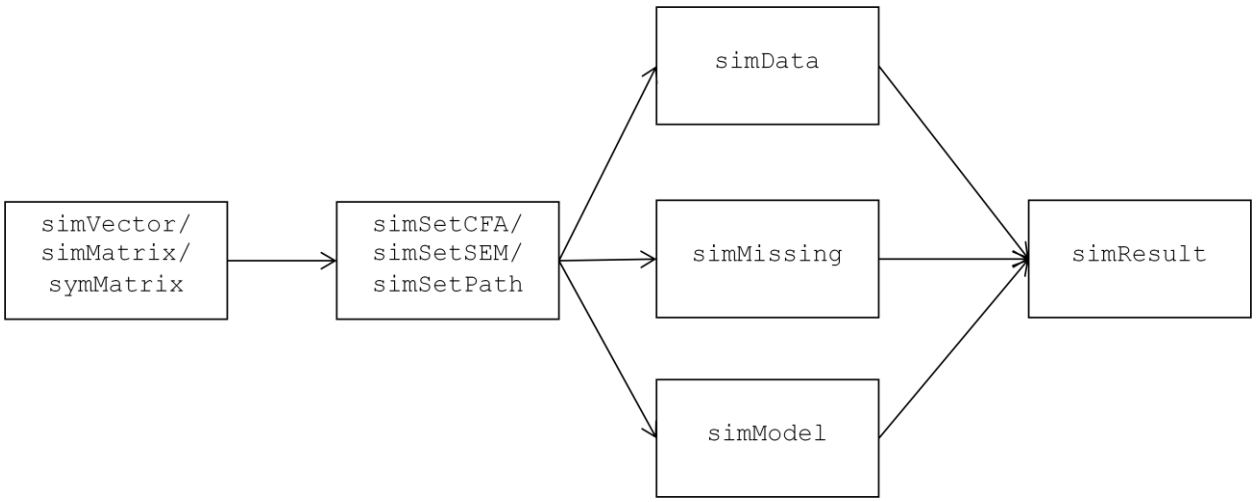
simsem v. 0.3 code updates

Alexander M. Schoemann, Sunthud Pornprasertmanit, Patrick J. Miller

simsem version 0.3 adds many new features over the previous version 0.2-8. These improvements include faster simulation times, support for multiple groups models, the ability to apply a function to either data or output and new function names for many of the most commonly used functions. The purpose of this document is to aid previous users of simsem (< 0.2-8) with converting old code to the new function names. Fortunately the new function names easily map on to old function names and with only minor changes, code can be easily updated. Additionally, we have attempted to reduce the number of functions needed to run a simulation. Below we detail how the workflow has changed between the old and new function names and note other changes needed to update code. The workflow we describe is to run a Monte Carlo simulation with missing data. We then provide an example of a simple script with the old and new function names (without missing data).

version 0.2-8 workflow:



version 0.3 workflow:

In previous versions of simsem, users specified each relevant LISREL matrix for the generating and analysis models using `simVector/simMatrix/symMatrix`, then combined these matrices into a full model using `simSetCFA/simSetSEM/simSetPath`, the `simset*` was then used to define the generating model (`simData`), and the analysis model (`simModel`). Missing data was specified using the `simMissing` command. Finally, data was generated, missingness imposed and data was analyzed using the `simResult` command.

In the new version of simsem, users specify each relevant LISREL matrix for the generating and analysis models using the `bind` command (`binds` for symmetric matrices), then combine these matrices into a full model using the `model` command. Missing data is specified with the `miss` command and finally data is generated, missingness imposed and data is analyzed using the `sim` command.

We have included a table demonstrating how each old function is related to the new function names and a simple example of code using both old and new function names below.

Function name v 0.2-8	Function name v 0.3-5
`simVector/simMatrix/symMatrix`	`bind/binds`
`simSetCFA/simSetSEM/simSetPath`	`model`
`simData`	None (to generate raw data use `generate`)
`simModel`	None (to analyze raw data use `analyze`)
`simMissing`	`miss`
`simResult`	`sim`

```
#Old Code
loading <- matrix(0, 6, 2)
loading[1:3, 1] <- NA
loading[4:6, 2] <- NA
LX <- simMatrix(loading, 0.7)

latent.cor <- matrix(NA, 2, 2)
diag(latent.cor) <- 1
RPH <- symMatrix(latent.cor, 0.5)

error.cor <- matrix(0, 6, 6)
diag(error.cor) <- 1
RTD <- symMatrix(error.cor)

CFA.Model <- simSetCFA(LY = LX, RPH = RPH,
RTD = RTD)

SimData <- simData(CFA.Model, 200)

SimModel <- simModel(CFA.Model)

Output <- simResult(20, SimData, SimModel)
```

```
#New Code
loading <- matrix(0, 6, 2)
loading[1:3, 1] <- NA
loading[4:6, 2] <- NA
LY <- bind(loading, 0.7)

latent.cor <- matrix(NA, 2, 2)
diag(latent.cor) <- 1
RPS <- binds(latent.cor, 0.5)

RTE <- binds(diag(6))

VTE <- bind(rep(NA, 6), 0.51)

CFA.Model <- model(LY = LY, RPS = RPS,
RTE = RTE, VTE=VTE, modelType = "CFA")

Output <- sim(20, CFA.Model,n=200)
```