```
Mplus VERSION 6.12
MUTHEN & MUTHEN
08/10/2016  12:08 PM

INPUT INSTRUCTIONS

  ! Sebastian Jilke, Nicolai Petrovsky, Bart Meuleman,
  ! and Oliver James

  ! Public Management Review article:
  ! "Measurement equivalence in replications of experiments:
  ! when and why it matters and guidance on how to
  ! determine equivalence"

  ! Code to reproduce Table 3 - Part 1

  ! Mplus version 6.12
  ! Code last reviewed August, 10 2016

  ! Data set required:
  ! JilkePetrovskyMeulemanJames2016PMR-ME.dat

  ! Please copy this code into your Mplus editor
  ! You need to also cope the datset in your local
  ! directory, and specify its location


  ! Table 3 - Part 1

  TITLE: Measurement Equivalence Analysis Table 1;

  MGCFA Configural Equivalence - Referent is item 1;

  DATA:
  ! You need to insert the location of the data set for XXX
    FILE = C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-
ME.dat;

  VARIABLE:
    NAMEs = t1 - t4 p1 - p4 r1 - r4 b1 - b5 c1 - c3 CountryID
RespondendID;
    USEVARIABLES = b1-b5 CountryID;
    MISSING = ALL(-9999);
    GROUPING = CountryID (0=UK 1=NL);

  MODEL:
  BLAME by b1-b5;

  MODEL UK:
  BLAME by b2-b5;            !Freeing slopes; Using b1 as referent item
  [b1-b5];                   !Freeing intercepts (including referent
item)
  [BLAME@0];                 !Factor mean to identify model
```

```
  MODEL NL:
  BLAME by b2-b5;
  [b1-b5];
  [BLAME@0];

  ANALYSIS:
    ESTIMATOR=MLR;
    TYPE = meanstructure;

  OUTPUT:
   stand;



*** WARNING in ANALYSIS command
  Starting with Version 5, TYPE=MEANSTRUCTURE is the default for all
  analyses.  To remove means from the model, use
  MODEL=NOMEANSTRUCTURE in the ANALYSIS command.
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: COUNTRYID
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: RESPONDENDID
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS



Measurement Equivalence Analysis Table 1;

MGCFA Configural Equivalence - Referent is item 1;

SUMMARY OF ANALYSIS

Number of groups                                                 2
Number of observations
   Group UK                                                   1000
   Group NL                                                   1000

Number of dependent variables                                    5
Number of independent variables                                  0
Number of continuous latent variables                            1

Observed dependent variables

  Continuous
   B1          B2          B3          B4          B5

Continuous latent variables
   BLAME

Variables with special functions
```

Grouping variable COUNTRYI

Estimator	MLR
Information matrix	OBSERVED
Maximum number of iterations	1000
Convergence criterion	0.500D-04
Maximum number of steepest descent iterations	20
Maximum number of iterations for H1	2000
Convergence criterion for H1	0.100D-03

Input data file(s)
C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-ME.dat

Input data format FREE

SUMMARY OF DATA

Group UK
Number of missing data patterns 1

Group NL
Number of missing data patterns 1

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT FOR UK

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

PROPORTION OF DATA PRESENT FOR NL

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				

B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters 30

Loglikelihood

H0 Value	-42061.958
H0 Scaling Correction Factor for MLR	2.202
H1 Value	-42029.482
H1 Scaling Correction Factor for MLR	2.331

Information Criteria

Akaike (AIC)	84183.916
Bayesian (BIC)	84351.943
Sample-Size Adjusted BIC (n* = (n + 2) / 24)	84256.632

Chi-Square Test of Model Fit

Value	23.874*
Degrees of Freedom	10
P-Value	0.0079
Scaling Correction Factor for MLR	2.721

Chi-Square Contributions From Each Group

UK	6.202
NL	17.671

* The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot be used for chi-square difference testing in the regular way. MLM, MLR and WLSM chi-square difference testing is described on the Mplus website. MLMV, WLSMV, and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.037	
90 Percent C.I.	0.018	0.057
Probability RMSEA <= .05	0.848	

CFI/TLI

CFI	0.994
TLI	0.988

Chi-Square Test of Model Fit for the Baseline Model

Value	2240.540
Degrees of Freedom	20
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.013

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.961	0.024	39.433	0.000
B3	1.025	0.022	47.502	0.000
B4	0.835	0.033	25.270	0.000
B5	0.761	0.044	17.118	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.353	0.771	100.325	0.000
B2	80.626	0.735	109.756	0.000
B3	78.407	0.747	105.014	0.000
B4	72.513	0.821	88.364	0.000
B5	79.075	0.705	112.179	0.000
Variances				
BLAME	472.045	31.215	15.123	0.000
Residual Variances				
B1	122.463	18.186	6.734	0.000
B2	103.680	10.585	9.795	0.000
B3	61.795	9.434	6.551	0.000
B4	344.327	25.825	13.333	0.000

B5	223.558	24.286	9.205	0.000

Group NL

BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.999	0.024	41.667	0.000
B3	0.953	0.030	31.856	0.000
B4	0.882	0.031	28.260	0.000
B5	0.877	0.036	24.255	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.327	0.000
B3	75.801	0.751	100.935	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.322	0.000
Variances				
BLAME	453.629	30.563	14.842	0.000
Residual Variances				
B1	148.020	17.498	8.459	0.000
B2	126.048	13.805	9.130	0.000
B3	151.890	17.565	8.647	0.000
B4	221.436	20.779	10.657	0.000
B5	156.439	19.260	8.123	0.000

STANDARDIZED MODEL RESULTS

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	55.091	0.000
B2	0.899	0.012	73.539	0.000
B3	0.943	0.009	101.054	0.000
B4	0.699	0.025	27.508	0.000
B5	0.742	0.032	23.381	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.172	0.111	28.624	0.000

B2	3.471	0.129	26.828	0.000
B3	3.321	0.118	28.026	0.000
B4	2.794	0.085	32.698	0.000
B5	3.547	0.122	29.104	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.029	7.146	0.000
B2	0.192	0.022	8.744	0.000
B3	0.111	0.018	6.299	0.000
B4	0.511	0.036	14.390	0.000
B5	0.450	0.047	9.561	0.000

Group NL

BLAME BY				
B1	0.868	0.015	58.023	0.000
B2	0.885	0.013	69.218	0.000
B3	0.855	0.018	48.155	0.000
B4	0.784	0.022	36.191	0.000
B5	0.831	0.023	35.933	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.107	0.114	27.286	0.000
B2	3.141	0.107	29.413	0.000
B3	3.192	0.106	30.154	0.000
B4	3.069	0.096	32.014	0.000
B5	3.457	0.122	28.410	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.246	0.026	9.467	0.000
B2	0.218	0.023	9.628	0.000
B3	0.269	0.030	8.875	0.000
B4	0.386	0.034	11.361	0.000
B5	0.309	0.038	8.053	0.000

STDY Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	55.091	0.000

B2	0.899	0.012	73.539	0.000
B3	0.943	0.009	101.054	0.000
B4	0.699	0.025	27.508	0.000
B5	0.742	0.032	23.381	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.172	0.111	28.624	0.000
B2	3.471	0.129	26.828	0.000
B3	3.321	0.118	28.026	0.000
B4	2.794	0.085	32.698	0.000
B5	3.547	0.122	29.104	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.029	7.146	0.000
B2	0.192	0.022	8.744	0.000
B3	0.111	0.018	6.299	0.000
B4	0.511	0.036	14.390	0.000
B5	0.450	0.047	9.561	0.000
Group NL				
BLAME BY				
B1	0.868	0.015	58.023	0.000
B2	0.885	0.013	69.218	0.000
B3	0.855	0.018	48.155	0.000
B4	0.784	0.022	36.191	0.000
B5	0.831	0.023	35.933	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.107	0.114	27.286	0.000
B2	3.141	0.107	29.413	0.000
B3	3.192	0.106	30.154	0.000
B4	3.069	0.096	32.014	0.000
B5	3.457	0.122	28.410	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.246	0.026	9.467	0.000
B2	0.218	0.023	9.628	0.000
B3	0.269	0.030	8.875	0.000
B4	0.386	0.034	11.361	0.000
B5	0.309	0.038	8.053	0.000

STD Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	21.727	0.718	30.245	0.000
B2	20.880	0.795	26.262	0.000
B3	22.265	0.721	30.881	0.000
B4	18.141	0.839	21.630	0.000
B5	16.533	0.910	18.175	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.353	0.771	100.325	0.000
B2	80.626	0.735	109.756	0.000
B3	78.407	0.747	105.014	0.000
B4	72.513	0.821	88.364	0.000
B5	79.075	0.705	112.179	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	122.463	18.186	6.734	0.000
B2	103.680	10.585	9.795	0.000
B3	61.795	9.434	6.551	0.000
B4	344.327	25.825	13.333	0.000
B5	223.558	24.286	9.205	0.000
Group NL				
BLAME BY				
B1	21.299	0.717	29.685	0.000
B2	21.286	0.674	31.575	0.000
B3	20.299	0.723	28.082	0.000
B4	18.781	0.732	25.655	0.000
B5	18.682	0.825	22.647	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.327	0.000
B3	75.801	0.751	100.935	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.322	0.000

Variances

BLAME	1.000	0.000	999.000	999.000

Residual Variances

B1	148.020	17.498	8.459	0.000
B2	126.048	13.805	9.130	0.000
B3	151.890	17.565	8.647	0.000
B4	221.436	20.779	10.657	0.000
B5	156.439	19.260	8.123	0.000

R-SQUARE

Group UK

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.794	0.029	27.546	0.000
B2	0.808	0.022	36.770	0.000
B3	0.889	0.018	50.527	0.000
B4	0.489	0.036	13.754	0.000
B5	0.550	0.047	11.691	0.000

Group NL

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.754	0.026	29.012	0.000
B2	0.782	0.023	34.609	0.000
B3	0.731	0.030	24.078	0.000
B4	0.614	0.034	18.096	0.000
B5	0.691	0.038	17.967	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.169E-02
(ratio of smallest to largest eigenvalue)

Beginning Time: 12:08:19
Ending Time: 12:08:19
Elapsed Time: 00:00:00

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Mplus VERSION 6.12
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INPUT INSTRUCTIONS

  ! Sebastian Jilke, Nicolai Petrovsky, Bart Meuleman,
  ! and Oliver James

  ! Public Management Review article:
  ! "Measurement equivalence in replications of experiments:
  ! when and why it matters and guidance on how to
  ! determine equivalence"

  ! Code to reproduce Table 3 - Part 2

  ! Mplus version 6.12
  ! Code last reviewed August, 10 2016

  ! Data set required:
  ! JilkePetrovskyMeulemanJames2016PMR-ME.dat

  ! Please copy this code into your Mplus editor
  ! You need to also cope the datset in your local
  ! directory, and specify its location


  ! Table 3 - Part 2

  TITLE: Measurement Equivalence Analysis Table 1;

  MGCFA Full Metric Equivalence - Referent is item 1;

  DATA:
  ! You need to insert the location of the data set for XXX
    FILE = C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-
ME.dat;

  VARIABLE:
    NAMEs = t1 - t4 p1 - p4 r1 - r4 b1 - b5 c1 - c3 CountryID
RespondendID;
    USEVARIABLES = b1-b5 CountryID;
    MISSING = ALL(-9999);
    GROUPING = CountryID (0=UK 1=NL);

  MODEL:
  BLAME by b1-b5;

  MODEL UK:
  [b1-b5];
  [BLAME@0];

  MODEL NL:
  [b1-b5];
```

```
  [BLAME@0];

  ANALYSIS:
    ESTIMATOR=MLR;
    TYPE = meanstructure;

  OUTPUT:
   stand mod(4);



*** WARNING in ANALYSIS command
  Starting with Version 5, TYPE=MEANSTRUCTURE is the default for all
  analyses.  To remove means from the model, use
  MODEL=NOMEANSTRUCTURE in the ANALYSIS command.
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: COUNTRYID
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: RESPONDENDID
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS



Measurement Equivalence Analysis Table 1;

MGCFA Full Metric Equivalence - Referent is item 1;

SUMMARY OF ANALYSIS

Number of groups                                                 2
Number of observations
   Group UK                                                   1000
   Group NL                                                   1000

Number of dependent variables                                    5
Number of independent variables                                  0
Number of continuous latent variables                            1

Observed dependent variables

  Continuous
   B1          B2          B3          B4          B5

Continuous latent variables
   BLAME

Variables with special functions

  Grouping variable     COUNTRYI
```

Estimator MLR
Information matrix OBSERVED
Maximum number of iterations 1000
Convergence criterion 0.500D-04
Maximum number of steepest descent iterations 20
Maximum number of iterations for H1 2000
Convergence criterion for H1 0.100D-03

Input data file(s)
C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-ME.dat

Input data format FREE

SUMMARY OF DATA

Group UK
Number of missing data patterns 1

Group NL
Number of missing data patterns 1

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT FOR UK

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

PROPORTION OF DATA PRESENT FOR NL

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	

```
 B5             1.000         1.000         1.000         1.000
1.000


THE MODEL ESTIMATION TERMINATED NORMALLY



MODEL FIT INFORMATION

Number of Free Parameters                       26

Loglikelihood

          H0 Value                       -42075.968
          H0 Scaling Correction Factor        2.302
            for MLR
          H1 Value                       -42029.482
          H1 Scaling Correction Factor        2.331
            for MLR

Information Criteria

          Akaike (AIC)                    84203.936
          Bayesian (BIC)                  84349.560
          Sample-Size Adjusted BIC        84266.957
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                              38.975*
          Degrees of Freedom                     14
          P-Value                            0.0004
          Scaling Correction Factor           2.385
            for MLR

Chi-Square Contributions From Each Group

          UK                                 12.376
          NL                                 26.599

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot
be used
    for chi-square difference testing in the regular way.  MLM, MLR and
WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.042
          90 Percent C.I.                    0.027  0.058
```

Probability RMSEA <= .05	0.772

CFI/TLI

CFI	0.989
TLI	0.984

Chi-Square Test of Model Fit for the Baseline Model

Value	2240.540
Degrees of Freedom	20
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.047

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.977	0.017	56.518	0.000
B3	1.003	0.018	56.389	0.000
B4	0.863	0.022	38.619	0.000
B5	0.825	0.029	28.827	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.352	0.771	100.321	0.000
B2	80.626	0.735	109.753	0.000
B3	78.407	0.747	105.010	0.000
B4	72.513	0.821	88.362	0.000
B5	79.075	0.705	112.177	0.000
Variances				
BLAME	468.486	30.040	15.595	0.000
Residual Variances				
B1	121.576	17.866	6.805	0.000
B2	102.369	10.351	9.889	0.000
B3	66.318	9.449	7.019	0.000
B4	342.440	25.520	13.418	0.000
B5	222.029	24.651	9.007	0.000
Group NL				

BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.977	0.017	56.518	0.000
B3	1.003	0.018	56.389	0.000
B4	0.863	0.022	38.619	0.000
B5	0.825	0.029	28.827	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.327	0.000
B3	75.801	0.751	100.935	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.323	0.000
Variances				
BLAME	459.202	28.073	16.357	0.000
Residual Variances				
B1	147.863	17.444	8.476	0.000
B2	128.922	14.265	9.038	0.000
B3	147.300	16.988	8.671	0.000
B4	220.916	20.173	10.951	0.000
B5	161.596	18.565	8.704	0.000

STANDARDIZED MODEL RESULTS

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.905	0.000
B2	0.902	0.011	82.761	0.000
B3	0.936	0.010	93.942	0.000
B4	0.710	0.020	35.365	0.000
B5	0.768	0.022	34.919	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.184	0.111	28.615	0.000
B2	3.440	0.121	28.385	0.000
B3	3.383	0.121	27.994	0.000
B4	2.758	0.086	31.978	0.000

B5	3.401	0.123	27.557	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.028	7.384	0.000
B2	0.186	0.020	9.477	0.000
B3	0.123	0.019	6.614	0.000
B4	0.495	0.029	17.365	0.000
B5	0.411	0.034	12.172	0.000

Group NL

BLAME BY				
B1	0.870	0.014	60.879	0.000
B2	0.879	0.013	65.766	0.000
B3	0.871	0.014	62.363	0.000
B4	0.779	0.020	38.681	0.000
B5	0.812	0.023	35.945	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.093	0.108	28.668	0.000
B2	3.175	0.104	30.414	0.000
B3	3.072	0.100	30.727	0.000
B4	3.100	0.096	32.212	0.000
B5	3.571	0.124	28.772	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.244	0.025	9.801	0.000
B2	0.227	0.023	9.677	0.000
B3	0.242	0.024	9.950	0.000
B4	0.393	0.031	12.501	0.000
B5	0.341	0.037	9.304	0.000

STDY Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.905	0.000
B2	0.902	0.011	82.761	0.000
B3	0.936	0.010	93.942	0.000
B4	0.710	0.020	35.365	0.000

B5	0.768	0.022	34.919	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.184	0.111	28.615	0.000
B2	3.440	0.121	28.385	0.000
B3	3.383	0.121	27.994	0.000
B4	2.758	0.086	31.978	0.000
B5	3.401	0.123	27.557	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.028	7.384	0.000
B2	0.186	0.020	9.477	0.000
B3	0.123	0.019	6.614	0.000
B4	0.495	0.029	17.365	0.000
B5	0.411	0.034	12.172	0.000

Group NL

BLAME BY				
B1	0.870	0.014	60.879	0.000
B2	0.879	0.013	65.766	0.000
B3	0.871	0.014	62.363	0.000
B4	0.779	0.020	38.681	0.000
B5	0.812	0.023	35.945	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.093	0.108	28.668	0.000
B2	3.175	0.104	30.414	0.000
B3	3.072	0.100	30.727	0.000
B4	3.100	0.096	32.212	0.000
B5	3.571	0.124	28.772	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.244	0.025	9.801	0.000
B2	0.227	0.023	9.677	0.000
B3	0.242	0.024	9.950	0.000
B4	0.393	0.031	12.501	0.000
B5	0.341	0.037	9.304	0.000

STD Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	21.645	0.694	31.191	0.000
B2	21.142	0.720	29.364	0.000
B3	21.702	0.725	29.935	0.000
B4	18.674	0.678	27.540	0.000
B5	17.846	0.688	25.956	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.352	0.771	100.321	0.000
B2	80.626	0.735	109.753	0.000
B3	78.407	0.747	105.010	0.000
B4	72.513	0.821	88.362	0.000
B5	79.075	0.705	112.177	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	121.576	17.866	6.805	0.000
B2	102.369	10.351	9.889	0.000
B3	66.318	9.449	7.019	0.000
B4	342.440	25.520	13.418	0.000
B5	222.029	24.651	9.007	0.000
Group NL				
BLAME BY				
B1	21.429	0.655	32.715	0.000
B2	20.931	0.641	32.649	0.000
B3	21.486	0.628	34.227	0.000
B4	18.488	0.661	27.957	0.000
B5	17.668	0.746	23.672	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.327	0.000
B3	75.801	0.751	100.935	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.323	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000

Residual Variances				
B1	147.863	17.444	8.476	0.000
B2	128.922	14.265	9.038	0.000
B3	147.300	16.988	8.671	0.000
B4	220.916	20.173	10.951	0.000
B5	161.596	18.565	8.704	0.000

R-SQUARE

Group UK

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.794	0.028	28.453	0.000
B2	0.814	0.020	41.380	0.000
B3	0.877	0.019	46.971	0.000
B4	0.505	0.029	17.682	0.000
B5	0.589	0.034	17.459	0.000

Group NL

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.756	0.025	30.439	0.000
B2	0.773	0.023	32.883	0.000
B3	0.758	0.024	31.182	0.000
B4	0.607	0.031	19.341	0.000
B5	0.659	0.037	17.973	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.203E-02
(ratio of smallest to largest eigenvalue)

MODEL MODIFICATION INDICES

NOTE: Modification indices for direct effects of observed dependent variables
regressed on covariates may not be included. To include these, request MODINDICES (ALL).

Minimum M.I. value for printing the modification index 4.000

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.

Group UK

BY Statements

BLAME	BY B3	7.398	0.041	0.887	0.038
BLAME	BY B5	6.031	-0.066	-1.437	-0.062

WITH Statements

B3	WITH B2	5.035	20.542	20.542	0.249

Group NL

BY Statements

BLAME	BY B3	7.407	-0.075	-1.607	-0.065
BLAME	BY B5	6.033	0.054	1.167	0.054

WITH Statements

B3	WITH B2	5.091	-24.270	-24.270	-0.176
B4	WITH B1	6.856	-30.139	-30.139	-0.167
B4	WITH B3	14.136	43.266	43.266	0.240
B5	WITH B1	4.848	22.527	22.527	0.146

Beginning Time: 12:08:24
Ending Time: 12:08:24
Elapsed Time: 00:00:00

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3463 Stoner Ave.
Los Angeles, CA 90066

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Web: www.StatModel.com
Support: Support@StatModel.com

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```
Mplus VERSION 6.12
MUTHEN & MUTHEN
08/10/2016  12:07 PM

INPUT INSTRUCTIONS

  ! Sebastian Jilke, Nicolai Petrovsky, Bart Meuleman,
  ! and Oliver James

  ! Public Management Review article:
  ! "Measurement equivalence in replications of experiments:
  ! when and why it matters and guidance on how to
  ! determine equivalence"

  ! Code to reproduce Table 3 - Part 2

  ! Mplus version 6.12
  ! Code last reviewed August, 10 2016

  ! Data set required:
  ! JilkePetrovskyMeulemanJames2016PMR-ME.dat

  ! Please copy this code into your Mplus editor
  ! You need to also cope the datset in your local
  ! directory, and specify its location


  ! Table 3 - Part 3

  TITLE: Measurement Equivalence Analysis Table 1;

  MGCFA Partial Metric Equivalence - Referent is item 1;

  DATA:
  ! You need to insert the location of the data set for XXX
    FILE = C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-
ME.dat;

  VARIABLE:
    NAMEs = t1 - t4 p1 - p4 r1 - r4 b1 - b5 c1 - c3 CountryID
RespondendID;
    USEVARIABLES = b1-b5 CountryID;
    MISSING = ALL(-9999);
    GROUPING = CountryID (0=UK 1=NL);

  MODEL:
  BLAME by b1-b5;

  MODEL UK:
  [b1-b5];
  [BLAME@0];

  MODEL NL:
  Blame by b3;                !Releasing B3
```

```
  [b1-b5];
  [BLAME@0];

  ANALYSIS:
    ESTIMATOR=MLR;
    TYPE = meanstructure;

  OUTPUT:
   stand mod(4);



*** WARNING in ANALYSIS command
  Starting with Version 5, TYPE=MEANSTRUCTURE is the default for all
  analyses.  To remove means from the model, use
  MODEL=NOMEANSTRUCTURE in the ANALYSIS command.
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: COUNTRYID
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: RESPONDENDID
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS



Measurement Equivalence Analysis Table 1;

MGCFA Partial Metric Equivalence - Referent is item 1;

SUMMARY OF ANALYSIS

Number of groups                                                 2
Number of observations
   Group UK                                                   1000
   Group NL                                                   1000

Number of dependent variables                                    5
Number of independent variables                                  0
Number of continuous latent variables                            1

Observed dependent variables

  Continuous
   B1          B2          B3          B4          B5

Continuous latent variables
   BLAME

Variables with special functions

  Grouping variable     COUNTRYI
```

Estimator	MLR
Information matrix	OBSERVED
Maximum number of iterations	1000
Convergence criterion	0.500D-04
Maximum number of steepest descent iterations	20
Maximum number of iterations for H1	2000
Convergence criterion for H1	0.100D-03

Input data file(s)
  C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-ME.dat

Input data format FREE

SUMMARY OF DATA

   Group UK
     Number of missing data patterns 1

   Group NL
     Number of missing data patterns 1

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

     PROPORTION OF DATA PRESENT FOR UK

           Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

     PROPORTION OF DATA PRESENT FOR NL

           Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		

```
 B4             1.000         1.000         1.000         1.000
 B5             1.000         1.000         1.000         1.000
1.000


THE MODEL ESTIMATION TERMINATED NORMALLY



MODEL FIT INFORMATION

Number of Free Parameters                       27

Loglikelihood

          H0 Value                       -42067.126
          H0 Scaling Correction Factor       2.257
            for MLR
          H1 Value                       -42029.482
          H1 Scaling Correction Factor       2.331
            for MLR

Information Criteria

          Akaike (AIC)                    84188.252
          Bayesian (BIC)                  84339.476
          Sample-Size Adjusted BIC        84253.696
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value                             30.288*
          Degrees of Freedom                    13
          P-Value                           0.0043
          Scaling Correction Factor          2.486
            for MLR

Chi-Square Contributions From Each Group

          UK                                 9.058
          NL                                21.230

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot
be used
    for chi-square difference testing in the regular way.  MLM, MLR and
WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate                           0.036
```

90 Percent C.I.	0.020	0.054
Probability RMSEA <= .05	0.898	

CFI/TLI

CFI	0.992
TLI	0.988

Chi-Square Test of Model Fit for the Baseline Model

Value	2240.540
Degrees of Freedom	20
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.032

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.978	0.018	55.487	0.000
B3	1.046	0.021	49.827	0.000
B4	0.858	0.023	37.696	0.000
B5	0.823	0.029	28.772	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.352	0.771	100.321	0.000
B2	80.626	0.735	109.753	0.000
B3	78.407	0.747	105.011	0.000
B4	72.513	0.821	88.363	0.000
B5	79.075	0.705	112.177	0.000
Variances				
BLAME	453.192	29.942	15.136	0.000
Residual Variances				
B1	124.037	18.033	6.878	0.000
B2	103.883	10.353	10.034	0.000
B3	61.695	9.405	6.560	0.000
B4	343.904	25.407	13.536	0.000
B5	222.696	24.394	9.129	0.000

Group NL

BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.978	0.018	55.487	0.000
B3	0.930	0.027	34.640	0.000
B4	0.858	0.023	37.696	0.000
B5	0.823	0.029	28.772	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.328	0.000
B3	75.801	0.751	100.936	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.323	0.000
Variances				
BLAME	476.070	29.154	16.329	0.000
Residual Variances				
B1	145.949	17.325	8.424	0.000
B2	125.809	13.854	9.081	0.000
B3	151.815	17.463	8.694	0.000
B4	221.716	20.407	10.864	0.000
B5	159.552	18.560	8.597	0.000

STANDARDIZED MODEL RESULTS

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.886	0.016	53.791	0.000
B2	0.898	0.011	79.302	0.000
B3	0.943	0.009	101.322	0.000
B4	0.702	0.021	33.543	0.000
B5	0.761	0.022	33.841	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.220	0.112	28.751	0.000
B2	3.477	0.123	28.329	0.000
B3	3.321	0.118	28.026	0.000

B4	2.787	0.087	31.948	0.000
B5	3.436	0.123	27.854	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.215	0.029	7.361	0.000
B2	0.193	0.020	9.495	0.000
B3	0.111	0.018	6.304	0.000
B4	0.508	0.029	17.308	0.000
B5	0.420	0.034	12.275	0.000

Group NL

BLAME BY				
B1	0.875	0.014	63.734	0.000
B2	0.885	0.013	70.496	0.000
B3	0.855	0.018	48.464	0.000
B4	0.782	0.020	39.538	0.000
B5	0.818	0.022	36.945	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.055	0.108	28.310	0.000
B2	3.135	0.104	29.999	0.000
B3	3.192	0.106	30.153	0.000
B4	3.075	0.096	32.163	0.000
B5	3.540	0.124	28.631	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.235	0.024	9.769	0.000
B2	0.216	0.022	9.730	0.000
B3	0.269	0.030	8.926	0.000
B4	0.388	0.031	12.521	0.000
B5	0.331	0.036	9.140	0.000

STDY Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.886	0.016	53.791	0.000
B2	0.898	0.011	79.302	0.000
B3	0.943	0.009	101.322	0.000

B4	0.702	0.021	33.543	0.000
B5	0.761	0.022	33.841	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.220	0.112	28.751	0.000
B2	3.477	0.123	28.329	0.000
B3	3.321	0.118	28.026	0.000
B4	2.787	0.087	31.948	0.000
B5	3.436	0.123	27.854	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.215	0.029	7.361	0.000
B2	0.193	0.020	9.495	0.000
B3	0.111	0.018	6.304	0.000
B4	0.508	0.029	17.308	0.000
B5	0.420	0.034	12.275	0.000

Group NL

BLAME BY				
B1	0.875	0.014	63.734	0.000
B2	0.885	0.013	70.496	0.000
B3	0.855	0.018	48.464	0.000
B4	0.782	0.020	39.538	0.000
B5	0.818	0.022	36.945	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.055	0.108	28.310	0.000
B2	3.135	0.104	29.999	0.000
B3	3.192	0.106	30.153	0.000
B4	3.075	0.096	32.163	0.000
B5	3.540	0.124	28.631	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.235	0.024	9.769	0.000
B2	0.216	0.022	9.730	0.000
B3	0.269	0.030	8.926	0.000
B4	0.388	0.031	12.521	0.000
B5	0.331	0.036	9.140	0.000

STD Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	21.288	0.703	30.272	0.000
B2	20.829	0.722	28.842	0.000
B3	22.267	0.721	30.882	0.000
B4	18.255	0.694	26.312	0.000
B5	17.521	0.681	25.734	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	77.352	0.771	100.321	0.000
B2	80.626	0.735	109.753	0.000
B3	78.407	0.747	105.011	0.000
B4	72.513	0.821	88.363	0.000
B5	79.075	0.705	112.177	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	124.037	18.033	6.878	0.000
B2	103.883	10.353	10.034	0.000
B3	61.695	9.405	6.560	0.000
B4	343.904	25.407	13.536	0.000
B5	222.696	24.394	9.129	0.000
Group NL				
BLAME BY				
B1	21.819	0.668	32.659	0.000
B2	21.348	0.653	32.699	0.000
B3	20.302	0.721	28.143	0.000
B4	18.710	0.657	28.475	0.000
B5	17.958	0.752	23.872	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.205	0.776	98.242	0.000
B2	75.593	0.761	99.328	0.000
B3	75.801	0.751	100.936	0.000
B4	73.534	0.758	97.043	0.000
B5	77.728	0.711	109.323	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000

Residual Variances				
B1	145.949	17.325	8.424	0.000
B2	125.809	13.854	9.081	0.000
B3	151.815	17.463	8.694	0.000
B4	221.716	20.407	10.864	0.000
B5	159.552	18.560	8.597	0.000

R-SQUARE

Group UK

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.785	0.029	26.896	0.000
B2	0.807	0.020	39.651	0.000
B3	0.889	0.018	50.661	0.000
B4	0.492	0.029	16.771	0.000
B5	0.580	0.034	16.920	0.000

Group NL

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.765	0.024	31.867	0.000
B2	0.784	0.022	35.248	0.000
B3	0.731	0.030	24.232	0.000
B4	0.612	0.031	19.769	0.000
B5	0.669	0.036	18.473	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix (ratio of smallest to largest eigenvalue) 0.169E-02

MODEL MODIFICATION INDICES

NOTE: Modification indices for direct effects of observed dependent variables
regressed on covariates may not be included. To include these, request MODINDICES (ALL).

Minimum M.I. value for printing the modification index 4.000

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.

Group UK

No modification indices above the minimum value.

Group NL

WITH Statements

B4	WITH B1	7.197	-31.907	-31.907	-0.177
B4	WITH B3	16.069	46.755	46.755	0.255

Beginning Time: 12:07:53
Ending Time: 12:07:53
Elapsed Time: 00:00:00

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```
Mplus VERSION 6.12
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INPUT INSTRUCTIONS

  ! Sebastian Jilke, Nicolai Petrovsky, Bart Meuleman,
  ! and Oliver James

  ! Public Management Review article:
  ! "Measurement equivalence in replications of experiments:
  ! when and why it matters and guidance on how to
  ! determine equivalence"

  ! Code to reproduce Table 3 - Part 4

  ! Mplus version 6.12
  ! Code last reviewed August, 10 2016

  ! Data set required:
  ! JilkePetrovskyMeulemanJames2016PMR-ME.dat

  ! Please copy this code into your Mplus editor
  ! You need to also cope the datset in your local
  ! directory, and specify its location


  ! Table 3 - Part 4

  TITLE: Measurement Equivalence Analysis Table 1;

  MGCFA Full Scalar Equivalence - Referent is item 1;

  DATA:
  ! You need to insert the location of the data set for XXX
    FILE = C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-
ME.dat;

  VARIABLE:
    NAMEs = t1 - t4 p1 - p4 r1 - r4 b1 - b5 c1 - c3 CountryID
RespondendID;
    USEVARIABLES = b1-b5 CountryID;
    MISSING = ALL(-9999);
    GROUPING = CountryID (0=UK 1=NL);

  MODEL:
  BLAME by b1-b5;

  MODEL UK:
  [BLAME@0];

  MODEL NL:
  [BLAME@0];
```

```
  ANALYSIS:
    ESTIMATOR=MLR;
    TYPE = meanstructure;

  OUTPUT:
   stand mod(4);



*** WARNING in ANALYSIS command
  Starting with Version 5, TYPE=MEANSTRUCTURE is the default for all
  analyses.  To remove means from the model, use
  MODEL=NOMEANSTRUCTURE in the ANALYSIS command.
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: COUNTRYID
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: RESPONDENDID
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS



Measurement Equivalence Analysis Table 1;

MGCFA Full Scalar Equivalence - Referent is item 1;

SUMMARY OF ANALYSIS

Number of groups                                                 2
Number of observations
   Group UK                                                   1000
   Group NL                                                   1000

Number of dependent variables                                    5
Number of independent variables                                  0
Number of continuous latent variables                            1

Observed dependent variables

  Continuous
   B1          B2          B3          B4          B5

Continuous latent variables
   BLAME

Variables with special functions

  Grouping variable     COUNTRYI

Estimator                                                      MLR
Information matrix                                        OBSERVED
```

Maximum number of iterations 1000
Convergence criterion 0.500D-04
Maximum number of steepest descent iterations 20
Maximum number of iterations for H1 2000
Convergence criterion for H1 0.100D-03

Input data file(s)
C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-ME.dat

Input data format FREE

SUMMARY OF DATA

Group UK
Number of missing data patterns 1

Group NL
Number of missing data patterns 1

COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value 0.100

PROPORTION OF DATA PRESENT FOR UK

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

PROPORTION OF DATA PRESENT FOR NL

Covariance Coverage

	B1	B2	B3	B4	B5
B1	1.000				
B2	1.000	1.000			
B3	1.000	1.000	1.000		
B4	1.000	1.000	1.000	1.000	
B5	1.000	1.000	1.000	1.000	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters 21

Loglikelihood

H0 Value	-42106.351
H0 Scaling Correction Factor for MLR	2.614
H1 Value	-42029.482
H1 Scaling Correction Factor for MLR	2.331

Information Criteria

Akaike (AIC)	84254.702
Bayesian (BIC)	84372.321
Sample-Size Adjusted BIC (n* = (n + 2) / 24)	84305.603

Chi-Square Test of Model Fit

Value	76.135*
Degrees of Freedom	19
P-Value	0.0000
Scaling Correction Factor for MLR	2.019

Chi-Square Contributions From Each Group

UK	29.275
NL	46.861

* The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot be used for chi-square difference testing in the regular way. MLM, MLR and WLSM chi-square difference testing is described on the Mplus website. MLMV, WLSMV, and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.055	
90 Percent C.I.	0.042	0.068
Probability RMSEA <= .05	0.250	

CFI/TLI

CFI	0.974
TLI	0.973

Chi-Square Test of Model Fit for the Baseline Model

Value	2240.540
Degrees of Freedom	20
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.056

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.980	0.017	56.639	0.000
B3	1.005	0.018	56.001	0.000
B4	0.860	0.022	38.358	0.000
B5	0.825	0.029	28.873	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.710	0.553	138.762	0.000
B2	78.261	0.537	145.817	0.000
B3	77.144	0.538	143.390	0.000
B4	73.342	0.569	128.966	0.000
B5	78.437	0.500	156.723	0.000
Variances				
BLAME	468.371	29.902	15.663	0.000
Residual Variances				
B1	121.955	18.069	6.749	0.000
B2	104.733	10.644	9.839	0.000
B3	65.851	9.448	6.970	0.000
B4	346.313	26.407	13.114	0.000
B5	222.039	24.623	9.018	0.000
Group NL				
BLAME BY				

B1	1.000	0.000	999.000	999.000
B2	0.980	0.017	56.639	0.000
B3	1.005	0.018	56.001	0.000
B4	0.860	0.022	38.358	0.000
B5	0.825	0.029	28.873	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.710	0.553	138.762	0.000
B2	78.261	0.537	145.817	0.000
B3	77.144	0.538	143.390	0.000
B4	73.342	0.569	128.966	0.000
B5	78.437	0.500	156.723	0.000
Variances				
BLAME	459.210	28.466	16.132	0.000
Residual Variances				
B1	148.327	17.300	8.574	0.000
B2	132.693	15.093	8.792	0.000
B3	146.776	17.004	8.632	0.000
B4	222.749	20.031	11.120	0.000
B5	161.599	18.593	8.691	0.000

STANDARDIZED MODEL RESULTS

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.201	0.000
B2	0.901	0.011	81.770	0.000
B3	0.937	0.010	94.595	0.000
B4	0.707	0.021	34.413	0.000
B5	0.768	0.022	34.989	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.157	0.100	31.639	0.000
B2	3.322	0.105	31.605	0.000
B3	3.323	0.108	30.861	0.000
B4	2.787	0.076	36.769	0.000
B5	3.372	0.116	29.172	0.000

Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.207	0.028	7.317	0.000
B2	0.189	0.020	9.512	0.000
B3	0.122	0.019	6.583	0.000
B4	0.500	0.029	17.206	0.000
B5	0.410	0.034	12.180	0.000

Group NL

BLAME BY				
B1	0.869	0.014	61.305	0.000
B2	0.877	0.014	63.267	0.000
B3	0.872	0.014	62.509	0.000
B4	0.777	0.020	38.777	0.000
B5	0.812	0.023	35.932	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.112	0.097	31.986	0.000
B2	3.266	0.097	33.784	0.000
B3	3.122	0.092	34.054	0.000
B4	3.093	0.087	35.507	0.000
B5	3.602	0.116	31.035	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.244	0.025	9.901	0.000
B2	0.231	0.024	9.510	0.000
B3	0.240	0.024	9.890	0.000
B4	0.396	0.031	12.719	0.000
B5	0.341	0.037	9.285	0.000

STDY Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.201	0.000
B2	0.901	0.011	81.770	0.000
B3	0.937	0.010	94.595	0.000
B4	0.707	0.021	34.413	0.000
B5	0.768	0.022	34.989	0.000

Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.157	0.100	31.639	0.000
B2	3.322	0.105	31.605	0.000
B3	3.323	0.108	30.861	0.000
B4	2.787	0.076	36.769	0.000
B5	3.372	0.116	29.172	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.207	0.028	7.317	0.000
B2	0.189	0.020	9.512	0.000
B3	0.122	0.019	6.583	0.000
B4	0.500	0.029	17.206	0.000
B5	0.410	0.034	12.180	0.000

Group NL

BLAME BY				
B1	0.869	0.014	61.305	0.000
B2	0.877	0.014	63.267	0.000
B3	0.872	0.014	62.509	0.000
B4	0.777	0.020	38.777	0.000
B5	0.812	0.023	35.932	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.112	0.097	31.986	0.000
B2	3.266	0.097	33.784	0.000
B3	3.122	0.092	34.054	0.000
B4	3.093	0.087	35.507	0.000
B5	3.602	0.116	31.035	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.244	0.025	9.901	0.000
B2	0.231	0.024	9.510	0.000
B3	0.240	0.024	9.890	0.000
B4	0.396	0.031	12.719	0.000
B5	0.341	0.037	9.285	0.000

STD Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value

Group UK

BLAME BY				
B1	21.642	0.691	31.327	0.000
B2	21.217	0.696	30.470	0.000
B3	21.751	0.713	30.524	0.000
B4	18.610	0.683	27.231	0.000
B5	17.858	0.685	26.081	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.710	0.553	138.762	0.000
B2	78.261	0.537	145.817	0.000
B3	77.144	0.538	143.390	0.000
B4	73.342	0.569	128.966	0.000
B5	78.437	0.500	156.723	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	121.955	18.069	6.749	0.000
B2	104.733	10.644	9.839	0.000
B3	65.851	9.448	6.970	0.000
B4	346.313	26.407	13.114	0.000
B5	222.039	24.623	9.018	0.000

Group NL

BLAME BY				
B1	21.429	0.664	32.264	0.000
B2	21.009	0.666	31.550	0.000
B3	21.537	0.642	33.549	0.000
B4	18.427	0.659	27.961	0.000
B5	17.683	0.753	23.496	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.710	0.553	138.762	0.000
B2	78.261	0.537	145.817	0.000
B3	77.144	0.538	143.390	0.000
B4	73.342	0.569	128.966	0.000
B5	78.437	0.500	156.723	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	148.327	17.300	8.574	0.000

B2	132.693	15.093	8.792	0.000
B3	146.776	17.004	8.632	0.000
B4	222.749	20.031	11.120	0.000
B5	161.599	18.593	8.691	0.000

R-SQUARE

Group UK

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.793	0.028	28.101	0.000
B2	0.811	0.020	40.885	0.000
B3	0.878	0.019	47.297	0.000
B4	0.500	0.029	17.206	0.000
B5	0.590	0.034	17.495	0.000

Group NL

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.756	0.025	30.653	0.000
B2	0.769	0.024	31.634	0.000
B3	0.760	0.024	31.254	0.000
B4	0.604	0.031	19.389	0.000
B5	0.659	0.037	17.966	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.133E-02
(ratio of smallest to largest eigenvalue)

MODEL MODIFICATION INDICES

NOTE: Modification indices for direct effects of observed dependent variables
regressed on covariates may not be included. To include these, request MODINDICES (ALL).

Minimum M.I. value for printing the modification index 4.000

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
Group UK				
BY Statements				
BLAME BY B3	8.736	0.041	0.889	0.038
BLAME BY B5	7.148	-0.067	-1.440	-0.062

WITH Statements

B3	WITH B2	6.834	22.244	22.244	0.268
B5	WITH B2	4.498	-18.529	-18.529	-0.122

Means/Intercepts/Thresholds

[B2	]	20.908	1.662	1.662	0.071
[B4	]	8.607	-1.967	-1.967	-0.075

Group NL

BY Statements

BLAME	BY B3	8.726	-0.075	-1.607	-0.065
BLAME	BY B5	7.141	0.055	1.170	0.054

WITH Statements

B3	WITH B2	4.943	-22.259	-22.259	-0.159
B4	WITH B1	7.114	-28.382	-28.382	-0.156
B4	WITH B3	16.220	42.827	42.827	0.237
B5	WITH B1	5.880	22.906	22.906	0.148

Means/Intercepts/Thresholds

[B2	]	20.909	-1.977	-1.977	-0.083
[B4	]	8.605	1.308	1.308	0.055

Beginning Time: 12:10:39
Ending Time: 12:10:39
Elapsed Time: 00:00:00

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```
Mplus VERSION 6.12
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INPUT INSTRUCTIONS

  ! Sebastian Jilke, Nicolai Petrovsky, Bart Meuleman,
  ! and Oliver James

  ! Public Management Review article:
  ! "Measurement equivalence in replications of experiments:
  ! when and why it matters and guidance on how to
  ! determine equivalence"

  ! Code to reproduce Table 3 - Part 5

  ! Mplus version 6.12
  ! Code last reviewed August, 10 2016

  ! Data set required:
  ! JilkePetrovskyMeulemanJames2016PMR-ME.dat

  ! Please copy this code into your Mplus editor
  ! You need to also cope the datset in your local
  ! directory, and specify its location


  ! Table 3 - Part 5

  TITLE: Measurement Equivalence Analysis Table 1;

  MGCFA Partial Scalar Equivalence - Referent is item 1;

  DATA:
  ! You need to insert the location of the data set for XXX
    FILE = C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-
ME.dat;

  VARIABLE:
    NAMEs = t1 - t4 p1 - p4 r1 - r4 b1 - b5 c1 - c3 CountryID
RespondendID;
    USEVARIABLES = b1-b5 CountryID;
    MISSING = ALL(-9999);
    GROUPING = CountryID (0=UK 1=NL);

  MODEL:
  BLAME by b1-b5;

  MODEL UK:
  [BLAME@0];

  MODEL NL:
  [b2];                        !Releasing Intercept of b2
  [BLAME@0];
```

```
  ANALYSIS:
    ESTIMATOR=MLR;
    TYPE = meanstructure;

  OUTPUT:
   stand mod(4);



*** WARNING in ANALYSIS command
  Starting with Version 5, TYPE=MEANSTRUCTURE is the default for all
  analyses.  To remove means from the model, use
  MODEL=NOMEANSTRUCTURE in the ANALYSIS command.
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: COUNTRYID
*** WARNING
  Variable name contains more than 8 characters.
  Only the first 8 characters will be printed in the output.
  Variable: RESPONDENDID
   3 WARNING(S) FOUND IN THE INPUT INSTRUCTIONS



Measurement Equivalence Analysis Table 1;

MGCFA Partial Scalar Equivalence - Referent is item 1;

SUMMARY OF ANALYSIS

Number of groups                                                 2
Number of observations
   Group UK                                                   1000
   Group NL                                                   1000

Number of dependent variables                                    5
Number of independent variables                                  0
Number of continuous latent variables                            1

Observed dependent variables

  Continuous
   B1          B2          B3          B4          B5

Continuous latent variables
   BLAME

Variables with special functions

  Grouping variable     COUNTRYI

Estimator                                                      MLR
```

```
Information matrix                                      OBSERVED
Maximum number of iterations                                1000
Convergence criterion                                  0.500D-04
Maximum number of steepest descent iterations                 20
Maximum number of iterations for H1                         2000
Convergence criterion for H1                           0.100D-03

Input data file(s)
  C:\Users\Jilke\Desktop\JilkePetrovskyMeulemanJames2016PMR-ME.dat

Input data format  FREE


SUMMARY OF DATA

   Group UK
     Number of missing data patterns             1

   Group NL
     Number of missing data patterns             1


COVARIANCE COVERAGE OF DATA

Minimum covariance coverage value   0.100


     PROPORTION OF DATA PRESENT FOR UK


           Covariance Coverage
              B1            B2            B3            B4            B5
              ________      ________      ________      ________
________
 B1             1.000
 B2             1.000         1.000
 B3             1.000         1.000         1.000
 B4             1.000         1.000         1.000         1.000
 B5             1.000         1.000         1.000         1.000
1.000


     PROPORTION OF DATA PRESENT FOR NL


           Covariance Coverage
              B1            B2            B3            B4            B5
              ________      ________      ________      ________
________
 B1             1.000
 B2             1.000         1.000
 B3             1.000         1.000         1.000
 B4             1.000         1.000         1.000         1.000
```

 B5   1.000   1.000   1.000   1.000
1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

MODEL FIT INFORMATION

Number of Free Parameters   22

Loglikelihood

          H0 Value   -42084.950
          H0 Scaling Correction Factor   2.541
            for MLR
          H1 Value   -42029.482
          H1 Scaling Correction Factor   2.331
            for MLR

Information Criteria

          Akaike (AIC)   84213.899
          Bayesian (BIC)   84337.119
          Sample-Size Adjusted BIC   84267.224
            (n* = (n + 2) / 24)

Chi-Square Test of Model Fit

          Value   53.465*
          Degrees of Freedom   18
          P-Value   0.0000
          Scaling Correction Factor   2.075
            for MLR

Chi-Square Contributions From Each Group

          UK   18.299
          NL   35.166

*   The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot
be used
    for chi-square difference testing in the regular way. MLM, MLR and
WLSM
    chi-square difference testing is described on the Mplus website.
MLMV, WLSMV,
    and ULSMV difference testing is done using the DIFFTEST option.

RMSEA (Root Mean Square Error Of Approximation)

          Estimate   0.044
          90 Percent C.I.   0.031 0.058

Probability RMSEA <= .05	0.730

CFI/TLI

CFI	0.984
TLI	0.982

Chi-Square Test of Model Fit for the Baseline Model

Value	2240.540
Degrees of Freedom	20
P-Value	0.0000

SRMR (Standardized Root Mean Square Residual)

Value	0.049

MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.977	0.017	56.360	0.000
B3	1.003	0.018	56.347	0.000
B4	0.861	0.022	38.427	0.000
B5	0.825	0.029	28.843	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.759	0.548	139.995	0.000
B2	79.928	0.589	135.702	0.000
B3	77.323	0.536	144.254	0.000
B4	73.259	0.563	130.088	0.000
B5	78.382	0.502	156.184	0.000
Variances				
BLAME	468.747	29.867	15.695	0.000
Residual Variances				
B1	121.553	17.895	6.793	0.000
B2	102.321	10.351	9.885	0.000
B3	66.539	9.486	7.015	0.000
B4	344.536	26.124	13.188	0.000
B5	222.026	24.663	9.002	0.000
Group NL				

BLAME BY				
B1	1.000	0.000	999.000	999.000
B2	0.977	0.017	56.360	0.000
B3	1.003	0.018	56.347	0.000
B4	0.861	0.022	38.427	0.000
B5	0.825	0.029	28.843	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.759	0.548	139.995	0.000
B2	76.278	0.614	124.268	0.000
B3	77.323	0.536	144.254	0.000
B4	73.259	0.563	130.088	0.000
B5	78.382	0.502	156.184	0.000
Variances				
BLAME	459.835	28.432	16.173	0.000
Residual Variances				
B1	147.704	17.393	8.492	0.000
B2	128.726	14.263	9.025	0.000
B3	148.503	17.255	8.606	0.000
B4	222.139	20.055	11.077	0.000
B5	161.432	18.553	8.701	0.000

STANDARDIZED MODEL RESULTS

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.795	0.000
B2	0.902	0.011	82.913	0.000
B3	0.936	0.010	93.944	0.000
B4	0.708	0.020	34.704	0.000
B5	0.768	0.022	34.951	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.159	0.100	31.646	0.000
B2	3.409	0.111	30.588	0.000
B3	3.332	0.108	30.927	0.000
B4	2.785	0.076	36.771	0.000

B5	3.370	0.116	29.058	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.028	7.364	0.000
B2	0.186	0.020	9.481	0.000
B3	0.124	0.019	6.623	0.000
B4	0.498	0.029	17.216	0.000
B5	0.410	0.034	12.166	0.000

Group NL

BLAME BY				
B1	0.870	0.014	61.070	0.000
B2	0.879	0.013	65.760	0.000
B3	0.870	0.014	61.757	0.000
B4	0.778	0.020	38.822	0.000
B5	0.812	0.023	35.997	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.114	0.097	32.106	0.000
B2	3.202	0.098	32.788	0.000
B3	3.127	0.092	34.157	0.000
B4	3.088	0.087	35.613	0.000
B5	3.599	0.116	31.071	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.243	0.025	9.808	0.000
B2	0.227	0.024	9.644	0.000
B3	0.243	0.025	9.906	0.000
B4	0.395	0.031	12.658	0.000
B5	0.340	0.037	9.288	0.000

STDY Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	0.891	0.016	56.795	0.000
B2	0.902	0.011	82.913	0.000
B3	0.936	0.010	93.944	0.000
B4	0.708	0.020	34.704	0.000

B5	0.768	0.022	34.951	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.159	0.100	31.646	0.000
B2	3.409	0.111	30.588	0.000
B3	3.332	0.108	30.927	0.000
B4	2.785	0.076	36.771	0.000
B5	3.370	0.116	29.058	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.206	0.028	7.364	0.000
B2	0.186	0.020	9.481	0.000
B3	0.124	0.019	6.623	0.000
B4	0.498	0.029	17.216	0.000
B5	0.410	0.034	12.166	0.000

Group NL

BLAME BY				
B1	0.870	0.014	61.070	0.000
B2	0.879	0.013	65.760	0.000
B3	0.870	0.014	61.757	0.000
B4	0.778	0.020	38.822	0.000
B5	0.812	0.023	35.997	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	3.114	0.097	32.106	0.000
B2	3.202	0.098	32.788	0.000
B3	3.127	0.092	34.157	0.000
B4	3.088	0.087	35.613	0.000
B5	3.599	0.116	31.071	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	0.243	0.025	9.808	0.000
B2	0.227	0.024	9.644	0.000
B3	0.243	0.025	9.906	0.000
B4	0.395	0.031	12.658	0.000
B5	0.340	0.037	9.288	0.000

STD Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Group UK				
BLAME BY				
B1	21.651	0.690	31.389	0.000
B2	21.152	0.715	29.596	0.000
B3	21.723	0.714	30.440	0.000
B4	18.635	0.683	27.276	0.000
B5	17.858	0.684	26.109	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.759	0.548	139.995	0.000
B2	79.928	0.589	135.702	0.000
B3	77.323	0.536	144.254	0.000
B4	73.259	0.563	130.088	0.000
B5	78.382	0.502	156.184	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000
Residual Variances				
B1	121.553	17.895	6.793	0.000
B2	102.321	10.351	9.885	0.000
B3	66.539	9.486	7.015	0.000
B4	344.536	26.124	13.188	0.000
B5	222.026	24.663	9.002	0.000
Group NL				
BLAME BY				
B1	21.444	0.663	32.347	0.000
B2	20.950	0.648	32.344	0.000
B3	21.516	0.641	33.569	0.000
B4	18.457	0.658	28.031	0.000
B5	17.687	0.752	23.512	0.000
Means				
BLAME	0.000	0.000	999.000	999.000
Intercepts				
B1	76.759	0.548	139.995	0.000
B2	76.278	0.614	124.268	0.000
B3	77.323	0.536	144.254	0.000
B4	73.259	0.563	130.088	0.000
B5	78.382	0.502	156.184	0.000
Variances				
BLAME	1.000	0.000	999.000	999.000

Residual Variances				
B1	147.704	17.393	8.492	0.000
B2	128.726	14.263	9.025	0.000
B3	148.503	17.255	8.606	0.000
B4	222.139	20.055	11.077	0.000
B5	161.432	18.553	8.701	0.000

R-SQUARE

Group UK

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.794	0.028	28.398	0.000
B2	0.814	0.020	41.457	0.000
B3	0.876	0.019	46.972	0.000
B4	0.502	0.029	17.352	0.000
B5	0.590	0.034	17.475	0.000

Group NL

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
B1	0.757	0.025	30.535	0.000
B2	0.773	0.024	32.880	0.000
B3	0.757	0.025	30.879	0.000
B4	0.605	0.031	19.411	0.000
B5	0.660	0.037	17.999	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.144E-02
(ratio of smallest to largest eigenvalue)

MODEL MODIFICATION INDICES

NOTE: Modification indices for direct effects of observed dependent variables
regressed on covariates may not be included. To include these, request MODINDICES (ALL).

Minimum M.I. value for printing the modification index 4.000

	M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.

Group UK

BY Statements

BLAME	BY B3	8.455	0.041	0.885	0.038
BLAME	BY B5	6.912	-0.066	-1.436	-0.062

WITH Statements

B3	WITH B2	5.867	20.729	20.729	0.251
B5	WITH B2	4.518	-18.669	-18.669	-0.124

Means/Intercepts/Thresholds

[B3	]	5.027	0.723	0.723	0.031
[B4	]	4.759	-1.493	-1.493	-0.057

Group NL

BY Statements

BLAME	BY B3	8.451	-0.075	-1.606	-0.065
BLAME	BY B5	6.910	0.054	1.164	0.053

WITH Statements

B3	WITH B2	5.638	-23.893	-23.893	-0.173
B4	WITH B1	7.587	-29.620	-29.620	-0.164
B4	WITH B3	15.561	42.524	42.524	0.234
B5	WITH B1	5.439	22.264	22.264	0.144

Means/Intercepts/Thresholds

[B3	]	5.028	-1.168	-1.168	-0.047
[B4	]	4.760	1.007	1.007	0.042

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     Beginning Time:  12:14:23
        Ending Time:  12:14:23
       Elapsed Time:  00:00:00
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