Announcing the release of LISREL version 9.1

SSI has enjoyed great success over the years in the development and publishing of statistical software and is proud to announce the release of LISREL 9.1.

In an effort to meet the growing demands of our LISREL 8 user community, SSI has developed LISREL 9.1, which is on the cutting edge of current technology. The program has been tested extensively on the Microsoft Windows platform with Windows7, Vista and XP operating systems.

The development of LISREL was partially supported by an SBIR grant **R43 AA014999-01** from NIAAA.

Background

Structural equation modeling (SEM) was introduced initially as a way of analyzing a covariance or correlation matrix. Typically, one would read this matrix into LISREL and estimate the model by maximum likelihood. If raw data was available without miSSIng values, one could also use PRELIS first to estimate an asymptotic covariance matrix to obtain robust estimates of standard errors and chi-squares.

The new LISREL features are summarized next.

Combining LISREL and PRELIS functionality

Modern structural equation modeling is based on raw data. With LISREL 9.1, if raw data is available in a LISREL data system file or in a text file, one can read the data into LISREL and formulate the model using either SIMPLIS syntax or LISREL syntax. It is no longer necessary to estimate an asymptotic covariance matrix with PRELIS and read this into LISREL. The estimation of the asymptotic covariance matrix and the model is now done in LISREL9. One can also use the EM or MCMC multiple imputation methods in LISREL to fit a model to the imputed data.

If requested, LISREL 9.1 will automatically perform robust estimation of standard errors and chi-square goodness of fit measures under non-normality. If the data contain missing values, LISREL 9 will automatically use Full information maximum likelihood (FIML) to estimate the model. Alternatively, users may choose to impute the missing values by EM or MCMC and estimate the model based on the imputed data. Several new sections of the output are also included.

Examples in the folder **\ls9ex** illustrate these new features.

FIML for ordinal and continuous variables

LISREL 9.1 supports Structural Equation Modeling for a mixture of ordinal and continuous variables for simple random samples and complex survey data.

The LISREL implementation allows for the use of design weights to fit SEM models to a mixture of continuous and ordinal manifest variables with or without missing values with optional specification of stratum and/or cluster variables. It also deals with the issue of robust standard error estimation and the adjustment of the chi-square goodness of fit statistic.

This method is based on adaptive quadrature and a user can specify any one of the following four link functions:

- Logit
- Probit
- Complementary Log-log
- Log-Log

Examples to illustrate this feature are given in the folders **\orfimlex** and **\ls9ex**.

Three-level Multilevel Generalized Linear Models

Cluster or multi-stage samples designs are frequently used for populations with an inherent hierarchical structure. Ignoring the hierarchical structure of data has serious implications. The use of alternatives such as aggregation and disaggregation of information to another level can induce an increase in co-linearity among predictors and large or biased standard errors for the estimates.

The collection of models called Generalized Linear Models (GLIMs) have become important, and practical, statistical tools. The basic idea of GLIMs is an adaption of standard regreSSIon to quite different kinds of data. The variables may be dichotomous, ordinal (as with a 5-point Likert scale), counts (number of arrest records), or nominal. The motivation is to tailor the regreSSIon relationship connecting the outcome to relevant independent variables so that it is appropriate to the properties of the dependent variable. The statistical theory and methods for fitting Generalized Linear Models (GLIMs) to survey data was implemented in LISREL 8.8. Researchers from the social and economic sciences are often applying these methods to multilevel data and consequently, inappropriate results are obtained. The LISREL 9.1 statistical module for the analysis of multilevel data allows for design weights. Two estimation methods, MAP (maximization of the posterior distribution) and QUAD (adaptive quadrature) for fitting generalized linear models to multilevel data are available. The LISREL module allows for a wide variety of sampling distributions and link functions.

Examples in the folder **\mglimex** illustrate these new features.

Four and Five-level Multilevel Linear Models for continuous outcome variables

Social science research often entails the analysis of data with a hierarchical structure. A frequently cited example of multilevel data is a dataset containing measurements on children nested within schools, with schools nested within education departments.

The need for statistical models that take account of the sampling scheme is well recognized and it has been shown that the analysis of survey data under the assumption of a simple random sampling scheme may give rise to misleading results.

Multilevel models are particularly useful in the modeling of data from complex surveys. Cluster or multi-stage samples designs are frequently used for populations with an inherent hierarchical structure. Ignoring the hierarchical structure of data has serious implications. The use of alternatives such as aggregation and disaggregation of information to another level can induce an increase in co-linearity among predictors and large or biased standard errors for the estimates. In order to address concerns regarding the appropriate analyses of survey data, the LISREL multilevel module for continuous data now also handles up to five levels and features an option for users to include design weights on levels 1, 2 , 3, 4 or 5 of the hierarchy.

Examples are given in the **\mlevelex** folder.

New filename extensions

All LISREL syntax files have extension **.lis** (previously **.ls8**), all PRELIS syntax files have extension **.prl** (previously **.pr2**). The LISREL spreadsheet has been renamed LISREL data system file and has extension **.lsf** (previously **.psf**)

To ensure backwards compatibility, users can still run previously created syntax files using a **.psf** file, but to open an existing **.psf** file using the graphical user's interface, the user has to rename it to **.lsf**.

Running LISREL in batch mode

Any of the LISREL programs can be run into batch mode by using a **.bat** file with the following script:

"c:\program files (x86)\LISREL9\MLISREL9" <program name> <syntax file> <output file>

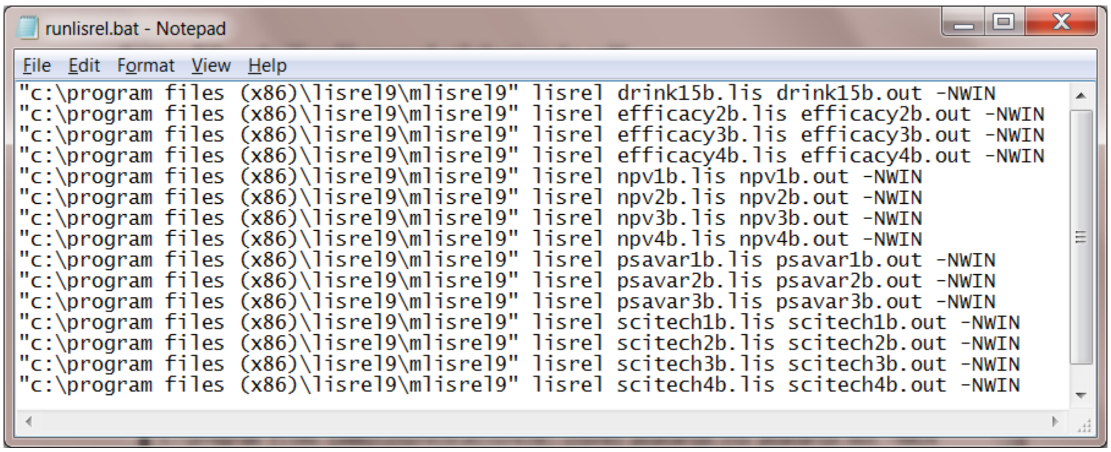
where

Program name = LISREL, PRELIS, MULTILEV, MAPGLIM or SURVEYGLIM

Example:

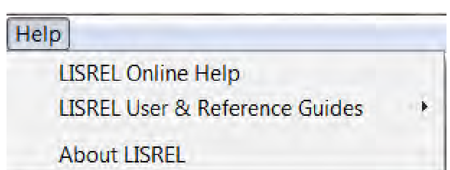
Syntax File = "c:\LISREL9 examples\ls9ex\npv1a.spl"
Output File = "c:\LISREL9 examples\ls9ex\npv1a.out"

Examples of batch files (**RunLISREL.bat** and **RunSIMPLIS.bat**) are given in the **\ls9ex** folder. These batch files will run all the LISREL and SIMPLIS syntax files in this folder.



Documentation

Program documentation is available as PDFs via the Help menu.

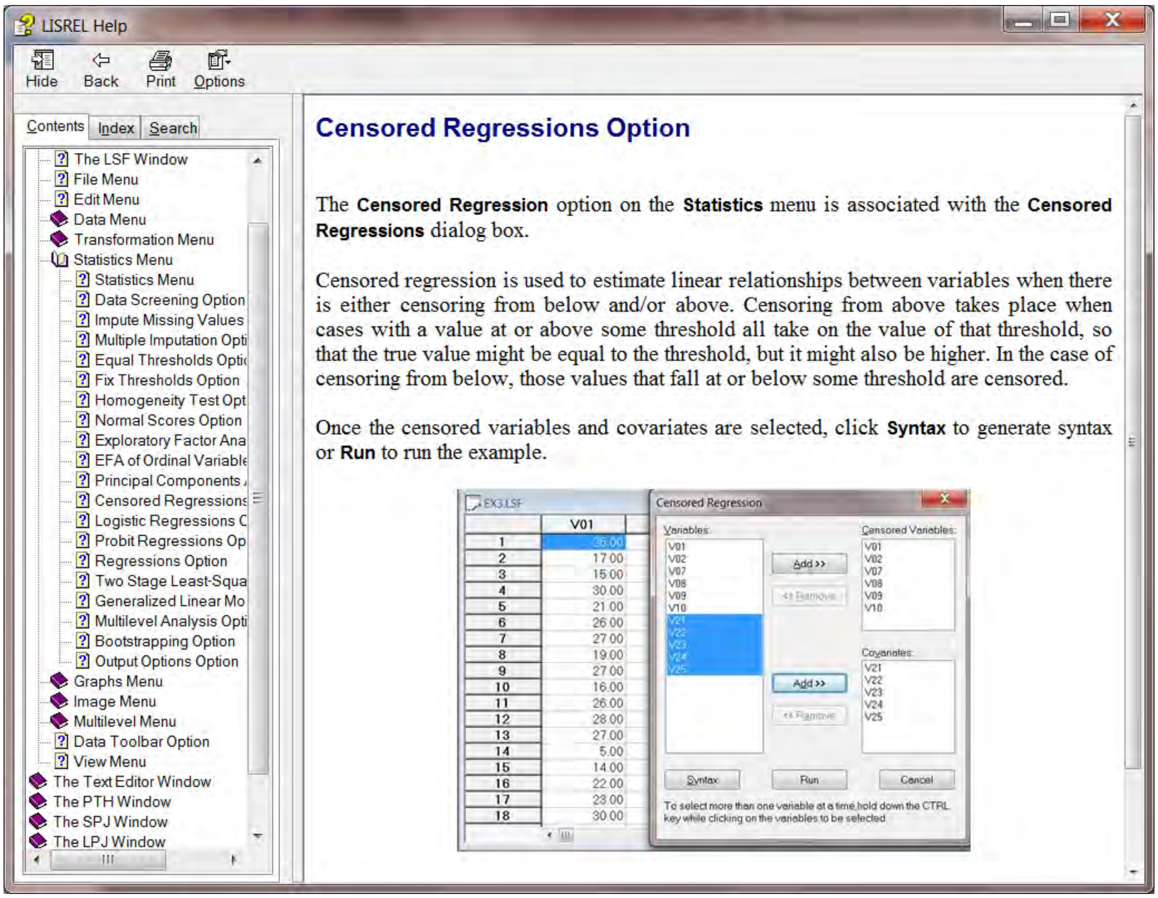


A list of PDF guides, accessible via the online **Help** menu is given below.

- New features in LISREL 9
- The LISREL Graphical User's Interface (GUI)
- PRELIS Examples Guide
- LISREL Examples Guide
- Multilevel (Hierarchical Linear) Modeling Guide
- Complex Survey Sampling
- Generalized Linear Modeling Guide
- Multilevel Generalized Linear Modeling Guide
- LISREL Syntax Guide

- SIMPLIS Syntax Guide
- PRELIS Syntax Guide
- Additional Topics Guide

Documentation of the LISREL graphical user's interface is also available as an online **Help** file. The **Help** file has features that simplify navigation across topics:



The complex *Survey Sampling Guide* includes structural equation modeling (SEM) for continuous variables and SEM for a mixture of ordinal and continuous variables. LISREL uses full information maximum likelihood under complex survey data with data missing at random.

The Additional Topics Guide includes sections on Multiple Imputation, Multilevel Structural Equation Modeling and Multilevel non-linear regression.

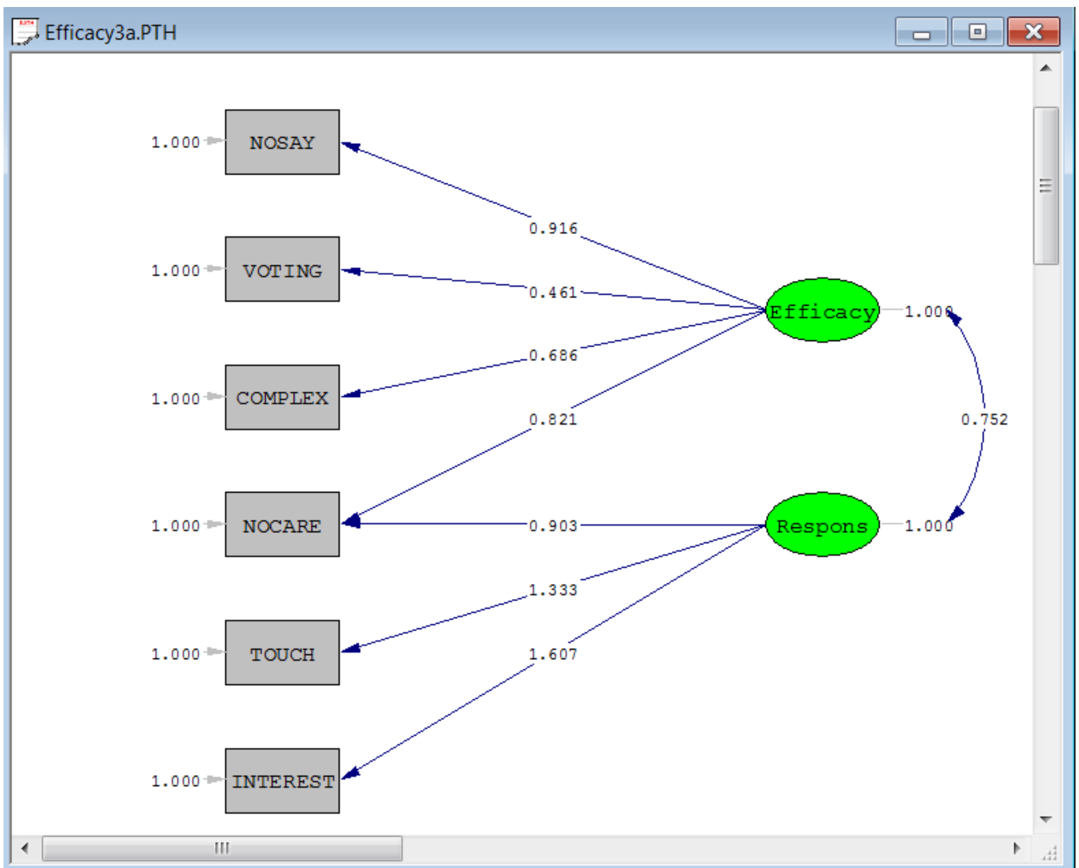
Examples

The syntax and data files for the examples are installed in the folder **C:\LISREL9 Examples**.
A selection of examples, illustrating some of the new features is given below.

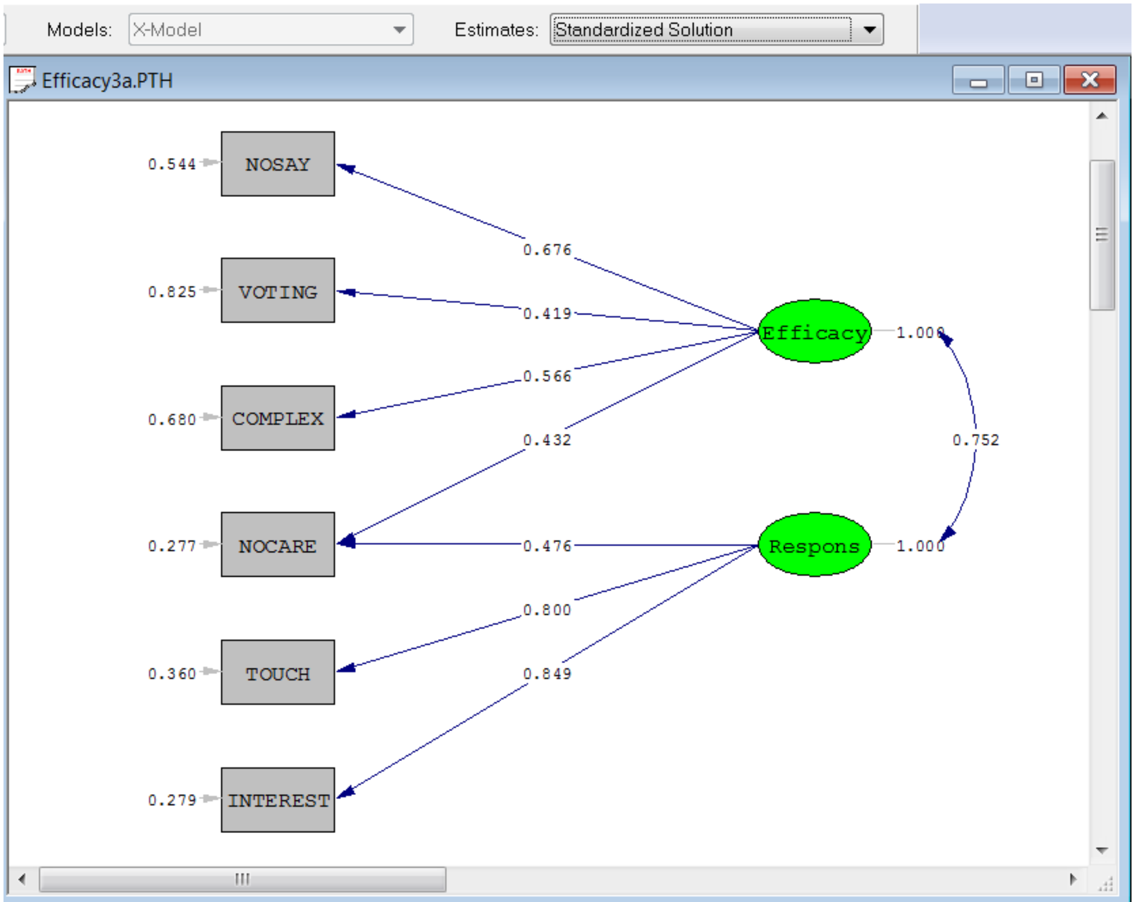
Example 1: Analysis of ordinal data using quadrature (\ls9ex)

```
Efficacy3a.spl: Model 2 Estimated by FIML
Raw Data from file EFFICACY.LSF
$ADAPQ(8) PROBIT GR(5)
Latent Variables Efficacy Respons
Relationships
NOSAY - NOCARE = Efficacy
NOCARE - INTEREST = Respons
Path Diagram
End of Problem
```

Path Diagram Representation



Path Diagram (Standardized Solution)



Portion of output file

The last part of the output file is shown below.

For the moment we note the value of the deviance statistic −2 ln L = 19858.06. Since there is no value of −2 ln L for a saturated model, it is impossible to say whether this is large or small in some absolute sense. The deviance statistic can therefore only be used to compare different models for the same data.

To illustrate, the difference between the deviance statistic for this model and the deviance statistic for a model with one latent variable (**Efficacy2a.spl**) is 19934.57-19858.06 =76.51, which suggests that the two-dimensional model fits the data much better than the uni-dimensional model.

The output also gives estimates of the thresholds, their standard errors and z-values. The thresholds are parameters of the model but are seldom useful in analysis of a single sample.

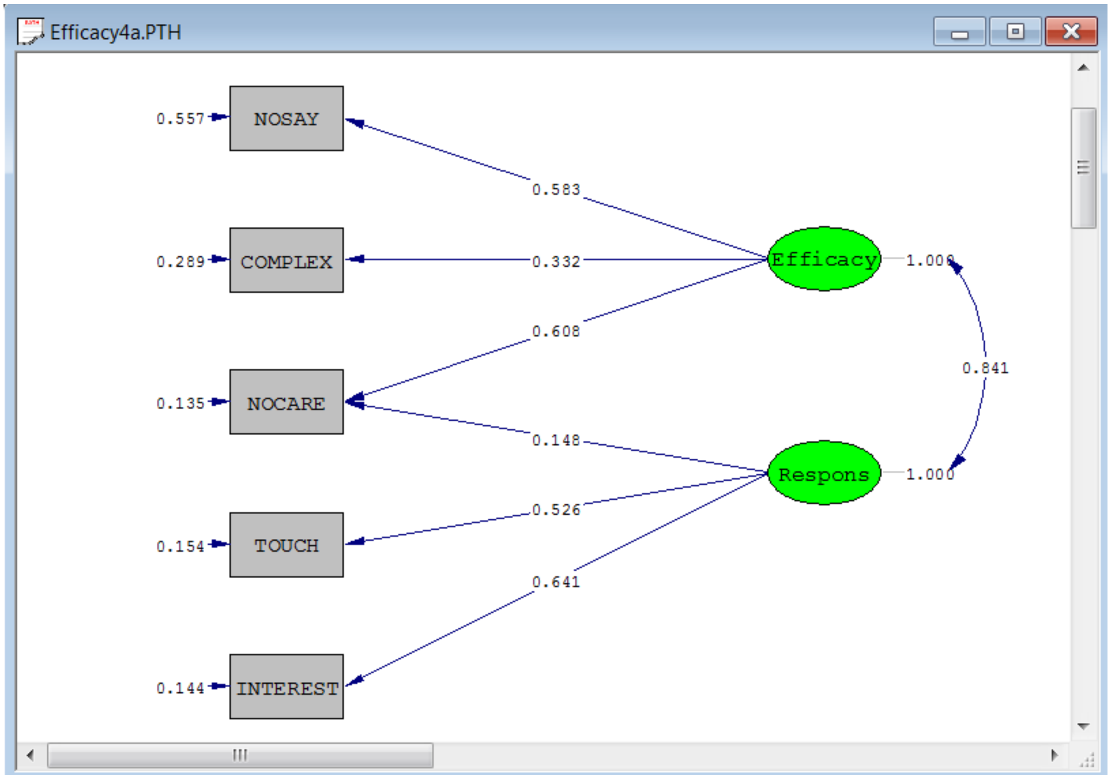
Efficacy3a.OUT

```
     Number of quadrature points =              8
     Number of free parameters =               26
     Number of iterations used =                8

     -2lnL (deviance statistic) =     19858.05790
     Akaike Information Criterion     19910.05790
     Schwarz Criterion                20051.60837

           Group number:     1
           -----------------

          Threshold estimates and standard deviations
          -------------------------------------------
           Threshold              Estimates          S.E.     Est./S.E.

          TH1_NOSAY                -1.71230       0.06969     -24.57181
          TH2_NOSAY                -0.28692       0.04238      -6.77059
          TH3_NOSAY                 1.90582       0.07524      25.33037
          TH1_VOTING               -1.05276       0.04095     -25.70897
          TH2_VOTING                0.25296       0.03407       7.42501
          TH3_VOTING                1.83956       0.06029      30.51319
          TH1_COMPLEX              -1.00590       0.04495     -22.37741
          TH2_COMPLEX               0.90912       0.04320      21.04624
          TH3_COMPLEX               2.12744       0.07352      28.93816
          TH1_NOCARE               -1.97718       0.10284     -19.22628
          TH2_NOCARE                0.34834       0.05903       5.90140
          TH3_NOCARE                3.33311       0.16149      20.63927
          TH1_TOUCH                -1.61202       0.07928     -20.33325
          TH2_TOUCH                 0.90228       0.06099      14.79329
          TH3_TOUCH                 3.44209       0.15701      21.92254
          TH1_INTEREST             -1.85764       0.10534     -17.63424
          TH2_INTEREST              0.63584       0.06470       9.82718
          TH3_INTEREST              3.82663       0.20819      18.38040
```

Example 2: Analysis of ordinal data using imputation and ACM (\ls9ex)

Efficacy4a.spl: Model 2 Estimated by Robust Diagonally Weighted Least Squares
Raw Data from file EFFICACY.LSF
Multiple Imputation with MC
Latent Variables Efficacy Respons
Relationships
NOSAY COMPLEX NOCARE = Efficacy
NOCARE - INTEREST = Respons
Robust Estimation
Method of Estimation: Diagonally Weighted Least Squares
Path Diagram
End of Problem

Path Diagram Representation

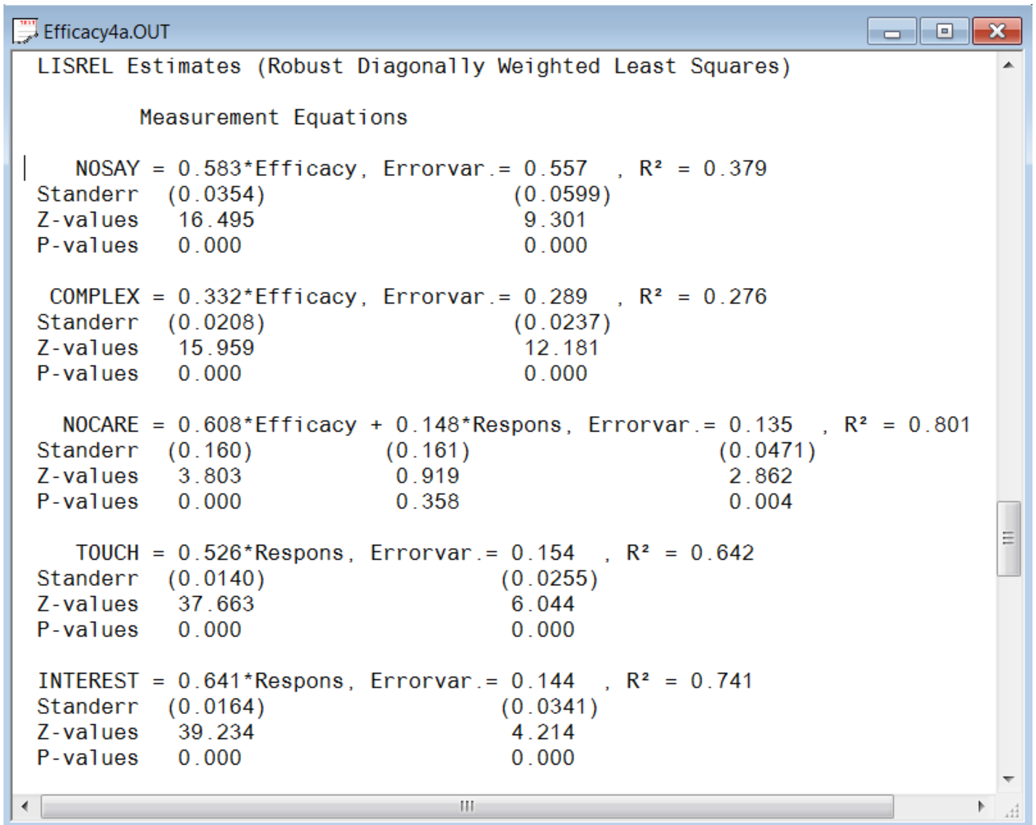


Descriptive statistics

Efficacy4a.OUT

```
The following PRELIS lines were generated by LISREL :
SY= 'C:\LISREL9 Examples\LS9EX\imputed_data.LSF'
OU CM TR=LI AC='C:\LISREL9 EXAMPLES\LS9EX\TEMPFILE.ACM'

Total Sample Size(N) =   1710

Univariate Marginal Parameters

Variable     Mean St. Dev.   Thresholds
--------     ---- --------   ----------
   NOSAY    1.201    0.947   0.000    1.000    2.558
 COMPLEX    0.527    0.632   0.000    1.000    1.657
  NOCARE    0.864    0.823   0.000    1.000    2.373
   TOUCH    0.649    0.657   0.000    1.000    2.070
INTEREST    0.747    0.745   0.000    1.000    2.307

Univariate Distributions for Ordinal Variables

   NOSAY Frequency Percentage Bar Chart
    AS     175        10.2     ▯▯▯▯▯▯▯▯▯
     A     536        31.3     ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯
     D     869        50.8     ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯
    DS     130         7.6     ▯▯▯▯▯▯▯
```

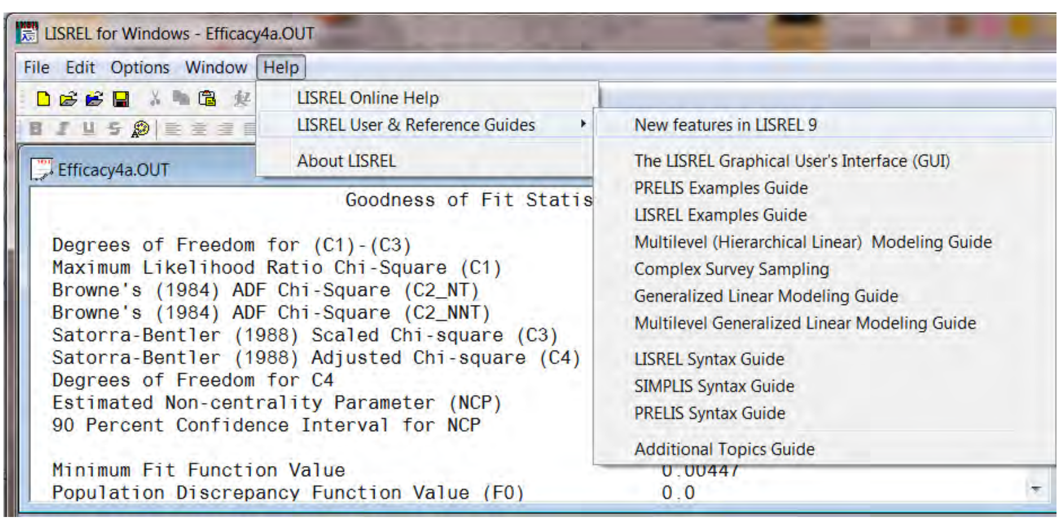
Parameter Estimates




```
LISREL Estimates (Robust Diagonally Weighted Least Squares)

        Measurement Equations

   NOSAY = 0.583*Efficacy, Errorvar.= 0.557  , R² = 0.379
Standerr  (0.0354)                (0.0599)
Z-values   16.495                  9.301
P-values   0.000                   0.000

 COMPLEX = 0.332*Efficacy, Errorvar.= 0.289  , R² = 0.276
Standerr  (0.0208)                (0.0237)
Z-values   15.959                  12.181
P-values   0.000                   0.000

  NOCARE = 0.608*Efficacy + 0.148*Respons, Errorvar.= 0.135  , R² = 0.801
Standerr  (0.160)          (0.161)                  (0.0471)
Z-values   3.803            0.919                    2.862
P-values   0.000            0.358                    0.004

   TOUCH = 0.526*Respons, Errorvar.= 0.154  , R² = 0.642
Standerr  (0.0140)               (0.0255)
Z-values   37.663                 6.044
P-values   0.000                  0.000

INTEREST = 0.641*Respons, Errorvar.= 0.144  , R² = 0.741
Standerr  (0.0164)               (0.0341)
Z-values   39.234                 4.214
P-values   0.000                  0.000
```

Goodness of Fit Statistics

The last portion of the output file is a summary of fit statistics and confidence intervals. These statistics are discussed in the Appendix of the New Features in LISREL 9 guide, available in PDF format via the LISREL online **Help** menu.



Fit Statistics

```
Efficacy4a.OUT
 Degrees of Freedom for (C1)-(C3)                         3
 Maximum Likelihood Ratio Chi-Square (C1)                 7.649 (P = 0.0539)
 Browne's (1984) ADF Chi-Square (C2_NT)                   6.969 (P = 0.0729)
 Browne's (1984) ADF Chi-Square (C2_NNT)                  2.540 (P = 0.4681)
 Satorra-Bentler (1988) Scaled Chi-square (C3)            2.802 (P = 0.4232)
 Satorra-Bentler (1988) Adjusted Chi-square (C4)          2.791 (P = 0.4229)
 Degrees of Freedom for C4                                 2.988
 Estimated Non-centrality Parameter (NCP)                 0.0
 90 Percent Confidence Interval for NCP                   (0.0 ; 7.530)

 Minimum Fit Function Value                               0.00447
 Population Discrepancy Function Value (F0)               0.0
 90 Percent Confidence Interval for F0                    (0.0 ; 0.00440)
 Root Mean Square Error of Approximation (RMSEA)          0.0
 90 Percent Confidence Interval for RMSEA                 (0.0 ; 0.0383)
 P-Value for Test of Close Fit (RMSEA < 0.05)             0.990

 Expected Cross-Validation Index (ECVI)                   0.0158
 90 Percent Confidence Interval for ECVI                  (0.0158 ; 0.0202)
 ECVI for Saturated Model                                 0.0175
 ECVI for Independence Model                              2.633

 Chi-Square for Independence Model (10 df)             4492.636

 Normed Fit Index (NFI)                                   0.999
 Non-Normed Fit Index (NNFI)                              1.000
 Parsimony Normed Fit Index (PNFI)                        0.300
 Comparative Fit Index (CFI)                              1.000
 Incremental Fit Index (IFI)                              1.000
 Relative Fit Index (RFI)                                 0.998

 Critical N (CN)                                       6921.732

 Root Mean Square Residual (RMR)                          0.00434
 Standardized RMR                                         0.00710
 Goodness of Fit Index (GFI)                              1.00
 Adjusted Goodness of Fit Index (AGFI)                    0.999
 Parsimony Goodness of Fit Index (PGFI)                   0.200
```

Example 3: Three-level Generalized Linear Model (\mglimex)

```
MGlimOptions Converge=0.0001 MaxIter=500 MissingCode=-999999
Method=Quad NQUADPTS=6;
Title=Level-3 Ordinal Model, random intercept and slope at level-2;
SY=tvsfpors.lsf;
ID2=Class;
ID3=School;
! Syntax file name is Tvsfpors_ORDINAL.prl
! The data for this example is from the Television School and
! Family Smoking Prevention
! and Cessation Project (TVSFP) and was downloaded from
```

```
! http://tigger.uic.edu/~hedeker/mix.html
! A description of the data is given in mixorcm.pdf, available
! from the URL above.
Distribution=MUL;
Link=OLOGIT;
DepVar=THKSord;
CoVars=PreTHKS CC TV 'CC*TV';
RANDOM2=intcept PreTHKS;
RANDOM3=intcept;
```

Selected portions of the output file are displayed below.

Parameter Estimates and Odds Ratios

Tvsfpors_ORDINAL.OUT

Estimated regression weights

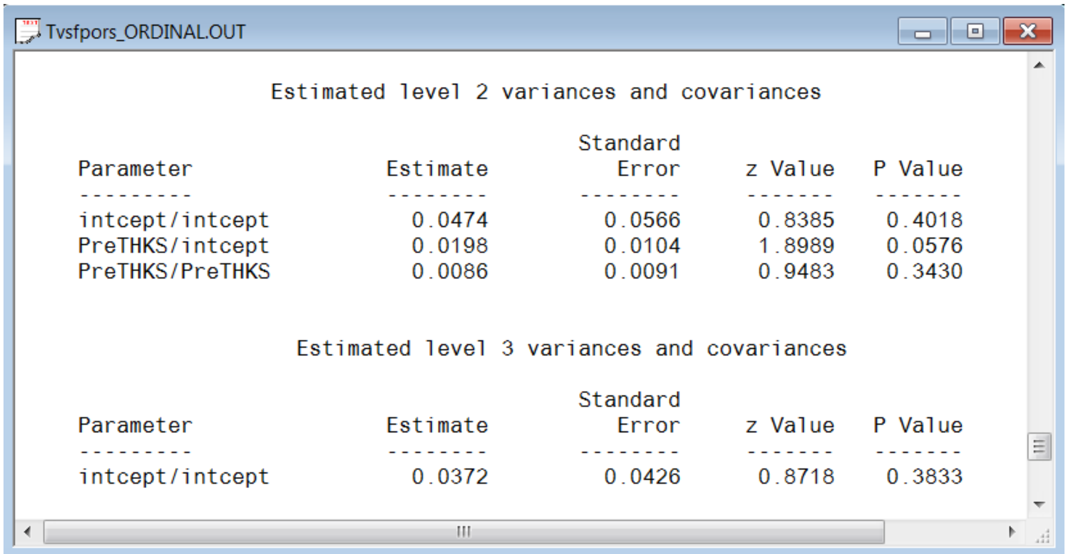
Parameter	Estimate	Standard Error	z Value	P Value
Thresh1	-0.1041	0.1638	-0.6356	0.5250
Thresh2	1.1685	0.1654	7.0628	0.0000
Thresh3	2.3812	0.1739	13.6946	0.0000
PreTHKS	-0.4014	0.0410	-9.8021	0.0000
CC	-0.8602	0.2058	-4.1802	0.0000
TV	-0.2216	0.2018	-1.0984	0.2720
CC*TV	0.2933	0.2942	0.9968	0.3189

Odds Ratio and 95% Odds Ratio Confidence Intervals

Parameter	Estimate	Odds Ratio	Bounds Lower	Bounds Upper
Thresh1	-0.1041	0.9011	0.6537	1.2422
Thresh2	1.1685	3.2171	2.3261	4.4492
Thresh3	2.3812	10.8178	7.6936	15.2105
PreTHKS	-0.4014	0.6694	0.6177	0.7253
CC	-0.8602	0.4231	0.2827	0.6333
TV	-0.2216	0.8012	0.5395	1.1899
CC*TV	0.2933	1.3408	0.7532	2.3869

Estimated variance components

Estimates of the variance components on levels 2 and 3 and the associated p-values indicate that the PreTHKS coefficient does not vary significantly over classes. Note however, that the covariance term is almost significant. The level-3 intercept effect is also not significant. These results seem to indicate a level-2 model random intercept model as being more appropriate.



Tvsfpors_ORDINAL.OUT

```
                Estimated level 2 variances and covariances

                                          Standard
 Parameter                   Estimate       Error     z Value   P Value
 ---------                   --------    --------     -------   -------
 intcept/intcept               0.0474      0.0566      0.8385    0.4018
 PreTHKS/intcept               0.0198      0.0104      1.8989    0.0576
 PreTHKS/PreTHKS               0.0086      0.0091      0.9483    0.3430

                 Estimated level 3 variances and covariances

                                          Standard
 Parameter                   Estimate       Error     z Value   P Value
 ---------                   --------    --------     -------   -------
 intcept/intcept               0.0372      0.0426      0.8718    0.3833
```

Example 4: A level-4 model with continuous outcome variable (\mlevelex)

```
! Measurements made on 1,192 participants at three occasions.
! In the case of some of the participants, measurements were
! made on only one or two occasions.
OPTIONS OLS=YES CONVERGE=0.000100 MAXITER=15 OUTPUT=STANDARD;
TITLE=Analysis of level-4 repeated measurements data;
SY='Therapis_L4.lsf';
ID4=site;
ID3=therapis;
ID2=particip;
RESPONSE=assesmt;
FIXED=gender occasion thera1 thera2 thera3 thera4;
RANDOM1=intcept;
RANDOM2=intcept;
RANDOM3=intcept;
RANDOM4=intcept;
```

Data for the first 10 participants on most of the variables are shown below in the form of a LISREL spreadsheet file, named **therapist_L4.lsf**.

Therapis_L4.lsf

	site	therapis	particip	assesmt	gender	occasion	thera1	thera2	thera3	thera4
1	1.0	1.0	2.0	14.0	1.0	0.0	1.0	0.0	0.0	0.0
2	1.0	1.0	2.0	14.0	1.0	1.0	1.0	0.0	0.0	0.0
3	1.0	1.0	4.0	24.0	1.0	0.0	1.0	0.0	0.0	0.0
4	1.0	1.0	4.0	29.0	1.0	1.0	1.0	0.0	0.0	0.0
5	1.0	1.0	4.0	32.0	1.0	2.0	1.0	0.0	0.0	0.0
6	1.0	1.0	6.0	19.0	0.0	0.0	1.0	0.0	0.0	0.0
7	1.0	1.0	6.0	26.0	0.0	1.0	1.0	0.0	0.0	0.0
8	1.0	1.0	6.0	11.0	0.0	2.0	1.0	0.0	0.0	0.0
9	1.0	1.0	7.0	22.0	1.0	0.0	1.0	0.0	0.0	0.0
10	1.0	1.0	7.0	25.0	1.0	1.0	1.0	0.0	0.0	0.0

The variables of interest are:

- site is the level-4 identification variable (49 units in total).
- therapis is the level-3 identification variable (187 units in total).
- particip is the level-2 identification variable (1192 units in total).
- assesmt is a score assigned by a therapist to a particular participant on occasion 0, 1 or 2.
- gender is a gender indicator, with a value of 0 indicating a male participant and 1 a female participant.
- occasion is a predictor variable coded 0, 1 and 2.
- thera1 - thera4 are dummy coded variables indicating four types of therapy.

Only selected parts of the output are shown. The output describing the estimated **fixed effects** after convergence is shown first. From the z-values and associated exceedance probabilities, we see that except for the coefficient associated with gender, the remaining coefficients are all highly significant.

A study of the random part of the model shows that all the intercept effects are highly significant, except for the level-3 (therapists) intercept. From this, we conclude that intercept estimates vary significantly over sites, but not over therapists.

Therapis1_L4.OUT

```
                         +------------------------+
                         | FIXED PART OF MODEL    |
                         +------------------------+
|----------------------------------------------------------------------------
 COEFFICIENTS                  BETA-HAT      STD.ERR.      Z-VALUE      PR > |Z|
-----------------------------------------------------------------------------
 gender                        -0.68519      0.31056      -2.20627      0.02737
 occasion                       2.51893      0.08517      29.57536      0.00000
 thera1                        18.45830      0.52875      34.90957      0.00000
 thera2                        22.80989      0.39503      57.74156      0.00000
 thera3                        27.19634      0.39389      69.04577      0.00000
 thera4                        30.65119      0.45417      67.48848      0.00000

 DEVIANCE= -2*LOG(LIKELIHOOD) =    19795.9780720184
 NUMBER OF FREE PARAMETERS =              10

                         +------------------------+
                         | RANDOM PART OF MODEL   |
                         +------------------------+

-----------------------------------------------------------------------------
 LEVEL 4                             TAU-HAT      STD.ERR.      Z-VALUE      PR > |Z|
-----------------------------------------------------------------------------
 intcept /intcept                    2.23005      0.74213       3.00493      0.00266

-----------------------------------------------------------------------------
 LEVEL 3                             TAU-HAT      STD.ERR.      Z-VALUE      PR > |Z|
-----------------------------------------------------------------------------
 intcept /intcept                    0.36924      0.53895       0.68510      0.49328

-----------------------------------------------------------------------------
 LEVEL 2                             TAU-HAT      STD.ERR.      Z-VALUE      PR > |Z|
-----------------------------------------------------------------------------
 intcept /intcept                   21.30160      1.18276      18.01005      0.00000

-----------------------------------------------------------------------------
 LEVEL 1                             TAU-HAT      STD.ERR.      Z-VALUE      PR > |Z|
-----------------------------------------------------------------------------
 intcept /intcept                   14.47735      0.45246      31.99664      0.00000
```

Example 5: Observational Residuals (\obsresex)

```
! Run ba4.prl first to obtain POLIDEMstdnew.LSF
! LSFfile Command is to create a new lsf file containing latent
! variable scores
! Estimate Residuals Command is to add estimated residuals to the new
! lsf file. Name of the new file is POLIDEMstdnew.LSF
Industrialization-Democracy Example (ba1da.spl)
Raw Data from file POLIDEMstd.LSF
Latent Variables: Dem60 Dem65 Indus
Relationships:
Y1= Dem60
Y2-Y4 = Dem60
Y5 = Dem65
```

```
Y6-Y8 = Dem65
X9 = Indus
X10-X11 = Indus
Dem60  = Indus
Dem65 = Dem60 Indus
Set Dem60 -> Y2 = Dem65 -> Y6
Set Dem60 -> Y3 = Dem65 -> Y7
Set Dem60 -> Y4 = Dem65 -> Y8
Let the errors of Y5 and Y1 be correlated
let the errors of Y6 and Y2 be correlated
Let the errors of Y7 and Y3 be correlated
Let the errors of Y8 and Y4 be correlated
LSFfile POLIDEMstd.LSF
Estimate Residuals
LISREL Output
Path Diagram
End of Problem
```

The **LSFfile** command is to create a new lsf file containing latent variable scores. The **Estimate Residuals** command is to add estimated residuals to the new lsf file. The name of the new file is **POLIDEMstdnew.LSF**. The first ten cases of this file are shown below.

POLIDEMstdnew.lsf

	Dem65	Indus	R_Y1	R_Y2	R_Y3	R_Y4	R_Y5	R_Y6	R_Y7
1	-0.99	-0.80	-0.15	-0.12	-0.03	-0.25	-0.68	-0.11	0.02
2	-0.61	0.22	-0.50	0.00	0.09	-0.11	0.92	-0.08	0.62
3	1.55	1.11	-0.32	0.08	-0.02	0.21	0.13	0.31	-0.05
4	1.26	1.88	0.23	0.10	-0.00	0.23	0.42	0.54	0.18
5	0.95	1.25	0.96	-0.99	0.29	-0.19	0.14	-0.63	0.42
6	-0.22	0.32	0.57	-0.43	-0.17	0.44	0.61	-0.38	0.32
7	-0.04	0.17	0.51	-0.49	-0.23	0.37	-0.02	-0.19	0.67
8	0.53	0.20	0.71	-0.58	0.98	-0.96	-0.00	-0.31	0.75
9	-0.25	0.40	-0.60	0.28	-0.47	0.25	0.63	0.30	-0.68
10	1.63	0.60	0.49	-0.60	-0.16	-0.03	0.06	-0.18	-0.11

Cost and ordering information

The software can be ordered from our online website **https://www.SSIcentral.biz/default.aspx** and will be delivered electronically. Single user licenses, concurrent licenses, and rental licenses (6 or 12 months) are available. All pricing information is available on the site.