Communicate with Dr.Revelle on SEM example

Background

The following example is from: http://personality-project.org/r/r.sem.html provided by Dr William Revelle at North Western University - Department of Psychology. The sample code was used to demostrate R package SEM, which is very good package for the Structural Equation Model.

But, when I tried the first example, I encountered an error "Incorrect number of dimension" Through a google search, I found the same error reported by others: https://stackoverflow.com/questions/46873264/r-sem-error-incorrect-number-of-dimensions Here it is the example

Analysis set up and load necessary functions

```
library(sem)
```

Loehlin problem 2.5

```
#Labels
obs.var2.5 = c('Ach1',  'Ach2',  'Amb1',  'Amb2',  'Amb3')

#Correlation matrix
R.prob2.5 = matrix(c(
  1.00 ,  .60  , .30,  .20,   .20,
  .60,  1.00,   .20,   .30,   .10,
  .30,   .20,  1.00,   .70,   .60 ,
  .20,   .30,   .70,  1.00,   .50,
  .20,   .10,   .60,  .50,  1.00), ncol=5,byrow=TRUE)

#correlated factors structure (ambition <-> Achievement)
model2.5=matrix(c(
  'Ambit ->  Amb1',      'a', NA,
  'Ambit -> Amb2' ,      'b', NA,
  'Ambit -> Amb3' ,      'c', NA,
  'Achieve -> Ach1',     'd', NA,
  'Achieve -> Ach2',     'e', NA,
  'Ambit <-> Achieve',   'f', NA,
  'Amb1 <-> Amb1' ,      'u', NA,
  'Amb2 <-> Amb2' ,      'v', NA,
  'Amb3 <-> Amb3' ,      'w', NA,
  'Ach1 <-> Ach1' ,      'x', NA,
  'Ach2 <-> Ach2' ,      'y', NA,
  'Achieve <-> Achieve',  NA, 1,
  'Ambit <-> Ambit',      NA, 1),
  ncol=3, byrow=TRUE)


colnames(R.prob2.5 ) <- c('Ach1',  'Ach2',  'Amb1',  'Amb2',  'Amb3')
```

```r
rownames(R.prob2.5 ) <- c('Ach1',  'Ach2',  'Amb1',  'Amb2',  'Amb3')
sem2.5= sem(model2.5, R.prob2.5, 60)
summary(sem2.5,digits=3)
```

```
##
##  Model Chisquare =  5.804529   Df =  4 Pr(>Chisq) = 0.2142295
##  AIC =  27.80453
##  BIC =  -10.57285
##
##  Normalized Residuals
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -0.4428828 -0.0290307 -0.0000008  0.0037246  0.0000276  0.8689042
##
##  R-square for Endogenous Variables
##   Amb1   Amb2   Amb3   Ach1   Ach2
## 0.8471 0.5796 0.4250 0.7723 0.4661
##
##  Parameter Estimates
##   Estimate  Std Error z value  Pr(>|z|)
## a 0.9203938 0.1178838 7.807637 5.827018e-15 Amb1 <--- Ambit
## b 0.7613057 0.1221478 6.232659 4.585847e-10 Amb2 <--- Ambit
## c 0.6518903 0.1248064 5.223213 1.758450e-07 Amb3 <--- Ambit
## d 0.8788050 0.2210741 3.975160 7.033202e-05 Ach1 <--- Achieve
## e 0.6827454 0.1903106 3.587533 3.338219e-04 Ach2 <--- Achieve
## f 0.3558435 0.1461063 2.435510 1.487079e-02 Achieve <--> Ambit
## u 0.1528750 0.1215514 1.257698 2.085009e-01 Amb1 <--> Amb1
## v 0.4204135 0.1125811 3.734315 1.882267e-04 Amb2 <--> Amb2
## w 0.5750385 0.1224656 4.695509 2.659437e-06 Amb3 <--> Amb3
## x 0.2277020 0.3472713 0.655689 5.120243e-01 Ach1 <--> Ach1
## y 0.5338590 0.2301198 2.319918 2.034533e-02 Ach2 <--> Ach2
##
##  Iterations =  27
```

It generates error, and the process halts. Therefore, I have to comment line 68!

Error in data[, obs.variables] : incorrect number of dimensions

Dr. Revelle's suggestion

Try naming the variables:

colnames(R.prob2.5) <- c('Ach1', 'Ach2', 'Amb1', 'Amb2', 'Amb3')

sem2.5= sem(model2.5,R.prob2.5,60)

That should work.

```r
colnames(R.prob2.5 ) <- c('Ach1',  'Ach2',  'Amb1',  'Amb2',  'Amb3')

#sem2.5= sem(model2.5,R.prob2.5,60)
```

Opps! Not working, error occurs! I have to comment line 92 Error in sem.default(ram, S = S, N = N, raw = raw, data = data, pattern.number = pattern.number, : S must be a square triangular or symmetric matrix