

# Project 8

Santiago Castro Dau, June Monge, Rachita Kumar, Sarah Lötscher

## Problem 20: Classical NEMs

Construct the transitive closure

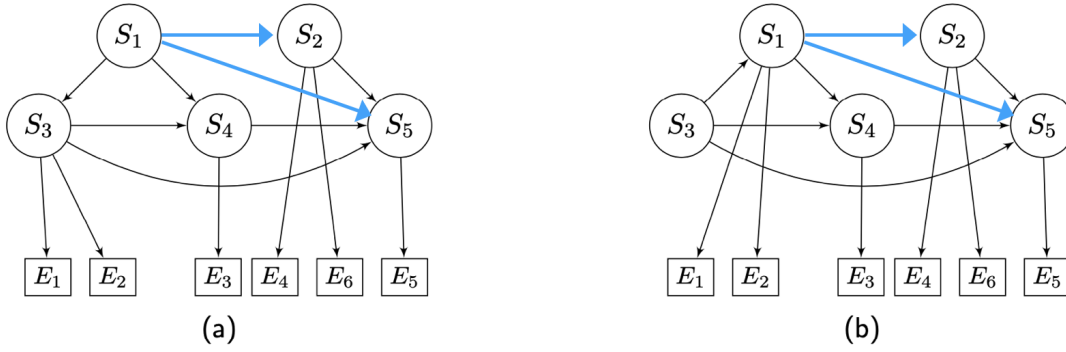


Figure 1: New edges drawn in blue.

In the following adjacency matrices  $\Phi$  a non zero  $ij$ 'th element in the matrix indicates that node  $S_i$  is connected to  $S_j$ .

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

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