HW_Week15_108020033

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2023-05-25 helped by 108020024

Question 1) Composite Path Models using PLS-PM

```
library(seminr)
```

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

```
# Import the data
sec <- read.csv("security_data_sem.csv")
```

(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)

```
# Create measurement model
sec_intxn_mm <- constructs(
  composite("TRUST", multi_items("TRST", 1:4)),
  composite("SEC", multi_items("PSEC", 1:4)),
  composite("REP", multi_items("PREP", 1:4)),
  composite("INV", multi_items("PINV", 1:3)),
  composite("POL", multi_items("PPSS", 1:3)),
  composite("FAML", single_item("FAML1")),
  interaction_term(iv = "REP", moderator = "POL", method = orthogonal)
)
```

(ii). Structural Model – paths between constructs as shown in this causal model: REP + INV + POL + FAML + (REP × POL) → SEC → TRUST

```
# Create structural model
sec_intxn_sm <- relationships(
  paths(from = c("REP", "INV", "POL", "FAML", "REP*POL"), to = "SEC"),
  paths(from = "SEC", to = "TRUST")
)

# Run estimation algorithm
sec_intxn_pls <- estimate_pls(
  data = sec,
  measurement_model = sec_intxn_mm,
  structural_model = sec_intxn_sm
)
```
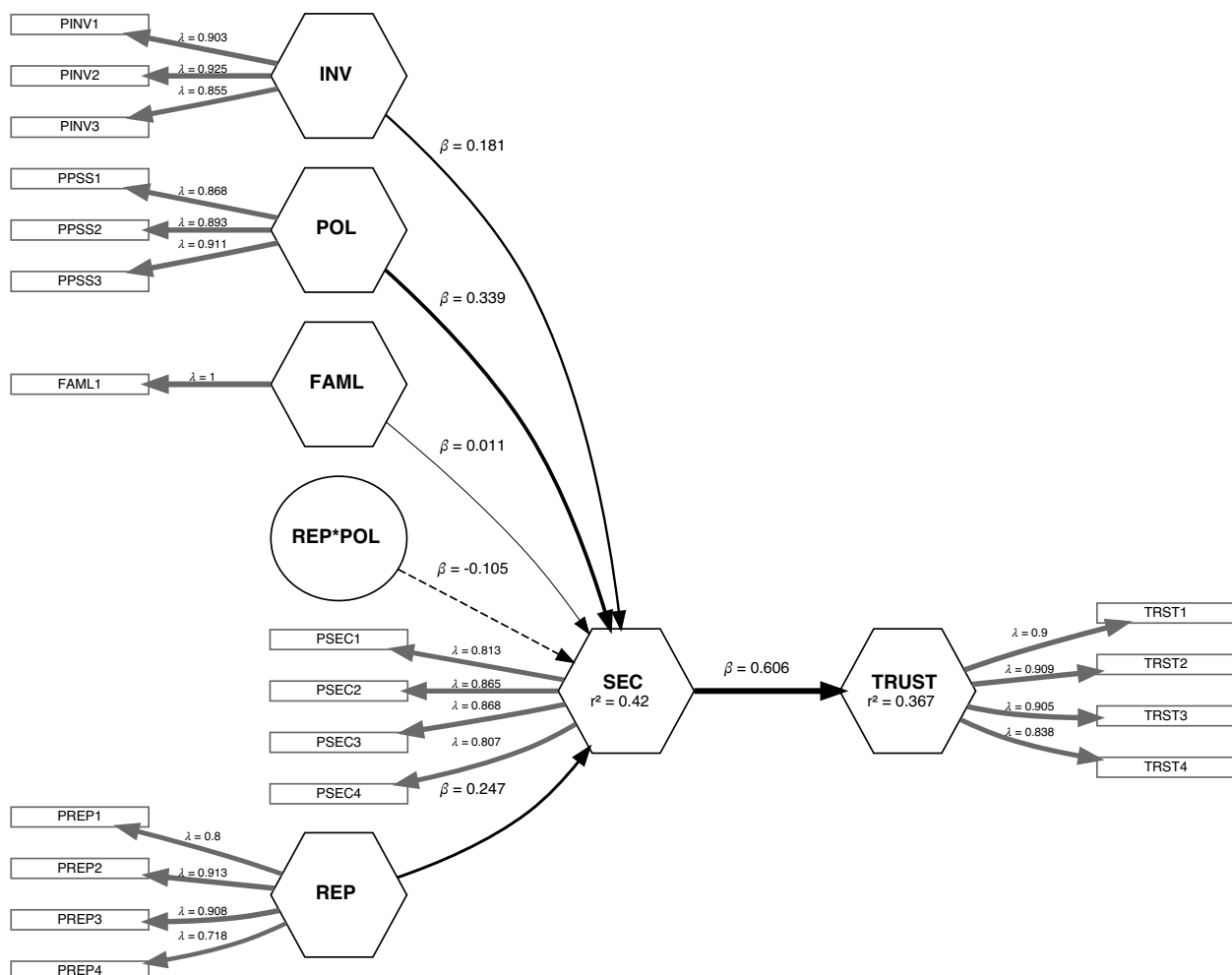
Generating the seminr model

All 405 observations are valid.

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

(i). Plot a figure of the estimated model

```
# Show the plot of the estimated model
plot(sec_intxn_pls)
```

(ii). Weights and loadings of composites

```r
# Store the summary
sec_intxn_report <- summary(sec_intxn_pls)

# Show the weights of composites
sec_intxn_report$weights
```

```
##              REP    INV   POL  FAML REP*POL   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 0.363 0.000 0.000   0.000 0.000 0.000
## PINV2       0.000 0.395 0.000 0.000   0.000 0.000 0.000
## PINV3       0.000 0.358 0.000 0.000   0.000 0.000 0.000
## PPSS1       0.000 0.000 0.360 0.000   0.000 0.000 0.000
## PPSS2       0.000 0.000 0.395 0.000   0.000 0.000 0.000
## PPSS3       0.000 0.000 0.367 0.000   0.000 0.000 0.000
## FAML1       0.000 0.000 0.000 1.000   0.000 0.000 0.000
## PREP1*PPSS1 0.000 0.000 0.000 0.000   0.239 0.000 0.000
## PREP1*PPSS2 0.000 0.000 0.000 0.000   0.031 0.000 0.000
## PREP1*PPSS3 0.000 0.000 0.000 0.000   0.021 0.000 0.000
## PREP2*PPSS1 0.000 0.000 0.000 0.000   0.046 0.000 0.000
## PREP2*PPSS2 0.000 0.000 0.000 0.000  -0.104 0.000 0.000
## PREP2*PPSS3 0.000 0.000 0.000 0.000  -0.228 0.000 0.000
## PREP3*PPSS1 0.000 0.000 0.000 0.000  -0.341 0.000 0.000
## PREP3*PPSS2 0.000 0.000 0.000 0.000   0.095 0.000 0.000
## PREP3*PPSS3 0.000 0.000 0.000 0.000   0.108 0.000 0.000
## PREP4*PPSS1 0.000 0.000 0.000 0.000   0.443 0.000 0.000
## PREP4*PPSS2 0.000 0.000 0.000 0.000   0.382 0.000 0.000
## PREP4*PPSS3 0.000 0.000 0.000 0.000   0.271 0.000 0.000
```

```r
# Show the loadings of composites
sec_intxn_report$composite_scores
```

```
##          TRUST         SEC        REP         INV        POL       FAML
## 1   0.60084552 -0.284321807 -0.240572314 -0.398455386  0.37825446  0.8309935
## 2   0.77247995  0.090876526  0.620519517  0.276012054 -0.08294958  0.2342694
## 3   0.41369666  0.454653128  0.203886717 -0.218333295 -0.08217966  0.8309935
## 4   0.06268507 -0.118692629 -0.319790071  0.028839379  0.13153560 -0.3624546
## 5   1.15060579  0.477093769  0.870621065 -0.218333295 -0.04994597  0.8309935
## 6  -0.31544077 -0.096251989 -0.319790071 -0.532556552  0.34525086 -0.3624546
## 7  -1.40336150 -1.355496401  0.500223272  0.276012054 -0.47891633 -0.3624546
## 8   0.41369666 -0.118692629  0.870621065  0.276012054 -0.08371949 -0.3624546
```

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```
## 9  -1.79323161 -2.402939356 -2.098068272 -1.341125158 -1.40055449  0.2342694
## 10 -0.68584551  0.454653128  0.203886717  0.276012054  0.34525086  0.8309935
## 11  0.79182250  1.404138522  0.870621065 -0.779729226  1.01940025  0.2342694
## 12  0.06268507  0.058358278  0.453988266  0.837407985  0.37748455  0.2342694
## 13  1.15060579  1.006499549  0.870621065  1.084580660  0.80491507  0.8309935
## 14  0.97510000  1.404138522  0.315024376  0.837407985  1.01940025  0.8309935
## 15  0.59697416  1.404138522  0.050607722  0.028839379  1.01940025  0.8309935
## 16  0.59697416  0.466074858  0.870621065  1.084580660  1.01940025  0.8309935
## 17 -0.33093358  0.266583310  0.050607722 -1.341125158 -0.08294958 -0.9591787
## 18 -0.32321248 -0.880108205 -0.134591175 -0.779729226 -0.32889853 -0.9591787
## 19 -0.88461582 -0.118692629 -0.319790071 -0.532556552 -0.32889853 -0.3624546
## 20  1.15060579  1.404138522  0.870621065  1.084580660 -0.26520107  0.8309935
## 21  1.15060579  0.907250989  0.870621065  1.084580660  1.01940025  0.8309935
## 22 -0.69356661  0.477093769  0.050607722 -0.218333295  0.34525086  0.2342694
## 23  0.41369666  0.620282306 -0.037768621  0.028839379  0.55973604  0.8309935
## 24  1.15060579  1.404138522  0.870621065  0.837407985  0.80568499  0.8309935
## 25  0.40979631  0.651859250 -0.342551386 -0.175781442 -0.47737650  0.2342694
## 26 -0.69356661 -1.376995738  0.870621065 -0.532556552 -0.26520107 -0.9591787
## 27  1.15060579  0.343041535  0.870621065  0.343062637  1.01940025  0.8309935
## 28  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 29 -0.86522267 -1.045737383 -0.801325523  0.276012054 -0.97081423 -0.9591787
## 30 -1.58663900  0.278543524 -1.589418965  1.084580660  1.01940025 -0.9591787
## 31  0.78797276 -1.619083140  0.870621065  1.084580660 -1.00304791  0.8309935
## 32  0.62408841  1.216068704  0.870621065  1.084580660  1.01940025  0.8309935
## 33 -0.13216327 -0.526409210  0.250121724 -0.779729226 -0.32889853 -0.9591787
## 34 -1.06012161 -2.413958267  0.315024376 -0.532556552 -0.26520107 -0.3624546
## 35  0.79959420 -0.880108205  0.870621065  1.084580660 -1.00304791 -0.9591787
## 36 -0.32321248 -2.558490927  0.018687821  0.837407985 -1.64419370  0.2342694
## 37  0.97510000  0.709103564  0.870621065  1.084580660  1.01940025  0.8309935
## 38  1.15060579 -0.173651517  0.315024376 -1.341125158 -1.21676318 -0.3624546
## 39 -1.05234991  1.404138522 -0.166511076  1.084580660  1.01940025  0.8309935
## 40  0.41369666  1.404138522  0.315024376  0.276012054  1.01940025 -0.3624546
## 41  0.23041916  0.256505703  0.870621065  0.276012054  0.59196973  0.8309935
## 42  1.15060579  0.311464591  0.870621065  1.084580660  0.34525086  0.8309935
## 43 -0.13993498  0.090876526  0.500223272  0.028839379 -0.32889853  0.2342694
## 44  1.15060579 -0.816954317  0.870621065 -0.218333295  1.01940025  0.2342694
## 45 -0.87689472 -0.813727587  0.203886717  0.276012054  0.34525086  0.8309935
## 46  1.15060579  0.819773854  0.870621065  1.084580660 -0.75709896 -0.9591787
## 47  0.41369666  0.642722946  0.315024376  1.084580660  0.59119981  0.2342694
## 48 -0.32321248 -0.306762448 -0.319790071 -1.341125158 -1.43047844  0.2342694
## 49  1.15060579  1.404138522 -1.065288671  0.837407985 -0.70224240  0.8309935
## 50  0.06270669  0.996421942  0.717342070  1.084580660  1.01940025  0.2342694
## 51  0.97510000 -0.771131733  0.500223272  0.028839379 -0.54261379  0.8309935
## 52  0.41369666  0.025437211 -1.371237318  0.276012054  0.55973604 -0.3624546
## 53 -1.24724885 -0.880108205 -0.366025078 -0.532556552 -0.97081423 -0.3624546
## 54  0.60469526 -0.681960780  0.870621065 -0.285383878  1.01940025  0.2342694
## 55  0.06655643  0.289965254  0.870621065  0.343062637 -0.32889853  0.8309935
## 56  0.59697416  1.216068704  0.685422169 -0.218333295  0.80491507  0.2342694
## 57  0.41369666  0.069377189 -1.822369223 -0.804227957  0.34525086  0.2342694
## 58  0.59697416  0.123394773  0.315024376  1.084580660 -0.26520107  0.2342694
## 59  1.15060579 -1.078255630 -1.107883513  0.276012054 -3.69964547 -3.3460749
## 60  0.60082390 -0.074752652  0.389085614  0.837407985 -0.08217966  0.8309935
## 61  0.41369666 -1.672697905  0.500223272  0.547683459 -1.00304791  0.2342694
## 62  1.15060579  1.404138522  0.870621065 -0.846779810  1.01940025  0.8309935
```

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```
## 63   -0.30784250   1.238509344  -0.387530798  -1.709507782   0.80568499   0.8309935
## 64    0.03944218  -0.064675045   0.870621065   1.084580660   1.01940025   0.8309935
## 65    1.15060579   0.862369708   0.870621065   0.837407985  -3.69964547  -3.3460749
## 66   -2.17523618  -0.319475176   0.315024376   1.084580660   0.80568499  -0.3624546
## 67   -3.27084902  -0.880108205  -1.589418965  -1.341125158  -1.00304791  -0.9591787
## 68   -0.32321248  -0.692038387   0.203886717   1.084580660   0.34525086   0.8309935
## 69   -2.53393988  -1.609005534  -1.907453985  -1.093952484  -0.54338370   0.2342694
## 70   -0.32321248  -0.284321807  -0.954604518  -1.341125158  -0.32889853  -0.3624546
## 71    0.05106362   0.642722946   0.050607722  -0.532556552   0.34525086   0.2342694
## 72    0.41369666   0.046936548   0.685422169   0.276012054   0.34525086  -0.3624546
## 73    1.15060579   0.839929068   0.500223272   1.084580660   0.16376929   0.8309935
## 74    0.41369666   0.642722946   0.870621065   0.276012054   0.34525086   0.8309935
## 75    0.96347855   1.028940189   0.685422169   1.084580660   0.13076569   0.8309935
## 76    0.03942056  -0.118692629  -0.319790071  -0.532556552  -0.32889853  -0.3624546
## 77    0.03942056  -0.503968569   0.870621065  -0.309882609   0.34602078   0.8309935
## 78    0.41369666   0.642722946  -0.319790071  -0.242832025   0.34525086   0.8309935
## 79    0.78797276   0.454653128   0.203886717   0.343062637   0.80491507   0.8309935
## 80    0.58922407  -0.383220672   0.315024376   1.084580660  -1.00304791  -2.7493508
## 81    1.15060579   1.404138522   0.315024376   1.084580660  -0.05148580   0.8309935
## 82    0.41369666   0.642722946   0.050607722   0.276012054  -0.32889853  -0.3624546
## 83    0.41369666   0.839929068   0.315024376  -1.051400631   0.37825446   0.8309935
## 84    0.60469526   0.808352124  -0.504988968  -0.218333295   0.34525086   0.8309935
## 85   -1.38782545   1.404138522   0.870621065  -0.817119174   1.01940025   0.8309935
## 86   -1.78538768  -1.210963740  -0.027547186   1.084580660   0.59196973   0.2342694
## 87   -1.06012161  -0.185073247  -1.589418965  -0.242832025   0.34525086  -2.7493508
## 88   -1.23562741  -0.315898751   0.018687821  -1.835470507  -0.08294958   0.8309935
## 89    1.15060579   1.404138522   0.870621065   0.837407985   1.01940025   0.8309935
## 90   -1.23562741  -0.868686475  -0.551223974   0.276012054  -0.08217966   0.2342694
## 91   -1.25112021  -0.638020803  -0.801325523  -1.051400631  -0.26443115   0.2342694
## 92    1.15060579   0.907250989   0.870621065   1.084580660   1.01940025   0.8309935
## 93    0.96347855   0.046936548   0.870621065  -1.341125158   0.16299937   0.2342694
## 94    0.60469526  -0.284321807   0.500223272   0.276012054  -0.96927440   0.2342694
## 95    1.15060579   1.404138522   0.870621065   1.084580660   1.01940025   0.2342694
## 96    1.15060579   1.404138522   0.870621065   1.084580660   0.80491507   0.8309935
## 97   -0.11282073   0.642722946   0.685422169  -0.532556552  -0.51038010  -1.5559027
## 98    0.23819086   0.454653128   0.685422169  -0.218333295  -0.08217966   0.8309935
## 99    0.95960719   0.068435885  -0.769405621  -0.532556552  -0.32889853   0.8309935
## 100  -0.68584551  -0.284321807   0.389085614   0.004340649   1.01940025   0.8309935
## 101  -1.06012161  -1.045737383  -0.769405621  -0.218333295   1.01940025   0.8309935
## 102   1.15060579   1.404138522   0.410784080   1.084580660   1.01940025   0.8309935
## 103   1.15060579   1.404138522   0.870621065   1.084580660   1.01940025   0.8309935
## 104   1.15060579   1.404138522   0.870621065   1.084580660   1.01940025   0.2342694
## 105   1.15060579   0.212565726   0.870621065   1.084580660   1.01940025   0.8309935
## 106   0.06270669  -0.284321807   0.315024376  -0.218333295  -0.51038010   0.2342694
## 107   0.23819086  -0.118692629   0.315024376  -0.532556552  -0.75709896  -0.3624546
## 108  -1.06012161  -0.118692629  -0.769405621  -0.779729226  -1.00304791  -0.3624546
## 109   1.15060579   1.404138522   0.315024376   0.590235311   0.16376929   0.2342694
## 110   0.24596257   0.863311011   0.268789369   0.812909255   0.59042990   0.8309935
## 111   1.15060579   0.266583310   0.685422169   1.084580660   0.77345130   0.8309935
## 112   1.15060579   1.404138522   0.870621065   1.084580660   1.01940025   0.2342694
## 113  -1.05234991  -0.670539050  -0.866228175  -1.341125158   0.34525086  -0.3624546
## 114  -1.06012161  -0.880108205  -1.589418965  -1.341125158  -1.00304791  -2.7493508
## 115   0.41369666  -0.880108205  -0.769405621  -1.341125158  -0.47891633   0.2342694
## 116   1.15060579   1.404138522   0.315024376   1.084580660   1.01940025   0.8309935
```

```
## 117  0.42146836 -0.284321807  0.620519517  1.084580660 -1.58203607  0.8309935
## 118 -2.34294128 -1.431954626 -1.468059871 -1.093952484  0.80568499 -0.3624546
## 119 -0.68584551 -0.118692629  0.685422169  0.028839379  1.01940025  0.2342694
## 120  0.41369666  1.404138522  0.870621065  1.084580660  0.13076569  0.2342694
## 121  0.41369666 -0.438529255 -0.319790071  0.004340649 -0.75709896 -0.3624546
## 122  0.41369666 -0.614691985  0.870621065  1.084580660  0.80568499  0.8309935
## 123 -2.35066238 -0.681960780  0.500223272  0.812909255 -1.54980238  0.2342694
## 124 -0.50256801  0.036858941  0.250121724  0.276012054 -1.43201827  0.8309935
## 125  1.15060579 -0.314151808  0.870621065  1.084580660 -0.29743475  0.8309935
## 126 -0.49871827 -0.118692629 -0.462847631  0.276012054  0.34525086  0.8309935
## 127  1.15060579  0.180988782 -0.266171704 -0.490004700 -0.26366124  0.8309935
## 128  1.15060579  0.266583310  0.500223272 -0.532556552 -0.51115002  0.8309935
## 129  0.42533972 -0.880108205  0.315024376 -1.341125158 -0.75709896  0.2342694
## 130 -0.31544077  0.289023951 -1.555114494 -0.532556552 -0.75709896 -0.9591787
## 131  1.15060579  1.404138522  0.410784080  1.084580660  1.01940025  0.2342694
## 132 -0.86135131  0.123394773 -0.166511076  0.523184728  0.13153560 -0.3624546
## 133 -0.12829191 -0.152904695  0.064922827  0.837407985 -0.29589492  0.2342694
## 134 -0.50256801 -1.068178023  0.315024376 -0.218333295 -0.26520107  0.8309935
## 135  0.77632969  0.068435885  0.685422169  0.028839379  0.80491507  0.8309935
## 136  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 137 -2.89272318 -1.575143163  0.157651711 -0.532556552 -0.90634685 -0.9591787
## 138  0.03557082 -1.829593599 -4.049458995  0.028839379 -0.11518326  0.8309935
## 139  0.04334252 -0.880108205  0.315024376  1.084580660 -1.00304791  0.8309935
## 140 -0.32321248 -0.493890962 -0.954604518 -1.093952484 -0.54261379 -0.3624546
## 141  0.58920245  0.642722946  0.870621065  1.084580660  1.01940025  0.8309935
## 142  1.15060579  1.404138522  0.500223272 -1.341125158  1.01940025  0.8309935
## 143 -1.06012161 -0.880108205 -1.372300167  0.028839379  1.01940025 -2.1526268
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## 330  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 331  1.15060579  1.404138522  0.315024376  0.837407985  1.01940025 -0.3624546
## 332  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
```

```
## 333 -0.13993498 -0.284321807 -0.430927730 -0.779729226 -1.12160194 -0.3624546
## 334 -0.32321248 -0.118692629  0.018687821  0.028839379 -0.54338370  0.2342694
## 335  0.03169946  0.996421942  0.315024376  1.084580660 -0.90634685 -0.3624546
## 336 -1.06012161  0.642722946  0.315024376  0.276012054  1.01940025 -2.7493508
## 337  1.15060579 -0.221167919  0.389085614  0.276012054  0.80491507  0.8309935
## 338  0.59697416 -0.460969895  0.346944277  0.276012054 -1.43201827  0.2342694
## 339 -0.87684411  0.642722946 -0.607680416 -0.532556552  0.34525086  0.2342694
## 340 -0.31156941 -0.526409210  0.315024376  0.276012054 -0.29666484 -0.3624546
## 341  0.41369666  0.642722946  0.870621065  0.343062637  0.80491507  0.8309935
## 342  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 343 -2.34294128 -0.660461443 -2.270468418 -1.606350954 -1.89091256 -1.5559027
## 344  1.15060579 -0.503968569  0.315024376  0.837407985 -0.75709896  0.8309935
## 345 -0.87684411  0.090876526 -0.258981089  0.276012054  0.13153560  0.8309935
## 346 -1.23172706 -1.474953300 -2.442415059 -1.624404077 -2.13763143 -2.1526268
## 347  0.41369666 -0.460969895 -0.779627057  0.028839379  1.01940025 -0.3624546
## 348  0.41369666 -0.503968569  0.500223272  0.343062637 -1.61349984  0.2342694
## 349 -1.59053934 -1.474953300 -2.140663114 -2.439418291 -1.49417590 -1.5559027
## 350 -1.60598154 -1.410858109 -3.038377860 -2.125195033 -1.89091256 -1.5559027
## 351 -1.98802935 -1.310265426 -2.640866211 -2.668537843 -1.24976678 -2.1526268
## 352 -1.79703075 -0.284321807  0.315024376  0.343062637  0.34525086  0.2342694
## 353  0.41369666  0.477093769  0.315024376 -1.558637197 -0.26520107 -0.3624546
## 354 -2.16353514 -1.640582478 -2.844732753 -2.396866438 -1.18529940 -1.5559027
## 355 -1.42277627 -1.222385471 -2.352975866 -2.396866438 -1.92314625 -2.1526268
## 356 -0.15928489  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 357  1.15060579  1.404138522  0.870621065  0.343062637  1.01940025  0.8309935
## 358  0.77632969  0.665163587  0.870621065  1.084580660  1.01940025  0.8309935
## 359  1.15060579  1.404138522  0.870621065  0.343062637 -1.00304791  0.8309935
## 360 -0.67422407 -0.515928783 -1.139803415 -0.242832025 -0.51038010  0.2342694
## 361 -1.79703075  1.404138522  0.161745380  0.343062637 -2.81178082  0.2342694
## 362  1.15060579  0.311464591 -0.319790071 -1.341125158 -0.29743475 -0.3624546
## 363  0.58920245  0.311464591  0.685422169  0.276012054 -0.29743475 -0.3624546
## 364  0.23041916  0.046936548 -0.769405621 -2.149693764 -1.00304791 -0.3624546
## 365  0.42533972  0.101895436  0.203886717  0.276012054  1.01940025  0.2342694
## 366  0.60469526  0.068435885  0.870621065 -0.242832025  0.80568499  0.8309935
## 367 -3.27084902 -3.164354932 -4.049458995 -3.766830976 -3.02549608 -2.7493508
## 368  1.15060579  1.404138522  0.870621065  0.343062637  1.01940025 -0.9591787
## 369  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 370 -0.12444217 -0.504909872  0.315024376 -1.207023991  0.34525086  0.2342694
## 371  0.21884832  1.040361919  0.389085614  0.837407985 -0.08217966  0.8309935
## 372  0.05491336 -0.306762448  0.157651711 -0.532556552 -0.51038010  0.8309935
## 373  0.41369666 -0.880108205  0.870621065 -0.218333295  1.01940025 -0.3624546
## 374 -0.13993498 -0.481527929 -0.954604518 -1.341125158  0.13153560  0.2342694
## 375  1.15060579  1.404138522  0.870621065  1.084580660  1.01940025  0.8309935
## 376  0.78797276 -0.546161603  0.870621065  0.276012054  0.34525086 -0.3624546
## 377  0.23819086  0.830792764  0.500223272  0.028839379  0.37671464  0.2342694
## 378  1.15060579  0.278543524  0.870621065  1.084580660 -1.00304791  0.8309935
## 379 -0.32321248 -0.681019477 -0.134591175 -0.532556552 -0.97004431  0.2342694
## 380  0.41369666  1.017921279  0.639187162 -0.285383878  1.01940025  0.2342694
## 381 -0.32706222  0.257447007  0.315024376 -0.779729226 -0.97081423  0.8309935
## 382 -0.66645236  0.268868737  0.870621065  0.837407985 -0.29666484 -0.3624546
## 383  0.78410140  1.050439526 -0.932906052 -0.645628060  1.01940025  0.8309935
## 384  0.41369666 -0.890185812  0.870621065  0.028839379 -1.40132441 -0.3624546
## 385 -0.18638440  1.404138522  0.870621065  1.084580660  1.01940025 -0.3624546
## 386  0.04719226  0.103239559  0.620519517  0.276012054  0.37748455 -0.3624546
```

```
## 387 -0.32321248  0.642722946  0.870621065  0.276012054  0.13076569 -0.3624546
## 388  0.97510000  0.641781643  0.500223272  0.028839379  0.34525086  0.8309935
## 389  0.05106362  1.404138522 -0.788073267  0.837407985  1.01940025  0.8309935
## 390  0.59697416 -0.274244200  0.870621065  1.084580660 -2.07316405 -0.3624546
## 391 -0.87684411 -0.118692629 -0.769405621 -0.532556552 -0.32889853 -0.3624546
## 392  0.96347855  1.404138522  0.870621065 -1.341125158  1.01940025  0.8309935
## 393  1.15060579  1.216068704  0.453988266  0.837407985  0.16145954  0.8309935
## 394 -1.06012161 -0.880108205 -0.648046527 -1.341125158 -0.32889853 -0.9591787
## 395  0.41369666 -0.670539050 -1.510201208  0.028839379 -1.15229580 -0.3624546
## 396 -0.13221388 -0.118692629  0.685422169  1.084580660 -0.51115002  0.2342694
## 397 -0.69356661 -0.493890962  0.050607722 -0.779729226 -0.54261379 -0.3624546
## 398  0.23434112  0.642722946  0.453988266  0.276012054  0.55973604 -0.3624546
## 399 -0.32321248  0.235006366 -0.616126626 -0.532556552  0.34525086  0.2342694
## 400  0.41369666 -0.880108205  0.050607722  0.276012054  1.01940025  0.2342694
## 401  1.15060579  0.907250989  0.870621065  1.084580660  1.01940025  0.8309935
## 402 -0.32321248 -0.880108205  0.870621065 -0.532556552  0.59119981 -0.3624546
## 403 -0.68199577 -0.901607542 -2.515154577 -1.341125158 -0.97081423 -0.9591787
## 404  1.15060579 -0.062845564  0.870621065  0.343062637  1.01940025  0.8309935
## 405 -1.60603215 -0.878764082  0.235806619  0.276012054 -0.29666484 -0.9591787
##          REP*POL
## 1    -1.105791441
## 2    -0.156185722
## 3    -0.288614189
## 4    -0.369746837
## 5    -0.269671799
## 6    -0.531413764
## 7    -0.052504349
## 8    -0.125027647
## 9    -0.489090647
## 10   -0.046876285
## 11    0.874579660
## 12   -0.107990635
## 13    0.728907869
## 14   -0.952811686
## 15    0.119374064
## 16    0.874579660
## 17   -0.391479404
## 18   -0.242664367
## 19    0.036059306
## 20   -0.311370463
## 21    0.874579660
## 22   -0.201006988
## 23   -0.508330553
## 24    0.624934743
## 25   -0.358223222
## 26   -0.311370463
## 27    0.874579660
## 28    0.874579660
## 29    0.197665774
## 30   -1.391037128
## 31   -1.250211515
## 32    0.874579660
## 33   -0.052499175
## 34    0.047505027
```

```
## 35   -1.250211515
## 36   -0.173855353
## 37    0.874579660
## 38    1.071986826
## 39   -0.819680181
## 40   -0.952811686
## 41    0.375289826
## 42    0.166315935
## 43    0.015499556
## 44    0.874579660
## 45   -0.046876285
## 46   -0.937264498
## 47   -0.619372782
## 48    0.926866229
## 49   -7.022449097
## 50    0.595373008
## 51    0.035115343
## 52   -1.042077016
## 53   -0.506944089
## 54    0.874579660
## 55   -0.541947790
## 56    0.228065606
## 57   -1.208298478
## 58    0.047505027
## 59    2.931363782
## 60   -0.392671506
## 61    0.195089952
## 62    0.874579660
## 63   -1.711085696
## 64    0.874579660
## 65   -4.083266415
## 66   -0.798565546
## 67   -0.024884245
## 68   -0.046876285
## 69   -1.332177574
## 70   -0.222104617
## 71   -0.201006988
## 72    0.001112547
## 73   -0.213929295
## 74    0.166315935
## 75   -0.036271059
## 76    0.036059306
## 77    0.062342809
## 78   -0.531413764
## 79    0.306589937
## 80    0.917740685
## 81   -0.106741113
## 82   -0.521388040
## 83   -0.490073266
## 84   -0.696617152
## 85    0.874579660
## 86    0.146209039
## 87   -0.935652834
## 88   -0.182020867
```

```
## 89    0.874579660
## 90   -0.337581336
## 91   -0.184324055
## 92    0.874579660
## 93    0.083946244
## 94    0.023058127
## 95    0.874579660
## 96    0.728907869
## 97   -0.381314753
## 98   -0.228916582
## 99   -0.500828290
## 100   1.007711165
## 101  -0.635831532
## 102   0.036959704
## 103   0.874579660
## 104   0.874579660
## 105   0.874579660
## 106   0.312636956
## 107   0.627662133
## 108  -0.433326669
## 109  -0.310880502
## 110  -0.316033888
## 111   0.153510717
## 112   0.874579660
## 113  -0.419945255
## 114  -0.024884245
## 115  -0.558258545
## 116  -0.952811686
## 117  -1.211338175
## 118  -1.157165769
## 119   0.265449211
## 120   0.020644144
## 121   0.331423964
## 122   0.624934743
## 123   0.199440964
## 124   0.288220028
## 125  -0.374672564
## 126  -0.260068505
## 127  -1.193290917
## 128   0.016949893
## 129   0.627662133
## 130  -1.462707180
## 131   0.036959704
## 132  -0.228891308
## 133   0.241022943
## 134   0.047505027
## 135   0.228065606
## 136   0.874579660
## 137  -1.597452626
## 138  -1.021251207
## 139   0.917740685
## 140  -0.053016903
## 141   0.874579660
## 142  -0.343681237
```

```
## 143 -0.451982882
## 144  0.064852033
## 145 -0.952811686
## 146 -0.079594482
## 147  0.922633361
## 148 -2.560750239
## 149 -0.839675170
## 150  0.148744882
## 151 -0.102248375
## 152 -0.952811686
## 153 -0.609946521
## 154  0.166315935
## 155 -0.490073266
## 156  0.884741120
## 157 -0.039347130
## 158  2.516531568
## 159  0.071136949
## 160  0.437564287
## 161  0.265449211
## 162  2.607191943
## 163 -0.007013526
## 164  0.874579660
## 165 -0.081066069
## 166  1.964578788
## 167  0.774694654
## 168  2.047896198
## 169  0.133444191
## 170 -0.623289842
## 171 -0.201006988
## 172  0.760871051
## 173  0.686368948
## 174  0.994926444
## 175  0.113051041
## 176 -0.841769092
## 177  1.552687452
## 178  4.673987146
## 179 -0.501868652
## 180  0.055713277
## 181  1.791898677
## 182  1.355917297
## 183 -0.531046524
## 184 -0.145122876
## 185  0.921910984
## 186  0.874579660
## 187 -0.676002504
## 188  0.874579660
## 189 -0.371537013
## 190  0.337583580
## 191  0.151624255
## 192  0.874579660
## 193 -2.380808518
## 194 -0.375839168
## 195 -0.046876285
## 196  0.166315935
```

```
## 197 -1.309950131
## 198 -0.715121640
## 199  0.874579660
## 200 -1.158838071
## 201  0.874579660
## 202 -0.952811686
## 203  0.175800032
## 204 -0.327475124
## 205  0.874579660
## 206 -0.501473921
## 207 -1.142078309
## 208  0.119374064
## 209  0.874579660
## 210  1.681508921
## 211 -0.324065450
## 212 -0.952811686
## 213 -0.356624880
## 214  0.874579660
## 215 -0.952811686
## 216 -0.210549733
## 217 -0.581951821
## 218 -0.541947790
## 219 -0.483424932
## 220 -0.453389309
## 221  0.874579660
## 222 -0.217254821
## 223  0.804294685
## 224 -0.010534571
## 225 -0.394853207
## 226 -1.585856772
## 227  0.337583580
## 228 -2.123293300
## 229  0.874579660
## 230  0.874579660
## 231 -0.210549733
## 232  0.252505569
## 233 -0.478645690
## 234  0.106019922
## 235 -1.250211515
## 236  1.796652931
## 237 -1.530421033
## 238 -0.467514677
## 239  0.150434647
## 240 -0.541947790
## 241  0.047505027
## 242 -0.331222848
## 243 -0.937219906
## 244 -1.082936289
## 245 -0.582618816
## 246  0.072451651
## 247  0.321955847
## 248  0.506214461
## 249  0.493090891
## 250  0.874579660
```

```
## 251  0.036959704
## 252 -3.389333481
## 253  0.806854897
## 254  0.663984023
## 255 -0.564944387
## 256  0.874579660
## 257 -0.382749369
## 258 -0.527425662
## 259 -1.005960009
## 260  0.306589937
## 261 -0.952811686
## 262 -0.671288429
## 263 -0.550442794
## 264 -1.186909415
## 265 -0.377283061
## 266 -0.848532329
## 267 -0.952811686
## 268 -0.447299348
## 269  0.874579660
## 270  0.004892677
## 271  0.874579660
## 272  0.119374064
## 273  0.874579660
## 274 -0.201006988
## 275 -0.036271059
## 276  0.874579660
## 277 -0.499073182
## 278 -4.083266415
## 279 -0.201006988
## 280 -3.338616336
## 281  0.166315935
## 282  0.874579660
## 283  0.874579660
## 284 -0.921074910
## 285  0.183337440
## 286  0.874579660
## 287 -0.587715769
## 288  0.874579660
## 289 -0.952811686
## 290  0.951204529
## 291  0.602715508
## 292  0.380162393
## 293 -0.952811686
## 294  0.951204529
## 295  0.582429366
## 296  0.874579660
## 297 -0.366210376
## 298 -0.217254821
## 299  0.145251498
## 300  0.036059306
## 301 -0.466370928
## 302  0.874579660
## 303  1.907754960
## 304  0.874579660
```

```
## 305 -0.952811686
## 306 -0.279324677
## 307  0.874579660
## 308  0.874579660
## 309 -0.284833874
## 310 -0.171564479
## 311  0.874579660
## 312  0.728907869
## 313 -0.619372782
## 314 -0.489756385
## 315  0.728907869
## 316  0.051830456
## 317 -0.979923443
## 318 -0.201006988
## 319  0.036959704
## 320 -0.201006988
## 321  0.294223228
## 322 -0.605249890
## 323  0.874579660
## 324  0.874579660
## 325 -0.733533299
## 326  0.624934743
## 327 -0.380667347
## 328  1.251179590
## 329  0.874579660
## 330  0.874579660
## 331 -0.952811686
## 332  0.874579660
## 333 -1.002164317
## 334 -0.197312207
## 335  0.510243447
## 336 -0.952811686
## 337  0.807432201
## 338  0.451144586
## 339 -0.876171907
## 340  0.158390815
## 341  0.728907869
## 342  0.874579660
## 343 -1.499506574
## 344  0.627662133
## 345 -0.339489447
## 346 -1.159850328
## 347 -1.936506789
## 348  0.287060656
## 349  2.076906376
## 350  1.913660802
## 351  0.278118763
## 352 -0.329294229
## 353  0.047505027
## 354  1.242096340
## 355  0.665142220
## 356  0.874579660
## 357  0.874579660
## 358  0.874579660
```

```
## 359 -1.250211515
## 360  0.208908395
## 361  3.092020784
## 362 -0.102351374
## 363 -0.188669229
## 364 -0.433326669
## 365  0.398580716
## 366  0.624934743
## 367  6.057539964
## 368  0.874579660
## 369  0.874579660
## 370 -0.329294229
## 371 -0.392671506
## 372 -1.116973859
## 373  0.874579660
## 374 -0.564445585
## 375  0.874579660
## 376  0.166315935
## 377 -0.182256291
## 378 -1.250211515
## 379 -0.161554644
## 380  0.951204529
## 381  0.781908273
## 382 -0.478645690
## 383 -2.215713441
## 384 -1.270306744
## 385  0.874579660
## 386  0.402460703
## 387  0.020644144
## 388 -0.164090841
## 389 -0.655949765
## 390 -2.290489848
## 391 -0.500828290
## 392  0.874579660
## 393 -0.189033698
## 394 -0.163995109
## 395  2.461884898
## 396 -0.303683794
## 397 -0.628981818
## 398  0.091646707
## 399 -0.414199208
## 400  0.119374064
## 401  0.874579660
## 402  0.479262952
## 403 -1.459593543
## 404  0.874579660
## 405 -0.711418684
```

(iii). Regression coefficients of paths between factors

```
# Show the regression coefficients of paths between factors
sec_intxn_report$paths
```

```
##             SEC TRUST
```

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

(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          0.240        0.058   4.274   0.124
## INV  ->  SEC         0.181          0.187        0.055   3.279   0.091
## POL  ->  SEC         0.339          0.343        0.055   6.182   0.238
## FAML  ->  SEC        0.011          0.012        0.057   0.183  -0.108
## REP*POL  ->  SEC    -0.105         -0.022        0.123  -0.848  -0.195
## SEC  ->  TRUST       0.606          0.607        0.035  17.376   0.536
##               97.5% CI
## REP  ->  SEC      0.345
## INV  ->  SEC      0.301
## POL  ->  SEC      0.446
## FAML  ->  SEC     0.123
## REP*POL  ->  SEC  0.190
## SEC  ->  TRUST    0.669
##
## Bootstrapped Weights:
##                      Original Est. Bootstrap Mean Bootstrap SD T Stat.
## TRST1  ->  TRUST            0.282          0.282        0.015  19.172
## TRST2  ->  TRUST            0.280          0.280        0.016  17.862
## TRST3  ->  TRUST            0.286          0.285        0.017  16.888
## TRST4  ->  TRUST            0.278          0.278        0.021  13.129
## PSEC1  ->  SEC              0.277          0.279        0.016  17.837
## PSEC2  ->  SEC              0.315          0.314        0.016  19.298
## PSEC3  ->  SEC              0.307          0.308        0.016  19.445
## PSEC4  ->  SEC              0.292          0.290        0.017  16.733
## PREP1  ->  REP              0.215          0.213        0.027   8.079
## PREP2  ->  REP              0.334          0.334        0.018  18.818
## PREP3  ->  REP              0.349          0.349        0.022  15.844
## PREP4  ->  REP              0.287          0.288        0.026  10.985
```

```
## PINV1   ->  INV                    0.363           0.362    0.026  14.064
## PINV2   ->  INV                    0.395           0.395    0.027  14.820
## PINV3   ->  INV                    0.358           0.358    0.029  12.340
## PPSS1   ->  POL                    0.360           0.360    0.023  15.681
## PPSS2   ->  POL                    0.395           0.395    0.023  16.918
## PPSS3   ->  POL                    0.367           0.367    0.019  19.419
## FAML1   ->  FAML                   1.000           1.000    0.000      .
## PREP1*PPSS1  ->  REP*POL           0.239           0.100    0.149   1.602
## PREP1*PPSS2  ->  REP*POL           0.031           0.064    0.091   0.343
## PREP1*PPSS3  ->  REP*POL           0.021           0.064    0.110   0.193
## PREP2*PPSS1  ->  REP*POL           0.046           0.079    0.105   0.438
## PREP2*PPSS2  ->  REP*POL          -0.104           0.049    0.154  -0.676
## PREP2*PPSS3  ->  REP*POL          -0.228           0.037    0.236  -0.966
## PREP3*PPSS1  ->  REP*POL          -0.341           0.005    0.308  -1.108
## PREP3*PPSS2  ->  REP*POL           0.095           0.077    0.144   0.658
## PREP3*PPSS3  ->  REP*POL           0.108           0.087    0.136   0.798
## PREP4*PPSS1  ->  REP*POL           0.443           0.133    0.278   1.592
## PREP4*PPSS2  ->  REP*POL           0.382           0.111    0.273   1.398
## PREP4*PPSS3  ->  REP*POL           0.271           0.101    0.184   1.476
##                              2.5% CI 97.5% CI
## TRST1   ->  TRUST             0.254    0.312
## TRST2   ->  TRUST             0.248    0.310
## TRST3   ->  TRUST             0.253    0.319
## TRST4   ->  TRUST             0.237    0.317
## PSEC1   ->  SEC               0.250    0.310
## PSEC2   ->  SEC               0.285    0.348
## PSEC3   ->  SEC               0.277    0.340
## PSEC4   ->  SEC               0.258    0.325
## PREP1   ->  REP               0.159    0.261
## PREP2   ->  REP               0.302    0.371
## PREP3   ->  REP               0.306    0.392
## PREP4   ->  REP               0.241    0.344
## PINV1   ->  INV               0.309    0.408
## PINV2   ->  INV               0.342    0.449
## PINV3   ->  INV               0.307    0.422
## PPSS1   ->  POL               0.314    0.402
## PPSS2   ->  POL               0.355    0.443
## PPSS3   ->  POL               0.330    0.404
## FAML1   ->  FAML              1.000    1.000
## PREP1*PPSS1  ->  REP*POL    -0.231    0.364
## PREP1*PPSS2  ->  REP*POL    -0.146    0.232
## PREP1*PPSS3  ->  REP*POL    -0.192    0.295
## PREP2*PPSS1  ->  REP*POL    -0.167    0.260
## PREP2*PPSS2  ->  REP*POL    -0.296    0.333
## PREP2*PPSS3  ->  REP*POL    -0.408    0.458
## PREP3*PPSS1  ->  REP*POL    -0.595    0.656
## PREP3*PPSS2  ->  REP*POL    -0.276    0.300
## PREP3*PPSS3  ->  REP*POL    -0.249    0.304
## PREP4*PPSS1  ->  REP*POL    -0.438    0.565
## PREP4*PPSS2  ->  REP*POL    -0.446    0.592
## PREP4*PPSS3  ->  REP*POL    -0.305    0.414
##
## Bootstrapped Loadings:
##                      Original Est. Bootstrap Mean Bootstrap SD T Stat.
```

```
## TRST1   ->  TRUST                   0.900      0.900    0.016  56.813
## TRST2   ->  TRUST                   0.909      0.909    0.021  42.386
## TRST3   ->  TRUST                   0.905      0.905    0.023  40.200
## TRST4   ->  TRUST                   0.838      0.838    0.032  26.531
## PSEC1   ->  SEC                     0.813      0.815    0.025  32.808
## PSEC2   ->  SEC                     0.865      0.865    0.024  36.279
## PSEC3   ->  SEC                     0.868      0.868    0.022  39.601
## PSEC4   ->  SEC                     0.807      0.805    0.025  31.726
## PREP1   ->  REP                     0.800      0.796    0.041  19.697
## PREP2   ->  REP                     0.913      0.912    0.016  55.392
## PREP3   ->  REP                     0.908      0.908    0.020  44.507
## PREP4   ->  REP                     0.718      0.718    0.033  21.665
## PINV1   ->  INV                     0.903      0.904    0.027  33.148
## PINV2   ->  INV                     0.925      0.926    0.022  42.065
## PINV3   ->  INV                     0.855      0.855    0.026  32.685
## PPSS1   ->  POL                     0.868      0.866    0.025  34.704
## PPSS2   ->  POL                     0.893      0.893    0.014  62.390
## PPSS3   ->  POL                     0.911      0.911    0.017  52.746
## FAML1   ->  FAML                    1.000      1.000    0.000       .
## PREP1*PPSS1  ->  REP*POL            0.581      0.579    0.272   2.134
## PREP1*PPSS2  ->  REP*POL            0.510      0.559    0.260   1.963
## PREP1*PPSS3  ->  REP*POL            0.506      0.574    0.279   1.815
## PREP2*PPSS1  ->  REP*POL            0.509      0.609    0.293   1.736
## PREP2*PPSS2  ->  REP*POL            0.421      0.571    0.305   1.380
## PREP2*PPSS3  ->  REP*POL            0.336      0.575    0.354   0.947
## PREP3*PPSS1  ->  REP*POL            0.236      0.483    0.354   0.666
## PREP3*PPSS2  ->  REP*POL            0.555      0.600    0.294   1.887
## PREP3*PPSS3  ->  REP*POL            0.466      0.582    0.314   1.481
## PREP4*PPSS1  ->  REP*POL            0.900      0.594    0.352   2.554
## PREP4*PPSS2  ->  REP*POL            0.836      0.511    0.354   2.363
## PREP4*PPSS3  ->  REP*POL            0.859      0.566    0.332   2.591
##                             2.5% CI 97.5% CI
## TRST1   ->  TRUST            0.866    0.927
## TRST2   ->  TRUST            0.857    0.942
## TRST3   ->  TRUST            0.852    0.941
## TRST4   ->  TRUST            0.769    0.891
## PSEC1   ->  SEC              0.765    0.860
## PSEC2   ->  SEC              0.812    0.907
## PSEC3   ->  SEC              0.821    0.905
## PSEC4   ->  SEC              0.751    0.849
## PREP1   ->  REP              0.706    0.862
## PREP2   ->  REP              0.879    0.940
## PREP3   ->  REP              0.861    0.939
## PREP4   ->  REP              0.647    0.776
## PINV1   ->  INV              0.840    0.947
## PINV2   ->  INV              0.872    0.959
## PINV3   ->  INV              0.798    0.900
## PPSS1   ->  POL              0.810    0.908
## PPSS2   ->  POL              0.865    0.920
## PPSS3   ->  POL              0.874    0.940
## FAML1   ->  FAML             1.000    1.000
## PREP1*PPSS1  ->  REP*POL    -0.095    0.922
## PREP1*PPSS2  ->  REP*POL    -0.092    0.885
## PREP1*PPSS3  ->  REP*POL    -0.148    0.910
```

```
## PREP2*PPSS1  ->  REP*POL  -0.134    0.949
## PREP2*PPSS2  ->  REP*POL  -0.211    0.938
## PREP2*PPSS3  ->  REP*POL  -0.377    0.982
## PREP3*PPSS1  ->  REP*POL  -0.374    0.947
## PREP3*PPSS2  ->  REP*POL  -0.150    0.942
## PREP3*PPSS3  ->  REP*POL  -0.264    0.946
## PREP4*PPSS1  ->  REP*POL  -0.294    0.971
## PREP4*PPSS2  ->  REP*POL  -0.356    0.922
## PREP4*PPSS3  ->  REP*POL  -0.287    0.938
##
## Bootstrapped HTMT:
##                  Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP   ->  INV            0.705          0.706        0.050   0.604    0.796
## REP   ->  POL            0.543          0.544        0.057   0.431    0.648
## REP   ->  FAML           0.599          0.598        0.054   0.486    0.697
## REP   ->  REP*POL        0.000          0.000        0.000   0.000    0.000
## REP   ->  SEC            0.595          0.593        0.045   0.501    0.675
## REP   ->  TRUST          0.682          0.682        0.043   0.593    0.767
## INV   ->  POL            0.498          0.497        0.057   0.384    0.602
## INV   ->  FAML           0.494          0.491        0.055   0.382    0.596
## INV   ->  REP*POL        0.085          0.105        0.033   0.057    0.177
## INV   ->  SEC            0.568          0.569        0.047   0.473    0.661
## INV   ->  TRUST          0.563          0.563        0.050   0.464    0.654
## POL   ->  FAML           0.596          0.594        0.054   0.487    0.694
## POL   ->  REP*POL        0.000          0.000        0.000   0.000    0.000
## POL   ->  SEC            0.622          0.624        0.051   0.520    0.716
## POL   ->  TRUST          0.458          0.459        0.059   0.336    0.575
## FAML   ->  REP*POL       0.046          0.066        0.024   0.031    0.125
## FAML   ->  SEC           0.455          0.455        0.052   0.351    0.551
## FAML   ->  TRUST         0.471          0.471        0.053   0.365    0.577
## REP*POL  ->  SEC         0.059          0.081        0.018   0.049    0.123
## REP*POL  ->  TRUST       0.044          0.073        0.018   0.045    0.116
## SEC   ->  TRUST          0.685          0.683        0.037   0.607    0.751
##
## Bootstrapped Total Paths:
##                  Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP   ->  SEC            0.247          0.240        0.058   0.124    0.345
## REP   ->  TRUST          0.150          0.146        0.037   0.072    0.217
## INV   ->  SEC            0.181          0.187        0.055   0.091    0.301
## INV   ->  TRUST          0.109          0.114        0.035   0.054    0.187
## POL   ->  SEC            0.339          0.343        0.055   0.238    0.446
## POL   ->  TRUST          0.205          0.208        0.035   0.143    0.273
## FAML   ->  SEC           0.011          0.012        0.057  -0.108    0.123
## FAML   ->  TRUST         0.006          0.007        0.035  -0.065    0.074
## REP*POL  ->  SEC        -0.105         -0.022        0.123  -0.195    0.190
## REP*POL  ->  TRUST      -0.063         -0.013        0.075  -0.118    0.117
## SEC   ->  TRUST          0.606          0.607        0.035   0.536    0.669
```

Question 2) Common-Factor Models using CB-SEM

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

        (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.

```r
# Create measurement model
sec_cf_mm <- constructs(
  reflective("TRUST", multi_items("TRST", 1:4)),
  reflective("SEC", multi_items("PSEC", 1:4)),
  reflective("REP", multi_items("PREP", 1:4)),
  reflective("INV", multi_items("PINV", 1:3)),
  reflective("POL", multi_items("PPSS", 1:3)),
  reflective("FAML", single_item("FAML1")),
  interaction_term(iv = "REP", moderator = "POL", method = orthogonal)
)
```

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

```r
# Use the same structural model as before
# Run the estimation algorithm
sec_cf_pls <- estimate_cbsem(
  data = sec,
  measurement_model = sec_cf_mm,
  structural_model = sec_intxn_sm
)
```

Generating the seminr model for CBSEM

b. Show us the following results in table or figure formats
   (i). Plot a figure of the estimated model (it will look different from your PLS model!)

```r
# Show the plot of estimated model
plot(sec_cf_pls)
```

Plotting of lavaan models using semPlot.

NULL

(ii). Loadings of composites

```r
# Store the summary
sec_cf_report <- summary(sec_cf_pls)

# Show the loadings of composites
sec_cf_report$loadings
```

```
## $coefficients
##            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
## 
## $significance
##                            Std Estimate         SE      t-Value    2.5% CI
## TRUST -> TRST1                0.8800240 0.02272091 0.000000e+00 0.8354919
## TRUST -> TRST2                0.8886342 0.03330783 0.000000e+00 0.8233521
## TRUST -> TRST3                0.8690644 0.03749444 0.000000e+00 0.7955767
## TRUST -> TRST4                0.7575988 0.04846748 0.000000e+00 0.6626042
## SEC -> PSEC1                  0.7308766 0.03679205 0.000000e+00 0.6587655
## SEC -> PSEC2                  0.8173481 0.04480183 0.000000e+00 0.7295381
## SEC -> PSEC3                  0.8151708 0.03728082 0.000000e+00 0.7421017
## SEC -> PSEC4                  0.7260444 0.03811841 0.000000e+00 0.6513337
## REP -> PREP1                  0.7551328 0.04464916 0.000000e+00 0.6676220
## REP -> PREP2                  0.9199208 0.02635333 0.000000e+00 0.8682692
## REP -> PREP3                  0.8871362 0.04015103 0.000000e+00 0.8084416
## REP -> PREP4                  0.5650059 0.04585583 0.000000e+00 0.4751302
## INV -> PINV1                  0.8520004 0.04489927 0.000000e+00 0.7639994
## INV -> PINV2                  0.9257476 0.04556425 0.000000e+00 0.8364433
## INV -> PINV3                  0.7388750 0.04511602 0.000000e+00 0.6504492
## POL -> PPSS1                  0.8051533 0.04355300 0.000000e+00 0.7197910
## POL -> PPSS2                  0.8272576 0.02807169 0.000000e+00 0.7722381
## POL -> PPSS3                  0.8674335 0.03273664 0.000000e+00 0.8032708
## FAML -> FAML1                 1.0000000 0.00000000           NA 1.0000000
## REP_x_POL -> PREP1_x_PPSS1    0.7781584 0.05799871 0.000000e+00 0.6644831
## REP_x_POL -> PREP1_x_PPSS2    0.7597768 0.05931838 0.000000e+00 0.6435149
## REP_x_POL -> PREP1_x_PPSS3    0.7879106 0.05013554 0.000000e+00 0.6896467
## REP_x_POL -> PREP2_x_PPSS1    0.8447368 0.03649041 0.000000e+00 0.7732169
## REP_x_POL -> PREP2_x_PPSS2    0.8034561 0.03639411 0.000000e+00 0.7321250
## REP_x_POL -> PREP2_x_PPSS3    0.8342444 0.03536430 0.000000e+00 0.7649317
## REP_x_POL -> PREP3_x_PPSS1    0.6736451 0.12948898 1.967997e-07 0.4198514
## REP_x_POL -> PREP3_x_PPSS2    0.8011944 0.03780427 0.000000e+00 0.7270994
## REP_x_POL -> PREP3_x_PPSS3    0.7902063 0.06416741 0.000000e+00 0.6644405
## REP_x_POL -> PREP4_x_PPSS1    0.6854770 0.06906812 0.000000e+00 0.5501059
## REP_x_POL -> PREP4_x_PPSS2    0.5531922 0.06212434 0.000000e+00 0.4314307
## REP_x_POL -> PREP4_x_PPSS3    0.6405843 0.05794029 0.000000e+00 0.5270234
##                              97.5% CI
## TRUST -> TRST1              0.9245562
## TRUST -> TRST2              0.9539164
## TRUST -> TRST3              0.9425522
## TRUST -> TRST4              0.8525933
## SEC -> PSEC1                0.8029877
## SEC -> PSEC2                0.9051581
## SEC -> PSEC3                0.8882399
```

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```
## SEC -> PSEC4              0.8007551
## REP -> PREP1              0.8426435
## REP -> PREP2              0.9715724
## REP -> PREP3              0.9658307
## REP -> PREP4              0.6548817
## INV -> PINV1              0.9400013
## INV -> PINV2              1.0150518
## INV -> PINV3              0.8273007
## POL -> PPSS1              0.8905156
## POL -> PPSS2              0.8822771
## POL -> PPSS3              0.9315961
## FAML -> FAML1             1.0000000
## REP_x_POL -> PREP1_x_PPSS1 0.8918338
## REP_x_POL -> PREP1_x_PPSS2 0.8760387
## REP_x_POL -> PREP1_x_PPSS3 0.8861744
## REP_x_POL -> PREP2_x_PPSS1 0.9162567
## REP_x_POL -> PREP2_x_PPSS2 0.8747873
## REP_x_POL -> PREP2_x_PPSS3 0.9035572
## REP_x_POL -> PREP3_x_PPSS1 0.9274389
## REP_x_POL -> PREP3_x_PPSS2 0.8752894
## REP_x_POL -> PREP3_x_PPSS3 0.9159721
## REP_x_POL -> PREP4_x_PPSS1 0.8208480
## REP_x_POL -> PREP4_x_PPSS2 0.6749536
## REP_x_POL -> PREP4_x_PPSS3 0.7541452
```

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

```
# Show the regression coefficients of paths between factors and their p-values
sec_cf_report$paths
```

```
## $coefficients
##                   SEC      TRUST
## R^2         0.540381651 0.4951084
## REP         0.299536782        NA
## INV         0.214253245        NA
## POL         0.376401499        NA
## FAML       -0.008837653        NA
## REP_x_POL   0.008355287        NA
## SEC                  NA 0.7036394
##
## $pvalues
##                   SEC TRUST
## REP        3.817182e-05    NA
## INV        3.534482e-03    NA
## POL        4.380974e-09    NA
## FAML       8.996836e-01    NA
## REP_x_POL  8.516847e-01    NA
## SEC                  NA     0
##
## $significance
##                 Std Estimate          SE      t-Value    2.5% CI    97.5% CI
## SEC -> REP        0.299536782 0.07273355 3.817182e-05 0.15698165 0.44209191
## SEC -> INV        0.214253245 0.07345058 3.534482e-03 0.07029275 0.35821374
```

```
## SEC -> POL        0.376401499 0.06413246 4.380974e-09  0.25070419 0.50209881
## SEC -> FAML       -0.008837653 0.07010617 8.996836e-01 -0.14624321 0.12856791
## SEC -> REP_x_POL  0.008355287 0.04468802 8.516847e-01 -0.07923162 0.09594219
## TRUST -> SEC      0.703639369 0.03721630 0.000000e+00  0.63069677 0.77658197
```