

A PERFORMANCE COMPARISON OF E-VALUES AND P-VALUES IN REAL-TIME SEQUENTIAL TESTING

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ABSTRACT

In statistical hypothesis testing, p-values are the conventional measure for assessing evidence against a null hypothesis. However, their reliability is often questioned in scenarios involving multiple hypothesis testing, where e-values offer a promising alternative. This study presents a practical comparison of p-values and e-values within a sequential testing framework. Simulated data, designed to mimic a real-time monitoring scenario, is used to evaluate how both measures behave in detecting an effect, with their performance compared across a range of critical metrics. Findings highlight the key advantages and limitations of each measure.

Keywords p-values · e-values · real-time sequential testing

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