Path1 with matrix input

```
/* path1mat.sas */
options linesize=79 noovp formdlim='_';
title 'STA2201s06 Path 1 Example with matrix input';

data mat1(type=cov);
     input _type_ $ _name_ $ X1 X2 Y1 Y2;
     datalines;
     cov X1  5.1613543  0.4449949  5.1711371  12.1584180
     cov X2  0.4449949  9.5089020  0.0029572  28.3694965
     cov Y1  5.1711371  0.0029572  7.1990923  14.7572175
     cov Y2 12.1584180 28.3694965 14.7572175 118.0597652
     n    .        300        300        300        300
     ;
proc print;

proc calis cov vardef=n pcorr;
          /* Analyze the covariance matrix (Default is corr) */
     title2 'Full (unrestricted) Model';
     var X1 X2 Y1 Y2;    /* Manifest vars are in the data set */
     lineqs               /* Simultaneous equations, separated by commas */
         Y1 = gamma11 X1 + e1,
         Y2 = beta21 Y1 + gamma22 X2 + e2;
     std                 /* Variances (not standard deviations) */
         X1 = phi11,   /* Optional starting values in parentheses */
         X2 = phi22,
         e1 = psi11,
         e2 = psi22;
     cov                      /* Covariances */
         X1 X2 = phi12; /* Unmentioned pairs get covariance zero */
     bounds 0.0 < phi11,
            0.0 < phi22,
            0.0 < psi11,
            0.0 < psi22;

proc calis cov vardef=n; /* Analyze the covariance matrix (Default is corr) */
     title2 'Reduced (restricted) Model: gamma22=0';
     var X1 X2 Y1 Y2;    /* Manifest vars are in the data set */
     lineqs               /* Simultaneous equations, separated by commas */
         Y1 = gamma11 X1 + e1,
         Y2 = beta21 Y1 + e2;
     std                 /* Variances (not standard deviations) */
         X1 = phi11,   /* Optional starting values in parentheses */
         X2 = phi22,
         e1 = psi11,
         e2 = psi22;
     cov                      /* Covariances */
         X1 X2 = phi12; /* Unmentioned pairs get covariance zero  */
     bounds 0.0 < phi11,
            0.0 < phi22,
            0.0 < psi11,
            0.0 < psi22;

proc iml;
     title2 'Compute G two ways'
```