

# metaSEM with raw data

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```
library(metaSEM)
s= read.csv("H.csv", head= TRUE)
s1=as.data.frame(na.omit(s))
H=cor(s1, use="complete.obs", method="pearson")
s= read.csv("R.csv", head= TRUE)
s2=as.data.frame(na.omit(s))
R=cor(s2, use="complete.obs", method="pearson")
s= read.csv("U.csv", head= TRUE)
s3=as.data.frame(na.omit(s))
U=cor(s3, use="complete.obs", method="pearson")
s= read.csv("T.csv", head= TRUE)
s4=as.data.frame(na.omit(s))
T=cor(s4, use="complete.obs", method="pearson")
v=c(115, 305, 136, 296)
corrlist <- list(H, R, U, T)
fixed1 <- tssem1(corrlist, v, method="FEM")
# fixed1 <- rerun(fixed1)
summary(fixed1)

##
## Call:
## tssem1FEM(my.df = my.df, n = n, cor.analysis = cor.analysis,
##   model.name = model.name, cluster = cluster, suppressWarnings = suppressWarnings,
##   silent = silent, run = run)
##
## Coefficients:
##           Estimate Std.Error z value Pr(>|z|)
## S[1,2]    0.147760  0.033934  4.3543 1.335e-05 ***
## S[1,3]    0.295782  0.031451  9.4045 < 2.2e-16 ***
## S[1,4]    0.100263  0.034330  2.9206 0.0034940 **
## S[1,5]    0.131974  0.033714  3.9145 9.058e-05 ***
## S[1,6]    0.216436  0.032698  6.6193 3.608e-11 ***
## S[1,7]    0.268443  0.032053  8.3750 < 2.2e-16 ***
## S[1,8]    0.376643  0.029601 12.7240 < 2.2e-16 ***
## S[1,9]    0.433077  0.027927 15.5076 < 2.2e-16 ***
## S[1,10]   0.439051  0.027696 15.8527 < 2.2e-16 ***
## S[2,3]    0.380689  0.029664 12.8334 < 2.2e-16 ***
## S[2,4]    0.427170  0.028137 15.1820 < 2.2e-16 ***
## S[2,5]   -0.058872  0.034930 -1.6854 0.0919120 .
## S[2,6]    0.163818  0.033910  4.8310 1.359e-06 ***
## S[2,7]    0.130616  0.034290  3.8091 0.0001395 ***
## S[2,8]    0.315251  0.031246 10.0893 < 2.2e-16 ***
## S[2,9]    0.348680  0.030441 11.4544 < 2.2e-16 ***
## S[2,10]   0.242994  0.032991  7.3655 1.765e-13 ***
## S[3,4]    0.376267  0.031013 12.1326 < 2.2e-16 ***
## S[3,5]    0.019953  0.034397  0.5801 0.5618506
## S[3,6]    0.245261  0.032351  7.5813 3.419e-14 ***
```

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## S[3,7] 0.215738 0.033355 6.4678 9.942e-11 ***
## S[3,8] 0.384342 0.029615 12.9779 < 2.2e-16 ***
## S[3,9] 0.454370 0.027657 16.4285 < 2.2e-16 ***
## S[3,10] 0.425798 0.028556 14.9110 < 2.2e-16 ***
## S[4,5] -0.025787 0.034423 -0.7491 0.4537727
## S[4,6] 0.179169 0.033849 5.2932 1.202e-07 ***
## S[4,7] 0.084392 0.034256 2.4636 0.0137549 *
## S[4,8] 0.252432 0.032407 7.7893 6.661e-15 ***
## S[4,9] 0.258046 0.032924 7.8377 4.663e-15 ***
## S[4,10] 0.190140 0.035016 5.4301 5.633e-08 ***
## S[5,6] 0.425342 0.028202 15.0822 < 2.2e-16 ***
## S[5,7] 0.318530 0.031173 10.2181 < 2.2e-16 ***
## S[5,8] 0.155158 0.034190 4.5381 5.677e-06 ***
## S[5,9] 0.119101 0.034476 3.4546 0.0005511 ***
## S[5,10] 0.182926 0.033327 5.4888 4.046e-08 ***
## S[6,7] 0.427438 0.028255 15.1276 < 2.2e-16 ***
## S[6,8] 0.442620 0.027780 15.9330 < 2.2e-16 ***
## S[6,9] 0.377614 0.029666 12.7288 < 2.2e-16 ***
## S[6,10] 0.445277 0.027610 16.1274 < 2.2e-16 ***
## S[7,8] 0.462245 0.027438 16.8467 < 2.2e-16 ***
## S[7,9] 0.462782 0.027326 16.9354 < 2.2e-16 ***
## S[7,10] 0.405166 0.028980 13.9807 < 2.2e-16 ***
## S[8,9] 0.625527 0.021069 29.6890 < 2.2e-16 ***
## S[8,10] 0.581962 0.022835 25.4860 < 2.2e-16 ***
## S[9,10] 0.621379 0.021145 29.3859 < 2.2e-16 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Goodness-of-fit indices:
##
## Value
## Sample size 852.0000
## Chi-square of target model 591.2928
## DF of target model 135.0000
## p value of target model 0.0000
## Chi-square of independence model 3151.2053
## DF of independence model 180.0000
## RMSEA 0.1260
## RMSEA lower 95% CI 0.1159
## RMSEA upper 95% CI 0.1368
## SRMR 0.1543
## TLI 0.7952
## CFI 0.8464
## AIC 321.2928
## BIC -319.6313
## OpenMx status1: 0 ("0" or "1": The optimization is considered fine.
## Other values may indicate problems.)
A1 <- create.mxMatrix(c(0, ".1*H2L", ".1*H2O", "0*H2F", "0*H2P", "0*H2C", "0*H2E", ".1*H2I",
".1*H2M", ".1*H2A", 0, 0, ".1*L2O", ".1*L2F", "0*L2P", ".1*L2C", ".1*L2E", ".1*L2I",
".1*L2M", "-.1*L2A", 0,
0, 0, 0, 0, 0, 0, ".1*O2M", ".1*O2A", 0, 0, 0, 0, 0, 0, 0, 0, "-.1*F2M", "-.1*F2A",
0, 0, 0, 0, 0, 0, 0, 0,
".1*P2M", ".1*P2A", 0, 0, 0, 0, 0, 0, 0, ".1*C2M", ".1*C2A", 0, 0, 0, 0, 0, 0, 0, 0,
".1*E2M", ".1*E2A",

```

```

0, 0, 0, 0, 0, 0, 0, 0, 0, ".1*I2M", ".1*I2A", 0, 0, 0, 0, 0, 0, 0, 0, 0, ".1*M2A",
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0),
type="Full", ncol=10, nrow=10, as.mxMatrix=FALSE)
dimnames(A1) <- dimnames(corrlist[[1]])
S1 <- create.mxMatrix(c(1, 0, 0, 0, 0, 0, 0, 0, 0, 0, "0.3*ErrVarL", 0, 0, 0, 0, 0, 0, 0, 0,
"0.3*ErrVarO", 0, 0,
0, 0, "0*CovIO", 0, 0, "0.3*ErrVarF", 0, 0, 0, "0*CovIF", 0, 0, "0.3*ErrVarP", "0*CovPC",
"0*CovPE",
"0*CovIP", 0, 0, "0.3*ErrVarC", "0*CovCE", "0*CovIC", 0, 0, "0.3*ErrVarE", "0*CovIE", 0, 0,
"0.3*ErrVarI",
0, 0, "0.3*ErrVarM", 0, "0.3*ErrVarA"), type="Symm", byrow=FALSE, as.mxMatrix=FALSE)
dimnames(S1) <- dimnames(corrlist[[1]])

```

## Likelihood-based CI (no SEs, z values, and p values)

```

fixed2 <- tssem2(fixed1, Amatrix=A1, Smatrix=S1, intervals.type="LB",
diag.constraints=TRUE,
mx.algebras=list(LRA=mxAlgebra(L20*O2A+L2F*F2A+L2P*P2A+L2C*C2A+L2E*E2A+
L2I*I2A+L2M*M2A, name="LRA"),
LRM=mxAlgebra(L20*O2M+L2F*F2M+L2P*P2M+L2C*C2M+L2E*E2M+L2I*I2M, name="LRM"),
LOM=mxAlgebra(L20*O2M, name="LOM"), LFM=mxAlgebra(L2F*F2M, name="LFM"),
LPM=mxAlgebra(L2P*P2M, name="LPM"), LCM=mxAlgebra(L2C*C2M, name="LCM"),
LEM=mxAlgebra(L2E*E2M, name="LEM"), LIM=mxAlgebra(L2I*I2M, name="LIM"),
OMA=mxAlgebra(O2M*M2A, name="OMA"), FMA=mxAlgebra(F2M*M2A, name="FMA"),
PMA=mxAlgebra(P2M*P2A, name="PMA"), CMA=mxAlgebra(C2M*C2A, name="CMA"),
EMA=mxAlgebra(E2M*M2A, name="EMA"), IMA=mxAlgebra(I2M*M2A, name="IMA"),
LOA=mxAlgebra(L20*O2A, name="LOA"), LFA=mxAlgebra(L2F*F2A, name="LFA"),
LPA=mxAlgebra(L2P*P2A, name="LPA"), LCA=mxAlgebra(L2C*C2A, name="LCA"),
LEA=mxAlgebra(L2E*E2A, name="LEA"), LIA=mxAlgebra(L2I*I2A, name="LIA"),
LMA=mxAlgebra(L2M*M2A, name="LMA")))
fixed2 <- rerun(fixed2)

```

```

## Warning in mxTryHard(object$mx.fit, greenOK = TRUE, paste = FALSE,
## bestInitsOutput = FALSE, : argument 'checkHess' coerced to FALSE due to
## presence of MxConstraints

```

```

##
## Begin fit attempt 1 of at maximum 11 tries

```

```

##
## Lowest minimum so far: 79.819871249156

```

```

##
## Solution found

```

```

## Running final fit, for Hessian and/or standard errors and/or confidence intervals

```

```

summary(fixed2)

```

```

##
## Call:
## wls(Cov = coef.tssem1FEM(tssem1.obj), asyCov = vcov.tssem1FEM(tssem1.obj),
## n = sum(tssem1.obj$n), Amatrix = Amatrix, Smatrix = Smatrix,
## Fmatrix = Fmatrix, diag.constraints = diag.constraints, cor.analysis = tssem1.obj$cor.analysis,

```

```

## intervals.type = intervals.type, mx.algebras = mx.algebras,
## model.name = model.name, suppressWarnings = suppressWarnings,
## silent = silent, run = run)
##
## 95% confidence intervals: Likelihood-based statistic
## Coefficients:
##      Estimate Std. Error      lbound      ubound z value Pr(>|z|)
## C2A      0.16188422      NA  0.10249199  0.22149381      NA      NA
## E2A      0.03086177      NA -0.02768668  0.08942121      NA      NA
## F2A     -0.03595903      NA -0.09524420  0.02335666      NA      NA
## H2A      0.15339084      NA  0.09645035  0.21051089      NA      NA
## I2A      0.21168236      NA  0.14655783  0.27720384      NA      NA
## L2A     -0.01376106      NA -0.08322116  0.05574899      NA      NA
## M2A      0.30158835      NA  0.23489101  0.36884346      NA      NA
## O2A      0.12847740      NA  0.06875916  0.18839641      NA      NA
## P2A      0.01113573      NA -0.04387937  0.06616154      NA      NA
## H2C      0.21136857      NA  0.14258081  0.27957325      NA      NA
## L2C      0.16356518      NA  0.09398295  0.23255412      NA      NA
## H2E      0.26554027      NA  0.19985173  0.33095155      NA      NA
## L2E      0.10906520      NA  0.04129058  0.17659440      NA      NA
## H2F      0.04586079      NA -0.02458973  0.11566349      NA      NA
## L2F      0.47773697      NA  0.41705817  0.53718001      NA      NA
## H2I      0.34899686      NA  0.28836760  0.40921651      NA      NA
## L2I      0.29057650      NA  0.22868497  0.35212399      NA      NA
## H2L      0.16034333      NA  0.09373386  0.22694393      NA      NA
## C2M      0.05850293      NA -0.00074869  0.11792237      NA      NA
## E2M      0.18986134      NA  0.13360470  0.24637789      NA      NA
## F2M      0.01346375      NA -0.04373412  0.07071342      NA      NA
## H2M      0.17839180      NA  0.12319020  0.23373133      NA      NA
## I2M      0.34945232      NA  0.29025549  0.40901396      NA      NA
## L2M      0.11002828      NA  0.04186605  0.17860559      NA      NA
## O2M      0.16341110      NA  0.10554156  0.22143265      NA      NA
## P2M     -0.04096485      NA -0.09606469  0.01407011      NA      NA
## H2O      0.27010270      NA  0.20035717  0.33855660      NA      NA
## L2O      0.40358174      NA  0.33822809  0.46718469      NA      NA
## H2P      0.14742143      NA  0.08063585  0.21421968      NA      NA
## L2P     -0.07822421      NA -0.14657985 -0.00985608      NA      NA
## ErrVarA  0.49513030      NA  0.44667497  0.54218465      NA      NA
## ErrVarC  0.91748281      NA  0.87687624  0.95034294      NA      NA
## CovPC    0.41720442      NA  0.36390711  0.47022316      NA      NA
## CovCE    0.33942283      NA  0.28430434  0.39411061      NA      NA
## ErrVarE  0.90830568      NA  0.86645134  0.94252469      NA      NA
## CovPE    0.29354346      NA  0.23479033  0.35217570      NA      NA
## ErrVarF  0.76263812      NA  0.70383054  0.81589732      NA      NA
## CovIC    0.29110763      NA  0.23856822  0.34313059      NA      NA
## CovIE    0.31267800      NA  0.26093389  0.36387278      NA      NA
## CovIF    0.04481898      NA -0.00265509  0.09224188      NA      NA
## ErrVarI  0.76124556      NA  0.70639876  0.81108723      NA      NA
## CovIO    0.10194427      NA  0.05515550  0.14856443      NA      NA
## CovIP    0.12831680      NA  0.07073291  0.18588639      NA      NA
## ErrVarL  0.97429002      NA  0.94849627  0.99121491      NA      NA
## ErrVarM  0.48399802      NA  0.43582288  0.53097064      NA      NA
## ErrVarO  0.72920873      NA  0.66912316  0.78483937      NA      NA
## ErrVarP  0.97584603      NA  0.95084680  0.99210532      NA      NA

```

```

##
## mxAlgebras objects (and their 95% likelihood-based CIs):
##           lbound      Estimate      ubound
## LRA[1,1]  0.1037085096  0.1583388221  0.216550116
## LRM[1,1]  0.1531679216  0.2074052500  0.266171388
## LOM[1,1]  0.0417979385  0.0659497380  0.093899538
## LFM[1,1] -0.0212009338  0.0064321293  0.034421697
## LPM[1,1] -0.0011944443  0.0032044432  0.010244895
## LCM[1,1] -0.0001233384  0.0095690419  0.021933023
## LEM[1,1]  0.0076636551  0.0207072647  0.036496700
## LIM[1,1]  0.0758809900  0.1015426329  0.131168989
## OMA[1,1]  0.0302354543  0.0492828850  0.072056071
## FMA[1,1] -0.0133627574  0.0040605090  0.022041918
## PMA[1,1] -0.0041250643 -0.0004561734  0.002505961
## CMA[1,1] -0.0001212660  0.0094707010  0.021144252
## EMA[1,1]  0.0378156234  0.0572599684  0.080573905
## IMA[1,1]  0.0781006091  0.1053907493  0.137207914
## LOA[1,1]  0.0274154135  0.0518511317  0.079595253
## LFA[1,1] -0.0464684103 -0.0171789597  0.011288134
## LPA[1,1] -0.0066489705 -0.0008710834  0.004179384
## LCA[1,1]  0.0136226052  0.0264786223  0.043577139
## LEA[1,1] -0.0032690644  0.0033659449  0.011733032
## LIA[1,1]  0.0403633601  0.0615099199  0.086951577
## LMA[1,1]  0.0124456602  0.0331832464  0.056779903
##
## Goodness-of-fit indices:
##                                     Value
## Sample size                          852.0000
## Chi-square of target model            79.8199
## DF of target model                    7.0000
## p value of target model               0.0000
## Number of constraints imposed on "Smatrix" 9.0000
## DF manually adjusted                  0.0000
## Chi-square of independence model      2283.2090
## DF of independence model              45.0000
## RMSEA                                 0.1106
## RMSEA lower 95% CI                    0.0895
## RMSEA upper 95% CI                    0.1330
## SRMR                                  0.0388
## TLI                                   0.7908
## CFI                                   0.9675
## AIC                                    65.8199
## BIC                                    32.5868
## OpenMx status1: 0 ("0" or "1": The optimization is considered fine.
## Other values indicate problems.)

```

## Standard errors (with the argument `diag.constraints=FALSE`)

```

fixed3 <- tssem2(fixed1, Amatrix=A1, Smatrix=S1, intervals.type="z",
                 diag.constraints=FALSE,
                 mx.algebras=list(LRA=mxAlgebra(L20*O2A+L2F*F2A+L2P*P2A+L2C*C2A+L2E*E2A+
                 L2I*I2A+L2M*M2A, name="LRA"),

```

```

LRM=mxAlgebra(L20*O2M+L2F*F2M+L2P*P2M+L2C*C2M+L2E*E2M+L2I*I2M, name="LRM"),
LOM=mxAlgebra(L20*O2M, name="LOM"), LFM=mxAlgebra(L2F*F2M, name="LFM"),
LPM=mxAlgebra(L2P*P2M, name="LPM"), LCM=mxAlgebra(L2C*C2M, name="LCM"),
LEM=mxAlgebra(L2E*E2M, name="LEM"), LIM=mxAlgebra(L2I*I2M, name="LIM"),
OMA=mxAlgebra(O2M*M2A, name="OMA"), FMA=mxAlgebra(F2M*M2A, name="FMA"),
PMA=mxAlgebra(P2M*P2A, name="PMA"), CMA=mxAlgebra(C2M*C2A, name="CMA"),
EMA=mxAlgebra(E2M*M2A, name="EMA"), IMA=mxAlgebra(I2M*M2A, name="IMA"),
LOA=mxAlgebra(L20*O2A, name="LOA"), LFA=mxAlgebra(L2F*F2A, name="LFA"),
LPA=mxAlgebra(L2P*P2A, name="LPA"), LCA=mxAlgebra(L2C*C2A, name="LCA"),
LEA=mxAlgebra(L2E*E2A, name="LEA"), LIA=mxAlgebra(L2I*I2A, name="LIA"),
LMA=mxAlgebra(L2M*M2A, name="LMA")))
summary(fixed3)

```

```

##
## Call:
## wls(Cov = coef.tssem1FEM(tssem1.obj), asyCov = vcov.tssem1FEM(tssem1.obj),
##     n = sum(tssem1.obj$n), Amatrix = Amatrix, Smatrix = Smatrix,
##     Fmatrix = Fmatrix, diag.constraints = diag.constraints, cor.analysis = tssem1.obj$cor.analysis,
##     intervals.type = intervals.type, mx.algebras = mx.algebras,
##     model.name = model.name, suppressWarnings = suppressWarnings,
##     silent = silent, run = run)
##
## 95% confidence intervals: z statistic approximation
## Coefficients:
##           Estimate   Std.Error   lbound   ubound z value Pr(>|z|)
## C2A      0.16188422  0.03024127  0.10261243  0.22115602  5.3531 8.646e-08
## E2A      0.03086177  0.02977619 -0.02749848  0.08922202  1.0365 0.299988
## F2A     -0.03595903  0.03016517 -0.09508169  0.02316362 -1.1921 0.233233
## H2A      0.15339084  0.02896558  0.09661935  0.21016233  5.2956 1.186e-07
## I2A      0.21168236  0.03315986  0.14669022  0.27667450  6.3837 1.729e-10
## L2A     -0.01376106  0.03521141 -0.08277416  0.05525204 -0.3908 0.695936
## M2A      0.30158835  0.03398398  0.23498096  0.36819574  8.8744 < 2.2e-16
## O2A      0.12847740  0.03038583  0.06892227  0.18803252  4.2282 2.356e-05
## P2A      0.01113573  0.02800695 -0.04375688  0.06602833  0.3976 0.690921
## H2C      0.21136857  0.03494471  0.14287820  0.27985894  6.0487 1.461e-09
## L2C      0.16356518  0.03533825  0.09430348  0.23282688  4.6286 3.682e-06
## H2E      0.26554027  0.03343421  0.20001042  0.33107011  7.9422 1.998e-15
## L2E      0.10906520  0.03450260  0.04144136  0.17668905  3.1611 0.001572
## H2F      0.04586079  0.03579227 -0.02429077  0.11601235  1.2813 0.200087
## L2F      0.47773697  0.03062323  0.41771653  0.53775740 15.6005 < 2.2e-16
## H2I      0.34899686  0.03080863  0.28861306  0.40938066 11.3279 < 2.2e-16
## L2I      0.29057650  0.03146648  0.22890334  0.35224966  9.2345 < 2.2e-16
## H2L      0.16034333  0.03398102  0.09374174  0.22694491  4.7186 2.375e-06
## C2M      0.05850293  0.03016461 -0.00061862  0.11762448  1.9395 0.052446
## E2M      0.18986134  0.02867102  0.13366718  0.24605550  6.6221 3.542e-11
## F2M      0.01346375  0.02910214 -0.04357539  0.07050289  0.4626 0.643624
## H2M      0.17839180  0.02807826  0.12335943  0.23342418  6.3534 2.106e-10
## I2M      0.34945232  0.03015025  0.29035892  0.40854572 11.5904 < 2.2e-16
## L2M      0.11002828  0.03463625  0.04214247  0.17791408  3.1767 0.001490
## O2M      0.16341111  0.02943673  0.10571618  0.22110603  5.5513 2.836e-08
## P2M     -0.04096485  0.02803209 -0.09590675  0.01397704 -1.4614 0.143918
## H2O      0.27010270  0.03525947  0.20099541  0.33921000  7.6604 1.843e-14
## L2O      0.40358174  0.03286918  0.33915934  0.46800414 12.2784 < 2.2e-16
## H2P      0.14742143  0.03406933  0.08064677  0.21419609  4.3271 1.511e-05

```

```

## L2P -0.07822421 0.03486818 -0.14656458 -0.00988383 -2.2434 0.024869
## CovPC 0.41720442 0.02711336 0.36406321 0.47034562 15.3874 < 2.2e-16
## CovCE 0.33942283 0.02800282 0.28453831 0.39430734 12.1210 < 2.2e-16
## CovPE 0.29354346 0.02994255 0.23485714 0.35222978 9.8036 < 2.2e-16
## CovIC 0.29110763 0.02666535 0.23884451 0.34337074 10.9171 < 2.2e-16
## CovIE 0.31267800 0.02624844 0.26123201 0.36412399 11.9123 < 2.2e-16
## CovIF 0.04481898 0.02420639 -0.00262468 0.09226264 1.8515 0.064093
## CovIO 0.10194427 0.02382535 0.05524745 0.14864110 4.2788 1.879e-05
## CovIP 0.12831680 0.02937321 0.07074636 0.18588724 4.3685 1.251e-05
##
## C2A ***
## E2A
## F2A
## H2A ***
## I2A ***
## L2A
## M2A ***
## O2A ***
## P2A
## H2C ***
## L2C ***
## H2E ***
## L2E **
## H2F
## L2F ***
## H2I ***
## L2I ***
## H2L ***
## C2M .
## E2M ***
## F2M
## H2M ***
## I2M ***
## L2M **
## O2M ***
## P2M
## H2O ***
## L2O ***
## H2P ***
## L2P *
## CovPC ***
## CovCE ***
## CovPE ***
## CovIC ***
## CovIE ***
## CovIF .
## CovIO ***
## CovIP ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## mxAlgebras objects:
##          LRA          LRM          LOM          LFM          LPM
## 0.1583388220 0.2074052507 0.0659497381 0.0064321294 0.0032044431

```

```

##          LCM          LEM          LIM          OMA          FMA
## 0.0095690419 0.0207072652 0.1015426329 0.0492828855 0.0040605091
##          PMA          CMA          EMA          IMA          LOA
## -0.0004561734 0.0094707010 0.0572599683 0.1053907491 0.0518511312
##          LFA          LPA          LCA          LEA          LIA
## -0.0171789593 -0.0008710834 0.0264786225 0.0033659450 0.0615099201
##          LMA
## 0.0331832459
##
## Goodness-of-fit indices:
##
## Value
## Sample size 852.0000
## Chi-square of target model 79.8199
## DF of target model 7.0000
## p value of target model 0.0000
## Number of constraints imposed on "Smatrix" 0.0000
## DF manually adjusted 0.0000
## Chi-square of independence model 2283.2090
## DF of independence model 45.0000
## RMSEA 0.1106
## RMSEA lower 95% CI 0.0895
## RMSEA upper 95% CI 0.1330
## SRMR 0.0388
## TLI 0.7908
## CFI 0.9675
## AIC 65.8199
## BIC 32.5868
## OpenMx status1: 0 ("0" or "1": The optimization is considered fine.
## Other values indicate problems.)
## Get the SEs of the indirect effects
mxSE(LRA, fixed3$mx.fit)

## Treating first argument as an expression
##          [,1]
## [1,] 0.02853448
mxSE(L2I, fixed3$mx.fit)

## Treating first argument as an expression
##          [,1]
## [1,] 0.03146648
sessionInfo()

## R version 3.4.0 (2017-04-21)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Linux Mint 18.1
##
## Matrix products: default
## BLAS: /usr/lib/openblas-base/libblas.so.3
## LAPACK: /usr/lib/libopenblas-r0.2.18.so
##
## locale:
## [1] LC_CTYPE=en_SG.UTF-8 LC_NUMERIC=C

```



```
## [3] LC_TIME=en_SG.UTF-8      LC_COLLATE=en_SG.UTF-8
## [5] LC_MONETARY=en_SG.UTF-8     LC_MESSAGES=en_SG.UTF-8
## [7] LC_PAPER=en_SG.UTF-8       LC_NAME=C
## [9] LC_ADDRESS=C                LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_SG.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
## [1] metaSEM_0.9.13-2 OpenMx_2.7.11
##
## loaded via a namespace (and not attached):
## [1] Rcpp_0.12.10      mvtnorm_1.0-6     lattice_0.20-35
## [4] digest_0.6.12    rprojroot_1.2     MASS_7.3-47
## [7] grid_3.4.0        backports_1.0.5   magrittr_1.5
## [10] ellipse_0.3-8    evaluate_0.10     stringi_1.1.5
## [13] Matrix_1.2-10    rmarkdown_1.5     tools_3.4.0
## [16] stringr_1.2.0    numDeriv_2016.8-1 yaml_2.1.14
## [19] parallel_3.4.0   compiler_3.4.0    htmltools_0.3.6
## [22] knitr_1.15.1
```