Title:
The False Discovery Rate: A Bayesian Interpretation and the q-value

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Abstract:

With the growing abundance of large data sets, multiple comparison procedures continue to gain importance. For example, active areas such as wavelet analysis and genomics often require one to essentially test many hypotheses simultaneously. One multiple comparison procedure is the False Discovery Rate, which measures the expected proportion of false positives among all significant hypotheses. In this paper we investigate some statistical properties of the False Discovery Rate. A Bayesian interpretation is made, and some asymptotic results are presented. Also, a new quantity called the *q-value* is introduced, which is the False Discovery Rate analogue of the p-value.