VERSION 7.3
Mplus LANGUAGE ADDENDUM

In this addendum, changes introduced in Version 7.3 are described. They include corrections to minor problems that have been found since the release of Version 7.2 in May 2014 as well as the following new features:

- A new method for 3-step mixture modeling with continuous distal outcomes (BCH)
- Deviance Information Criterion (DIC) for Bayesian analysis of two-level models with continuous outcomes
- Posterior predictive p-values (PPP) for Bayesian analysis of two-level, three-level, and cross-classified models
- Multiple-group alignment for polytomous items using maximum-likelihood estimation
- Variable-specific entropy
- PARAMETERIZATION=RESCOV with 3-step mixture modeling
- Higher-order moment output of skewness and kurtosis with the SAMPSTAT option and TYPE=BASIC
- Plot of conditional expectation functions for skew-SEM

A NEW METHOD FOR 3-STEP MIXTURE MODELING WITH CONTINUOUS DISTAL OUTCOMES (BCH)

Recent research (Bakk & Vermunt, 2014) proposes a method called BCH for 3-step mixture modeling with continuous distal outcomes. This method performs better in some cases than the method proposed by Lanza et al. (2013) referred to as DCON in Mplus. The BCH method can be used for either automatic or manual 3-step analysis using the MLR estimator. For manual 3-

step analysis, the BCH method has an advantage over the Lanza et al.'s method because covariates can be included. The Mplus implementation of the BCH method is described in Asparouhov and Muthen (2014a).

Automatic 3-step analysis is obtained using the BCH setting of the AUXILIARY option. It is specified as follows:

AUXILIARY = y (BCH);

where y is a continuous distal outcome.

Manual 3-step analysis using BCH is obtained in two steps. A complete example can be found in Asparouhov and Muthen (2014a). In the first step, weights are saved for each subject and latent class along with the latent class indicators, distal outcomes, and covariates of interest. The BCHWEIGHTS option of the SAVEDATA command is specified as follows:

SAVE = BCHWEIGHTS;

In the second step, the saved data file from the first step is used as the data in an analysis that uses the TRAINING option of the VARIABLE command as follows:

TRAINING = w1-w3 (BCH);

where w1-w3 are the weights saved for each class in the first step.

VARIABLE-SPECIFIC ENTROPY

The ENTROPY option of the OUTPUT command is used in conjunction with TYPE=MIXTURE to request the entropy contribution for each latent class indicator in mixture modeling.

This information is useful for understanding each indicator's importance in distinguishing among the latent classes. This variable-specific entropy is described in Asparouhov and Muthen (2014b).

REFERENCES

Asparouhov, T. & Muthen, B. (2014a). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model. Mplus Web Notes: No. 21. www.statmodel.com.

Asparouhov, T. & Muthen, B. (2014b). Variable-specific entropy contribution. Technical appendix. Los Angeles: Muthen & Muthen.

Bakk, Z, and Vermunt, J.K. (2014). Robustness of stepwise latent class modeling with continuous distal outcomes. Forthcoming in Structural Equation Modeling. Retrieved from: http://members.home.nl/jeroenvermunt/bakk2014.pdf

Lanza, S.T., Tan, X, & Bray, B.C. (2013). Latent class analysis with distal outcomes: A flexible model-based approach. Structural Equation Modeling, 20, 1-26.