Finding a Chi-square Quantile or Critical Value

The following example shows you how to find a Chi-square critical value from a Chi-square distribution for a significant level, \( \alpha \), of 0.05 or 5%. It is also the .95 quantile of the Chi-squared distribution.

1. To get the dialog box for specifying the particular quantile or right tail area, for instance, have a 0.05 right tail area, one should select Distribution and then Continuous distributions and then Chi-squared distribution and then click on Chi-squared quantiles...

2. In the ChiSquared Quantiles dialog box, enter the right tail area (\( \alpha \), significant level), degrees of freedom, and check the Upper tail bullet, and click OK.

The Output window will show the following result which is the .95 quantile of a Chi-squared distribution with degrees of freedom 3, or the critical value for a Chi-squared test with degrees of freedom 3. This number is 7.814728.

\[
\text{> qchisq(c(.05), df=3, lower.tail=FALSE)}
\]

\[
[1] 7.814728
\]