Correct P-Values for Multiple Tests

Author: Greta Peterson, Golden Helix, Inc.

Overview

This script takes a column of p-values and outputs several multiple testing corrections including Bonferroni, FDR (Storey 2002), BH FDR (Benjamini-Hochburg 1995) and BY FDR (Benjamini-Yekutieli 2001).

Recommended Directory Location

Save the script to the following directory:
*..**\Application Data\Golden Helix SVS\UserScripts\Spreadsheet\Column**

Note: The **Application Data** folder is a hidden folder on Windows operating systems and its location varies between operating systems. The easiest way to locate this directory on your computer is to open SVS and go to **Tools > Open Folder > User Scripts Folder** and save the script in the **\Spreadsheet\Column** folder. If saved to the proper folder, this script will be accessible from a real-valued column menu.

Using the Script

1. From a spreadsheet that contains a p-value column, click on the p-value column header and select “Correct P-Values for Multiple Tests”.
2. If you would like to change the number of tests to correct by from the default (the number of p-values), then select the checkbox and enter the number. This number should be greater than or equal to the number of p-values.

The script will calculate the multiple testing corrections for the p-value ignoring tests where the p-value is missing if the default number of tests is selected (not checking the check box). If the check box is selected, the number of tests in the box will be the number of tests to correct by even if there is missing data present.

References

Benjamini, Y., and Hochberg, Y. (1995). Controlling the false discovery rate: a practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society Series* B, **57**, 289–300.

Benjamini, Y., and Yekutieli, D. (2001). The control of the false discovery rate in multiple testing under dependency. *Annals of Statistics* **29**, 1165–1188.

R Development Core Team (2011). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL http://www.R-project.org/.