Sample Model

\[ X_1 \]
\[ X_2 \]
\[ X_3 \]
\[ X_4 \]
\[ u \]
\[ v \]
\[ w \]

Structural Equations for the Above Model

\[ X_2 = \beta_{21} X_1 + u \]
\[ X_3 = \beta_{31} X_1 + \beta_{32} X_2 + v \]
\[ X_4 = \beta_{41} X_1 + \beta_{42} X_2 + \beta_{43} X_3 + w \]

Correlations implied by the model (if all variables are in standardized form)

\[ \rho_{21} = \beta_{21} \]
\[ \rho_{31} = \beta_{31} + \beta_{21} \beta_{32} \]
\[ \rho_{32} = \beta_{32} + \beta_{31} \beta_{21} \]
\[ \rho_{41} = \beta_{41} + \beta_{21} \beta_{42} + \beta_{31} \beta_{43} + \beta_{21} \beta_{32} \beta_{43} \]
\[ \rho_{42} = \beta_{42} + \beta_{32} \beta_{43} + \beta_{41} \beta_{21} + \beta_{43} \beta_{31} \beta_{21} \]
\[ \rho_{43} = \beta_{43} + \beta_{41} \beta_{31} + \beta_{42} \beta_{32} + \beta_{41} \beta_{21} \beta_{32} + \beta_{42} \beta_{21} \beta_{31} \]