```
//
// WINMIRA 2001 1.45
// (c) 2000,2001 by Matthias von Davier
//               IPN - institute for science education
//               Olshausenstrasse 62
//               24098 Kiel
//               Germany
//               email: vdavier@ipn.uni-kiel.de or rost@ipn.uni-kiel.de
//
// date of analysis: 03.11.2009 time : 22:40:36
//

 Filenames:

      data: C:\Program Files\Winmira 2001\data\Kft.dat
    output: C:\Program Files\Winmira 2001\data\Kft.OU9
  patterns: C:\Program Files\Winmira 2001\data\Kft.PAT


 number of persons           :    300
 number of items             :      5
 number of classes           :      3
 max. number of iterations   :    250
 accuracy criterion          : 0.0005
 random start value          :   4321

 item labels and sample frequencies:

    |             | n of |  categories
 no.|   label     | cats |   0  |   1  |    N
____|_____________|______|______|______|________|
   1| VAR1        |    2 |  105 |  195 |    300
   2| VAR2        |    2 |  125 |  175 |    300
   3| VAR3        |    2 |  157 |  143 |    300
   4| VAR4        |    2 |  187 |  113 |    300
   5| VAR5        |    2 |  206 |   94 |    300


 saturated likelihood         :         -830.3929
 number of different patterns :           30
 number of possible  patterns :           32



 Number of iterations needed:   60


 fitted model: (LCA) Latent Class Analysis: class-independent thresholds:

 according to the  ordinal (partial credit) model in 3 latent classes.

Classes are sorted by class size!


 Final estimates in CLASS 1 of 3 with size  0.39039
 ==================================================



 expected category frequencies and item scores:

    Item   |     Item`s    | relative category
    label  | Score | Stdev |    frequencies
  _________|_______|_______|    0    |    1
   VAR1    |  0.27 |  0.44 |  0.734  |  0.266
   VAR2    |  0.10 |  0.30 |  0.903  |  0.097
   VAR3    |  0.16 |  0.37 |  0.839  |  0.161
   VAR4    |  0.04 |  0.21 |  0.955  |  0.045
   VAR5    |  0.11 |  0.31 |  0.894  |  0.106

     Sum:  |  0.67

 threshold parameters:  ordinal (partial credit) model

   item     |   item    |
   label    | location  | threshold parameters
____________|___________
```

VAR1	1.01422
VAR2	2.23654
VAR3	1.65377
VAR4	3.05812
VAR5	2.13235

Final estimates in CLASS 2 of 3 with size 0.32198

expected category frequencies and item scores:

Item label	Item`s Score	Item`s Stdev	relative category frequencies 0	1
VAR1	0.87	0.33	0.126	0.874
VAR2	0.94	0.24	0.060	0.940
VAR3	0.84	0.36	0.156	0.844
VAR4	1.00	0.05	0.002	0.998
VAR5	0.59	0.49	0.410	0.590
Sum:	4.25			

threshold parameters: ordinal (partial credit) model

item label	item location	threshold parameters
VAR1	-1.93395	
VAR2	-2.74405	
VAR3	-1.69067	
VAR4	-6.00000	
VAR5	-0.36440	

Final estimates in CLASS 3 of 3 with size 0.28763

expected category frequencies and item scores:

Item label	Item`s Score	Item`s Stdev	relative category frequencies 0	1
VAR1	0.92	0.27	0.079	0.921
VAR2	0.85	0.36	0.155	0.845
VAR3	0.49	0.50	0.506	0.494
VAR4	0.13	0.34	0.868	0.132
VAR5	0.28	0.45	0.715	0.285
Sum:	2.68			

threshold parameters: ordinal (partial credit) model

item label	item location	threshold parameters
VAR1	-2.45034	
VAR2	-1.69815	
VAR3	0.02358	
VAR4	1.88484	
VAR5	0.92014	

class independent item parameters (LACORD models 1-4)
threshold parameters: ordinal (partial credit) model

item label	threshold parameters 1
VAR1	1.014
VAR2	2.237
VAR3	1.654
VAR4	3.058

```
 VAR5      |  2.132


person fit index descriptives:

mean       :      -0.1177025
std.dev.   :       1.0044282

skewness   :      -0.9906417
kurtosis   :       0.1077589



statistics of expected class membership:

       | exp.  | mean  |
 class | size  | prob. |   1   |   2   |   3   |
_______|_______|_______|_______|_______|_______|
     1 | 0.417 | 0.889 | 0.889| 0.007| 0.104|
     2 | 0.357 | 0.893 | 0.008| 0.893| 0.099|
     3 | 0.227 | 0.923 | 0.074| 0.003| 0.923|

Goodness of fit statistics:

                                estimated       saturated
                                  model           model

 Log-Likelihood        :         -837.62         -830.39
 Number of parameters  :              17              31
 geom. mean likelihood :      0.57211636      0.57487927

Information Criteria:

  AIC-Index            :         1709.24         1722.79
  BIC-Index            :         1772.20         1837.60
  CAIC-Index           :         1789.20         1868.60

Power Divergence GoF statistics:

                                 emp. value     chi-square p-value

  Cressie Read            :           13.11    p=  0.5179
  Pearson Chisquare       :           12.94    p=  0.5316

================================================================

  Likelihood ratio        :           14.45    p=  0.4165
  Freeman-Tukey  Chi^2    :           18.42    p=  0.1882

  Degrees of freedom      :              14


WARNING: Number of cells is larger than number of different patterns!!!
         obs.patterns/cells   = 0.937500000000000000
         number of zero cells =                    2

         The data might be very sparse, please do not use the
         chi square p-value approximation for the Power Divergence
         Goodness of Fit Statistics.
         Consider to use the parametric bootstrap procedure instead.
         In addition, several start values should be used
         (see defaults menu) in order to examine the occurance
         of local likelihood maxima.

WARNING: There might be some parameter estimates on BOUNDARY values.
         Please examine the expected category frequencies and the
         parameter estimates in all classes.
         The accuracy of the parametric bootstrap procedure might also
         be affected, as boundary values used for resimulation might lead
         to zero category frequencies in the simulated datasets.
```