Reproducibility of Statistical Tests

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Reproducibility of statistical hypothesis tests is an important topic which has received surprisingly little attention. The question is: if a statistical test (and experiment) were repeated under the same circumstances, how likely is it that the same overall conclusion with regard to rejection or not of the null hypothesis would be reached? We have been developing a nonparametric predictive inference (NPI) approach to this issue for several basic tests, and achieved interesting results in the form of lower and upper reproducibility probabilities, depending on the data from the original test. We will also briefly discuss ongoing research and some interesting challenges.