

Methods of Comparing Digital PCR Experiments

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Introduction

The outcome of digital PCR (dPCR) experiments are mean copies per partition (λ). Results are derived from the measured data, an ordered (in one or two dimensions) sequence of positive partitions. The usual analysis involves assumption the template molecules are Poisson distributed among partitions. On this premise, already proposed approaches, based on the confidence intervals (Dube et al., 2008) or uncertainty quantification (Bhat et al., 2009), allow a comparison of experiments.

Evaluation

stuff stuff stuff

Summary

Multiple testing scheme

The dPCR experimentes are compared pairwise using the uniformly most powerful (UMP) ratio test (Fay, 2010). Furthermore, computed p-values are adjusted using Benjamini Hochberg correction (Benjamini and Hochberg, 1995) to control family-wise error rate.

The UMP ratio test has following null-hypothesis:

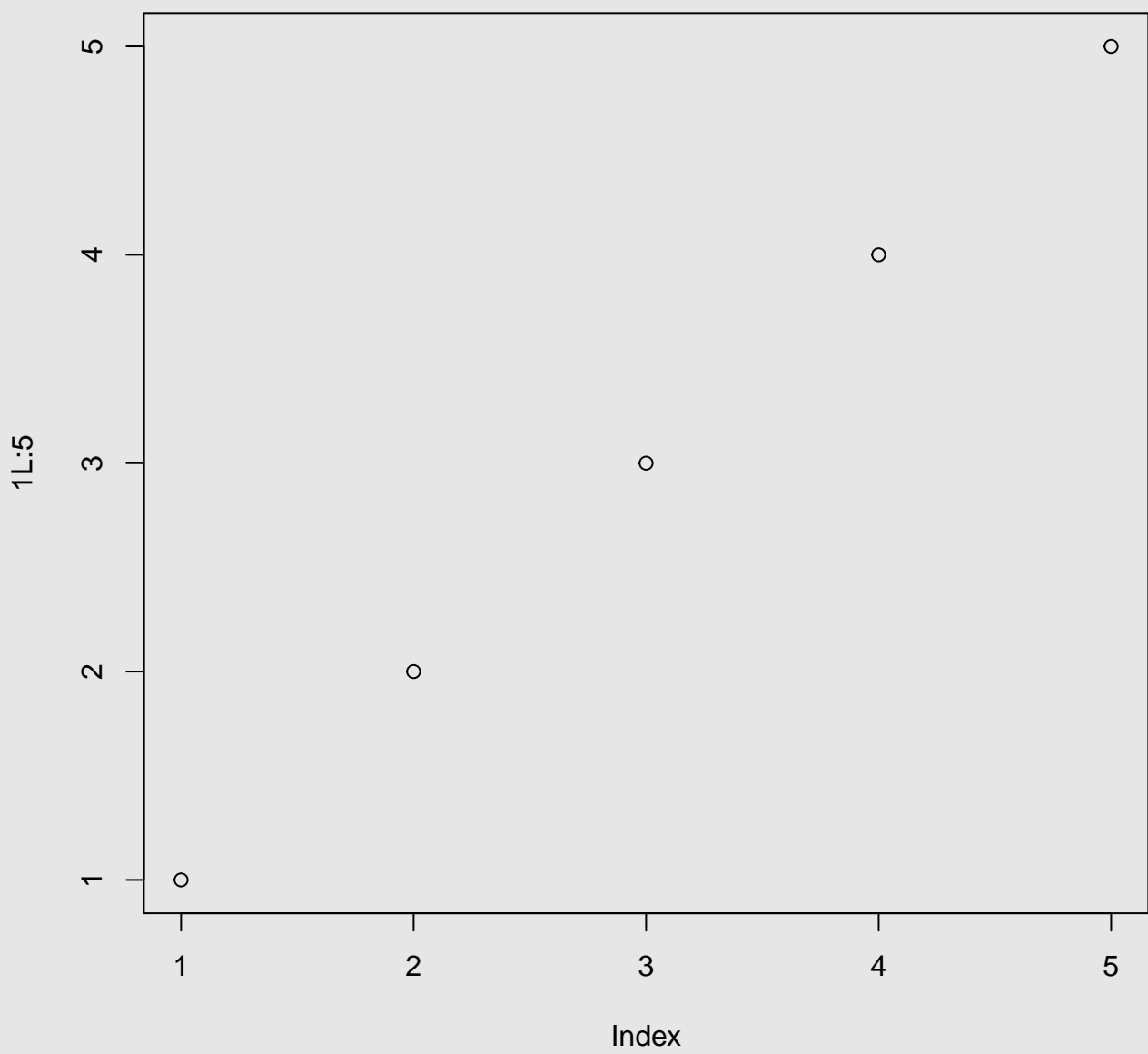
$$H_0 : \frac{\lambda_1}{\lambda_2} = 1 \tag{1}$$

The Wilson’s confidence intervals (Brown et al., 2001) are calculated independently for every dPCR experiment. The Dunn - Šidák correction ensures control of the family-wise error rate.

Availability

dpcR web server:
dpcR R package:
<http://cran.r-project.org/web/packages/dpcR/>

Possible models



Bibliography

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