Day 2: Common Fate Model

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Common Fate Model

```
library(tidyr)
library(dplyr)
#install.packages("lavaan")
library(lavaan)

acitelli_ind <- read.csv(file.choose(), header=TRUE)
```

Individual to Dyad struture

```
acitelli_dyd <- acitelli_ind %>%
  mutate(gender = ifelse(gender == 1, "H", "W")) %>%
  gather(variable, value, self_pos:simhob) %>%
  unite(var_gender, variable, gender) %>%
  spread(var_gender, value)
```

Learn more about structural equation modeling with 'lavaan' here.

```
cfm.model <- '
      # measurement model
        satisfaction  =~ satisfaction_H + satisfaction_W
        tension =~ tension_H + tension_W

      # structural model
        satisfaction ~ tension

      # residual correlations
        satisfaction_H ~~ tension_H
        satisfaction_W ~~ tension_W
'

cfm <- sem(cfm.model, data = acitelli_dyd)

summary(cfm, fit.measures = TRUE)
```

```
## lavaan (0.5-22) converged normally after  28 iterations
##
##   Number of observations                           148
##
##   Estimator                                         ML
##   Minimum Function Test Statistic                   NA
##   Degrees of freedom                                -1
##   Minimum Function Value               0.0000000000000
##
## User model versus baseline model:
```

```
##
##   Comparative Fit Index (CFI)                    NA
##   Tucker-Lewis Index (TLI)                       NA
##
## Loglikelihood and Information Criteria:
##
##   Loglikelihood user model (H0)              -412.620
##   Loglikelihood unrestricted model (H1)      -412.620
##
##   Number of free parameters                        11
##   Akaike (AIC)                               847.240
##   Bayesian (BIC)                             880.210
##   Sample-size adjusted Bayesian (BIC)        845.399
##
## Root Mean Square Error of Approximation:
##
##   RMSEA                                          NA
##   90 Percent Confidence Interval          NA     NA
##   P-value RMSEA <= 0.05                          NA
##
## Standardized Root Mean Square Residual:
##
##   SRMR                                        0.000
##
## Parameter Estimates:
##
##   Information                                 Expected
##   Standard Errors                             Standard
##
## Latent Variables:
##                    Estimate  Std.Err  z-value  P(>|z|)
##   satisfaction =~
##     satisfaction_H    1.000
##     satisfaction_W    0.637       NA
##   tension =~
##     tension_H         1.000
##     tension_W         0.699       NA
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)
##   satisfaction ~
##     tension          -0.937       NA
##
## Covariances:
##                     Estimate  Std.Err  z-value  P(>|z|)
##  .satisfaction_H ~~
##    .tension_H          0.040       NA
##  .satisfaction_W ~~
##    .tension_W         -0.140       NA
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)
##    .satisfaction_H   -0.026       NA
##    .satisfaction_W    0.182       NA
```

```
##    .tension_H         0.201       NA
##    .tension_W         0.390       NA
##    .satisfaction      0.040       NA
##     tension           0.225       NA
```

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