Estimating asymptotic variances and covariances, MA = KM

This is one of three examples that illustrate how to obtain estimates of asymptotic variances and covariances of the estimated variances, covariances, or correlation between the variables. They are based on generated data consisting of 200 cases on five variables, where the first two variables are continuous and the last three are ordinal. Variables 3, 4, and 5 have 2, 3, and 4 categories, respectively. The data were generated from a population in which all variances were 1.0 and intercorrelations were 0.5. The file **ACOV.KM6** used in this example is a file where the asymptotic covariance matrices are stored. These can be read directly by LISREL and used with the WLS option.

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EXAMPLE 6B: TESTING ASYMPTOTIC VARIANCES AND COVARIANCES  MA=KM
DA NI=5;RA FI=DATA.EX6;CO 1 2;OU MA=KM SA=ACOV.KM6 PA
```

In Example 6B, we estimate the correlations of the variables, still using normal scores for the ordinal variables, and the asymptotic covariance matrix of these correlations.

Partial output for this example follows:

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Correlation Matrix

             VAR 1      VAR 2      VAR 3      VAR 4      VAR 5
          --------   --------   --------   --------   --------
    VAR 1      1.000
    VAR 2      0.471      1.000
    VAR 3      0.500      0.491      1.000
    VAR 4      0.481      0.395      0.544      1.000
    VAR 5      0.502      0.492      0.531      0.532      1.000

Asymptotic Covariance Matrix of Correlations

             R(2,1)     R(3,1)     R(3,2)     R(4,1)     R(4,2)     R(4,3)
          --------   --------   --------   --------   --------   --------
   R(2,1)    0.00765
   R(3,1)    0.00229    0.00346
   R(3,2)    0.00206    0.00155    0.00341
   R(4,1)    0.00379    0.00215    0.00127    0.00878
   R(4,2)    0.00385    0.00105    0.00193    0.00338    0.00671
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R(4,3)	0.00061	0.00132	0.00091	0.00132	0.00122	0.00593
R(5,1)	0.00316	0.00210	0.00059	0.00470	0.00164	0.00011
R(5,2)	0.00394	0.00100	0.00184	0.00181	0.00360	0.00041
R(5,3)	0.00046	0.00155	0.00120	0.00027	0.00029	0.00214
R(5,4)	0.00087	0.00031	0.00029	0.00191	0.00150	0.00118

Asymptotic Covariance Matrix of Correlations

	R(5,1)	R(5,2)	R(5,3)	R(5,4)
R(5,1)	0.00982			
R(5,2)	0.00316	0.00880		
R(5,3)	0.00086	0.00119	0.00578	
R(5,4)	0.00193	0.00152	0.00084	0.00480

The covariance matrix has 10 estimated correlations, so the asymptotic covariance matrix of these elements has $.5 \times 10 \times 11 = 55$ independent elements. Note that the variances of the correlations are smaller than the variances of the corresponding covariances.