Multiple Selection of Species with Difference from Two Groups

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Abstract

Good's λ-test is one of the most widely used tests to check the equivalence of two multinomial populations when considerable within population variation exits. This paper extends theλ-test one step further to the multiple selection stage, i.e., how to pick the responsible species when the null hypothesis is rejected. Species responsible for the difference are picked sequentially using a new sample size-adjustedλ-test. The procedure is justified for large samples and shown to work well in small samples by simulation. This paper also fills the gap of the sample size determination in the design stage when theλ-test is to be used after data collection.

Key words and phrases: Good's λ-test; multinomial distribution; multiple comparisons.