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TWO-SAMPLE HYPOTHESIS TESTING UNDER LEHMANN ALTERNATIVES AND POLYA TREE PRIORS

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Abstract:

The paper revisits two-sample hypothesis testing problems under Lehmann alternatives. We have considered the problem in a fully Bayesian nonparametric framework with Polya tree priors. Our findings are expected to be useful in life testing and survival analysis where Dirichlet process priors as such are not quite suitable. The reason behind this is the underlying continuous distribution of data in either life testing or survival analysis, while Dirichlet process priors select only discrete distributions with probability one. We derived Bayes factors for some fixed power in the Lehmann alternative and also for the case where the power is treated as a parameter. Our Bayesian solution has a closed form even for censored data. It can be calculated easily and also has a ready interpretation.

Key words and phrases: Bayes Factor; Spacings; Order Statistics; Ranks.

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