How to run a Wilcoxon Rank sum test in SPSS

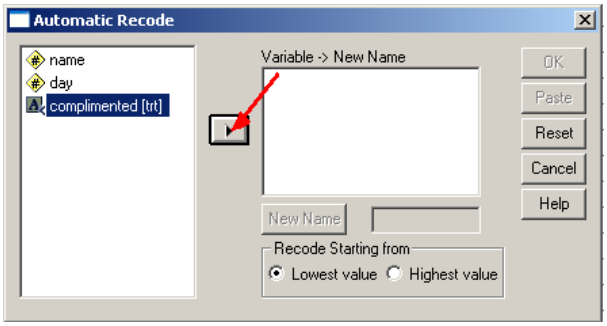
In this example, we want to test the claim that the distribution of the day rating of TAMU students who received a compliment is different than the distribution of the day rating of TAMU students who didn't receive a compliment. (No – this is not the best test for the data, but just for the sake of this example, we will use it). These are the hypotheses:

H_a: The distribution of the day ratings is not the same in both populations
H_o: The distribution of the day ratings is the same in both populations

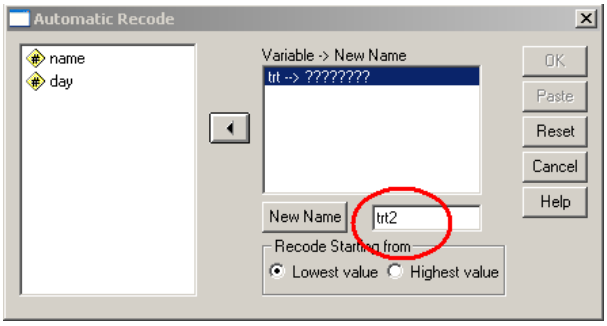
The data set is called "**flattery**" and can be found on the class website.

1) The Wilcoxon test won't allow you to enter in a string variable as the explanatory variable, so **before you start, you need to recode the values**. This means you need to make a new explanatory variable with numbers representing the labels. To do this, in SPSS, go to Transform→Automatic recode…

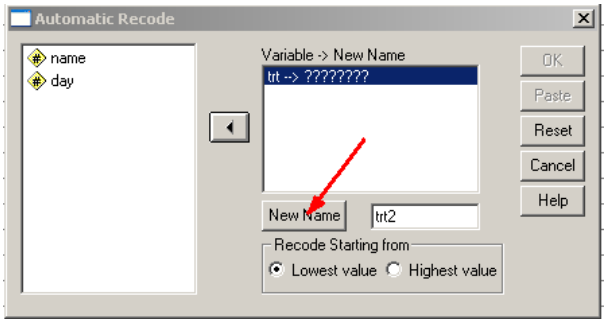
2) Click on the explanatory variable name (in this case "complimented(trt)"), then click the ▸, to move it to the "Variable→New Name" list



3) Where is says "New Name", type the name of the new explanatory variable you want to make. In this case the new explanatory variable is being named "trt2".



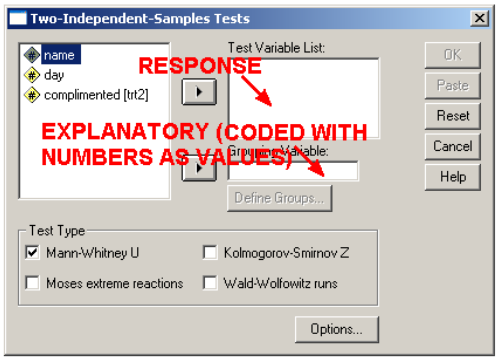
4) Click the button that says "New Name"



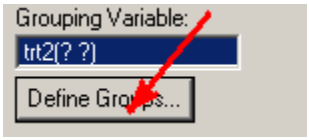
5) Click "OK"

6) **Now, to run the Wilcoxon Rank sum test**, go to Analyze→Nonparametric Tests→2 Independent Samples…

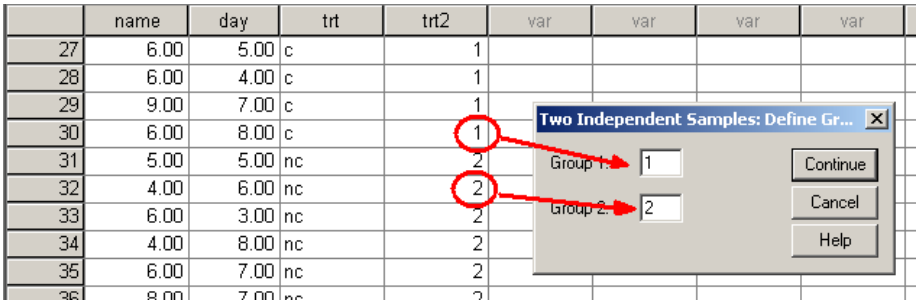
7) Click the resp. variable (in this case, it's "day"), then click the upper arrow button, , to move it to the "Test Variable(s):" list. Click the expl. variable (in this case, it's "compliment[trt2]"), then click the lower arrow button, , to move it to the "Grouping Variable:" list



8) Under where it says "grouping Variable", click "Define Groups"**.**



9) This will bring you to a window titled "defined groups". Enter the labels used as explanatory values where it ways "Group 1" and "Group 2". In this example, since the two values of the NEW explanatory variable have been automatically coded as "1" (for compliment) or "2" (for no compliment), these are the values entered into the windows marked "group 1" and "group 2". After entering in the groups, click "Continue"



10) When you get back, click "OK".

11) The output you get should look like this:

Mann-Whitney Test

Ranks

	complimented	N	Mean Rank	Sum of Ranks
DAY	Complimented	30	35.88	1076.50
	Not complimented	30	25.12	753.50
	Total	60		

Test Statistics[a]

	DAY
Mann-Whitney U	288.500
Wilcoxon W	753.500
Z	-2.414
Asymp. Sig. (2-tailed)	.016

a. Grouping Variable: complimented

This is the p-value for the test of:
H_a: The distribution of the day ratings are not the same for both populations
H_o: The distribution of the day ratings are the same for both populations

If we were testing

H_a: The distribution of the day ratings for TAMU students that receive such a compliment is shifted to the right of the distribution of the day ratings for TAMU students that don't receive such a compliment.

H_o: The distribution of the day ratings for TAMU students that receive such a compliment is the same or shifted to the left of the distribution of the day ratings for TAMU students that don't receive such a compliment.

Then the correct p-value would be 0.016/2 since the mean rank for the complimented group (35.88) is greater than the men rank for the not complimented group (25.12), which supports Ha

If we were testing

H_a: The distribution of the day ratings for TAMU students that receive such a compliment is shifted to the left of the distribution of the day ratings for TAMU students that don't receive such a compliment

H_o: The distribution of the day ratings for TAMU students that receive such a compliment is the same or shifted to the right of the distribution of the day ratings for TAMU students that don't receive such a compliment

Then the correct p-value would be 1-0.016/2=0.92 since the mean rank for the complimented group (35.88) is greater than the men rank for the not complimented group (25.12), which supports Ho.