

Title:

**Control of the False Discovery Rate Under Dependence Using the Bootstrap and Subsampling**

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Technical Report number (Dept. of Statistics, Stanford Univ.):

**2007-5**

Date:

**November 2007**

**Abstract:**

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This paper considers the problem of testing  $s$  null hypotheses simultaneously while controlling the *false discovery rate* (FDR). [?] provide a method for controlling the FDR based on  $p$ -values for each of the null hypotheses under the assumption that the  $p$ -values are independent. Subsequent research has since shown that this procedure is valid under weaker assumptions on the joint distribution of the  $p$ -values. Related procedures that are valid under no assumptions on the joint distribution of the  $p$ -values have also been developed. None of these procedures, however, incorporate information about the dependence structure of the test statistics. This paper develops methods for control of the FDR under weak assumptions that incorporate such information and, by doing so, are better able to detect false null hypotheses. We illustrate this property via a simulation study and two empirical applications. In particular, the bootstrap method is competitive with methods that require independence if independence holds, but it outperforms these methods under dependence.