tests.R

Felix

Fri Oct 30 15:29:06 2015

```
#library(rmarkdown); render("tests.R", "pdf_document")
```

Kenny data set

Univariate manifest

```
library(rio)
dat <- import("roundrobin.sav")

(RR1 <- RR(y ~ actor*partner|group, data=dat, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on S
## [1] "Univariate analyses for: y"
## [1] "Group descriptives: n =  15 ; average group size =  4 ; range:  4 - 4"
##                           estimate standardized    se t.value p.value
## actor variance               2.717        0.402 1.221   2.225   0.022
## partner variance             2.922        0.433 0.985   2.967   0.005
## relationship variance        1.117        0.165 0.524   2.133   0.026
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.022        0.008 0.337   0.066   0.948
## relationship covariance      0.139        0.124 0.500   0.278   0.785
## [1] "Actor effect reliability: .862"
## [1] "Partner effect reliability: .870"
## NULL
```

```
(RR2 <- RR(y ~ actor*partner|group, data=dat, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on L
## [1] "Univariate analyses for: y"
## [1] "Group descriptives: n =  15 ; average group size =  4 ; range:  4 - 4"
##                           estimate standardized    se t.value p.value
## actor variance               2.717        0.402 0.901   3.016   0.002
## partner variance             2.922        0.433 0.814   3.588   0.000
## relationship variance        1.117        0.165 0.357   3.129   0.002
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.022        0.008 0.304   0.073   0.942
## relationship covariance      0.139        0.124 0.357   0.389   0.699
## [1] "Actor effect reliability: .862"
## [1] "Partner effect reliability: .870"
## NULL
```

Stefan data set

```
dat2 <- import("Raw_data_Ratings_Social_Mimicry.sav")
```

Univariate manifest

```
(SMZ_Mean_GlobalandActions.compounds <- RR(ZSM_Mean_GlobalandActions ~ subject * target | group,
    data=dat2, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on S
## [1] "Univariate analyses for: ZSM_Mean_GlobalandActions"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
##                           estimate standardized    se t.value p.value
## actor variance               0.255        0.348 0.068   3.745   0.000
## partner variance             0.042        0.057 0.026   1.599   0.061
## relationship variance        0.436        0.595 0.043  10.160   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.049        0.477 0.030   1.641   0.113
## relationship covariance      0.249        0.572 0.043   5.820   0.000
## [1] "Actor effect reliability: .680"
## [1] "Partner effect reliability: .260"
## NULL
```

```
(SMZ_Mean_GlobalandActions.compounds <- RR(ZSM_Mean_GlobalandActions ~ subject * target | group,
    data=dat2, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on L
## [1] "Univariate analyses for: ZSM_Mean_GlobalandActions"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
##                           estimate standardized    se t.value p.value
## actor variance               0.255        0.348 0.057   4.504   0.000
## partner variance             0.042        0.057 0.025   1.670   0.049
## relationship variance        0.436        0.595 0.040  10.788   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.049        0.477 0.030   1.634   0.105
## relationship covariance      0.249        0.572 0.040   6.166   0.000
## [1] "Actor effect reliability: .680"
## [1] "Partner effect reliability: .260"
## NULL
```

```
(SMcompounds <- RR(social_mimicry_global_rater1_rater2_rater3 ~ subject * target | group,
    data=dat2, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on S
## [1] "Univariate analyses for: social_mimicry_global_rater1_rater2_rater3"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
```

```
##                           estimate standardized    se t.value p.value
## actor variance               0.371        0.366 0.074   4.983   0.000
## partner variance             0.080        0.079 0.039   2.054   0.025
## relationship variance        0.564        0.556 0.050  11.395   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.109        0.635 0.043   2.527   0.018
## relationship covariance      0.360        0.638 0.053   6.851   0.000
## [1] "Actor effect reliability: .702"
## [1] "Partner effect reliability: .337"
## NULL
```

```
(SMcompounds <- RR(social_mimicry_global_rater1_rater2_rater3 ~ subject * target | group,
    data=dat2, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on l
## [1] "Univariate analyses for: social_mimicry_global_rater1_rater2_rater3"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
##                           estimate standardized    se t.value p.value
## actor variance               0.371        0.366 0.072   5.164   0.000
## partner variance             0.080        0.079 0.035   2.292   0.012
## relationship variance        0.564        0.556 0.052  10.945   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.109        0.635 0.042   2.615   0.010
## relationship covariance      0.360        0.638 0.052   6.985   0.000
## [1] "Actor effect reliability: .702"
## [1] "Partner effect reliability: .337"
## NULL
```

```
(Liking_1compounds <-
    RR(liking_1 ~ subject * target | group, data=dat2, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on S
## [1] "Univariate analyses for: liking_1"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
##                           estimate standardized    se t.value p.value
## actor variance               0.116        0.108 0.048   2.418   0.012
## partner variance             0.267        0.248 0.065   4.106   0.000
## relationship variance        0.693        0.644 0.064  10.793   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.088        0.498 0.044   2.011   0.055
## relationship covariance      0.019        0.028 0.074   0.259   0.798
## [1] "Actor effect reliability: .407"
## [1] "Partner effect reliability: .612"
## NULL
```

```
(Liking_1compounds <-
    RR(liking_1 ~ subject * target | group, data=dat2, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Univariate analysis of one round robin variable in multiple groups (significance test based on l
```

```
## [1] "Univariate analyses for: liking_1"
## [1] "Group descriptives: n =  26 ; average group size =  5.35 ; range:  4 - 6"
##                           estimate standardized    se t.value p.value
## actor variance               0.116        0.108 0.043   2.693   0.004
## partner variance             0.267        0.248 0.062   4.326   0.000
## relationship variance        0.693        0.644 0.057  12.063   0.000
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.088        0.498 0.039   2.248   0.027
## relationship covariance      0.019        0.028 0.057   0.335   0.738
## [1] "Actor effect reliability: .407"
## [1] "Partner effect reliability: .612"
## NULL
```

Univariate manifest

Builtin data set

Bivariate manifest

```
data(multiLikingLong)
#manifest bivariate SRM analysis
(RR2m <- RR(liking_a + metaliking_a ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Bivariate analysis of two variables, each measured by one round robin variable in multiple grou
## [1] "Univariate analyses for: liking_a"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se t.value p.value
## actor variance               0.157        0.175 0.046   3.408   0.014
## partner variance             0.050        0.056 0.034   1.489   0.105
## relationship variance        0.687        0.768 0.115   5.992   0.002
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.033        0.375 0.028   1.203   0.295
## relationship covariance      0.168        0.244 0.063   2.653   0.057
## [1] "Actor effect reliability: .664"
## [1] "Partner effect reliability: .388"
## NULL
##
## [1] "Univariate analyses for: metaliking_a"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se t.value p.value
## actor variance               0.186        0.251 0.078   2.393   0.037
## partner variance             0.003        0.004 0.023   0.133   0.450
## relationship variance        0.554        0.745 0.095   5.857   0.002
## error variance                  NA           NA    NA      NA      NA
## actor-partner covariance     0.020        0.854 0.013   1.538   0.199
## relationship covariance      0.105        0.190 0.073   1.438   0.224
## [1] "Actor effect reliability: .745"
## [1] "Partner effect reliability: .045"
## NULL
##
```

```
## [1] "Bivariate analyses:"
##                                       estimate standardized    se biSEVAR
## actor-actor covariance                   0.097        0.565 0.051   0.002
## partner-partner covariance               0.020        1.000 0.028   0.000
## actor-partner covariance                 0.033        1.000 0.020   0.001
## partner-actor covariance                 0.030        0.309 0.027   0.001
## intrapersonal relationship covariance    0.387        0.627 0.105   0.002
## interpersonal relationship covariance    0.134        0.217 0.075   0.002
##                                       t.value p.value
## actor-actor covariance                  1.894   0.131
## partner-partner covariance              0.720   0.511
## actor-partner covariance                1.648   0.175
## partner-actor covariance                1.123   0.324
## intrapersonal relationship covariance   3.699   0.021
## interpersonal relationship covariance   1.790   0.148
```

```
(RR2m <- RR(liking_a + metaliking_a ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Bivariate analysis of two variables, each measured by one round robin variable in multiple grou
## [1] "Univariate analyses for: liking_a"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                          estimate standardized    se t.value p.value
## actor variance              0.157        0.175 0.048   3.286   0.001
## partner variance            0.050        0.056 0.028   1.810   0.038
## relationship variance       0.687        0.768 0.055  12.432   0.000
## error variance                 NA           NA    NA      NA      NA
## actor-partner covariance    0.033        0.375 0.029   1.162   0.251
## relationship covariance     0.168        0.244 0.055   3.038   0.004
## [1] "Actor effect reliability: .664"
## [1] "Partner effect reliability: .388"
## NULL
##
## [1] "Univariate analyses for: metaliking_a"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                          estimate standardized    se t.value p.value
## actor variance              0.186        0.251 0.057   3.288   0.001
## partner variance            0.003        0.004 0.016   0.183   0.428
## relationship variance       0.554        0.745 0.045  12.348   0.000
## error variance                 NA           NA    NA      NA      NA
## actor-partner covariance    0.020        0.854 0.023   0.866   0.391
## relationship covariance     0.105        0.190 0.045   2.347   0.023
## [1] "Actor effect reliability: .745"
## [1] "Partner effect reliability: .045"
## NULL
##
## [1] "Bivariate analyses:"
##                                       estimate standardized    se biSEVAR
## actor-actor covariance                   0.097        0.565 0.044   0.002
## partner-partner covariance               0.020        1.000 0.018   0.000
## actor-partner covariance                 0.033        1.000 0.021   0.001
## partner-actor covariance                 0.030        0.309 0.029   0.001
## intrapersonal relationship covariance    0.387        0.627 0.042   0.002
```

```
## interpersonal relationship covariance    0.134        0.217 0.042   0.002
##                                       t.value p.value
## actor-actor covariance                  2.211   0.016
## partner-partner covariance              1.107   0.137
## actor-partner covariance                1.556   0.063
## partner-actor covariance                1.040   0.152
## intrapersonal relationship covariance   9.184   0.000
## interpersonal relationship covariance   3.174   0.001
```

Univariate latent

```
data(multiLikingLong)
(RR2m <- RR(liking_a/liking_b ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Latent construct analysis of one construct measured by two round robin variables in multiple gr
## [1] "Univariate analyses for: liking_a/liking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.158        0.154 0.045 0.015   3.478   0.013
## partner variance             0.064        0.062 0.026 0.002   2.492   0.034
## relationship variance        0.615        0.597 0.119 0.004   5.170   0.003
## error variance               0.192        0.187    NA    NA      NA   0.001
## actor-partner covariance     0.039        0.386 0.020 0.005   1.975   0.120
## relationship covariance      0.155        0.252 0.070 0.005   2.213   0.091
## [1] "Actor effect reliability: .625"
## [1] "Partner effect reliability: .440"
## [1] "Relationship effect reliability: .887"
## NULL
```

```
(RR2m <- RR(liking_a/liking_b ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Latent construct analysis of one construct measured by two round robin variables in multiple gr
## [1] "Univariate analyses for: liking_a/liking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.158        0.154 0.051 0.015   3.128   0.002
## partner variance             0.064        0.062 0.029 0.002   2.189   0.017
## relationship variance        0.615        0.597 0.032 0.004  19.226   0.000
## error variance               0.192        0.187    NA    NA      NA   0.000
## actor-partner covariance     0.039        0.386 0.055 0.005   0.710   0.482
## relationship covariance      0.155        0.252 0.055 0.005   2.834   0.007
## [1] "Actor effect reliability: .625"
## [1] "Partner effect reliability: .440"
## [1] "Relationship effect reliability: .887"
## NULL
```

Bivariate latent

```
#latent (construct-level) bivariate SRM analysis
(RR4m <- RR(liking_a/liking_b + metaliking_a/metaliking_b ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="SOREMO"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Bivariate analysis of two constructs, each measured by two round robin variables in multiple gr
## [1] "Univariate analyses for: liking_a/liking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.158        0.154 0.045 0.015   3.478   0.013
## partner variance             0.064        0.062 0.026 0.002   2.492   0.034
## relationship variance        0.615        0.597 0.119 0.004   5.170   0.003
## error variance               0.192        0.187    NA    NA      NA   0.001
## actor-partner covariance     0.039        0.386 0.020 0.005   1.975   0.120
## relationship covariance      0.155        0.252 0.070 0.005   2.213   0.091
## [1] "Actor effect reliability: .625"
## [1] "Partner effect reliability: .440"
## [1] "Relationship effect reliability: .887"
## NULL
##
## [1] "Univariate analyses for: metaliking_a/metaliking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.167        0.219 0.044 0.002   3.797   0.010
## partner variance             0.004        0.005 0.025 0.000   0.157   0.441
## relationship variance        0.442        0.579 0.111 0.000   4.001   0.008
## error variance               0.150        0.196    NA    NA      NA   0.002
## actor-partner covariance    -0.002       -0.063 0.010 0.002  -0.157   0.883
## relationship covariance      0.135        0.304 0.068 0.002   1.985   0.118
## [1] "Actor effect reliability: .714"
## [1] "Partner effect reliability: .063"
## [1] "Relationship effect reliability: .870"
## NULL
##
## [1] "Bivariate analyses:"
##                                       estimate standardized    se biSEVAR
## actor-actor covariance                   0.117        0.720 0.033   0.004
## partner-partner covariance               0.012        0.732 0.022   0.000
## actor-partner covariance                 0.027        1.000 0.018   0.001
## partner-actor covariance                 0.036        0.349 0.028   0.001
## intrapersonal relationship covariance    0.427        0.818 0.105   0.002
## interpersonal relationship covariance    0.157        0.301 0.079   0.002
##                                       t.value p.value
## actor-actor covariance                  3.511   0.025
## partner-partner covariance              0.533   0.622
## actor-partner covariance                1.537   0.199
## partner-actor covariance                1.270   0.273
## intrapersonal relationship covariance   4.079   0.015
## interpersonal relationship covariance   1.987   0.118
```

```
(RR4m <- RR(liking_a/liking_b + metaliking_a/metaliking_b ~ perceiver.id*target.id|group.id,
    data=multiLikingLong, se="LashleyBond"))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Bivariate analysis of two constructs, each measured by two round robin variables in multiple gr
## [1] "Univariate analyses for: liking_a/liking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.158        0.154 0.051 0.015   3.128   0.002
## partner variance             0.064        0.062 0.029 0.002   2.189   0.017
## relationship variance        0.615        0.597 0.032 0.004  19.226   0.000
## error variance               0.192        0.187    NA    NA      NA   0.000
## actor-partner covariance     0.039        0.386 0.055 0.005   0.710   0.482
## relationship covariance      0.155        0.252 0.055 0.005   2.834   0.007
## [1] "Actor effect reliability: .625"
## [1] "Partner effect reliability: .440"
## [1] "Relationship effect reliability: .887"
## NULL
##
## [1] "Univariate analyses for: metaliking_a/metaliking_b"
## [1] "Group descriptives: n =  5 ; average group size =  10 ; range:  10 - 10"
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.167        0.219 0.047 0.002   3.526   0.000
## partner variance             0.004        0.005 0.016 0.000   0.248   0.403
## relationship variance        0.442        0.579 0.024 0.000  18.728   0.000
## error variance               0.150        0.196    NA    NA      NA   0.000
## actor-partner covariance    -0.002       -0.063 0.042 0.002  -0.039   1.031
## relationship covariance      0.135        0.304 0.042 0.002   3.224   0.002
## [1] "Actor effect reliability: .714"
## [1] "Partner effect reliability: .063"
## [1] "Relationship effect reliability: .870"
## NULL
##
## [1] "Bivariate analyses:"
##                                      estimate standardized    se biSEVAR
## actor-actor covariance                  0.117        0.720 0.043   0.004
## partner-partner covariance              0.012        0.732 0.017   0.000
## actor-partner covariance                0.027        1.000 0.021   0.001
## partner-actor covariance                0.036        0.349 0.029   0.001
## intrapersonal relationship covariance   0.427        0.818 0.043   0.002
## interpersonal relationship covariance   0.157        0.301 0.043   0.002
##                                      t.value p.value
## actor-actor covariance                 2.756   0.004
## partner-partner covariance             0.672   0.253
## actor-partner covariance               1.303   0.100
## partner-actor covariance               1.255   0.108
## intrapersonal relationship covariance 10.018   0.000
## interpersonal relationship covariance  3.690   0.000
```

Bivariate latent, single group: Same SE for intra- and interpersonal bivariate rel-cov!

```
data(likingLong)
(RR4 <- RR(liking_a/liking_b + metaliking_a/metaliking_b ~ perceiver.id*target.id, data=likingLong))
```

```
## [1] "Round-Robin object ('RR'), calculated by TripleR"
## [1] "Bivariate analysis of two constructs, each measured by two round robin variables"
## [1] "Univariate analyses for: liking_a/liking_b"
## [1] "Round robin analysis for a single group; using the formula of Lashley & Bond (1997)."
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.161        0.164 0.036 0.001   4.525   0.000
## partner variance             0.105        0.107 0.023 0.001   4.678   0.000
## relationship variance        0.507        0.518 0.016 0.000  31.294   0.000
## error variance               0.206        0.211    NA 0.000      NA      NA
## actor-partner covariance     0.012        0.094 0.021 0.000   0.573   0.569
## relationship covariance      0.079        0.156 0.016 0.000   4.887   0.000
## [1] "Actor effect reliability: .865"
## [1] "Partner effect reliability: .893"
## [1] "Relationship effect reliability: .852"
## NULL
##
## [1] "Univariate analyses for: metaliking_a/metaliking_b"
## [1] "Round robin analysis for a single group; using the formula of Lashley & Bond (1997)."
##                           estimate standardized    se SEVAR t.value p.value
## actor variance               0.148        0.217 0.031 0.001   4.730   0.000
## partner variance             0.026        0.038 0.007 0.000   3.980   0.000
## relationship variance        0.357        0.522 0.012 0.000  30.776   0.000
## error variance               0.153        0.223    NA 0.000      NA      NA
## actor-partner covariance     0.000        0.002 0.011 0.000   0.014   0.989
## relationship covariance      0.071        0.197 0.012 0.000   6.075   0.000
## [1] "Actor effect reliability: .899"
## [1] "Partner effect reliability: .761"
## [1] "Relationship effect reliability: .841"
## NULL
##
## [1] "Bivariate analyses:"
##                                       estimate standardized    se biSEVAR
## actor-actor covariance                   0.092        0.593 0.027   0.001
## partner-partner covariance               0.049        0.928 0.011   0.000
## actor-partner covariance                 0.007        0.114 0.011   0.000
## partner-actor covariance                 0.004        0.032 0.019   0.000
## intrapersonal relationship covariance    0.330        0.774 0.012   0.000
## interpersonal relationship covariance    0.075        0.177 0.012   0.000
##                                       t.value p.value
## actor-actor covariance                  3.370   0.001
## partner-partner covariance              4.287   0.000
## actor-partner covariance                0.676   0.502
## partner-actor covariance                0.209   0.835
## intrapersonal relationship covariance  28.570   0.000
## interpersonal relationship covariance   6.532   0.000
```