A PROCEDURE FOR ASSESSING VECTOR CORRELATIONS

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Abstract. Three known measures of multivariate relationship are presented. Under the null hypothesis of lack of multivariate relationship between K random vectors, the asymptotic joint distributions of the $\binom{K}{2}$ values taken by these measures for all possible pairs $(X^{(i)}, X^{(j)})$, $1 \leq i < j \leq K$, is used to construct tests of the null hypothesis based on the maximum and more generally, on the greatest values of the measures. The asymptotic power of the tests is also obtained under a sequence of alternatives.

Key words and phrases: Multivariate relationship, matrix correlation, asymptotic distributions, elliptical distributions, hypothesis testing.