permuter: An R Package for Randomization Inference

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June 3, 2016

Abstract

Software packages for randomization inference are few and far between. This forces researchers either to rely on specialized stand-alone programs or to use classical statistical tests that may require implausible assumptions about their data-generating process. The absence of a flexible and comprehensive package for randomization inference is an obstacle for researchers from a wide range of disciplines who turn to R as a language for carrying out their data analysis. We present `permuter`, a package for randomization inference. We illustrate the program's capabilities with several examples:

- a randomized experiment comparing the student evaluations of teaching for male and female instructors (MacNell et al., 2014)
- a study of the association between salt consumption and mortality at the level of nations
- an assessment of inter-rater reliability for a series of labels assigned by multiple raters to video footage of children on the autism spectrum

We discuss future plans for `permuter` and the role of software development in Statistics.

References

MacNell, L. and Driscoll, A. and Hunt, A. N. (2014). What's in a Name: Exposing Gender Bias in Student Ratings of Teaching. *Innovative Higher Education*, 1–13.