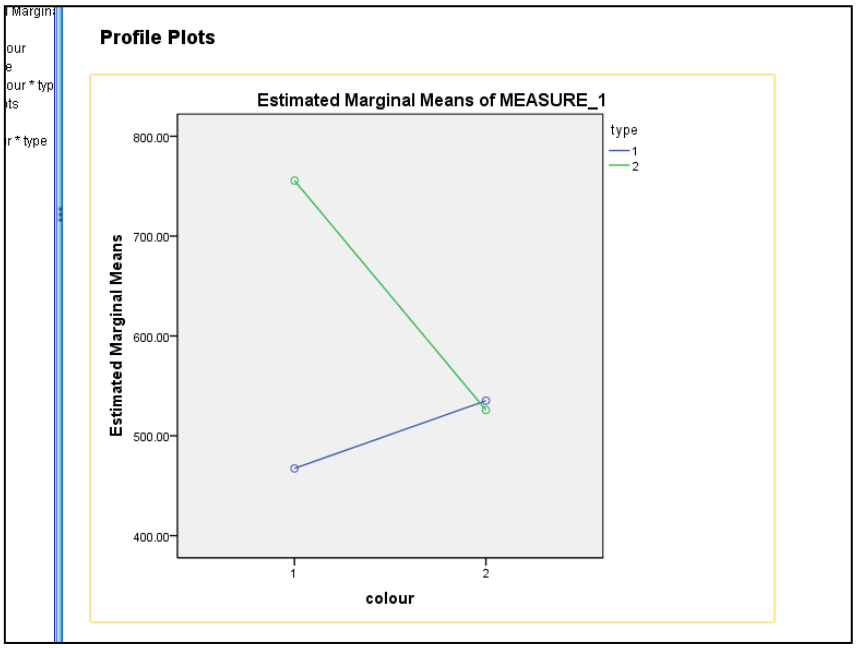
Within Subjects Design: colour + type + colour * type

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
colour	Sphericity Assumed	39366.000	1	39366.000	.746	.427
	Greenhouse-Geisser	39366.000	1.000	39366.000	.746	.427
	Huynh-Feldt	39366.000	1.000	39366.000	.746	.427
	Lower-bound	39366.000	1.000	39366.000	.746	.427
Error(colour)	Sphericity Assumed	264021.500	5	52804.300		
	Greenhouse-Geisser	264021.500	5.000	52804.300		
	Huynh-Feldt	264021.500	5.000	52804.300		
	Lower-bound	264021.500	5.000	52804.300		
type	Sphericity Assumed	116761.500	1	116761.500	2.792	.156
	Greenhouse-Geisser	116761.500	1.000	116761.500	2.792	.156
	Huynh-Feldt	116761.500	1.000	116761.500	2.792	.156
	Lower-bound	116761.500	1.000	116761.500	2.792	.156
Error(type)	Sphericity Assumed	209111.000	5	41822.200		
	Greenhouse-Geisser	209111.000	5.000	41822.200		
	Huynh-Feldt	209111.000	5.000	41822.200		
	Lower-bound	209111.000	5.000	41822.200		
colour * type	Sphericity Assumed	132908.167	1	132908.167	4.258	.094
	Greenhouse-Geisser	132908.167	1.000	132908.167	4.258	.094
	Huynh-Feldt	132908.167	1.000	132908.167	4.258	.094
	Lower-bound	132908.167	1.000	132908.167	4.258	.094
Error(colour*type)	Sphericity Assumed	156074.333	5	31214.867		
	Greenhouse-Geisser	156074.333	5.000	31214.867		
	Huynh-Feldt	156074.333	5.000	31214.867		
	Lower-bound	156074.333	5.000	31214.867		

On this part of the output, look at the 'Tests of Within Subjects Effects'. You have two main effects to inspect (colour and type) and an interaction (colour*type).



At the bottom of the output you should find a plot, which gives a graphical indication of the results