

## ***Supplemental Materials***

The supplemental materials for this paper include 1) plots of parameter estimates as a function of the number of latent steps, and 2) a working and annotated example of the InSDE code for a 2-group model similar to Model A in the article.

### ***Parameter Estimates***

The file “ParameterConvergence.pdf” plots the parameter estimates for the article data as the number of latent steps is increased. Checking that parameters are converging on an asymptote is essential with InSDE for ensuring that a sufficient number of latent steps have been introduced into the model. In all of these plots the 150-step solutions are similar to the 100-step solutions. For all parameters, the estimated values either 1) appear to be converging towards an asymptote, or 2) are essentially constant.

### ***Working Example***

The folder “201912 InSDE” contains materials for a working example of InSDE. The model in these files assumes 2 variables measure in each of two groups (Control and Intervention). Four repeated measures with equal intervals between observations are assumed. This example allows for the paths examined in Model A of the article.

“201912 Primary Script (RUN THIS).R” is the primary code the user will use. This will both load a set of simulated data, and call the other R scripts. The first section “Load Data” is where the user can specify raw data for each of the groups, the interval between observations, and a series of models with different numbers of latent steps. Changes to the latent steps are only required if there is difficulty with convergence, or a need to use a larger number of latent steps (e.g., 150) [see *Parameter Estimates* note above].

The data in “SimulatedData.save” consist of simulated data, and are not the study data. These data have some similarities in structure to study data, but differ in sampling statistics, number of observations across time, and number of cases.

The file “201912 Level to Velocity Coupling.R” specifies the OpenMx matrices, in RAM notation, required to fit Model A. This script has been written to automatically add the desired number of latent steps to the matrices. This script also duplicates the matrices for both groups, and sets up algebras to estimate the parameters for the control group, and the difference of the intervention group from the control group. This would be the script to edit if one wanted to add or change relations between variables, the number of observations, add a measurement model, or other changes to the model. Different sections delineate the addition of groups of paths to the A and S matrices (Amatrix and Smatrix respectively).