

# Test of Mardia's coefficients of multivariate skewness and kurtosis

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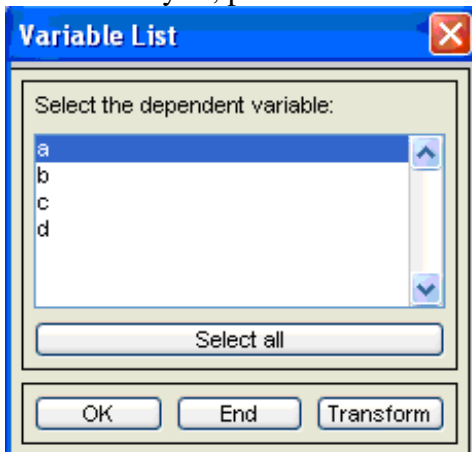
Purpose: Test of significance for Mardia's coefficients of multivariate skewness and kurtosis using critical values derived through monte carlo simulation as described in Bonett, D.G., Woodward, J. A. Woodward, Randall, R. L. Estimating p-values for Mardia's coefficients of multivariate skewness and kurtosis. Computational Statistics, 17 (1), 117-121. 2002.

Input format: The program reads a rectangular text file in tab delimited format, where the p columns are variables and the rows are variable names in row 1, and with n additional rows for subjects. Generate the data file in Excel and save it as tab delimited txt file.

Input restrictions: For multivariate skew, the number of variables is  $p \geq 2 \leq 20$  and the number of subjects is  $n \geq p \leq 100$ . For multivariate kurtosis,  $p \geq 2 \leq 100$  and  $n \geq p+2 \leq 100$ .

Input interface:

- 1) Run the main program, mardiatest, in the MATLAB command window.
- 2) Browse to select the data file in the input interface window, for example test\_data\_seber.txt.
- 3) Select the variables by highlighting one or more of the names then press "ok". After selecting the variables for the analysis, press "end".



Output (in the MATLAB command window)

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n =    28 and p =    4
Mardia multivariate skew =    4.48;          critical value =    6.10
    Accept H0: Skewness is normal
Mardia multivariate kurtosis = 22.9569;      critical value = [ 19.45,   26.44]
    Accept H0: Kurtosis is normal
=====
```