Simfit

Given a set of samples it is useful to perform pairwise statistical tests to determine if any of the samples can be regarded as atypical. For instance, if the samples are normally distributed with the same variance then ANOVA followed by the Tukey post-ANOVA would be used, but SimFiT also provides a facility to perform all pairwise comparisons on sets of samples using nonparametric tests as well as *t* tests.

As the sample sizes may differ then individual samples could be input, however the library file approach should be used to facilitate this procedure. From the main SimFiT menu choose [Statistics] then [Data exploration] followed by [All pairwise tests] and input the library file npcorr.tfl which contains the following information.

```
Data for non-parametric correlation analysis
column2.tf1
column2.tf2
column2.tf3
```

This library file has a title followed by the data file names which, as they are SimFiT test files, are identified by filename only, otherwise the full path would have to be be supplied. The data contained in the three files are shown in the next table followed by the results from analysis quoting the Dunn-Sidak corrected significance levels instead of the Bonferroni ones for k procedures on n samples, i.e. considered as $kn(n-1)/2$ tests in all on the same data to test H_0: samples have the same distributions.

column2.tf1	column2.tf2	column2.tf3
1.70	1.00	0.50
4.00	2.80	3.00
0.60	6.00	2.50
9.00	1.80	6.00
0.99	4.00	2.50
2.00	1.40	5.50
1.80	9.00	7.50
7.00	2.50	0.00
0.99	5.00	3.00

Mann-Whitney-U/Kolmogorov-Smirnov-D/unpaired-t tests
Number of tests = 9, $p(1\%) = 0.001116$, $p(5\%) = 0.005683$ [Dunn-Sidak]

```
C:\Program Files (x86)\simfit\dem\column2.tf1
C:\Program Files (x86)\simfit\dem\column2.tf2
```
N1 = 9, N2 = 9   MW U = 8.00000 p = 0.002262 *
                          KS D = 0.77778 p = 0.000740 **
                          t = -3.71551 p = 0.001880 *
```
C:\Program Files (x86)\simfit\dem\column2.tf1
C:\Program Files (x86)\simfit\dem\column2.tf3
```
N1 = 9, N2 = 9   MW U = 21.0000 p = 0.088893
                          KS D = 0.55556 p = 0.033566
                          t = -2.04236 p = 0.057955
```
C:\Program Files (x86)\simfit\dem\column2.tf2
C:\Program Files (x86)\simfit\dem\column2.tf3
```
N1 = 9, N2 = 9   MW U = 55.5000 p = 0.195886
                          KS D = 0.44444 p = 0.125874
                          t = 1.46055 p = 0.163497