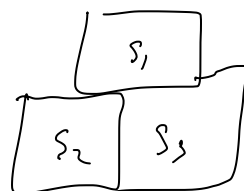
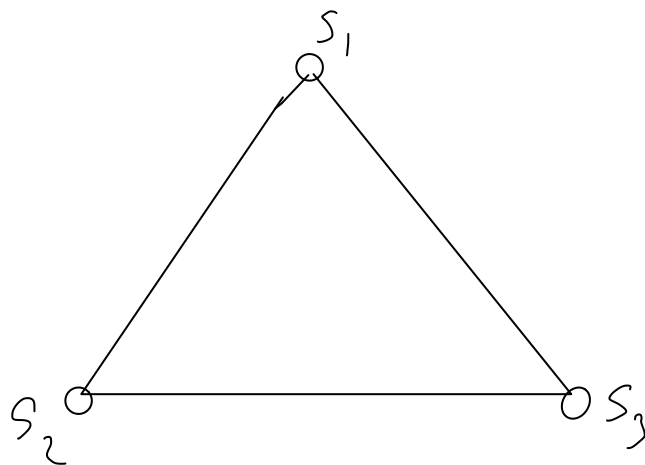


Lec 18



$$A = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

$$W = \begin{bmatrix} 0 & 1/2 & 1/2 \\ 1/2 & 0 & 1/2 \\ 1/2 & 1/2 & 0 \end{bmatrix}$$

$$\underline{y} = \phi \underline{W} \underline{y} + \underline{\varepsilon}$$

$$\underline{y} - \phi \underline{W} \underline{y} = \underline{\varepsilon}$$

$$(\underline{I} - \phi \underline{W}) \underline{y} = \underline{\varepsilon}$$

$$\underline{y} = (\underline{I} - \phi \underline{W})^{-1} \underline{\varepsilon}$$

$$E(\underline{y}) = \underline{0}$$

$$\text{Var}(\underline{y}) = (\underline{I} - \phi \underline{W})^{-1} \left((\underline{I} - \phi \underline{W})^{-1} \right)^{\text{T}}$$

$$\underline{y} \sim N \left(\underline{0}, (\underline{I} - \phi \underline{W})^{-1} \left((\underline{I} - \phi \underline{W})^{-1} \right)^{\text{T}} \right)$$

$$\underline{y} = \underline{X} \underline{\beta} + \phi \underline{D}^{-1} \underline{A} (\underline{y} - \underline{X} \underline{\beta}) + \underline{\varepsilon}$$

$$(\underline{y} - \underline{X} \underline{\beta}) = \phi \underline{D}^{-1} \underline{A} (\underline{y} - \underline{X} \underline{\beta}) + \underline{\varepsilon}$$

$$(\underline{I} - \phi \underline{D}^{-1} \underline{A}) (\underline{y} - \underline{X} \underline{\beta}) = \underline{\varepsilon}$$

$$\underline{y} - \underline{X} \underline{\beta} = (\underline{I} - \phi \underline{D}^{-1} \underline{A})^{-1} \underline{\varepsilon}$$

$$\underline{y} = \underline{X} \underline{\beta} + (\underline{I} - \phi \underline{D}^{-1} \underline{A})^{-1} \underline{\varepsilon}$$

$$E(\underline{y}) = \underline{X} \underline{\beta}$$

$$Var(\underline{y}) = (\underline{I} - \phi \underline{D}^{-1} \underline{A})^{-1} \sigma^2 \underline{D}^{-1} \left((\underline{I} - \phi \underline{D}^{-1} \underline{A})^{-1} \right)^t$$