
Article:
Horan, S., Flaxman, P.E. and Stride, C.B. orcid.org/0000-0001-9960-2869 (2021) The perfect recovery? Interactive influence of perfectionism and spillover work tasks on changes in exhaustion and mood around a vacation. Journal of Occupational Health Psychology, 26 (2). pp. 86-107. ISSN 1076-8998

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Appendix A

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Horan, S., Flaxman, P. & Stride, C. B. (2020) 'The perfect recovery? Interactive influence of perfectionism and spillover work tasks on changes in exhaustion and mood around a vacation.' *Journal of Occupational Health Psychology*

Corresponding author for code:

c.b.stride@sheffield.ac.uk

www.figureitout.org.uk

1. M*plus* code for CFA of initial survey scales

1.1) M*plus* code for CFA testing 2nd order measurement model; 4 lower order factors (MC, DA, PS, NEU), with 2nd order factor measured by MC, DA

```
TITLE: initial survey scales, 4 factor, 2nd order CFA

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
 PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
 PERF_DA BY PRFB4 PRFB7 PRFB8;

 PERF_PC BY PERF_CM PERF_DA;

 PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

 NEU BY PERS4 PERS9;


OUTPUT:
 STAND;
```

1.2) M*plus* code for CFA testing 3 factor measurement model (MC, DA items load together)

```
TITLE: initial survey scales, 3 factor CFA

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
 PERF_PC BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10 PRFB4 PRFB7 PRFB8;

 PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

 NEU BY PERS4 PERS9;


OUTPUT:
 STAND;
```

1.3) M*plus* code for CFA testing 2 factor measurement model (MC, DA, PS items load together)

```
TITLE: initial survey scales, 2 factor CFA

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
 PERF BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10 PRFB4 PRFB7 PRFB8;
    PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

 NEU BY PERS4 PERS9;


OUTPUT:
 STAND;
```

2. M*plus* code for multigroup CFA by country, of initial survey scales; 2nd order measurement model; 4 lower order factors (MC, DA, PS, NEU), with 2nd order factor measured by MC, DA

2.1) Configural invariance

```
TITLE: initial survey scales, multigroup cfa by country, config invariance

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

  GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
PERF_DA BY PRFB4 PRFB7 PRFB8;
PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

PERF_PC BY PERF_CM PERF_DA;

NEU BY PERS4 PERS9;


MODEL UK:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
```

```
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];


MODEL US:

PERF_CM BY PRFB2 (fs1)
           PRFB5 (fs2)
           PRFB9 (fs3)
           PRFB10  (fs4);

PERF_DA BY PRFB7  (fs5)
           PRFB8  (fs6);

PERF_PS BY PRFB6  (fs7)
           PRFB11  (fs8)
           PRFB12  (fs9)
           PRFB13  (fs10);

PERF_PC BY PERF_DA  (fs11);

NEU BY  PERS9  (fs12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];

OUTPUT:
 STAND;
```

2.2) Metric invariance of the first-order factors

```
TITLE: initial survey scales, multigroup cfa by country, metric invariance of
first order factors

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

  GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
PERF_DA BY PRFB4 PRFB7 PRFB8;
PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

PERF_PC BY PERF_CM PERF_DA;

NEU BY PERS4 PERS9;


MODEL UK:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
```

```
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];


MODEL US:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (fs11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];

OUTPUT:
 STAND;
```

2.3) Metric invariance of the first- and second-order factors

```
TITLE: initial survey scales, multigroup cfa by country, metric invariance of
first order and second order factors

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

  GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
PERF_DA BY PRFB4 PRFB7 PRFB8;
PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

PERF_PC BY PERF_CM PERF_DA;

NEU BY PERS4 PERS9;


MODEL UK:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
```

```
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];


MODEL US:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10];
[PRFB4@0 PRFB7 PRFB8];
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13];
[PERS4@0 PERS9];

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];

OUTPUT:
 STAND;
```

2.4) Scalar invariance of the first-order factors

```
TITLE: initial survey scales, multigroup cfa by country, scalar invariance of
first order factors

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

  GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
PERF_DA BY PRFB4 PRFB7 PRFB8;
PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

PERF_PC BY PERF_CM PERF_DA;

NEU BY PERS4 PERS9;


MODEL UK:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10] (i1-i5);
[PRFB4@0 PRFB7 PRFB8] (i6-i8);
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13] (i9-i13);
```

```
[PERS4@0 PERS9]  (i14-i15);

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];


MODEL US:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10] (i1-i5);
[PRFB4@0 PRFB7 PRFB8] (i6-i8);
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13] (i9-i13);
[PERS4@0 PERS9]  (i14-i15);

[PERF_CM PERF_DA];
[PERF_PS NEU];

[PERF_PC@0];

OUTPUT:
 STAND;
```

2.5) Scalar invariance of the first- and second-order factors

```
TITLE: initial survey scales, multigroup cfa by country, scalar invariance of
first order and second order factors

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …


  MISSING = ALL (-99);
  USEVARIABLES = PRFB1 PRFB2 PRFB5 PRFB9 PRFB10
                 PRFB4 PRFB7 PRFB8
                 PRFB3 PRFB6 PRFB11 PRFB12 PRFB13
                 PERS4 PERS9;

  GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
PERF_CM BY PRFB1 PRFB2 PRFB5 PRFB9 PRFB10;
PERF_DA BY PRFB4 PRFB7 PRFB8;
PERF_PS BY PRFB3 PRFB6 PRFB11 PRFB12 PRFB13;

PERF_PC BY PERF_CM PERF_DA;

NEU BY PERS4 PERS9;


MODEL UK:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10] (i1-i5);
[PRFB4@0 PRFB7 PRFB8] (i6-i8);
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13] (i9-i13);
```

```
[PERS4@0 PERS9]  (i14-i15);

[PERF_CM PERF_DA] (i16-i17);
[PERF_PS NEU];

[PERF_PC@0];


MODEL US:

PERF_CM BY PRFB2 (f1)
           PRFB5 (f2)
           PRFB9 (f3)
           PRFB10  (f4);

PERF_DA BY PRFB7  (f5)
           PRFB8  (f6);

PERF_PS BY PRFB6  (f7)
           PRFB11  (f8)
           PRFB12  (f9)
           PRFB13  (f10);

PERF_PC BY PERF_DA  (f11);

NEU BY  PERS9  (f12);

[PRFB1@0 PRFB2 PRFB5 PRFB9 PRFB10] (i1-i5);
[PRFB4@0 PRFB7 PRFB8] (i6-i8);
[PRFB3@0 PRFB6 PRFB11 PRFB12 PRFB13] (i9-i13);
[PERS4@0 PERS9]  (i14-i15);

[PERF_CM PERF_DA] (i16-i17);
[PERF_PS NEU];

[PERF_PC];

OUTPUT:
 STAND;
```

3. M*plus* code for CFA of repeated survey scales

3.1) M*plus* code for CFA testing 3 factor model (EMEXH, ANX, DEP) for each time point. Code for each time point generated using the template file below and the MplusAutomation package in R

```
[[init]]
iterators = classes;
classes = 1:7;
filename = "CFA well being 3 factor each week week [[classes]].inp";
outputDirectory = "…/Perfectionism/analysis/halfterm/CFA by timepoint";
[[/init]]

TITLE: 3 factor cfa for well being repeated items, week [[classes]]

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_timelevel_all.dat';

VARIABLE:
   NAMES =
…

   USEVARIABLES =   WELL1 WELL5 WELL15 WELL2 WELL8 WELL17
   EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

   MISSING = ALL (-99);
   USEOBSERVATIONS = TIME eq [[classes]];

ANALYSIS:
   TYPE = GENERAL;
   ESTIMATOR = ML;

MODEL:
  ANX by WELL1 WELL5 WELL15;
  DEP by WELL2 WELL8 WELL17;
  EMEX by EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

OUTPUT:
   STAND;
```

3.2) M*plus* code for CFA testing 2 factor model (ANX and DEP items load together) for each time point. Code for each time point generated using the template file below and the MplusAutomation package in R

```
[[init]]
iterators = classes;
classes = 1:7;
filename = "CFA well being 2 factor each week week [[classes]].inp";
outputDirectory = "…/Perfectionism/analysis/halfterm/CFA by timepoint";
[[/init]]

TITLE: 2 factor cfa for well being repeated items, week [[classes]]

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_timelevel_all.dat';

VARIABLE:
   NAMES =
…

   USEVARIABLES =   WELL1 WELL5 WELL15 WELL2 WELL8 WELL17
   EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

   MISSING = ALL (-99);
   USEOBSERVATIONS = TIME eq [[classes]];

ANALYSIS:
   TYPE = GENERAL;
   ESTIMATOR = ML;

MODEL:
  ANXDEP by WELL1 WELL5 WELL15 WELL2 WELL8 WELL17;
  EMEX by EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

OUTPUT:
   STAND;
```

3.3) M*plus* code for CFA testing 1 factor model (EMEXH, ANX, DEP items load together) for each time point. Code for each time point generated using the template file below and the MplusAutomation package in R

```
[[init]]
iterators = classes;
classes = 1:7;
filename = "CFA well being 1 factor each week week [[classes]].inp";
outputDirectory = "…/Perfectionism/analysis/halfterm/CFA by timepoint";
[[/init]]

TITLE: 1 factor cfa for well being repeated items, week [[classes]]

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_timelevel_all.dat';

VARIABLE:
   NAMES =
…

   USEVARIABLES =   WELL1 WELL5 WELL15 WELL2 WELL8 WELL17
   EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

   MISSING = ALL (-99);
   USEOBSERVATIONS = TIME eq [[classes]];

ANALYSIS:
   TYPE = GENERAL;
   ESTIMATOR = ML;

MODEL:
  WELLBNG
    by WELL1 WELL5 WELL15 WELL2 WELL8 WELL17 EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

OUTPUT:
   STAND;
```

4. M*plus* code for multigroup CFA by country, for 3 factor model (EMEXH, ANX, DEP) for each time point. Code for each time point generated using the template file below and the MplusAutomation package in R (note that this code tests configural, metric and scalar invariance models in a single analysis, courtesy of the MODEL = subcommand in the ANALYSIS: section)

```
[[init]]
iterators = classes;
classes = 1:7;
filename = "CFA well being 3 factor each week multigroup week [[classes]].inp";
outputDirectory =
   "…/Perfectionism/analysis/halfterm/CFA by timepoint multigroup";
[[/init]]

TITLE: 3 factor cfa for well being repeated items, multigroup by country,
  week [[classes]]

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_timelevel_all.dat';

VARIABLE:
   NAMES =
…

   USEVARIABLES = WELL1 WELL5 WELL15 WELL2 WELL8 WELL17
   EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

   MISSING = ALL (-99);
   USEOBSERVATIONS = TIME eq [[classes]];
   GROUPING = COUNTRY  (0 = UK 1 = US);

ANALYSIS:
   TYPE = GENERAL;
   ESTIMATOR = ML;
   model = configural metric scalar;

MODEL:
  ANX by WELL1 WELL5 WELL15;
  DEP by WELL2 WELL8 WELL17;
  EMEX by EMEX2 EMEX5 EMEX6 EMEX7 EMEX9;

OUTPUT:
   STAND;
```

5. M*plus* code for CFA by country, for 3 factor model (EMEXH, ANX, DEP), testing temporal invariance of loadings and intercepts across time points.

5.1) 3 factor model (EMEXH, ANX, DEP), configural invariance across time points.

```
TITLE: 3 factor model for repeated well being items, temporal configural
invariance

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …

  MISSING = ALL (-99);
  USEVARIABLES =
   WELL1_1 WELL1_2 WELL1_5 WELL1_8 WELL1_15 WELL1_17
   EMEX1_2 EMEX1_5 EMEX1_6 EMEX1_7 EMEX1_9
   WELL2_1 WELL2_2 WELL2_5 WELL2_8 WELL2_15 WELL2_17
   EMEX2_2 EMEX2_5 EMEX2_6 EMEX2_7 EMEX2_9
   WELL3_1 WELL3_2 WELL3_5 WELL3_8 WELL3_15 WELL3_17
   EMEX3_2 EMEX3_5 EMEX3_6 EMEX3_7 EMEX3_9
   WELL4_1 WELL4_2 WELL4_5 WELL4_8 WELL4_15 WELL4_17
   EMEX4_2 EMEX4_5 EMEX4_6 EMEX4_7 EMEX4_9
   WELL5_1 WELL5_2 WELL5_5 WELL5_8 WELL5_15 WELL5_17
   EMEX5_2 EMEX5_5 EMEX5_6 EMEX5_7 EMEX5_9
   WELL6_1 WELL6_2 WELL6_5 WELL6_8 WELL6_15 WELL6_17
   EMEX6_2 EMEX6_5 EMEX6_6 EMEX6_7 EMEX6_9
   WELL7_1 WELL7_2 WELL7_5 WELL7_8 WELL7_15 WELL7_17
   EMEX7_2 EMEX7_5 EMEX7_6 EMEX7_7 EMEX7_9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;


MODEL:
ANX1 by WELL1_1
        WELL1_5 (la1_1)
        WELL1_15 (la1_2);

DEP1 by WELL1_2
        WELL1_8 (ld1_1)
        WELL1_17 (ld1_2);

EMEX1 by EMEX1_2
          EMEX1_5 (le1_1)
          EMEX1_6 (le1_2)
          EMEX1_7 (le1_3)
          EMEX1_9 (le1_4);


ANX2 by WELL2_1
        WELL2_5 (la2_1)
        WELL2_15 (la2_2);
```

```
DEP2 by WELL2_2
        WELL2_8 (ld2_1)
        WELL2_17 (ld2_2);

EMEX2 by EMEX2_2
          EMEX2_5 (le2_1)
          EMEX2_6 (le2_2)
          EMEX2_7 (le2_3)
          EMEX2_9 (le2_4);


ANX3 by WELL3_1
        WELL3_5 (la3_1)
        WELL3_15 (la3_2);

DEP3 by WELL3_2
        WELL3_8 (ld3_1)
        WELL3_17 (ld3_2);

EMEX3 by EMEX3_2
          EMEX3_5 (le3_1)
          EMEX3_6 (le3_2)
          EMEX3_7 (le3_3)
          EMEX3_9 (le3_4);


ANX4 by WELL4_1
        WELL4_5 (la4_1)
        WELL4_15 (la4_2);

DEP4 by WELL4_2
        WELL4_8 (ld4_1)
        WELL4_17 (ld4_2);

EMEX4 by EMEX4_2
          EMEX4_5 (le4_1)
          EMEX4_6 (le4_2)
          EMEX4_7 (le4_3)
          EMEX4_9 (le4_4);


ANX5 by WELL5_1
        WELL5_5 (la5_1)
        WELL5_15 (la5_2);

DEP5 by WELL5_2
        WELL5_8 (ld5_1)
        WELL5_17 (ld5_2);

EMEX5 by EMEX5_2
          EMEX5_5 (le5_1)
          EMEX5_6 (le5_2)
          EMEX5_7 (le5_3)
          EMEX5_9 (le5_4);

ANX6 by WELL6_1
```

```
        WELL6_5 (la6_1)
        WELL6_15 (la6_2);

DEP6 by WELL6_2
        WELL6_8 (ld6_1)
        WELL6_17 (ld6_2);

EMEX6 by EMEX6_2
          EMEX6_5 (le6_1)
          EMEX6_6 (le6_2)
          EMEX6_7 (le6_3)
          EMEX6_9 (le6_4);


ANX7 by WELL7_1
        WELL7_5 (la7_1)
        WELL7_15 (la7_2);

DEP7 by WELL7_2
        WELL7_8 (ld7_1)
        WELL7_17 (ld7_2);

EMEX7 by EMEX7_2
          EMEX7_5 (le7_1)
          EMEX7_6 (le7_2)
          EMEX7_7 (le7_3)
          EMEX7_9 (le7_4);


! intercepts

![ANX1@0]; [ANX2]; [ANX3]; [ANX4]; [ANX5]; [ANX6]; [ANX7];
![DEP1@0]; [DEP2]; [DEP3]; [DEP4]; [DEP5]; [DEP6]; [DEP7];

![EMEX1@0]; [EMEX2]; [EMEX3]; [EMEX4]; [EMEX5]; [EMEX6]; [EMEX7];
!

[WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1];
[WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2];
[WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5];
[WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8];
[WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15];
[WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17];
[EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2];
[EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5];
[EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6];
[EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7];
[EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9];


! residual variances
WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1;
WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2;
WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5;
WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8;
WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15;
```

```
WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17;
EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2;
EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5;
EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6;
EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7;
EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9;


! corrs
WELL1_1 WITH WELL2_1 (w1c1)
 WELL3_1  (w1c2)
 WELL4_1  (w1c3)
 WELL5_1  (w1c4)
 WELL6_1  (w1c5)
 WELL7_1  (w1c6);
WELL2_1 WITH WELL3_1  (w1c1)
 WELL4_1 (w1c2)
 WELL5_1 (w1c3)
 WELL6_1 (w1c4)
 WELL7_1 (w1c5);
WELL3_1 WITH WELL4_1 (w1c1)
 WELL5_1 (w1c2)
 WELL6_1 (w1c3)
 WELL7_1 (w1c4);
WELL4_1 WITH WELL5_1 (w1c1)
 WELL6_1 (w1c2)
 WELL7_1 (w1c3);
WELL5_1 WITH WELL6_1 (w1c1)
 WELL7_1 (w1c2);
WELL6_1 WITH WELL7_1 (w1c1);

WELL1_2 WITH WELL2_2 (w2c1)
 WELL3_2  (w2c2)
 WELL4_2  (w2c3)
 WELL5_2  (w2c4)
 WELL6_2  (w2c5)
 WELL7_2  (w2c6);
WELL2_2 WITH WELL3_2  (w2c1)
 WELL4_2 (w2c2)
 WELL5_2 (w2c3)
 WELL6_2 (w2c4)
 WELL7_2 (w2c5);
WELL3_2 WITH WELL4_2 (w2c1)
 WELL5_2 (w2c2)
 WELL6_2 (w2c3)
 WELL7_2 (w2c4);
WELL4_2 WITH WELL5_2 (w2c1)
 WELL6_2 (w2c2)
 WELL7_2 (w2c3);
WELL5_2 WITH WELL6_2 (w2c1)
 WELL7_2 (w2c2);
WELL6_2 WITH WELL7_2 (w2c1);

WELL1_5 WITH WELL2_5 (w5c1)
 WELL3_5  (w5c2)
 WELL4_5  (w5c3)
```

```
 WELL5_5  (w5c4)
 WELL6_5  (w5c5)
 WELL7_5  (w5c6);
WELL2_5 WITH WELL3_5  (w5c1)
 WELL4_5 (w5c2)
 WELL5_5 (w5c3)
 WELL6_5 (w5c4)
 WELL7_5 (w5c5);
WELL3_5 WITH WELL4_5 (w5c1)
 WELL5_5 (w5c2)
 WELL6_5 (w5c3)
 WELL7_5 (w5c4);
WELL4_5 WITH WELL5_5 (w5c1)
 WELL6_5 (w5c2)
 WELL7_5 (w5c3);
WELL5_5 WITH WELL6_5 (w5c1)
 WELL7_5 (w5c2);
WELL6_5 WITH WELL7_5 (w5c1);

WELL1_8 WITH WELL2_8 (w8c1)
 WELL3_8  (w8c2)
 WELL4_8  (w8c3)
 WELL5_8  (w8c4)
 WELL6_8  (w8c5)
 WELL7_8  (w8c6);
WELL2_8 WITH WELL3_8  (w8c1)
 WELL4_8 (w8c2)
 WELL5_8 (w8c3)
 WELL6_8 (w8c4)
 WELL7_8 (w8c5);
WELL3_8 WITH WELL4_8 (w8c1)
 WELL5_8 (w8c2)
 WELL6_8 (w8c3)
 WELL7_8 (w8c4);
WELL4_8 WITH WELL5_8 (w8c1)
 WELL6_8 (w8c2)
 WELL7_8 (w8c3);
WELL5_8 WITH WELL6_8 (w8c1)
 WELL7_8 (w8c2);
WELL6_8 WITH WELL7_8 (w8c1);

WELL1_15 WITH WELL2_15 (w15c1)
 WELL3_15  (w15c2)
 WELL4_15  (w15c3)
 WELL5_15  (w15c4)
 WELL6_15  (w15c5)
 WELL7_15  (w15c6);
WELL2_15 WITH WELL3_15  (w15c1)
 WELL4_15 (w15c2)
 WELL5_15 (w15c3)
 WELL6_15 (w15c4)
 WELL7_15 (w15c5);
WELL3_15 WITH WELL4_15 (w15c1)
 WELL5_15 (w15c2)
 WELL6_15 (w15c3)
 WELL7_15 (w15c4);
```

```
WELL4_15 WITH WELL5_15 (w15c1)
 WELL6_15 (w15c2)
 WELL7_15 (w15c3);
WELL5_15 WITH WELL6_15 (w15c1)
 WELL7_15 (w15c2);
WELL6_15 WITH WELL7_15 (w15c1);

WELL1_17 WITH WELL2_17 (w17c1)
 WELL3_17  (w17c2)
 WELL4_17  (w17c3)
 WELL5_17  (w17c4)
 WELL6_17  (w17c5)
 WELL7_17  (w17c6);
WELL2_17 WITH WELL3_17  (w17c1)
 WELL4_17 (w17c2)
 WELL5_17 (w17c3)
 WELL6_17 (w17c4)
 WELL7_17 (w17c5);
WELL3_17 WITH WELL4_17 (w17c1)
 WELL5_17 (w17c2)
 WELL6_17 (w17c3)
 WELL7_17 (w17c4);
WELL4_17 WITH WELL5_17 (w17c1)
 WELL6_17 (w17c2)
 WELL7_17 (w17c3);
WELL5_17 WITH WELL6_17 (w17c1)
 WELL7_17 (w17c2);
WELL6_17 WITH WELL7_17 (w17c1);

EMEX1_2 WITH EMEX2_2 (e2c1)
 EMEX3_2  (e2c2)
 EMEX4_2  (e2c3)
 EMEX5_2  (e2c4)
 EMEX6_2  (e2c5)
 EMEX7_2  (e2c6);
EMEX2_2 WITH EMEX3_2  (e2c1)
 EMEX4_2 (e2c2)
 EMEX5_2 (e2c3)
 EMEX6_2 (e2c4)
 EMEX7_2 (e2c5);
EMEX3_2 WITH EMEX4_2 (e2c1)
 EMEX5_2 (e2c2)
 EMEX6_2 (e2c3)
 EMEX7_2 (e2c4);
EMEX4_2 WITH EMEX5_2 (e2c1)
 EMEX6_2 (e2c2)
 EMEX7_2 (e2c3);
EMEX5_2 WITH EMEX6_2 (e2c1)
 EMEX7_2 (e2c2);
EMEX6_2 WITH EMEX7_2 (e2c1);

EMEX1_5 WITH EMEX2_5 (e5c1)
 EMEX3_5  (e5c2)
 EMEX4_5  (e5c3)
 EMEX5_5  (e5c4)
 EMEX6_5  (e5c5)
```

```
 EMEX7_5  (e5c6);
EMEX2_5 WITH EMEX3_5  (e5c1)
 EMEX4_5 (e5c2)
 EMEX5_5 (e5c3)
 EMEX6_5 (e5c4)
 EMEX7_5 (e5c5);
EMEX3_5 WITH EMEX4_5 (e5c1)
 EMEX5_5 (e5c2)
 EMEX6_5 (e5c3)
 EMEX7_5 (e5c4);
EMEX4_5 WITH EMEX5_5 (e5c1)
 EMEX6_5 (e5c2)
 EMEX7_5 (e5c3);
EMEX5_5 WITH EMEX6_5 (e5c1)
 EMEX7_5 (e5c2);
EMEX6_5 WITH EMEX7_5 (e5c1);

EMEX1_6 WITH EMEX2_6 (e6c1)
 EMEX3_6  (e6c2)
 EMEX4_6  (e6c3)
 EMEX5_6  (e6c4)
 EMEX6_6  (e6c5)
 EMEX7_6  (e6c6);
EMEX2_6 WITH EMEX3_6  (e6c1)
 EMEX4_6 (e6c2)
 EMEX5_6 (e6c3)
 EMEX6_6 (e6c4)
 EMEX7_6 (e6c5);
EMEX3_6 WITH EMEX4_6 (e6c1)
 EMEX5_6 (e6c2)
 EMEX6_6 (e6c3)
 EMEX7_6 (e6c4);
EMEX4_6 WITH EMEX5_6 (e6c1)
 EMEX6_6 (e6c2)
 EMEX7_6 (e6c3);
EMEX5_6 WITH EMEX6_6 (e6c1)
 EMEX7_6 (e6c2);
EMEX6_6 WITH EMEX7_6 (e6c1);

EMEX1_7 WITH EMEX2_7 (e7c1)
 EMEX3_7  (e7c2)
 EMEX4_7  (e7c3)
 EMEX5_7  (e7c4)
 EMEX6_7  (e7c5)
 EMEX7_7  (e7c6);
EMEX2_7 WITH EMEX3_7  (e7c1)
 EMEX4_7 (e7c2)
 EMEX5_7 (e7c3)
 EMEX6_7 (e7c4)
 EMEX7_7 (e7c5);
EMEX3_7 WITH EMEX4_7 (e7c1)
 EMEX5_7 (e7c2)
 EMEX6_7 (e7c3)
 EMEX7_7 (e7c4);
EMEX4_7 WITH EMEX5_7 (e7c1)
 EMEX6_7 (e7c2)
```

```
 EMEX7_7 (e7c3);
EMEX5_7 WITH EMEX6_7 (e7c1)
 EMEX7_7 (e7c2);
EMEX6_7 WITH EMEX7_7 (e7c1);

EMEX1_9 WITH EMEX2_9 (e9c1)
 EMEX3_9  (e9c2)
 EMEX4_9  (e9c3)
 EMEX5_9  (e9c4)
 EMEX6_9  (e9c5)
 EMEX7_9  (e9c6);
EMEX2_9 WITH EMEX3_9  (e9c1)
 EMEX4_9 (e9c2)
 EMEX5_9 (e9c3)
 EMEX6_9 (e9c4)
 EMEX7_9 (e9c5);
EMEX3_9 WITH EMEX4_9 (e9c1)
 EMEX5_9 (e9c2)
 EMEX6_9 (e9c3)
 EMEX7_9 (e9c4);
EMEX4_9 WITH EMEX5_9 (e9c1)
 EMEX6_9 (e9c2)
 EMEX7_9 (e9c3);
EMEX5_9 WITH EMEX6_9 (e9c1)
 EMEX7_9 (e9c2);
EMEX6_9 WITH EMEX7_9 (e9c1);
```

5.2) 3 factor model (EMEXH, ANX, DEP), metric invariance across time points.

```
TITLE: 3 factor model for repeated well being items, temporal configural
invariance


DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …

  MISSING = ALL (-99);
  USEVARIABLES =
   WELL1_1 WELL1_2 WELL1_5 WELL1_8 WELL1_15 WELL1_17
   EMEX1_2 EMEX1_5 EMEX1_6 EMEX1_7 EMEX1_9
   WELL2_1 WELL2_2 WELL2_5 WELL2_8 WELL2_15 WELL2_17
   EMEX2_2 EMEX2_5 EMEX2_6 EMEX2_7 EMEX2_9
   WELL3_1 WELL3_2 WELL3_5 WELL3_8 WELL3_15 WELL3_17
   EMEX3_2 EMEX3_5 EMEX3_6 EMEX3_7 EMEX3_9
   WELL4_1 WELL4_2 WELL4_5 WELL4_8 WELL4_15 WELL4_17
   EMEX4_2 EMEX4_5 EMEX4_6 EMEX4_7 EMEX4_9
   WELL5_1 WELL5_2 WELL5_5 WELL5_8 WELL5_15 WELL5_17
   EMEX5_2 EMEX5_5 EMEX5_6 EMEX5_7 EMEX5_9
   WELL6_1 WELL6_2 WELL6_5 WELL6_8 WELL6_15 WELL6_17
   EMEX6_2 EMEX6_5 EMEX6_6 EMEX6_7 EMEX6_9
   WELL7_1 WELL7_2 WELL7_5 WELL7_8 WELL7_15 WELL7_17
   EMEX7_2 EMEX7_5 EMEX7_6 EMEX7_7 EMEX7_9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;

MODEL:
ANX1 by WELL1_1
        WELL1_5 (la1_1)
        WELL1_15 (la1_2);

DEP1 by WELL1_2
        WELL1_8 (ld1_1)
        WELL1_17 (ld1_2);

EMEX1 by EMEX1_2
          EMEX1_5 (le1_1)
          EMEX1_6 (le1_2)
          EMEX1_7 (le1_3)
          EMEX1_9 (le1_4);


ANX2 by WELL2_1
        WELL2_5 (la2_1)
        WELL2_15 (la2_2);

DEP2 by WELL2_2
        WELL2_8 (ld2_1)
        WELL2_17 (ld2_2);
```

```
EMEX2 by EMEX2_2
          EMEX2_5 (le2_1)
          EMEX2_6 (le2_2)
          EMEX2_7 (le2_3)
          EMEX2_9 (le2_4);


ANX3 by WELL3_1
        WELL3_5 (la3_1)
        WELL3_15 (la3_2);

DEP3 by WELL3_2
        WELL3_8 (ld3_1)
        WELL3_17 (ld3_2);

EMEX3 by EMEX3_2
          EMEX3_5 (le3_1)
          EMEX3_6 (le3_2)
          EMEX3_7 (le3_3)
          EMEX3_9 (le3_4);


ANX4 by WELL4_1
        WELL4_5 (la4_1)
        WELL4_15 (la4_2);

DEP4 by WELL4_2
        WELL4_8 (ld4_1)
        WELL4_17 (ld4_2);

EMEX4 by EMEX4_2
          EMEX4_5 (le4_1)
          EMEX4_6 (le4_2)
          EMEX4_7 (le4_3)
          EMEX4_9 (le4_4);


ANX5 by WELL5_1
        WELL5_5 (la5_1)
        WELL5_15 (la5_2);

DEP5 by WELL5_2
        WELL5_8 (ld5_1)
        WELL5_17 (ld5_2);

EMEX5 by EMEX5_2
          EMEX5_5 (le5_1)
          EMEX5_6 (le5_2)
          EMEX5_7 (le5_3)
          EMEX5_9 (le5_4);

ANX6 by WELL6_1
        WELL6_5 (la6_1)
        WELL6_15 (la6_2);
```

```
DEP6 by WELL6_2
        WELL6_8 (ld6_1)
        WELL6_17 (ld6_2);

EMEX6 by EMEX6_2
          EMEX6_5 (le6_1)
          EMEX6_6 (le6_2)
          EMEX6_7 (le6_3)
          EMEX6_9 (le6_4);


ANX7 by WELL7_1
        WELL7_5 (la7_1)
        WELL7_15 (la7_2);

DEP7 by WELL7_2
        WELL7_8 (ld7_1)
        WELL7_17 (ld7_2);

EMEX7 by EMEX7_2
          EMEX7_5 (le7_1)
          EMEX7_6 (le7_2)
          EMEX7_7 (le7_3)
          EMEX7_9 (le7_4);


! intercepts

![ANX1@0]; [ANX2]; [ANX3]; [ANX4]; [ANX5]; [ANX6]; [ANX7];
![DEP1@0]; [DEP2]; [DEP3]; [DEP4]; [DEP5]; [DEP6]; [DEP7];

![EMEX1@0]; [EMEX2]; [EMEX3]; [EMEX4]; [EMEX5]; [EMEX6]; [EMEX7];
![CYN1@0]; [CYN2]; [CYN3]; [CYN4]; [CYN5]; [CYN6]; [CYN7];

[WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1];
[WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2];
[WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5];
[WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8];
[WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15];
[WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17];
[EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2];
[EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5];
[EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6];
[EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7];
[EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9];


! residual variances
WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1;
WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2;
WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5;
WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8;
WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15;
WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17;
EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2;
EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5;
```

```
EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6;
EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7;
EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9;


! corrs
! corrs
WELL1_1 WITH WELL2_1 (w1c1)
 WELL3_1  (w1c2)
 WELL4_1  (w1c3)
 WELL5_1  (w1c4)
 WELL6_1  (w1c5)
 WELL7_1  (w1c6);
WELL2_1 WITH WELL3_1  (w1c1)
 WELL4_1 (w1c2)
 WELL5_1 (w1c3)
 WELL6_1 (w1c4)
 WELL7_1 (w1c5);
WELL3_1 WITH WELL4_1 (w1c1)
 WELL5_1 (w1c2)
 WELL6_1 (w1c3)
 WELL7_1 (w1c4);
WELL4_1 WITH WELL5_1 (w1c1)
 WELL6_1 (w1c2)
 WELL7_1 (w1c3);
WELL5_1 WITH WELL6_1 (w1c1)
 WELL7_1 (w1c2);
WELL6_1 WITH WELL7_1 (w1c1);

WELL1_2 WITH WELL2_2 (w2c1)
 WELL3_2  (w2c2)
 WELL4_2  (w2c3)
 WELL5_2  (w2c4)
 WELL6_2  (w2c5)
 WELL7_2  (w2c6);
WELL2_2 WITH WELL3_2  (w2c1)
 WELL4_2 (w2c2)
 WELL5_2 (w2c3)
 WELL6_2 (w2c4)
 WELL7_2 (w2c5);
WELL3_2 WITH WELL4_2 (w2c1)
 WELL5_2 (w2c2)
 WELL6_2 (w2c3)
 WELL7_2 (w2c4);
WELL4_2 WITH WELL5_2 (w2c1)
 WELL6_2 (w2c2)
 WELL7_2 (w2c3);
WELL5_2 WITH WELL6_2 (w2c1)
 WELL7_2 (w2c2);
WELL6_2 WITH WELL7_2 (w2c1);

WELL1_5 WITH WELL2_5 (w5c1)
 WELL3_5  (w5c2)
 WELL4_5  (w5c3)
 WELL5_5  (w5c4)
 WELL6_5  (w5c5)
```

```
 WELL7_5  (w5c6);
WELL2_5 WITH WELL3_5  (w5c1)
 WELL4_5 (w5c2)
 WELL5_5 (w5c3)
 WELL6_5 (w5c4)
 WELL7_5 (w5c5);
WELL3_5 WITH WELL4_5 (w5c1)
 WELL5_5 (w5c2)
 WELL6_5 (w5c3)
 WELL7_5 (w5c4);
WELL4_5 WITH WELL5_5 (w5c1)
 WELL6_5 (w5c2)
 WELL7_5 (w5c3);
WELL5_5 WITH WELL6_5 (w5c1)
 WELL7_5 (w5c2);
WELL6_5 WITH WELL7_5 (w5c1);

WELL1_8 WITH WELL2_8 (w8c1)
 WELL3_8  (w8c2)
 WELL4_8  (w8c3)
 WELL5_8  (w8c4)
 WELL6_8  (w8c5)
 WELL7_8  (w8c6);
WELL2_8 WITH WELL3_8  (w8c1)
 WELL4_8 (w8c2)
 WELL5_8 (w8c3)
 WELL6_8 (w8c4)
 WELL7_8 (w8c5);
WELL3_8 WITH WELL4_8 (w8c1)
 WELL5_8 (w8c2)
 WELL6_8 (w8c3)
 WELL7_8 (w8c4);
WELL4_8 WITH WELL5_8 (w8c1)
 WELL6_8 (w8c2)
 WELL7_8 (w8c3);
WELL5_8 WITH WELL6_8 (w8c1)
 WELL7_8 (w8c2);
WELL6_8 WITH WELL7_8 (w8c1);

WELL1_15 WITH WELL2_15 (w15c1)
 WELL3_15  (w15c2)
 WELL4_15  (w15c3)
 WELL5_15  (w15c4)
 WELL6_15  (w15c5)
 WELL7_15  (w15c6);
WELL2_15 WITH WELL3_15  (w15c1)
 WELL4_15 (w15c2)
 WELL5_15 (w15c3)
 WELL6_15 (w15c4)
 WELL7_15 (w15c5);
WELL3_15 WITH WELL4_15 (w15c1)
 WELL5_15 (w15c2)
 WELL6_15 (w15c3)
 WELL7_15 (w15c4);
WELL4_15 WITH WELL5_15 (w15c1)
 WELL6_15 (w15c2)
```

```
 WELL7_15 (w15c3);
WELL5_15 WITH WELL6_15 (w15c1)
 WELL7_15 (w15c2);
WELL6_15 WITH WELL7_15 (w15c1);

WELL1_17 WITH WELL2_17 (w17c1)
 WELL3_17  (w17c2)
 WELL4_17  (w17c3)
 WELL5_17  (w17c4)
 WELL6_17  (w17c5)
 WELL7_17  (w17c6);
WELL2_17 WITH WELL3_17  (w17c1)
 WELL4_17 (w17c2)
 WELL5_17 (w17c3)
 WELL6_17 (w17c4)
 WELL7_17 (w17c5);
WELL3_17 WITH WELL4_17 (w17c1)
 WELL5_17 (w17c2)
 WELL6_17 (w17c3)
 WELL7_17 (w17c4);
WELL4_17 WITH WELL5_17 (w17c1)
 WELL6_17 (w17c2)
 WELL7_17 (w17c3);
WELL5_17 WITH WELL6_17 (w17c1)
 WELL7_17 (w17c2);
WELL6_17 WITH WELL7_17 (w17c1);

EMEX1_2 WITH EMEX2_2 (e2c1)
 EMEX3_2  (e2c2)
 EMEX4_2  (e2c3)
 EMEX5_2  (e2c4)
 EMEX6_2  (e2c5)
 EMEX7_2  (e2c6);
EMEX2_2 WITH EMEX3_2  (e2c1)
 EMEX4_2 (e2c2)
 EMEX5_2 (e2c3)
 EMEX6_2 (e2c4)
 EMEX7_2 (e2c5);
EMEX3_2 WITH EMEX4_2 (e2c1)
 EMEX5_2 (e2c2)
 EMEX6_2 (e2c3)
 EMEX7_2 (e2c4);
EMEX4_2 WITH EMEX5_2 (e2c1)
 EMEX6_2 (e2c2)
 EMEX7_2 (e2c3);
EMEX5_2 WITH EMEX6_2 (e2c1)
 EMEX7_2 (e2c2);
EMEX6_2 WITH EMEX7_2 (e2c1);

EMEX1_5 WITH EMEX2_5 (e5c1)
 EMEX3_5  (e5c2)
 EMEX4_5  (e5c3)
 EMEX5_5  (e5c4)
 EMEX6_5  (e5c5)
 EMEX7_5  (e5c6);
EMEX2_5 WITH EMEX3_5  (e5c1)
```

```
 EMEX4_5 (e5c2)
 EMEX5_5 (e5c3)
 EMEX6_5 (e5c4)
 EMEX7_5 (e5c5);
EMEX3_5 WITH EMEX4_5 (e5c1)
 EMEX5_5 (e5c2)
 EMEX6_5 (e5c3)
 EMEX7_5 (e5c4);
EMEX4_5 WITH EMEX5_5 (e5c1)
 EMEX6_5 (e5c2)
 EMEX7_5 (e5c3);
EMEX5_5 WITH EMEX6_5 (e5c1)
 EMEX7_5 (e5c2);
EMEX6_5 WITH EMEX7_5 (e5c1);

EMEX1_6 WITH EMEX2_6 (e6c1)
 EMEX3_6  (e6c2)
 EMEX4_6  (e6c3)
 EMEX5_6  (e6c4)
 EMEX6_6  (e6c5)
 EMEX7_6  (e6c6);
EMEX2_6 WITH EMEX3_6  (e6c1)
 EMEX4_6 (e6c2)
 EMEX5_6 (e6c3)
 EMEX6_6 (e6c4)
 EMEX7_6 (e6c5);
EMEX3_6 WITH EMEX4_6 (e6c1)
 EMEX5_6 (e6c2)
 EMEX6_6 (e6c3)
 EMEX7_6 (e6c4);
EMEX4_6 WITH EMEX5_6 (e6c1)
 EMEX6_6 (e6c2)
 EMEX7_6 (e6c3);
EMEX5_6 WITH EMEX6_6 (e6c1)
 EMEX7_6 (e6c2);
EMEX6_6 WITH EMEX7_6 (e6c1);

EMEX1_7 WITH EMEX2_7 (e7c1)
 EMEX3_7  (e7c2)
 EMEX4_7  (e7c3)
 EMEX5_7  (e7c4)
 EMEX6_7  (e7c5)
 EMEX7_7  (e7c6);
EMEX2_7 WITH EMEX3_7  (e7c1)
 EMEX4_7 (e7c2)
 EMEX5_7 (e7c3)
 EMEX6_7 (e7c4)
 EMEX7_7 (e7c5);
EMEX3_7 WITH EMEX4_7 (e7c1)
 EMEX5_7 (e7c2)
 EMEX6_7 (e7c3)
 EMEX7_7 (e7c4);
EMEX4_7 WITH EMEX5_7 (e7c1)
 EMEX6_7 (e7c2)
 EMEX7_7 (e7c3);
EMEX5_7 WITH EMEX6_7 (e7c1)
```

```
 EMEX7_7 (e7c2);
EMEX6_7 WITH EMEX7_7 (e7c1);

EMEX1_9 WITH EMEX2_9 (e9c1)
 EMEX3_9  (e9c2)
 EMEX4_9  (e9c3)
 EMEX5_9  (e9c4)
 EMEX6_9  (e9c5)
 EMEX7_9  (e9c6);
EMEX2_9 WITH EMEX3_9  (e9c1)
 EMEX4_9 (e9c2)
 EMEX5_9 (e9c3)
 EMEX6_9 (e9c4)
 EMEX7_9 (e9c5);
EMEX3_9 WITH EMEX4_9 (e9c1)
 EMEX5_9 (e9c2)
 EMEX6_9 (e9c3)
 EMEX7_9 (e9c4);
EMEX4_9 WITH EMEX5_9 (e9c1)
 EMEX6_9 (e9c2)
 EMEX7_9 (e9c3);
EMEX5_9 WITH EMEX6_9 (e9c1)
 EMEX7_9 (e9c2);
EMEX6_9 WITH EMEX7_9 (e9c1);

model constraint:
la1_1 = la2_1; la1_1 = la3_1; la1_1 = la4_1; la1_1 = la5_1; la1_1 = la6_1;
la1_1 = la7_1;
la1_2 = la2_2; la1_2 = la3_2; la1_2 = la4_2; la1_2 = la5_2; la1_2 = la6_2;
la1_2 = la7_2;
ld1_1 = ld2_1; ld1_1 = ld3_1; ld1_1 = ld4_1; ld1_1 = ld5_1; ld1_1 = ld6_1;
ld1_1 = ld7_1;
ld1_2 = ld2_2; ld1_2 = ld3_2; ld1_2 = ld4_2; ld1_2 = ld5_2; ld1_2 = ld6_2;
ld1_2 = ld7_2;
le1_1 = le2_1; le1_1 = le3_1; le1_1 = le4_1; le1_1 = le5_1; le1_1 = le6_1;
le1_1 = le7_1;
le1_2 = le2_2; le1_2 = le3_2; le1_2 = le4_2; le1_2 = le5_2; le1_2 = le6_2;
le1_2 = le7_2;
le1_3 = le2_3; le1_3 = le3_3; le1_3 = le4_3; le1_3 = le5_3; le1_3 = le6_3;
le1_3 = le7_3;
le1_4 = le2_4; le1_4 = le3_4; le1_4 = le4_4; le1_4 = le5_4; le1_4 = le6_4;
le1_4 = le7_4;

OUTPUT:
 STAND;
```

5.3) 3 factor model (EMEXH, ANX, DEP), scalar (AKA strong) invariance across time points.

```
TITLE: 3 factor model for repeated well being items, temporal configural
invariance

DATA:
 FILE = '…\Perfectionism\data\HalfTerm_subjectlevel_all.dat';

VARIABLE:
 NAMES = …

  MISSING = ALL (-99);
  USEVARIABLES =
   WELL1_1 WELL1_2 WELL1_5 WELL1_8 WELL1_15 WELL1_17
   EMEX1_2 EMEX1_5 EMEX1_6 EMEX1_7 EMEX1_9
   WELL2_1 WELL2_2 WELL2_5 WELL2_8 WELL2_15 WELL2_17
   EMEX2_2 EMEX2_5 EMEX2_6 EMEX2_7 EMEX2_9
   WELL3_1 WELL3_2 WELL3_5 WELL3_8 WELL3_15 WELL3_17
   EMEX3_2 EMEX3_5 EMEX3_6 EMEX3_7 EMEX3_9
   WELL4_1 WELL4_2 WELL4_5 WELL4_8 WELL4_15 WELL4_17
   EMEX4_2 EMEX4_5 EMEX4_6 EMEX4_7 EMEX4_9
   WELL5_1 WELL5_2 WELL5_5 WELL5_8 WELL5_15 WELL5_17
   EMEX5_2 EMEX5_5 EMEX5_6 EMEX5_7 EMEX5_9
   WELL6_1 WELL6_2 WELL6_5 WELL6_8 WELL6_15 WELL6_17
   EMEX6_2 EMEX6_5 EMEX6_6 EMEX6_7 EMEX6_9
   WELL7_1 WELL7_2 WELL7_5 WELL7_8 WELL7_15 WELL7_17
   EMEX7_2 EMEX7_5 EMEX7_6 EMEX7_7 EMEX7_9;

ANALYSIS:
  TYPE = GENERAL;
  ESTIMATOR = ML;


MODEL:
ANX1 by WELL1_1
        WELL1_5 (la1_1)
        WELL1_15 (la1_2);

DEP1 by WELL1_2
        WELL1_8 (ld1_1)
        WELL1_17 (ld1_2);

EMEX1 by EMEX1_2
          EMEX1_5 (le1_1)
          EMEX1_6 (le1_2)
          EMEX1_7 (le1_3)
          EMEX1_9 (le1_4);


ANX2 by WELL2_1
        WELL2_5 (la2_1)
        WELL2_15 (la2_2);

DEP2 by WELL2_2
        WELL2_8 (ld2_1)
        WELL2_17 (ld2_2);
```

```
EMEX2 by EMEX2_2
          EMEX2_5 (le2_1)
          EMEX2_6 (le2_2)
          EMEX2_7 (le2_3)
          EMEX2_9 (le2_4);


ANX3 by WELL3_1
        WELL3_5 (la3_1)
        WELL3_15 (la3_2);

DEP3 by WELL3_2
        WELL3_8 (ld3_1)
        WELL3_17 (ld3_2);

EMEX3 by EMEX3_2
          EMEX3_5 (le3_1)
          EMEX3_6 (le3_2)
          EMEX3_7 (le3_3)
          EMEX3_9 (le3_4);


ANX4 by WELL4_1
        WELL4_5 (la4_1)
        WELL4_15 (la4_2);

DEP4 by WELL4_2
        WELL4_8 (ld4_1)
        WELL4_17 (ld4_2);

EMEX4 by EMEX4_2
          EMEX4_5 (le4_1)
          EMEX4_6 (le4_2)
          EMEX4_7 (le4_3)
          EMEX4_9 (le4_4);


ANX5 by WELL5_1
        WELL5_5 (la5_1)
        WELL5_15 (la5_2);

DEP5 by WELL5_2
        WELL5_8 (ld5_1)
        WELL5_17 (ld5_2);

EMEX5 by EMEX5_2
          EMEX5_5 (le5_1)
          EMEX5_6 (le5_2)
          EMEX5_7 (le5_3)
          EMEX5_9 (le5_4);

ANX6 by WELL6_1
        WELL6_5 (la6_1)
        WELL6_15 (la6_2);
```

```
DEP6 by WELL6_2
        WELL6_8 (ld6_1)
        WELL6_17 (ld6_2);

EMEX6 by EMEX6_2
          EMEX6_5 (le6_1)
          EMEX6_6 (le6_2)
          EMEX6_7 (le6_3)
          EMEX6_9 (le6_4);


ANX7 by WELL7_1
        WELL7_5 (la7_1)
        WELL7_15 (la7_2);

DEP7 by WELL7_2
        WELL7_8 (ld7_1)
        WELL7_17 (ld7_2);

EMEX7 by EMEX7_2
          EMEX7_5 (le7_1)
          EMEX7_6 (le7_2)
          EMEX7_7 (le7_3)
          EMEX7_9 (le7_4);


! intercepts

[ANX1@0]; [ANX2]; [ANX3]; [ANX4]; [ANX5]; [ANX6]; [ANX7];
[DEP1@0]; [DEP2]; [DEP3]; [DEP4]; [DEP5]; [DEP6]; [DEP7];

[EMEX1@0]; [EMEX2]; [EMEX3]; [EMEX4]; [EMEX5]; [EMEX6]; [EMEX7];


[WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1] (i1);
[WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2] (i2);
[WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5] (i3);
[WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8] (i4);
[WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15] (i5);
[WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17] (i6);
[EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2] (i7);
[EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5] (i8);
[EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6] (i9);
[EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7] (i10);
[EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9] (i11);


! residual variances
WELL1_1 WELL2_1 WELL3_1 WELL4_1 WELL5_1 WELL6_1 WELL7_1;
WELL1_2 WELL2_2 WELL3_2 WELL4_2 WELL5_2 WELL6_2 WELL7_2;
WELL1_5 WELL2_5 WELL3_5 WELL4_5 WELL5_5 WELL6_5 WELL7_5;
WELL1_8 WELL2_8 WELL3_8 WELL4_8 WELL5_8 WELL6_8 WELL7_8;
WELL1_15 WELL2_15 WELL3_15 WELL4_15 WELL5_15 WELL6_15 WELL7_15;
WELL1_17 WELL2_17 WELL3_17 WELL4_17 WELL5_17 WELL6_17 WELL7_17;
EMEX1_2 EMEX2_2 EMEX3_2 EMEX4_2 EMEX5_2 EMEX6_2 EMEX7_2;
EMEX1_5 EMEX2_5 EMEX3_5 EMEX4_5 EMEX5_5 EMEX6_5 EMEX7_5;
```

```
EMEX1_6 EMEX2_6 EMEX3_6 EMEX4_6 EMEX5_6 EMEX6_6 EMEX7_6;
EMEX1_7 EMEX2_7 EMEX3_7 EMEX4_7 EMEX5_7 EMEX6_7 EMEX7_7;
EMEX1_9 EMEX2_9 EMEX3_9 EMEX4_9 EMEX5_9 EMEX6_9 EMEX7_9;


! corrs
! corrs
WELL1_1 WITH WELL2_1 (w1c1)
 WELL3_1  (w1c2)
 WELL4_1  (w1c3)
 WELL5_1  (w1c4)
 WELL6_1  (w1c5)
 WELL7_1  (w1c6);
WELL2_1 WITH WELL3_1  (w1c1)
 WELL4_1 (w1c2)
 WELL5_1 (w1c3)
 WELL6_1 (w1c4)
 WELL7_1 (w1c5);
WELL3_1 WITH WELL4_1 (w1c1)
 WELL5_1 (w1c2)
 WELL6_1 (w1c3)
 WELL7_1 (w1c4);
WELL4_1 WITH WELL5_1 (w1c1)
 WELL6_1 (w1c2)
 WELL7_1 (w1c3);
WELL5_1 WITH WELL6_1 (w1c1)
 WELL7_1 (w1c2);
WELL6_1 WITH WELL7_1 (w1c1);

WELL1_2 WITH WELL2_2 (w2c1)
 WELL3_2  (w2c2)
 WELL4_2  (w2c3)
 WELL5_2  (w2c4)
 WELL6_2  (w2c5)
 WELL7_2  (w2c6);
WELL2_2 WITH WELL3_2  (w2c1)
 WELL4_2 (w2c2)
 WELL5_2 (w2c3)
 WELL6_2 (w2c4)
 WELL7_2 (w2c5);
WELL3_2 WITH WELL4_2 (w2c1)
 WELL5_2 (w2c2)
 WELL6_2 (w2c3)
 WELL7_2 (w2c4);
WELL4_2 WITH WELL5_2 (w2c1)
 WELL6_2 (w2c2)
 WELL7_2 (w2c3);
WELL5_2 WITH WELL6_2 (w2c1)
 WELL7_2 (w2c2);
WELL6_2 WITH WELL7_2 (w2c1);

WELL1_5 WITH WELL2_5 (w5c1)
 WELL3_5  (w5c2)
 WELL4_5  (w5c3)
 WELL5_5  (w5c4)
 WELL6_5  (w5c5)
```

```
 WELL7_5  (w5c6);
WELL2_5 WITH WELL3_5  (w5c1)
 WELL4_5 (w5c2)
 WELL5_5 (w5c3)
 WELL6_5 (w5c4)
 WELL7_5 (w5c5);
WELL3_5 WITH WELL4_5 (w5c1)
 WELL5_5 (w5c2)
 WELL6_5 (w5c3)
 WELL7_5 (w5c4);
WELL4_5 WITH WELL5_5 (w5c1)
 WELL6_5 (w5c2)
 WELL7_5 (w5c3);
WELL5_5 WITH WELL6_5 (w5c1)
 WELL7_5 (w5c2);
WELL6_5 WITH WELL7_5 (w5c1);

WELL1_8 WITH WELL2_8 (w8c1)
 WELL3_8  (w8c2)
 WELL4_8  (w8c3)
 WELL5_8  (w8c4)
 WELL6_8  (w8c5)
 WELL7_8  (w8c6);
WELL2_8 WITH WELL3_8  (w8c1)
 WELL4_8 (w8c2)
 WELL5_8 (w8c3)
 WELL6_8 (w8c4)
 WELL7_8 (w8c5);
WELL3_8 WITH WELL4_8 (w8c1)
 WELL5_8 (w8c2)
 WELL6_8 (w8c3)
 WELL7_8 (w8c4);
WELL4_8 WITH WELL5_8 (w8c1)
 WELL6_8 (w8c2)
 WELL7_8 (w8c3);
WELL5_8 WITH WELL6_8 (w8c1)
 WELL7_8 (w8c2);
WELL6_8 WITH WELL7_8 (w8c1);

WELL1_15 WITH WELL2_15 (w15c1)
 WELL3_15  (w15c2)
 WELL4_15  (w15c3)
 WELL5_15  (w15c4)
 WELL6_15  (w15c5)
 WELL7_15  (w15c6);
WELL2_15 WITH WELL3_15  (w15c1)
 WELL4_15 (w15c2)
 WELL5_15 (w15c3)
 WELL6_15 (w15c4)
 WELL7_15 (w15c5);
WELL3_15 WITH WELL4_15 (w15c1)
 WELL5_15 (w15c2)
 WELL6_15 (w15c3)
 WELL7_15 (w15c4);
WELL4_15 WITH WELL5_15 (w15c1)
 WELL6_15 (w15c2)
```

```
 WELL7_15 (w15c3);
WELL5_15 WITH WELL6_15 (w15c1)
 WELL7_15 (w15c2);
WELL6_15 WITH WELL7_15 (w15c1);

WELL1_17 WITH WELL2_17 (w17c1)
 WELL3_17  (w17c2)
 WELL4_17  (w17c3)
 WELL5_17  (w17c4)
 WELL6_17  (w17c5)
 WELL7_17  (w17c6);
WELL2_17 WITH WELL3_17  (w17c1)
 WELL4_17 (w17c2)
 WELL5_17 (w17c3)
 WELL6_17 (w17c4)
 WELL7_17 (w17c5);
WELL3_17 WITH WELL4_17 (w17c1)
 WELL5_17 (w17c2)
 WELL6_17 (w17c3)
 WELL7_17 (w17c4);
WELL4_17 WITH WELL5_17 (w17c1)
 WELL6_17 (w17c2)
 WELL7_17 (w17c3);
WELL5_17 WITH WELL6_17 (w17c1)
 WELL7_17 (w17c2);
WELL6_17 WITH WELL7_17 (w17c1);

EMEX1_2 WITH EMEX2_2 (e2c1)
 EMEX3_2  (e2c2)
 EMEX4_2  (e2c3)
 EMEX5_2  (e2c4)
 EMEX6_2  (e2c5)
 EMEX7_2  (e2c6);
EMEX2_2 WITH EMEX3_2  (e2c1)
 EMEX4_2 (e2c2)
 EMEX5_2 (e2c3)
 EMEX6_2 (e2c4)
 EMEX7_2 (e2c5);
EMEX3_2 WITH EMEX4_2 (e2c1)
 EMEX5_2 (e2c2)
 EMEX6_2 (e2c3)
 EMEX7_2 (e2c4);
EMEX4_2 WITH EMEX5_2 (e2c1)
 EMEX6_2 (e2c2)
 EMEX7_2 (e2c3);
EMEX5_2 WITH EMEX6_2 (e2c1)
 EMEX7_2 (e2c2);
EMEX6_2 WITH EMEX7_2 (e2c1);

EMEX1_5 WITH EMEX2_5 (e5c1)
 EMEX3_5  (e5c2)
 EMEX4_5  (e5c3)
 EMEX5_5  (e5c4)
 EMEX6_5  (e5c5)
 EMEX7_5  (e5c6);
EMEX2_5 WITH EMEX3_5  (e5c1)
```

```
 EMEX4_5 (e5c2)
 EMEX5_5 (e5c3)
 EMEX6_5 (e5c4)
 EMEX7_5 (e5c5);
EMEX3_5 WITH EMEX4_5 (e5c1)
 EMEX5_5 (e5c2)
 EMEX6_5 (e5c3)
 EMEX7_5 (e5c4);
EMEX4_5 WITH EMEX5_5 (e5c1)
 EMEX6_5 (e5c2)
 EMEX7_5 (e5c3);
EMEX5_5 WITH EMEX6_5 (e5c1)
 EMEX7_5 (e5c2);
EMEX6_5 WITH EMEX7_5 (e5c1);

EMEX1_6 WITH EMEX2_6 (e6c1)
 EMEX3_6  (e6c2)
 EMEX4_6  (e6c3)
 EMEX5_6  (e6c4)
 EMEX6_6  (e6c5)
 EMEX7_6  (e6c6);
EMEX2_6 WITH EMEX3_6  (e6c1)
 EMEX4_6 (e6c2)
 EMEX5_6 (e6c3)
 EMEX6_6 (e6c4)
 EMEX7_6 (e6c5);
EMEX3_6 WITH EMEX4_6 (e6c1)
 EMEX5_6 (e6c2)
 EMEX6_6 (e6c3)
 EMEX7_6 (e6c4);
EMEX4_6 WITH EMEX5_6 (e6c1)
 EMEX6_6 (e6c2)
 EMEX7_6 (e6c3);
EMEX5_6 WITH EMEX6_6 (e6c1)
 EMEX7_6 (e6c2);
EMEX6_6 WITH EMEX7_6 (e6c1);

EMEX1_7 WITH EMEX2_7 (e7c1)
 EMEX3_7  (e7c2)
 EMEX4_7  (e7c3)
 EMEX5_7  (e7c4)
 EMEX6_7  (e7c5)
 EMEX7_7  (e7c6);
EMEX2_7 WITH EMEX3_7  (e7c1)
 EMEX4_7 (e7c2)
 EMEX5_7 (e7c3)
 EMEX6_7 (e7c4)
 EMEX7_7 (e7c5);
EMEX3_7 WITH EMEX4_7 (e7c1)
 EMEX5_7 (e7c2)
 EMEX6_7 (e7c3)
 EMEX7_7 (e7c4);
EMEX4_7 WITH EMEX5_7 (e7c1)
 EMEX6_7 (e7c2)
 EMEX7_7 (e7c3);
EMEX5_7 WITH EMEX6_7 (e7c1)
```

```
 EMEX7_7 (e7c2);
EMEX6_7 WITH EMEX7_7 (e7c1);

EMEX1_9 WITH EMEX2_9 (e9c1)
 EMEX3_9  (e9c2)
 EMEX4_9  (e9c3)
 EMEX5_9  (e9c4)
 EMEX6_9  (e9c5)
 EMEX7_9  (e9c6);
EMEX2_9 WITH EMEX3_9  (e9c1)
 EMEX4_9 (e9c2)
 EMEX5_9 (e9c3)
 EMEX6_9 (e9c4)
 EMEX7_9 (e9c5);
EMEX3_9 WITH EMEX4_9 (e9c1)
 EMEX5_9 (e9c2)
 EMEX6_9 (e9c3)
 EMEX7_9 (e9c4);
EMEX4_9 WITH EMEX5_9 (e9c1)
 EMEX6_9 (e9c2)
 EMEX7_9 (e9c3);
EMEX5_9 WITH EMEX6_9 (e9c1)
 EMEX7_9 (e9c2);
EMEX6_9 WITH EMEX7_9 (e9c1);

model constraint:
la1_1 = la2_1; la1_1 = la3_1; la1_1 = la4_1; la1_1 = la5_1; la1_1 = la6_1;
la1_1 = la7_1;
la1_2 = la2_2; la1_2 = la3_2; la1_2 = la4_2; la1_2 = la5_2; la1_2 = la6_2;
la1_2 = la7_2;
ld1_1 = ld2_1; ld1_1 = ld3_1; ld1_1 = ld4_1; ld1_1 = ld5_1; ld1_1 = ld6_1;
ld1_1 = ld7_1;
ld1_2 = ld2_2; ld1_2 = ld3_2; ld1_2 = ld4_2; ld1_2 = ld5_2; ld1_2 = ld6_2;
ld1_2 = ld7_2;
le1_1 = le2_1; le1_1 = le3_1; le1_1 = le4_1; le1_1 = le5_1; le1_1 = le6_1;
le1_1 = le7_1;
le1_2 = le2_2; le1_2 = le3_2; le1_2 = le4_2; le1_2 = le5_2; le1_2 = le6_2;
le1_2 = le7_2;
le1_3 = le2_3; le1_3 = le3_3; le1_3 = le4_3; le1_3 = le5_3; le1_3 = le6_3;
le1_3 = le7_3;
le1_4 = le2_4; le1_4 = le3_4; le1_4 = le4_4; le1_4 = le5_4; le1_4 = le6_4;
le1_4 = le7_4;

OUTPUT:
 STAND;
```

Appendix B

If using this appendix for code reference or learning, please cite as follows:

Horan, S., Flaxman, P. & Stride, C. B. (2020) 'The perfect recovery? Interactive influence of perfectionism and spillover work tasks on changes in exhaustion and mood around a vacation.' *Journal of Occupational Health Psychology*

Table 1

Comparing Competing Measurement Models for Perfectionism and Neuroticism Items

Measurement Model	Chi-sq, df	Δ Chi-sq, Δ df	*p*	CFI	RMSEA	SRMR
4 lower order factors (MC, DA, PS, NEU), with 2nd order factor measured by MC, DA	183.62, 85	---	---	0.93	0.07	0.06
3 factors (MC, DA items load together)	217.74, 87	34.11, 2*	< 0.001	0.90	0.08	0.07
2 factors (MC, DA, PS items load together)	502.27, 89	284.54, 2*	< 0.001	0.70	0.14	0.12

Note. N = 224. *p < .05.

Table 2

Multigroup CFA by Country on 4 Factors Lower Order, 2nd Order Factor Solution for Perfectionism and Neuroticism Items

Invariance Model	Chi-sq, df	Δ Chi-sq, Δ df	*p*	CFI	RMSEA	SRMR
Configural invariance model	302.52, 170	---	---	0.90	0.08	0.07
Metric invariance of the first-order factors	318.90, 181	16.39, 11	0.127	0.90	0.08	0.08
Metric invariance of the first- and second-order factors	319.01, 182	0.10, 1	0.748	0.90	0.08	0.08
Scalar invariance of the first-order factors	338.28, 193	19.27, 11	0.056	0.90	0.08	0.09
Scalar invariance of the first- and second-order factors	338.59, 194	0.31, 1	0.577	0.90	0.08	0.09

Note. N = 224 (UK, N = 169; US, N = 55). *$p < .05$.

Table 3

CFA Comparing Competing Models for Exhaustion, Anxious Mood, and Depressed Mood Items, Separately for Each Time Point

Week	Measurement Model	Chi-sq, df	Δ Chi-sq, Δ df	*p*	CFI	RMSEA	SRMR
1	Three factor model (separate factors for exhaustion, anxious and depressed mood)	91.02, 41	---	---	0.96	0.07	0.05
1	Two factor model (anxious, depressed mood items load on same factor)	211.27, 43	120.25, 2	< 0.001	0.88	0.13	0.07
1	One factor model	339.61, 44	128.34, 1	< 0.001	0.79	0.17	0.08
2	Three factor model (separate factors for exhaustion, anxious and depressed mood)	65.29, 41	---	---	0.98	0.05	0.04
2	Two factor model (anxious, depressed mood items load on same factor)	159.36, 43	94.07, 2	< 0.001	0.92	0.12	0.06
2	One factor model	321.13, 44	161.78, 1	< 0.001	0.80	0.18	0.08
3	Three factor model (separate factors for exhaustion, anxious and depressed mood)	116.51, 41	---	---	0.95	0.09	0.04
3	Two factor model (anxious, depressed mood items load on same factor)	180.31, 43	63.80, 2	< 0.001	0.90	0.12	0.05
3	One factor model	632.17, 44	451.86, 1	< 0.001	0.58	0.25	0.15
4	Three factor model (separate factors for exhaustion, anxious and depressed mood)	127.45, 41	---	---	0.95	0.10	0.05
4	Two factor model (anxious, depressed mood items load on same factor)	251.02, 43	123.57, 2	< 0.001	0.88	0.15	0.06
4	One factor model	378.45, 44	127.43, 1	< 0.001	0.80	0.19	0.08
5	Three factor model (separate factors for exhaustion, anxious and depressed mood)	120.45, 41	---	---	0.96	0.09	0.04
5	Two factor model (anxious, depressed mood items load on same factor)	252.96, 43	132.50, 2	< 0.001	0.89	0.15	0.06
5	One factor model	393.30, 44	140.34, 1	< 0.001	0.81	0.19	0.07
6	Three factor model (separate factors for exhaustion, anxious and depressed mood)	73.39, 41	---	---	0.98	0.06	0.04
6	Two factor model (anxious, depressed mood items load on same factor)	210.03, 43	136.64, 2	< 0.001	0.90	0.13	0.06
6	One factor model	367.88, 44	157.84, 1	< 0.001	0.81	0.18	0.08
7	Three factor model (separate factors for exhaustion, anxious and depressed mood)	140.21, 41	---	---	0.95	0.11	0.05
7	Two factor model (anxious, depressed mood items load on same factor)	288.53, 43	148.32, 2	< 0.001	0.87	0.16	0.07
7	One factor model	475.61, 44	187.08, 1	< 0.001	0.78	0.21	0.08

Note. N = 224. *statistically significant at $p < .05$ level, having Bonferroni corrected for repeated tests of same model (i.e., significance level adjusted to .05/7 = .007).

Table 4

Multigroup CFA by Country on 3 Factor Solution For Exhaustion, Anxious Mood, and Depressed Mood Items, Separately for Each Time Point

Week	Invariance by country	Chi-sq, df	Δ chi-sq, Δ df	*p*	CFI	RMSEA	SRMR
1	Configural invariance	129.91, 82	---	---	0.96	0.07	0.06
1	Metric invariance	147.55, 90	17.64, 8	0.024	0.96	0.08	0.07
1	Scalar invariance	157.24, 98	9.69, 8	0.288	0.95	0.08	0.08
2	Configural invariance	102.23, 82	---	---	0.99	0.05	0.05
2	Metric invariance	125.03, 90	22.80, 8*	0.004	0.97	0.06	0.07
2	Scalar invariance	153.15, 98	28.13, 8*	<0.001	0.96	0.07	0.09
3	Configural invariance	167.68, 82	---	---	0.95	0.09	0.05
3	Metric invariance	188.44, 90	20.76, 8	0.008	0.93	0.10	0.07
3	Scalar invariance	200.11, 98	11.67, 8	0.166	0.93	0.10	0.07
4	Configural invariance	180.06, 82	---	---	0.94	0.10	0.06
4	Metric invariance	199.82, 90	19.77, 8	0.011	0.93	0.11	0.08
4	Scalar invariance	211.12, 98	11.30, 8	0.185	0.93	0.10	0.08
5	Configural invariance	174.35, 82	---	---	0.95	0.10	0.05
5	Metric invariance	187.02, 90	12.68, 8	0.123	0.95	0.10	0.06
5	Scalar invariance	207.27, 98	20.25, 8	0.009	0.94	0.10	0.07
6	Configural invariance	114.84, 82	---	---	0.98	0.06	0.05
6	Metric invariance	131.70, 90	16.86, 8	0.032	0.97	0.07	0.06
6	Scalar invariance	170.81, 98	39.12, 8*	0.000	0.96	0.08	0.07
7	Configural invariance	197.20, 82	---	---	0.94	0.12	0.06
7	Metric invariance	213.89, 90	16.68, 8	0.034	0.93	0.11	0.07
7	Scalar invariance	234.21, 98	20.33, 8	0.009	0.93	0.11	0.07

Note. N = 224 (UK, N = 169; US, N = 55). *statistically significant at $p < .05$ level, having Bonferroni corrected for repeated tests of same model (i.e., significance level adjusted to .05/7 = .007).

Table 5

Temporal Invariance Testing of 3 Factor Measurement Model for Exhaustion, Anxious Mood, and Depressed Mood, Across Time Points 1 to 7

Invariance Model	Chi-sq, df	Δ Chi-sq, Δ df	*p*	CFI	RMSEA	SRMR
Configural invariance	3615.53, 2573	---	---	0.93	0.04	0.05
Metric invariance	3680.69, 2621	65.16, 48	0.051	0.93	0.04	0.05
Scalar invariance	3809.68, 2669	128.99, 48*	<0.001	0.93	0.04	0.05

Note. N = 224. *$p < .05$.

Appendix C

If using this appendix for code reference or learning, please cite as follows:

Horan, S., Flaxman, P. & Stride, C. B. (2020) 'The perfect recovery? Interactive influence of perfectionism and spillover work tasks on changes in exhaustion and mood around a vacation.' *Journal of Occupational Health Psychology*

Corresponding author for code:

c.b.stride@sheffield.ac.uk

www.figureitout.org.uk

1. R code for discontinuous linear and nonlinear multilevel growth models 1 to 6a, for each outcome separately:

```
* Pre analysis data prep in SPSS

* create dummy for vacation/non-vacation weeks ie step change in and out - required for model 2
recode TIME (1 2 4 5 6 7 = 1)(3 = 0) into WORK.
exe.

* create variable for weeks after vacation - required for models 3-10
recode TIME (1 2 3 = 0)(4 = 1)(5 = 2)(6 = 3)(7 = 4) into POST_HOL_WKS.

* create dummy for pre-vacation weeks ie step change in - required for models 3-10 (dep and anx)
recode TIME (1 2 = 1)(3 4 5 6 7 = 0) into PRE_HOL.
exe.
```

1.1) R code for discontinuous linear and nonlinear multilevel growth models 1 to 6a, for outcome EMEXH (emotional exhaustion)

```
# load relevant R packages

library(nlme)
library(languageR)
library(lme4)


# MODEL 1 - Unconditional model

EMEXHMOD1 <- lme(EMEXH ~ 1, random = ~ 1 | IDNO,data = casedata, method =  "ML")

summary(EMEXHMOD1)


# MODEL 2 - step change before and after vacation

EMEXHMOD2 <- lme(EMEXH ~ 1 + WORK, random = ~ 1 | IDNO,data = casedata,method = "ML")

summary(EMEXHMOD2)
anova(EMEXHMOD1,EMEXHMOD2)

# Model 2 beats model 1
```

```
# MODEL 3 - step change into vacation, linear change after vacation

EMEXHMOD3 <- lme(EMEXH ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data =
casedata,method = "ML")


# MODEL 4 - step change into vacation, quadratic change after vacation

EMEXHMOD4 <- lme(EMEXH ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL,
random = ~ 1 | IDNO,data = casedata,method = "ML")


# MODEL 5 - step change into vacation, cubic change after vacation

EMEXHMOD5 <- lme(EMEXH ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL +
WEEKS_AFTER_HOL*WEEKS_AFTER_HOL*WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data = casedata,method =
"ML")


summary(EMEXHMOD3)
summary(EMEXHMOD4)
summary(EMEXHMOD5)

anova(EMEXHMOD1,EMEXHMOD3,EMEXHMOD4,EMEXHMOD5)


# MODEL 6a - step change into vacation, exponential decay change after vacation
# MODEL 6b - step change into vacation, exponential decay change after vacation
#   with auto-regressive within subjects corr structure added

EMEXHMOD6a <- nlme(model = EMEXH ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate *
WEEKS_AFTER_HOL)),
            data = casedata,
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

EMEXHMOD6b <- nlme(model = EMEXH ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate *
WEEKS_AFTER_HOL)),
            data = casedata,
            correlation=corAR1(form=~1),
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

summary(EMEXHMOD6a)
summary(EMEXHMOD6b)
anova(EMEXHMOD6a,EMEXHMOD6b)

# AIC and BIC suggest exponential decay change outperforms cubic change, post vacation
# adding within subjects corrs improves the model - take forward model 6b
```

1.2) R code for discontinuous linear and nonlinear multilevel growth models 1 to 6a, for outcome ANX (anxious mood)

```
# load relevant R packages

library(nlme)
library(languageR)
library(lme4)


# MODEL 1 - Unconditional model

ANXMOD1 <- lme(ANX ~ 1, random = ~ 1 | IDNO,data = casedata, method =  "ML")

summary(ANXMOD1)


# MODEL 2 - step change before and after vacation

ANXMOD2 <- lme(ANX ~ 1 + WORK, random = ~ 1 | IDNO,data = casedata,method = "ML")

summary(ANXMOD2)
anova(ANXMOD1,ANXMOD2)

# Model 2 beats model 1


# MODEL 3 - step change into vacation, linear change after vacation

ANXMOD3 <- lme(ANX ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data =
casedata,method = "ML")


# MODEL 4 - step change into vacation, quadratic change after vacation

ANXMOD4 <- lme(ANX ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL, random
= ~ 1 | IDNO,data = casedata,method = "ML")


# MODEL 5 - step change into vacation, cubic change after vacation

ANXMOD5 <- lme(ANX ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL +
WEEKS_AFTER_HOL*WEEKS_AFTER_HOL*WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data = casedata,method =
"ML")


summary(ANXMOD3)
summary(ANXMOD4)
summary(ANXMOD5)

anova(ANXMOD1,ANXMOD3,ANXMOD4,ANXMOD5)


# MODEL 6a - step change into vacation, exponential decay change after vacation
# MODEL 6b - step change into vacation, exponential decay change after vacation
#   with auto-regressive within subjects corr structure added

ANXMOD6a <- nlme(model = ANX ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate * WEEKS_AFTER_HOL)),
            data = casedata,
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

ANXMOD6b <- nlme(model = ANX ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate * WEEKS_AFTER_HOL)),
            data = casedata,
            correlation=corAR1(form=~1),
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
```

```
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

summary(ANXMOD6a)
summary(ANXMOD6b)
anova(ANXMOD6a,ANXMOD6b)

# AIC and BIC suggest exponential decay change outperforms cubic change, post vacation
# adding within subjects corrs improves the model - take forward model 6b
```

1.3) R code for discontinuous linear and nonlinear multilevel growth models 1 to 6a, for outcome DEP (depressed mood)

```
# load relevant R packages

library(nlme)
library(languageR)
library(lme4)


# MODEL 1 - Unconditional model

DEPMOD1 <- lme(DEP ~ 1, random = ~ 1 | IDNO,data = casedata, method =  "ML")

summary(DEPMOD1)


# MODEL 2 - step change before and after vacation

DEPMOD2 <- lme(DEP ~ 1 + WORK, random = ~ 1 | IDNO,data = casedata,method = "ML")

summary(DEPMOD2)
anova(DEPMOD1,DEPMOD2)

# Model 2 beats model 1


# MODEL 3 - step change into vacation, linear change after vacation

DEPMOD3 <- lme(DEP ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data =
casedata,method = "ML")


# MODEL 4 - step change into vacation, quadratic change after vacation

DEPMOD4 <- lme(DEP ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL, random
= ~ 1 | IDNO,data = casedata,method = "ML")


# MODEL 5 - step change into vacation, cubic change after vacation

DEPMOD5 <- lme(DEP ~ 1 + PRE_HOL_DUM + WEEKS_AFTER_HOL + WEEKS_AFTER_HOL*WEEKS_AFTER_HOL +
WEEKS_AFTER_HOL*WEEKS_AFTER_HOL*WEEKS_AFTER_HOL, random = ~ 1 | IDNO,data = casedata,method =
"ML")


summary(DEPMOD3)
summary(DEPMOD4)
summary(DEPMOD5)

anova(DEPMOD1,DEPMOD3,DEPMOD4,DEPMOD5)


# MODEL 6a - step change into vacation, exponential decay change after vacation
# MODEL 6b - step change into vacation, exponential decay change after vacation
#   with auto-regressive within subjects corr structure added

DEPMOD6a <- nlme(model = DEP ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate * WEEKS_AFTER_HOL)),
            data = casedata,
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

DEPMOD6b <- nlme(model = DEP ~ init + diff*PRE_HOL_DUM - diff*(exp(-1 * rate * WEEKS_AFTER_HOL)),
            data = casedata,
            correlation=corAR1(form=~1),
            fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
```

```
            random = pdDiag(init ~ 1),
            groups = ~ IDNO, start=c(2,1,1))

summary(DEPMOD6a)
summary(DEPMOD6b)
anova(DEPMOD6a,DEPMOD6b)

# AIC and BIC suggest exponential decay change outperforms cubic change, post vacation
# adding within subjects corrs improves the model - take forward model 6b
```

2. R code for discontinuous nonlinear multilevel growth models 6b, 7 to 10, for each outcome separately:

2.1) R code for discontinuous nonlinear multilevel growth models 6b, 7 to 10, for outcome EMEXH (emotional exhaustion)

```
library(nlme)

# model 6b, as above
EMEXHMOD6b <- nlme(model = EMEXH ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                   data = casedata,
                   correlation=corAR1(form=~1),
                   fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                   random =  pdSymm(init ~ 1),
                   groups = ~ IDNO, start=c(3,1,2))

# model 7, add random effects for difference, and covariance between work asymptote and
difference
EMEXHMOD7 <- nlme(model = EMEXH ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                   data = casedata,
                   correlation=corAR1(form=~1),
                   fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                   random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                   groups = ~ IDNO, start=c(3,1,2))

# model 8, add control variables of country, neuroticism, perfectionist strivings; and moderator
variable, hours worked in vacation
EMEXHMOD8 <- nlme(model = EMEXH ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                   data = casedata,
                   correlation=corAR1(form=~1) ,
                   fixed = list(
                     init ~ 1 + COUNTRY + NEU + PERF_PS ,
                     diff ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD,
                     rate ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD),
                   random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                   groups = ~ IDNO, start=c(0.5,0.4,0.1,0.1,-0.2,0.4,0.1,0.1,0.1,4,2,-1,0.1,0.1))

# model 9, add perfectionistic concerns
EMEXHMOD9 <- nlme(model = EMEXH ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                   data = casedata,
                   correlation=corAR1(form=~1) ,
                   fixed = list(
                     init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                     diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD,
                     rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD),
                   random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                   groups = ~ IDNO, start=c(1.5,0.5,0.3,0.1,0.3,0.5,0.3,0.1,0.1,0.1,-0.3,4,3,-
1,0.1,-0.1,0.01))

# model 10, add interaction between perfectionistic concerns and hours worked in vacation
EMEXHMOD10 <- nlme(model = EMEXH ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                   data = casedata,
                   correlation=corAR1(form=~1),
                   fixed = list(
                     init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                     diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD,
                     rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD),
                   random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                   groups = ~ IDNO, start=c(1,0.5,0.1,0.1,0.3,-0.5,0.4,0.1,0.1,0.4,0.1,-0.1,6,2,-
1,0.1,-0.5,-1.25,0.5))

summary(EMEXHMOD6b)
summary(EMEXHMOD7)
summary(EMEXHMOD8)
summary(EMEXHMOD9)
summary(EMEXHMOD10)
anova(EMEXHMOD6b,EMEXHMOD7,EMEXHMOD8,EMEXHMOD9,EMEXHMOD10)
```

```
FINAL <- EMEXHMOD10

B1 <- coef(summary(FINAL))["diff.PERF_PC","Value"]
B3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Value"]
wlo <- 0
wmed <- log(8)
whi <- log(15)
SEB1 <- coef(summary(FINAL))["diff.PERF_PC","Std.Error"]
SEB3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Std.Error"]
COVB1B3 <- vcov(FINAL)["diff.PERF_PC","diff.PERF_PC:LHOLWKD"]

SSLO <- B1 + B3*wlo
SSMED <- B1 + B3*wmed
SSHI <- B1 + B3*whi

SSLOTEST <- SSLO/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wlo*wlo))
SSMEDTEST <- SSMED/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wmed*wmed))
SSHITEST <- SSHI/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*whi*whi))

library(data.table)

SSTEST = data.table(
W = c("LO","MED","HI"),
SLOPE = c(SSLO,SSMED,SSHI),
TEST = c(SSLOTEST,SSMEDTEST,SSHITEST),
Z = c(round(2*(1-pnorm(abs(SSLOTEST),0,1)), digits = 4),round(2*(1-pnorm(abs(SSMEDTEST),0,1)),
digits = 4),
round(2*(1-pnorm(abs(SSHITEST),0,1)), digits = 4))
)

SSTEST
```

2.2) R code for discontinuous nonlinear multilevel growth models 6b, 7 to 10, for outcome ANX (anxious mood)

```
library(nlme)

# model 6b, as above
ANXMOD6b <- nlme(model = ANX ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                 random =  pdSymm(init ~ 1),
                 groups = ~ IDNO, start=c(3,1,2))

# model 7, add random effects for difference, and covariance between work asymptote and
difference
ANXMOD7 <- nlme(model = ANX ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(3,1,2))

# model 8, add control variables of country, neuroticism, perfectionist strivings; and moderator
variable, hours worked in vacation
ANXMOD8 <- nlme(model = ANX ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1) ,
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS ,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(0.6,0.5,0.3,0.2,0.2,0.3,0.1,0.1,0.5,10,3,-1,-0.5,0.5))

# model 9, add perfectionistic concerns
ANXMOD9 <- nlme(model = ANX ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1) ,
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(0.7,0.4,0.2,0.2,0.3,0.1,0.5,0,0,0.5,-0.2,15,4,-2,-1,-
0.5,0.2))

# model 10, add interaction between perfectionistic concerns and hours worked in vacation
ANXMOD10 <- nlme(model = ANX ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(0.7,0.4,0.2,0.2,0.3,0.1,0.4,0.1,0.1,0.1,-0.2,0,15,2,-
2,-1,-0.5,0.5,0))

summary(ANXMOD6b)
summary(ANXMOD7)
summary(ANXMOD8)
summary(ANXMOD9)
summary(ANXMOD10)
anova(ANXMOD6b,ANXMOD7,ANXMOD8,ANXMOD9,ANXMOD10)

# simple slopes test
```

```
FINAL <- ANXMOD10

B1 <- coef(summary(FINAL))["diff.PERF_PC","Value"]
B3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Value"]
wlo <- 0
wmed <- log(8)
whi <- log(15)
SEB1 <- coef(summary(FINAL))["diff.PERF_PC","Std.Error"]
SEB3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Std.Error"]
COVB1B3 <- vcov(FINAL)["diff.PERF_PC","diff.PERF_PC:LHOLWKD"]

SSLO <- B1 + B3*wlo
SSMED <- B1 + B3*wmed
SSHI <- B1 + B3*whi

SSLOTEST <- SSLO/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wlo*wlo))
SSMEDTEST <- SSMED/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wmed*wmed))
SSHITEST <- SSHI/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*whi*whi))

library(data.table)

SSTEST = data.table(
W = c("LO","MED","HI"),
SLOPE = c(SSLO,SSMED,SSHI),
TEST = c(SSLOTEST,SSMEDTEST,SSHITEST),
Z = c(round(2*(1-pnorm(abs(SSLOTEST),0,1)), digits = 4),round(2*(1-pnorm(abs(SSMEDTEST),0,1)),
digits = 4),
round(2*(1-pnorm(abs(SSHITEST),0,1)), digits = 4))
)

SSTEST
```

2.3) R code for discontinuous nonlinear multilevel growth models 6b, 7 to 10, for outcome DEP (depressed mood)

```
library(nlme)

# model 6b, as above
DEPMOD6b <- nlme(model = DEP ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                 random =  pdSymm(init ~ 1),
                 groups = ~ IDNO, start=c(3,1,2))

# model 7, add random effects for difference, and covariance between work asymptote and
difference
DEPMOD7 <- nlme(model = DEP ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(init ~ 1, diff ~ 1, rate ~ 1),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(3,1,2))

# model 8, add control variables of country, neuroticism, perfectionist strivings; and moderator
variable, hours worked in vacation
DEPMOD8 <- nlme(model = DEP ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1) ,
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(0.5,0.4,0.1,0.1,-0.2,0.4,0.1,0.1,0.1,4,2,-1,-0.1,0.1))

# model 9, add perfectionistic concerns
DEPMOD9 <- nlme(model = DEP ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1) ,
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(1.5,0.5,0.3,0.1,0.3,0.5,0.3,0.1,0.1,0.1,-0.3,4,3,-1,-
0.1,-0.1,0.01))

# model 10, add interaction between perfectionistic concerns and hours worked in vacation
DEPMOD10 <- nlme(model = DEP ~ init + diff*PRE_HOL - diff*(exp(-1 * rate * POST_HOL_WKS)),
                 data = casedata,
                 correlation=corAR1(form=~1),
                 fixed = list(
                   init ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC,
                   diff ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD,
                   rate ~ 1 + COUNTRY + NEU + PERF_PS + PERF_PC + LHOLWKD + PERF_PC*LHOLWKD),
                 random = list(Subject = pdBlocked(list(init + diff ~ 1, rate ~ 1))),
                 groups = ~ IDNO, start=c(1,0.5,0.1,0.3,0.3,-0.5,0.4,0.1,0.4,0.3,0.1,-0.1,6,2,-
1,-0.5,0.3,-1.25,0.5))


summary(DEPMOD6b)
summary(DEPMOD7)
summary(DEPMOD8)
summary(DEPMOD9)
summary(DEPMOD10)
anova(DEPMOD6b,DEPMOD7,DEPMOD8,DEPMOD9,DEPMOD10)

FINAL <- DEPMOD10
```

```
#simple slopes

B1 <- coef(summary(FINAL))["diff.PERF_PC","Value"]
B3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Value"]
wlo <- 0
wmed <- log(8)
whi <- log(15)
SEB1 <- coef(summary(FINAL))["diff.PERF_PC","Std.Error"]
SEB3 <- coef(summary(FINAL))["diff.PERF_PC:LHOLWKD","Std.Error"]
COVB1B3 <- vcov(FINAL)["diff.PERF_PC","diff.PERF_PC:LHOLWKD"]

SSLO <- B1 + B3*wlo
SSMED <- B1 + B3*wmed
SSHI <- B1 + B3*whi

SSLOTEST <- SSLO/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wlo*wlo))
SSMEDTEST <- SSMED/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*wmed*wmed))
SSHITEST <- SSHI/(sqrt((SEB1*SEB1) + COVB1B3 + SEB3*SEB3*whi*whi))

library(data.table)

SSTEST = data.table(
W = c("LO","MED","HI"),
SLOPE = c(SSLO,SSMED,SSHI),
TEST = c(SSLOTEST,SSMEDTEST,SSHITEST),
Z = c(round(2*(1-pnorm(abs(SSLOTEST),0,1)), digits = 4),round(2*(1-pnorm(abs(SSMEDTEST),0,1)),
digits = 4),
round(2*(1-pnorm(abs(SSHITEST),0,1)), digits = 4))
)

SSTEST
```

2.4) Plotting simple slopes for ANX and DEP as per figure 5 in article. SPSS used

```
* create parameters for lo, med, hi working in hols and lo, med, hi perf

temp.
select if time = 3.
freq vars = HOLWKD LHOLWKD PERF_PC.


compute WK_LO = ln(1).
compute WK_MED =ln(8).
compute WK_HI = ln(15).

compute PERF_LO = 1.67.
compute PERF_MED = 2.5.
compute PERF_HI = 3.47.
exe.

* create grand means of neu, country, perf_ps

if time = 3 NEUX = NEU.
if time = 3 PERF_PSX = PERF_PS.
if time = 3 COUNTRYX = COUNTRY.

aggregate outfile = * mode = addvariables
 /GM_NEU = mean(NEUX) /GM_PERF_PS = mean(PERF_PSX) /GM_COUNTRY =
mean(COUNTRYX).
exe.


** compute parameter estimates at those grand means of neu, country, perf_ps,
for diff levels of perf_pc and lholwkd


* anxiety

do repeat
  i = anx_wkasy_lop_low  anx_wkasy_mep_low  anx_wkasy_hip_low
anx_wkasy_lop_mew  anx_wkasy_mep_mew  anx_wkasy_hip_mew
      anx_wkasy_lop_hiw  anx_wkasy_mep_hiw  anx_wkasy_hip_hiw
 /j = anx_diff_lop_low  anx_diff_mep_low  anx_diff_hip_low  anx_diff_lop_mew
anx_diff_mep_mew  anx_diff_hip_mew
      anx_diff_lop_hiw  anx_diff_mep_hiw  anx_diff_hip_hiw
 /k = anx_rate_lop_low  anx_rate_mep_low  anx_rate_hip_low  anx_rate_lop_mew
anx_rate_mep_mew  anx_rate_hip_mew
      anx_rate_lop_hiw  anx_rate_mep_hiw  anx_rate_hip_hiw
 /l = WK_LO  WK_LO  WK_LO WK_MED WK_MED WK_MED WK_HI WK_HI WK_HI
 /m = PERF_LO PERF_MED PERF_HI PERF_LO PERF_MED PERF_HI PERF_LO PERF_MED
PERF_HI
 /n = ANXLIN_lop_low  ANXLIN_mep_low  ANXLIN_hip_low  ANXLIN_lop_mew
ANXLIN_mep_mew  ANXLIN_hip_mew
      ANXLIN_lop_hiw  ANXLIN_mep_hiw  ANXLIN_hip_hiw.
compute i = 0.7+ 0.37*GM_COUNTRY + 0.18*GM_NEU + 0.15*GM_PERF_PS + 0.27*m.
compute j = -0.7 + 0.41*GM_COUNTRY + 0.08*GM_NEU + 0.1*GM_PERF_PS + 0.51*m +
0.26*l - 0.2*m*l.
```

```
compute k = 8.5 +  2.58*GM_COUNTRY - 1.03*GM_NEU - 1.27*GM_PERF_PS + 0.31*m +
3.03*l - 0.72*m*l.
compute n = i + j*PRE_HOL - j*(exp(-1*k*POST_HOL_WKS)).
end repeat.
```

*** depression**

```
do repeat
  i = dep_wkasy_lop_low  dep_wkasy_mep_low  dep_wkasy_hip_low
dep_wkasy_lop_mew  dep_wkasy_mep_mew  dep_wkasy_hip_mew
      dep_wkasy_lop_hiw  dep_wkasy_mep_hiw  dep_wkasy_hip_hiw
 /j = dep_diff_lop_low  dep_diff_mep_low  dep_diff_hip_low  dep_diff_lop_mew
dep_diff_mep_mew  dep_diff_hip_mew
      dep_diff_lop_hiw  dep_diff_mep_hiw  dep_diff_hip_hiw
 /k = dep_rate_lop_low  dep_rate_mep_low  dep_rate_hip_low  dep_rate_lop_mew
dep_rate_mep_mew  dep_rate_hip_mew
      dep_rate_lop_hiw  dep_rate_mep_hiw  dep_rate_hip_hiw
 /l = WK_LO  WK_LO  WK_LO WK_MED WK_MED WK_MED WK_HI WK_HI WK_HI
 /m = PERF_LO PERF_MED PERF_HI PERF_LO PERF_MED PERF_HI PERF_LO PERF_MED
PERF_HI
 /n = DEPLIN_lop_low  DEPLIN_mep_low  DEPLIN_hip_low  DEPLIN_lop_mew
DEPLIN_mep_mew  DEPLIN_hip_mew
      DEPLIN_lop_hiw  DEPLIN_mep_hiw  DEPLIN_hip_hiw.
compute i = 0.23 + 0.38*GM_COUNTRY + 0.1*GM_NEU + 0.1*GM_PERF_PS + 0.31*m.
compute j = -1.09 + 0.4*GM_COUNTRY + 0.08*GM_NEU + 0.05*GM_PERF_PS + 0.48*m +
0.27*l - 0.15*m*l.
compute k = 3.18 + 0.55*GM_COUNTRY - 0.77*GM_NEU - 0.64*GM_PERF_PS + 0.99*m +
0.72*l - 0.14*m*l.
compute n = i + j*PRE_HOL - j*(exp(-1*k*POST_HOL_WKS)).
end repeat.
Exe.
```

**** plots:**

```
GRAPH  /LINE(MULTIPLE)=MEAN(ANXLIN_lop_low) MEAN(ANXLIN_lop_hiw)
MEAN(ANXLIN_hip_low) MEAN(ANXLIN_hip_hiw) BY TIME
  /TEMPLATE='...\Perfectionism\analysis\halfterm\growth curve\interaction by
work and perf.sgt'.

GRAPH  /LINE(MULTIPLE)=MEAN(DEPLIN_lop_low) MEAN(DEPLIN_lop_hiw)
MEAN(DEPLIN_hip_low) MEAN(DEPLIN_hip_hiw) BY TIME
  /TEMPLATE='...\Perfectionism\analysis\halfterm\growth curve\interaction by
work and perf.sgt'.
```

**** for better plot (ie with time continuous), save subject level file with params and covariate grand means.**

```
temp.
select if time = 3.
save outfile = 'c:\windows\temp\htplots.sav'
 /keep IDNO GM_COUNTRY GM_NEU GM_PERF_PS
```

```
      anx_wkasy_lop_low  anx_wkasy_mep_low  anx_wkasy_hip_low
anx_wkasy_lop_mew  anx_wkasy_mep_mew  anx_wkasy_hip_mew
      anx_wkasy_lop_hiw  anx_wkasy_mep_hiw  anx_wkasy_hip_hiw
      anx_diff_lop_low  anx_diff_mep_low  anx_diff_hip_low  anx_diff_lop_mew
anx_diff_mep_mew  anx_diff_hip_mew
      anx_diff_lop_hiw  anx_diff_mep_hiw  anx_diff_hip_hiw
      anx_rate_lop_low  anx_rate_mep_low  anx_rate_hip_low  anx_rate_lop_mew
anx_rate_mep_mew  anx_rate_hip_mew
      anx_rate_lop_hiw  anx_rate_mep_hiw  anx_rate_hip_hiw
      dep_wkasy_lop_low  dep_wkasy_mep_low  dep_wkasy_hip_low
dep_wkasy_lop_mew  dep_wkasy_mep_mew  dep_wkasy_hip_mew
      dep_wkasy_lop_hiw  dep_wkasy_mep_hiw  dep_wkasy_hip_hiw
      dep_diff_lop_low  dep_diff_mep_low  dep_diff_hip_low  dep_diff_lop_mew
dep_diff_mep_mew  dep_diff_hip_mew
      dep_diff_lop_hiw  dep_diff_mep_hiw  dep_diff_hip_hiw
      dep_rate_lop_low  dep_rate_mep_low  dep_rate_hip_low  dep_rate_lop_mew
dep_rate_mep_mew  dep_rate_hip_mew
      dep_rate_lop_hiw  dep_rate_mep_hiw  dep_rate_hip_hiw.
```

**** now create file with 70 instances of each ID number!**

```
get file  = 'c:\windows\temp\htplots.sav' /keep IDNO.

do repeat i = IDNO1 to IDNO70.
compute i = IDNO.
end repeat.
exe.

VARSTOCASES
  /MAKE IDNOX FROM IDNO1 IDNO2 IDNO3 IDNO4 IDNO5 IDNO6 IDNO7 IDNO8 IDNO9 IDNO10
IDNO11 IDNO12
    IDNO13 IDNO14 IDNO15 IDNO16 IDNO17 IDNO18 IDNO19 IDNO20 IDNO21 IDNO22
IDNO23 IDNO24 IDNO25 IDNO26
    IDNO27 IDNO28 IDNO29 IDNO30 IDNO31 IDNO32 IDNO33 IDNO34 IDNO35 IDNO36
IDNO37 IDNO38 IDNO39 IDNO40
    IDNO41 IDNO42 IDNO43 IDNO44 IDNO45 IDNO46 IDNO47 IDNO48 IDNO49 IDNO50
IDNO51 IDNO52 IDNO53 IDNO54
    IDNO55 IDNO56 IDNO57 IDNO58 IDNO59 IDNO60 IDNO61 IDNO62 IDNO63 IDNO64
IDNO65 IDNO66 IDNO67 IDNO68
    IDNO69 IDNO70
  /INDEX=Index1(70)
  /KEEP=
  /NULL=KEEP.

compute TIME = index1/10.
exe.

compute POST_HOL_WKS = TIME - 3.
recode POST_HOL_WKS (lo thru 0 = 0)(else = copy).

recode TIME (0 thru 2 = 1)(3 thru hi = 0) into PRE_HOL.
if time gt 2 and time lt 3 PRE_HOL = 3 - TIME.
exe.

sort cases by IDNOX TIME.
```

```
rename vars (idnox = IDNO).

match files file = * /table =  'c:\windows\temp\htplots.sav' /by idno.
exe.
```

*** anxiety**

```
do repeat
  i = anx_wkasy_lop_low  anx_wkasy_mep_low  anx_wkasy_hip_low
anx_wkasy_lop_mew  anx_wkasy_mep_mew  anx_wkasy_hip_mew
      anx_wkasy_lop_hiw  anx_wkasy_mep_hiw  anx_wkasy_hip_hiw
 /j = anx_diff_lop_low  anx_diff_mep_low  anx_diff_hip_low  anx_diff_lop_mew
anx_diff_mep_mew  anx_diff_hip_mew
      anx_diff_lop_hiw  anx_diff_mep_hiw  anx_diff_hip_hiw
 /k = anx_rate_lop_low  anx_rate_mep_low  anx_rate_hip_low  anx_rate_lop_mew
anx_rate_mep_mew  anx_rate_hip_mew
      anx_rate_lop_hiw  anx_rate_mep_hiw  anx_rate_hip_hiw
 /n = ANXLIN_lop_low  ANXLIN_mep_low  ANXLIN_hip_low  ANXLIN_lop_mew
ANXLIN_mep_mew  ANXLIN_hip_mew
      ANXLIN_lop_hiw  ANXLIN_mep_hiw  ANXLIN_hip_hiw.
compute n = i + j*PRE_HOL - j*(exp(-1*k*POST_HOL_WKS)).
end repeat.
```

*** depression**

```
do repeat
  i = dep_wkasy_lop_low  dep_wkasy_mep_low  dep_wkasy_hip_low
dep_wkasy_lop_mew  dep_wkasy_mep_mew  dep_wkasy_hip_mew
      dep_wkasy_lop_hiw  dep_wkasy_mep_hiw  dep_wkasy_hip_hiw
 /j = dep_diff_lop_low  dep_diff_mep_low  dep_diff_hip_low  dep_diff_lop_mew
dep_diff_mep_mew  dep_diff_hip_mew
      dep_diff_lop_hiw  dep_diff_mep_hiw  dep_diff_hip_hiw
 /k = dep_rate_lop_low  dep_rate_mep_low  dep_rate_hip_low  dep_rate_lop_mew
dep_rate_mep_mew  dep_rate_hip_mew
      dep_rate_lop_hiw  dep_rate_mep_hiw  dep_rate_hip_hiw
 /n = DEPLIN_lop_low  DEPLIN_mep_low  DEPLIN_hip_low  DEPLIN_lop_mew
DEPLIN_mep_mew  DEPLIN_hip_mew
      DEPLIN_lop_hiw  DEPLIN_mep_hiw  DEPLIN_hip_hiw.
compute n = i + j*PRE_HOL - j*(exp(-1*k*POST_HOL_WKS)).
end repeat.
```

**** plots:**

```
GRAPH  /LINE(MULTIPLE)=MEAN(ANXLIN_lop_low) MEAN(ANXLIN_lop_hiw)
MEAN(ANXLIN_hip_low) MEAN(ANXLIN_hip_hiw) BY TIME.

GRAPH  /LINE(MULTIPLE)=MEAN(DEPLIN_lop_low) MEAN(DEPLIN_lop_hiw)
MEAN(DEPLIN_hip_low) MEAN(DEPLIN_hip_hiw) BY TIME.
```