SAS Noncentral Chi-Square, t, and F Confidence Interval Estimation Scripts

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The files to which this documentation refers are SAS files. Some of them use SAS routines to determine lower and upper limits on confidence intervals for the noncentrality parameters of the noncentral chi-square, F, and t distributions respectively. Others convert the CI for a noncentrality parameter into a CI for an effect-size statistic. All of them have been tested on SAS v. 8.2.

Noncchi.sas
This file produces a confidence interval for the noncentrality parameter of a chi-square distribution. The required input rows must contain the chi-square value, df, and desired confidence level.
Output looks like this:

Obs	chi	df	conf	prlow	prupp	ncplow	ncpupp
1	17.3	3	0.95	0.975	0.025	3.39170	35.0140

This example is taken from Smithson (2003) pg. 40.

CramersV.sas
This is an example of how to get SAS to compute a CI for a specific statistic from a noncentrality parameter CI. In this file a CI for Cramer's V-squared is computed. To use this routine, paste in the rows of data from the output file from running Noncchi.sas. Then onto the end of each row enter the sample size (samp), number of rows (rows) and number of columns (cols). The example below has samp = 128, rows = 2, and cols = 4.
Output looks like this:

Obs	chi	df	conf	ncplow	ncpupp	samp	rows	cols	Vsq	Vsqlow	Vsqupp
1	17.3	3	0.95	3.3917	35.014	128	2	4	0.13516	0.049935	0.29698

Nonct.sas
This file produces a confidence interval for the noncentrality parameter of a t distribution. The required input rows must contain the t value, df,
and desired confidence level. The last two parameters in the output are the lower limit (ncplow) and upper limit (ncpupp) of the noncentrality parameter.
Output looks like this:

Obs	t	df	conf	prlow	prupp	ncplow	ncpupp
1	2.65	11	0.95	0.975	0.025	0.36012	4.84933

This example is taken from Smithson (2003) pg. 35.

t2d1samp.sas
This routine computes a CI for a one-sample Cohen's d from a noncentrality parameter CI. To use this routine, paste in the rows of data from the output file from running Nonct.sas.

t2d2samp.sas

This routine computes a CI for a two-sample Cohen's d from a noncentrality parameter CI. To use this routine, paste in the rows of data from the output file from running Nonct.sas. Then enter the sizes of the samples (n1 and n2). In the example below the sample sizes are 37 and 37.

Output looks like this:

Obs	t	df	conf	ncplow	ncpupp	n1	n2	d	dlow	dupp
1	4	72	0.95	1.92184	6.05308	37	37	0.92998	0.44682	1.40731

This example is taken from Smithson (2003) pg. 37.

NoncF2.sas

This file produces a confidence interval for the noncentrality parameter of the F distribution. The required input rows must contain the F-ratio value, df1, df2, and desired confidence level. The last five parameters in the output are the lower limit (ncplow) and upper limit (ncpupp) of the noncentrality parameter, plus r-squared and its lower and upper CI limits.

Output looks like this:

Obs	F	df1	df2	conf	prlow	prupp	ncplow	ncpupp	rsq	rsqlow	rsqupp
1	92.901	3	461	0.9	0.95	0.05	217.414	342.520	0.37678	0.31860	0.42416

This example is taken from Smithson (2003) pg. 39.