A MULTIVARIATE PERMUTATION TEST FOR ASSOCIATION

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ABSTRACT: Testing the association between multivariate responses and predictors is an important problem in statistics. A huge number of parametric and non-parametric solutions have been provided in the literature for the univariate case while for multivariate settings only few solutions were introduced. There was a recent attempt for non-parametric test based on high dimensional MANOVA but for the case of a single predictor. In this study we propose a generalization to a multiple predictor situation via the NonParametric combination methodology (NPC), a permutation-based solution which needs only very mild assumptions and affords substantial flexibility in the choice of the test statistic. We evaluate and compare the performances of the proposed procedures in a simulation study.