**Appendix 2**  Latent Gold Syntax: MLMM

version = 5.1

//S2 = 2 latent states; C1 = 1 latent class

model

title LM\_C1\_S2;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 1,

State dynamic nominal 2;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C2\_S2;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 2,

State dynamic nominal 2;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C3\_S2;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 3,

State dynamic nominal 2;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//STATE3

model

title LM\_C1\_S3;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 1,

State dynamic nominal 3;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C2\_S3;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 2,

State dynamic nominal 3;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C3\_S3;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 3,

State dynamic nominal 3;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//STATE4

//

model

title LM\_C1\_S4;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model classification;

outfile 'X:\!files\ Step1\_C1\_S4.sav' classification;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 1,

State dynamic nominal 4;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C2\_S4;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 2,

State dynamic nominal 4;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C3\_S4;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 3,

State dynamic nominal 4;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//STATE5

//

model

title LM\_C1\_S5;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 1,

State dynamic nominal 5;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C2\_S5;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 2,

State dynamic nominal 5;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C3\_S5;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 3,

State dynamic nominal 5;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//STATE6

//

model

title LM\_C1\_S6;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 1,

State dynamic nominal 6;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C2\_S6;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 2,

State dynamic nominal 6;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model

//

model

title LM\_C3\_S6;

options

maxthreads=4;

algorithm

tolerance=1e-008 emtolerance=0,01 emiterations=250 nriterations=50 ;

startvalues

seed=0 sets=16 tolerance=1e-005 iterations=50;

bayes

categorical=1 variances=1 latent=1 poisson=1;

montecarlo

seed=0 sets=0 replicates=500 tolerance=1e-008;

quadrature nodes=10;

missing includeall;

output

parameters=effect betaopts=wl standarderrors profile probmeans=posterior

bivariateresiduals estimatedvalues=model;

variables

caseid idnr;

dependent fr\_living, fr\_work, fr\_contact, panss\_p1, panss\_p2, panss\_p3,

panss\_n1, panss\_n4, panss\_n6, panss\_g5, panss\_g9, happiness\_1 continuous;

latent

Class nominal 3,

State dynamic nominal 6;

equations

Class <- 1; //For mixture latent class model - case specific latent variable.

State[=0] <- 1 | Class;

State <- (b1~tra) 1 | State[-1] Class;

fr\_living <- 1 + State;

fr\_work <- 1 + State;

fr\_contact <- 1 + State;

panss\_p1 <- 1 + State;

panss\_p2 <- 1 + State;

panss\_p3 <- 1 + State;

panss\_n1 <- 1 + State;

panss\_n4 <- 1 + State;

panss\_n6 <- 1 + State;

panss\_g5 <- 1 + State;

panss\_g9 <- 1 + State;

happiness\_1 <- 1 + State;

end model