A CONCEPT OF NON-PARAMETRIC PROCEDURE FOR TESTING HOMOGENEITY OF VARIANCE

AND

A NON-PARAMETRIC APPROACH IN TESTING HIGHER ORDER INTERACTIONS

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ABSTRACT

The thesis consists of two main studies. The first study describes a concept in testing homogeneity of variance for more than two populations in non-parametric approach. In parametric approach, F-test is used for two-sample case and Bartlett test is used for more than two-sample case to investigate the homogeneity of variance. The proposed test is based on Siegel-Tukey test for comparing variances of two populations. The main feature of the test is that it can be regarded as a non-parametric alternative test for the Bartlett test. A Macro was developed in order to get suggested method implemented statistical software package MINITAB.

Second study of the thesis describes a non-parametric approach in testing high order interactions. That is, suggesting a non-parametric procedure for small sample case with equal and unequal cell frequencies as well as for large sample case. Also we have shown how this procedure can get implemented using PROC MIXED and PROC GLM of SAS. In parametric approach, analysis of variance (ANOVA) is used to check for the presence of interactions. Thus the suggested method can be considered as a alternative for ANOVA test.