Please join the Biometric Colloquium

FRANK BRETZ

Novartis Pharma AG, Switzerland

SYMMETRIC GRAPHS FOR EQUALLY WEIGHTED TESTS, WITH APPLICATION TO THE HOCHBERG PROCEDURE

June 22nd, 2022 at 9:00 am

Jugendstilhörsaal der Medizinischen Universität Wien,

Spitalgasse 23, 1090 Vienna

(http://bit.ly/jugendstilhoersaal)

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ABSTRACT

The graphical approach to multiple testing provides a convenient tool for designing, visualizing, and performing multiplicity adjustments in confirmatory clinical trials while controlling the familywise error rate. It assigns a set of weights to each intersection null hypothesis within the closed test framework. These weights form the basis for intersection tests using weighted individual p-values, such as the weighted Bonferroni test. In this paper, we extend the graphical approach to intersection tests that assume equal weights for the elementary null hypotheses associated with any intersection hypothesis, including the Hochberg procedure as well as omnibus tests such as Fisher's combination, O'Brien's, and F tests. More specifically, we introduce symmetric graphs that generate sets of equal weights so that the aforementioned tests can be applied with the graphical approach. In addition, we visualize the Hochberg and the truncated Hochberg procedures in serial and parallel gatekeeping settings using symmetric component graphs. We illustrate the method with two clinical trial examples.