

BACS HW (Week16)

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Question 1 Composite Path Models using PLS-PM

```
# install.packages("seminr")
# install.packages("semPlot")
# install.packages("DiagrammeR")
library(seminr)
library(semPlot)
library(DiagrammeR)
```

a. Create a PLS path model using SEMinR, with all the following characteristics:

```
sec = read.csv("security_data_sem.csv")
# head(sec)
```

a-i. Measurement model – all constructs are measured as composites:

- 1.Trust in website (TRUST): items TRST1 - TRST4
- 2.Perceived security of website (SEC): items PSEC1 - PSEC4
- 3.Reputation of website (REP): items PREP1 - PREP4
- 4.Investment in website (INV): items PINV1 - PINV3
- 5.Perception of privacy policies (POL): items PPSS1 - PPSS3
- 6.Familiarity with website (FAML): item FAML1
(see the documentation of SEMinR for making single item constructs)
- 7.Interaction between REP and POL (use orthogonalized product terms)

a-ii. Structural Model – paths between constructs as shown in this causal model:

REP + INV + POL + FAML + (REP POL) → SEC → TRUST

```
# a-i. Measurement Model
sec_mm <- constructs(
  composite("TRUST", multi_items("TRST", 1:4)), ##1.
  composite("SEC", multi_items("PSEC", 1:4)), ##2.
  composite("REP", multi_items("PREP", 1:4)), ##3.
  composite("INV", multi_items("PINV", 1:3)), ##4.
```

```

    composite("POL", multi_items("PPSS", 1:3)), ##5.
    composite("FAML", single_item("FAML1")), ##6.
    interaction_term(iv="REP", moderator="POL", method=orthogonal) ##7.
)

# a-ii Structural Model
sec_sm <- relationships(
  paths(from = c("REP", "POL", "REP*POL"), to = "SEC"),
  paths(from = "INV", to = "SEC"),
  paths(from = "FAML", to = "SEC"),
  paths(from = "SEC", to = "TRUST")
)

sec_intxn_pls <- estimate_pls(
  data = sec,
  measurement_model = sec_mm,
  structural_model = sec_sm
)

## Generating the semnr model

## All 405 observations are valid.

summary(sec_intxn_pls)

##
## Results from package semnr (2.1.0)
##
## Path Coefficients:
##          SEC TRUST
## R^2      0.420 0.367
## AdjR^2   0.412 0.365
## REP      0.247    .
## POL      0.339    .
## REP*POL -0.105    .
## INV      0.181    .
## FAML      0.011    .
## SEC      . 0.606
##
## Reliability:
##      alpha rhoC  AVE  rhoA
## REP    0.857 0.904 0.704 0.882
## POL    0.870 0.920 0.794 0.872
## REP*POL 0.938 0.853 0.352 1.000
## INV    0.875 0.923 0.801 0.879
## FAML    1.000 1.000 1.000 1.000

```

```
## SEC      0.859 0.905 0.704 0.862
## TRUST    0.911 0.937 0.789 0.911
##
## Alpha, rhoC, and rhoA should exceed 0.7 while AVE should exceed 0.5
```

b. Show us the following results in table or figure formats:

b-i. Plot a figure of the estimated model

```
plot(sec_intxn_pls)
```

```
## PhantomJS not found. You can install it with webshot::install_phantomjs(). If it is installed, please
```

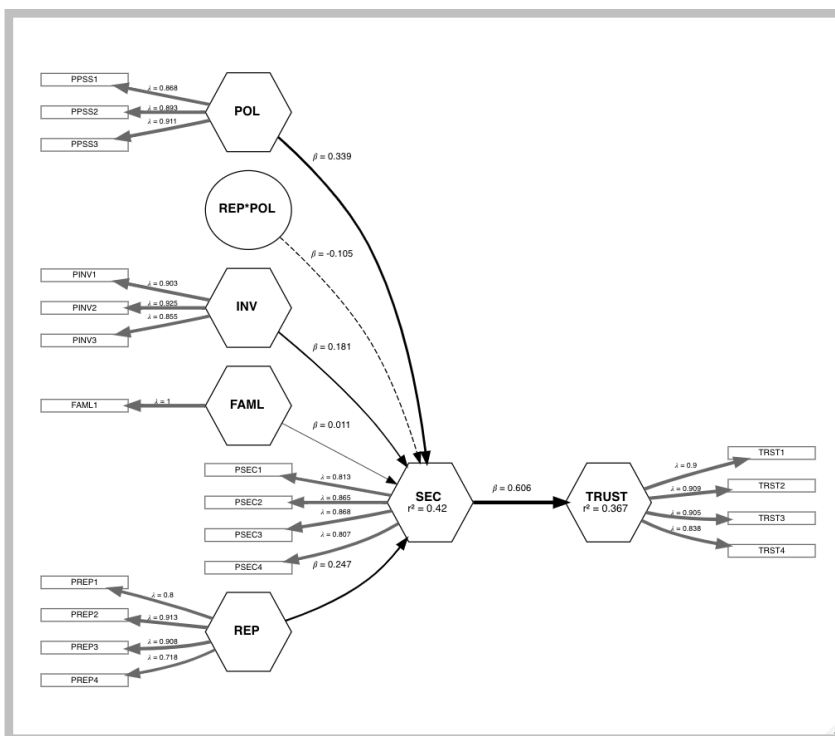


Figure 1: The figure of the estimated model

b-ii. Weights and loadings of composites

```
summary(sec_intxn_pls)$weights
```

```
##
##      REP  POL REP*POL  INV  FAML  SEC  TRUST
## TRST1  0.000 0.000    0.000 0.000 0.000 0.000 0.282
## TRST2  0.000 0.000    0.000 0.000 0.000 0.000 0.280
## TRST3  0.000 0.000    0.000 0.000 0.000 0.000 0.286
## TRST4  0.000 0.000    0.000 0.000 0.000 0.000 0.278
```

```

## PSEC1      0.000 0.000    0.000 0.000 0.000 0.277 0.000
## PSEC2      0.000 0.000    0.000 0.000 0.000 0.315 0.000
## PSEC3      0.000 0.000    0.000 0.000 0.000 0.307 0.000
## PSEC4      0.000 0.000    0.000 0.000 0.000 0.292 0.000
## PREP1      0.215 0.000    0.000 0.000 0.000 0.000 0.000
## PREP2      0.334 0.000    0.000 0.000 0.000 0.000 0.000
## PREP3      0.349 0.000    0.000 0.000 0.000 0.000 0.000
## PREP4      0.287 0.000    0.000 0.000 0.000 0.000 0.000
## PINV1      0.000 0.000    0.000 0.363 0.000 0.000 0.000
## PINV2      0.000 0.000    0.000 0.395 0.000 0.000 0.000
## PINV3      0.000 0.000    0.000 0.358 0.000 0.000 0.000
## PPSS1      0.000 0.360    0.000 0.000 0.000 0.000 0.000
## PPSS2      0.000 0.395    0.000 0.000 0.000 0.000 0.000
## PPSS3      0.000 0.367    0.000 0.000 0.000 0.000 0.000
## FAML1      0.000 0.000    0.000 0.000 1.000 0.000 0.000
## PREP1*PPSS1 0.000 0.000    0.239 0.000 0.000 0.000 0.000
## PREP1*PPSS2 0.000 0.000    0.031 0.000 0.000 0.000 0.000
## PREP1*PPSS3 0.000 0.000    0.021 0.000 0.000 0.000 0.000
## PREP2*PPSS1 0.000 0.000    0.046 0.000 0.000 0.000 0.000
## PREP2*PPSS2 0.000 0.000   -0.104 0.000 0.000 0.000 0.000
## PREP2*PPSS3 0.000 0.000   -0.228 0.000 0.000 0.000 0.000
## PREP3*PPSS1 0.000 0.000   -0.341 0.000 0.000 0.000 0.000
## PREP3*PPSS2 0.000 0.000    0.095 0.000 0.000 0.000 0.000
## PREP3*PPSS3 0.000 0.000    0.108 0.000 0.000 0.000 0.000
## PREP4*PPSS1 0.000 0.000    0.443 0.000 0.000 0.000 0.000
## PREP4*PPSS2 0.000 0.000    0.382 0.000 0.000 0.000 0.000
## PREP4*PPSS3 0.000 0.000    0.271 0.000 0.000 0.000 0.000

```

```
summary(sec_intxn_pls)$loadings
```

```

##      REP    POL REP*POL    INV    FAML    SEC  TRUST
## TRST1  0.000  0.000  -0.000  0.000  0.000  0.000  0.900
## TRST2  0.000  0.000  -0.000  0.000  0.000  0.000  0.909
## TRST3  0.000  0.000  -0.000  0.000  0.000  0.000  0.905
## TRST4  0.000  0.000  -0.000  0.000  0.000  0.000  0.838
## PSEC1  0.000  0.000  -0.000  0.000  0.000  0.813  0.000
## PSEC2  0.000  0.000  -0.000  0.000  0.000  0.865  0.000
## PSEC3  0.000  0.000  -0.000  0.000  0.000  0.868  0.000
## PSEC4  0.000  0.000  -0.000  0.000  0.000  0.807  0.000
## PREP1  0.800  0.000    0.000  0.000  0.000  0.000  0.000
## PREP2  0.913  0.000    0.000  0.000  0.000  0.000  0.000
## PREP3  0.908  0.000    0.000  0.000  0.000  0.000  0.000
## PREP4  0.718  0.000    0.000  0.000  0.000  0.000  0.000
## PINV1  0.000  0.000  -0.000  0.903  0.000  0.000  0.000
## PINV2  0.000  0.000  -0.000  0.925  0.000  0.000  0.000

```

```
## PINV3      0.000  0.000 -0.000  0.855  0.000  0.000  0.000
## PPSS1      0.000  0.868  0.000  0.000  0.000  0.000  0.000
## PPSS2      0.000  0.893  0.000  0.000  0.000  0.000  0.000
## PPSS3      0.000  0.911  0.000  0.000  0.000  0.000  0.000
## FAML1      0.000  0.000 -0.000  0.000  1.000  0.000  0.000
## PREP1*PPSS1 -0.000 -0.000  0.581 -0.000 -0.000 -0.000 -0.000
## PREP1*PPSS2 -0.000  0.000  0.510 -0.000 -0.000 -0.000 -0.000
## PREP1*PPSS3 -0.000 -0.000  0.506 -0.000 -0.000 -0.000 -0.000
## PREP2*PPSS1 -0.000 -0.000  0.509 -0.000 -0.000 -0.000 -0.000
## PREP2*PPSS2 -0.000  0.000  0.421 -0.000 -0.000  0.000  0.000
## PREP2*PPSS3 -0.000 -0.000  0.336 -0.000  0.000  0.000  0.000
## PREP3*PPSS1 -0.000 -0.000  0.236 -0.000  0.000  0.000  0.000
## PREP3*PPSS2 -0.000  0.000  0.555 -0.000 -0.000 -0.000 -0.000
## PREP3*PPSS3 -0.000 -0.000  0.466 -0.000  0.000 -0.000 -0.000
## PREP4*PPSS1  0.000  0.000  0.900 -0.000  0.000 -0.000 -0.000
## PREP4*PPSS2 -0.000 -0.000  0.836 -0.000 -0.000 -0.000  0.000
## PREP4*PPSS3  0.000  0.000  0.859 -0.000  0.000 -0.000  0.000
```

b-iii. Regression coefficients of paths between factors

```
summary(sec_intxn_pls)$paths
```

```
##          SEC TRUST
## R^2      0.420 0.367
## AdjR^2   0.412 0.365
## REP      0.247   .
## POL      0.339   .
## REP*POL  -0.105   .
## INV      0.181   .
## FAML     0.011   .
## SEC      . 0.606
```

b-iv. Bootstrapped path coefficients: t-values, 95% CI

```
boot_pls <- bootstrap_model(sec_intxn_pls, nboot = 1000)
```

```
## Bootstrapping model using seminr...
```

```
## SEMinR Model successfully bootstrapped
```

```
summary(boot_pls)
```

```
##
## Results from Bootstrap resamples: 1000
##
## Bootstrapped Structural Paths:
##          Original Est. Bootstrap Mean Bootstrap SD T Stat. 2.5% CI
```

```

## REP -> SEC          0.247          0.242          0.056  4.384  0.131
## POL -> SEC          0.339          0.344          0.055  6.195  0.235
## REP*POL -> SEC      -0.105        -0.015          0.125 -0.838 -0.196
## INV -> SEC          0.181          0.184          0.058  3.129  0.073
## FAML -> SEC          0.011          0.011          0.057  0.184 -0.107
## SEC -> TRUST        0.606          0.609          0.035 17.195  0.537
##
##              97.5% CI
## REP -> SEC          0.345
## POL -> SEC          0.452
## REP*POL -> SEC      0.192
## INV -> SEC          0.304
## FAML -> SEC          0.119
## SEC -> TRUST        0.675

```

```
##
```

```
## Bootstrapped Weights:
```

```

##              Original Est. Bootstrap Mean Bootstrap SD T Stat.
## TRST1 -> TRUST          0.282          0.281          0.014 19.834
## TRST2 -> TRUST          0.280          0.280          0.016 17.978
## TRST3 -> TRUST          0.286          0.285          0.016 17.625
## TRST4 -> TRUST          0.278          0.278          0.020 13.752
## PSEC1 -> SEC            0.277          0.278          0.016 17.421
## PSEC2 -> SEC            0.315          0.313          0.017 18.685
## PSEC3 -> SEC            0.307          0.308          0.017 18.581
## PSEC4 -> SEC            0.292          0.291          0.018 16.143
## PREP1 -> REP            0.215          0.214          0.025  8.456
## PREP2 -> REP            0.334          0.333          0.018 18.204
## PREP3 -> REP            0.349          0.349          0.022 15.965
## PREP4 -> REP            0.287          0.286          0.026 11.051
## PINV1 -> INV            0.363          0.362          0.025 14.669
## PINV2 -> INV            0.395          0.395          0.025 15.734
## PINV3 -> INV            0.358          0.358          0.028 12.639
## PPSS1 -> POL            0.360          0.360          0.022 16.097
## PPSS2 -> POL            0.395          0.396          0.024 16.751
## PPSS3 -> POL            0.367          0.367          0.018 19.899
## FAML1 -> FAML          1.000          1.000          0.000  .
## PREP1*PPSS1 -> REP*POL  0.239          0.091          0.152  1.568
## PREP1*PPSS2 -> REP*POL  0.031          0.069          0.087  0.361
## PREP1*PPSS3 -> REP*POL  0.021          0.065          0.107  0.198
## PREP2*PPSS1 -> REP*POL  0.046          0.082          0.098  0.469
## PREP2*PPSS2 -> REP*POL -0.104          0.059          0.159 -0.654
## PREP2*PPSS3 -> REP*POL -0.228          0.050          0.233 -0.981
## PREP3*PPSS1 -> REP*POL -0.341          0.019          0.302 -1.129
## PREP3*PPSS2 -> REP*POL  0.095          0.092          0.133  0.711
## PREP3*PPSS3 -> REP*POL  0.108          0.095          0.132  0.822

```

```

## PREP4*PPSS1 -> REP*POL      0.443      0.114      0.282      1.572
## PREP4*PPSS2 -> REP*POL      0.382      0.100      0.268      1.429
## PREP4*PPSS3 -> REP*POL      0.271      0.090      0.192      1.411
##                               2.5% CI 97.5% CI
## TRST1 -> TRUST      0.254      0.311
## TRST2 -> TRUST      0.248      0.310
## TRST3 -> TRUST      0.252      0.319
## TRST4 -> TRUST      0.239      0.318
## PSEC1 -> SEC      0.248      0.309
## PSEC2 -> SEC      0.280      0.346
## PSEC3 -> SEC      0.278      0.342
## PSEC4 -> SEC      0.255      0.327
## PREP1 -> REP      0.159      0.259
## PREP2 -> REP      0.302      0.374
## PREP3 -> REP      0.307      0.394
## PREP4 -> REP      0.236      0.337
## PINV1 -> INV      0.314      0.415
## PINV2 -> INV      0.343      0.444
## PINV3 -> INV      0.303      0.413
## PPSS1 -> POL      0.315      0.403
## PPSS2 -> POL      0.357      0.447
## PPSS3 -> POL      0.330      0.402
## FAML1 -> FAML      1.000      1.000
## PREP1*PPSS1 -> REP*POL -0.258      0.354
## PREP1*PPSS2 -> REP*POL -0.141      0.222
## PREP1*PPSS3 -> REP*POL -0.176      0.265
## PREP2*PPSS1 -> REP*POL -0.142      0.254
## PREP2*PPSS2 -> REP*POL -0.263      0.371
## PREP2*PPSS3 -> REP*POL -0.369      0.440
## PREP3*PPSS1 -> REP*POL -0.603      0.609
## PREP3*PPSS2 -> REP*POL -0.226      0.329
## PREP3*PPSS3 -> REP*POL -0.224      0.317
## PREP4*PPSS1 -> REP*POL -0.473      0.539
## PREP4*PPSS2 -> REP*POL -0.472      0.566
## PREP4*PPSS3 -> REP*POL -0.334      0.408

```

```
##
```

```
## Bootstrapped Loadings:
```

```

##                               Original Est. Bootstrap Mean Bootstrap SD T Stat.
## TRST1 -> TRUST      0.900      0.899      0.015 58.443
## TRST2 -> TRUST      0.909      0.909      0.020 45.522
## TRST3 -> TRUST      0.905      0.905      0.021 42.993
## TRST4 -> TRUST      0.838      0.839      0.032 26.184
## PSEC1 -> SEC      0.813      0.813      0.025 32.712
## PSEC2 -> SEC      0.865      0.864      0.026 33.740

```

##	PSEC3	->	SEC	0.868	0.869	0.021	40.691
##	PSEC4	->	SEC	0.807	0.807	0.025	32.407
##	PREP1	->	REP	0.800	0.799	0.039	20.411
##	PREP2	->	REP	0.913	0.913	0.016	56.682
##	PREP3	->	REP	0.908	0.909	0.021	44.005
##	PREP4	->	REP	0.718	0.718	0.032	22.259
##	PINV1	->	INV	0.903	0.904	0.024	36.934
##	PINV2	->	INV	0.925	0.925	0.022	42.637
##	PINV3	->	INV	0.855	0.855	0.026	32.638
##	PPSS1	->	POL	0.868	0.867	0.025	35.130
##	PPSS2	->	POL	0.893	0.893	0.014	62.613
##	PPSS3	->	POL	0.911	0.910	0.017	54.486
##	FAML1	->	FAML	1.000	1.000	0.000	.
##	PREP1*PPSS1	->	REP*POL	0.581	0.591	0.255	2.272
##	PREP1*PPSS2	->	REP*POL	0.510	0.574	0.240	2.123
##	PREP1*PPSS3	->	REP*POL	0.506	0.588	0.255	1.983
##	PREP2*PPSS1	->	REP*POL	0.509	0.627	0.267	1.907
##	PREP2*PPSS2	->	REP*POL	0.421	0.593	0.279	1.508
##	PREP2*PPSS3	->	REP*POL	0.336	0.599	0.325	1.034
##	PREP3*PPSS1	->	REP*POL	0.236	0.509	0.339	0.695
##	PREP3*PPSS2	->	REP*POL	0.555	0.623	0.265	2.095
##	PREP3*PPSS3	->	REP*POL	0.466	0.607	0.283	1.648
##	PREP4*PPSS1	->	REP*POL	0.900	0.586	0.361	2.489
##	PREP4*PPSS2	->	REP*POL	0.836	0.503	0.359	2.332
##	PREP4*PPSS3	->	REP*POL	0.859	0.558	0.339	2.536
##				2.5% CI	97.5% CI		
##	TRST1	->	TRUST	0.865	0.929		
##	TRST2	->	TRUST	0.864	0.942		
##	TRST3	->	TRUST	0.857	0.938		
##	TRST4	->	TRUST	0.765	0.892		
##	PSEC1	->	SEC	0.761	0.858		
##	PSEC2	->	SEC	0.808	0.906		
##	PSEC3	->	SEC	0.823	0.907		
##	PSEC4	->	SEC	0.754	0.853		
##	PREP1	->	REP	0.707	0.863		
##	PREP2	->	REP	0.881	0.942		
##	PREP3	->	REP	0.860	0.941		
##	PREP4	->	REP	0.650	0.775		
##	PINV1	->	INV	0.851	0.946		
##	PINV2	->	INV	0.875	0.960		
##	PINV3	->	INV	0.797	0.902		
##	PPSS1	->	POL	0.809	0.906		
##	PPSS2	->	POL	0.864	0.919		
##	PPSS3	->	POL	0.870	0.937		


```

## FAML1 -> FAML          1.000    1.000
## PREP1*PPSS1 -> REP*POL -0.036    0.921
## PREP1*PPSS2 -> REP*POL -0.067    0.885
## PREP1*PPSS3 -> REP*POL -0.098    0.907
## PREP2*PPSS1 -> REP*POL -0.078    0.951
## PREP2*PPSS2 -> REP*POL -0.149    0.931
## PREP2*PPSS3 -> REP*POL -0.296    0.977
## PREP3*PPSS1 -> REP*POL -0.313    0.935
## PREP3*PPSS2 -> REP*POL -0.067    0.931
## PREP3*PPSS3 -> REP*POL -0.183    0.957
## PREP4*PPSS1 -> REP*POL -0.283    0.994
## PREP4*PPSS2 -> REP*POL -0.361    0.924
## PREP4*PPSS3 -> REP*POL -0.263    0.951

```

```
##
```

```
## Bootstrapped HTMT:
```

```

##               Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP -> POL          0.543          0.543          0.056  0.432  0.646
## REP -> REP*POL      0.000          0.000          0.000  0.000  0.000
## REP -> INV          0.705          0.702          0.049  0.598  0.794
## REP -> FAML         0.599          0.600          0.054  0.490  0.705
## REP -> SEC          0.595          0.593          0.042  0.506  0.666
## REP -> TRUST        0.682          0.682          0.044  0.593  0.762
## POL -> REP*POL      0.000          0.000          0.000  0.000  0.000
## POL -> INV          0.498          0.497          0.057  0.384  0.608
## POL -> FAML         0.596          0.594          0.052  0.487  0.692
## POL -> SEC          0.622          0.624          0.050  0.519  0.724
## POL -> TRUST        0.458          0.460          0.061  0.341  0.573
## REP*POL -> INV      0.085          0.102          0.033  0.055  0.177
## REP*POL -> FAML     0.046          0.065          0.025  0.031  0.126
## REP*POL -> SEC      0.059          0.082          0.019  0.051  0.125
## REP*POL -> TRUST    0.044          0.071          0.017  0.044  0.111
## INV -> FAML         0.494          0.494          0.057  0.378  0.603
## INV -> SEC          0.568          0.565          0.049  0.460  0.663
## INV -> TRUST        0.563          0.561          0.052  0.456  0.657
## FAML -> SEC         0.455          0.455          0.051  0.351  0.552
## FAML -> TRUST       0.471          0.472          0.052  0.371  0.574
## SEC -> TRUST        0.685          0.685          0.037  0.609  0.757

```

```
##
```

```
## Bootstrapped Total Paths:
```

```

##               Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP -> SEC          0.247          0.242          0.056  0.131  0.345
## REP -> TRUST         0.150          0.147          0.036  0.081  0.216
## POL -> SEC          0.339          0.344          0.055  0.235  0.452
## POL -> TRUST        0.205          0.209          0.036  0.138  0.284

```

## REP*POL -> SEC	-0.105	-0.015	0.125	-0.196	0.192
## REP*POL -> TRUST	-0.063	-0.009	0.076	-0.121	0.118
## INV -> SEC	0.181	0.184	0.058	0.073	0.304
## INV -> TRUST	0.109	0.112	0.036	0.043	0.185
## FAML -> SEC	0.011	0.011	0.057	-0.107	0.119
## FAML -> TRUST	0.006	0.007	0.035	-0.066	0.074
## SEC -> TRUST	0.606	0.609	0.035	0.537	0.675

Question 2 Common-Factor Models using CB-SEM

a. Create a common factor model using *SEMinR*, with the following characteristics:

a-i. Either respecify all the constructs as being reflective(), or use the *as.reflective()* function to convert your earlier measurement model to being entirely reflective.

a-ii. Use the same structural model as before (you can just reuse it again!)

a-i. Measurement Model

```
sec_cf_mm <- constructs(
  reflective("TRUST", multi_items("TRST", 1:4)), ##1.
  reflective("SEC", multi_items("PSEC", 1:4)), ##2.
  reflective("REP", multi_items("PREP", 1:4)), ##3.
  reflective("INV", multi_items("PINV", 1:3)), ##4.
  reflective("POL", multi_items("PPSS", 1:3)), ##5.
  reflective("FAML", single_item("FAML1")), ##6.
  interaction_term(iv="REP", moderator="POL", method=orthogonal) ##7.
)
```

a-ii.

```
sec_cf_pls <- estimate_cbsem(
  data = sec,
  measurement_model = sec_cf_mm,
  structural_model = sec_sm
)
```

Generating the semnr model for CBSEM

```
summary(sec_cf_pls)
```

##

Results from package semnr (2.1.0)

Estimation used package semnr (2.1.0)

##

```

## Fit metrics:
##      npar      fmin      pnfi      logl      aic      bic      ntotal
##      77.000    3.529    0.663 -17296.241  34746.482  35054.781  405.000
##      bic2      rmr      srmr      crmr      gfi      agfi      pgfi
##      34810.451  0.116    0.063    0.065    0.742    0.694    0.627
##      mfi      ecvi
##      0.049    7.439
##
##      metric    scaled robust
## cfi           0.764    0.772  0.799
## tli           0.738    0.747  0.777
## nnfi          0.738    0.747  0.777
## rni           0.764    0.772  0.799
## rmsea         0.120    0.072  0.107
## rmsea.ci.lower 0.116    0.069  0.100
## rmsea.ci.upper 0.124    0.075  0.114
## rmsea.pvalue   0.000    0.000    .
## chisq         2858.871 1303.538    .
## df            419.000 419.000    .
## pvalue        0.000    0.000    .
## baseline.chisq 10812.133 4340.588    .
## baseline.df    465.000 465.000    .
## baseline.pvalue 0.000    0.000    .
## rfi           0.707    0.667    .
## nfi           0.736    0.700    .
## ifi           0.765    0.774    .
##
## Reliability:
##      rhoC AVE
## TRUST 0.91 0.72
## SEC   0.86 0.60
## REP   0.87 0.63
## INV   0.88 0.71
## POL   0.87 0.70
## FAML  1.00 1.00
##
## Path Coefficients:
##      SEC TRUST
## R^2    0.54 0.50
## REP    0.30 .
## POL    0.38 .
## REP_x_POL 0.01 .
## INV    0.21 .
## FAML   -0.01 .

```

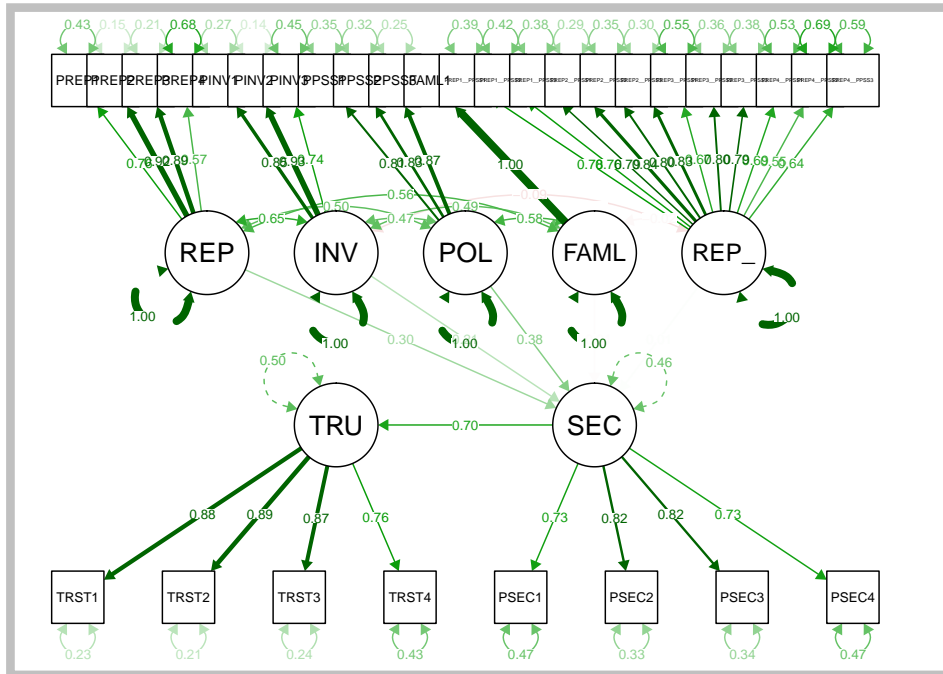
```
## SEC . 0.70
```

b. Show us the following results in table or figure formats

b-i. Plot a figure of the estimated model (it will look different from your PLS model!)

```
plot(sec_cf_pls)
```

```
## Plotting of lavaan models using semPlot.
```



```
## NULL
```

b-ii. Loadings of composites

```
summary(sec_cf_pls)$loadings
```

##	TRUST	SEC	REP	INV	POL	FAML
## TRST1	0.8800240	NA	NA	NA	NA	NA
## TRST2	0.8886342	NA	NA	NA	NA	NA
## TRST3	0.8690644	NA	NA	NA	NA	NA
## TRST4	0.7575988	NA	NA	NA	NA	NA
## PSEC1	NA	0.7308766	NA	NA	NA	NA
## PSEC2	NA	0.8173481	NA	NA	NA	NA
## PSEC3	NA	0.8151708	NA	NA	NA	NA
## PSEC4	NA	0.7260444	NA	NA	NA	NA
## PREP1	NA	NA	0.7551328	NA	NA	NA
## PREP2	NA	NA	0.9199208	NA	NA	NA

```
## PREP3      NA      NA 0.8871362      NA      NA      NA
## PREP4      NA      NA 0.5650059      NA      NA      NA
## PINV1      NA      NA      NA 0.8520004      NA      NA
## PINV2      NA      NA      NA 0.9257476      NA      NA
## PINV3      NA      NA      NA 0.7388750      NA      NA
## PPSS1      NA      NA      NA      NA 0.8051533      NA
## PPSS2      NA      NA      NA      NA 0.8272576      NA
## PPSS3      NA      NA      NA      NA 0.8674335      NA
## FAML1      NA      NA      NA      NA      NA      1
```

b-iii. Regression coefficients of paths between factors, and their p-values

```
summary(sec_cf_pls)$paths
```

```
## $coefficients
##              SEC      TRUST
## R^2          0.540381651 0.4951084
## REP          0.299536782      NA
## POL          0.376401499      NA
## REP_x_POL    0.008355287      NA
## INV          0.214253245      NA
## FAML        -0.008837653      NA
## SEC          NA 0.7036394
##
## $pvalues
##              SEC TRUST
## REP          3.817181e-05  NA
## POL          4.380973e-09  NA
## REP_x_POL    8.516847e-01  NA
## INV          3.534482e-03  NA
## FAML          8.996836e-01  NA
## SEC          NA      0
```