

Disproving the Unimprovability of the Bonferroni Procedure

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Abstract

Gordon (*Statist. Probab. Lett.* 2007, 117-122) asserted the unimprovability of the conventional Bonferroni procedure. In this paper, we present an example to improve the Bonferroni procedure in the class of general step-up multiple testing procedures defined in Gordon (2007). The counterexample consists of a new step-up monotone procedure that weakly controls the familywise error rate. The improvement is illustrated by an example in a general placebo-treatment setting for multiple comparisons in dose-response investigations.

Keywords: Multiple testing, weak control of the family wise error rate, monotonicity, Hunter's inequality, p-value.

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