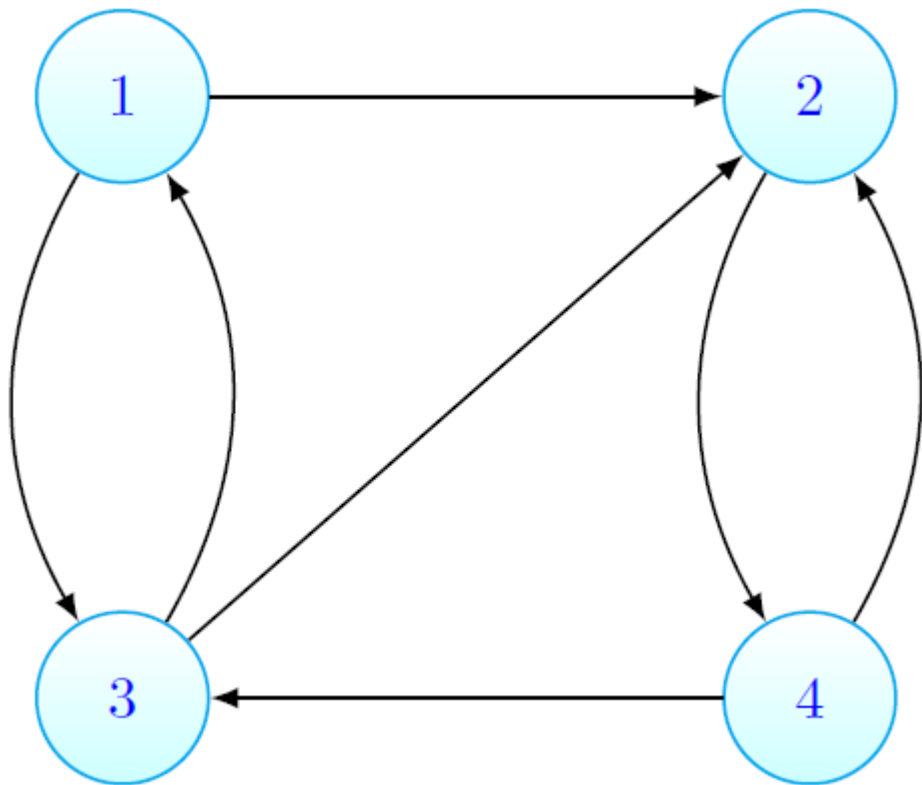


STATE	How long does the process stay in this state?	To which states can we go to next?	At what rate?	Time until we go to this state?
1	$T(1) \sim \exp(\mathbf{5})$	2 3	3 2	$T_{12} \sim \text{exponential}(\mathbf{3})$ $T_{13} \sim \text{exponential}(\mathbf{2})$
2	$T(2) \sim \exp(\mathbf{5})$	4	5	$T_{24} \sim \text{exponential}(\mathbf{5})$
3	$T(3) \sim \exp(\mathbf{2})$	1 2	1 1	$T_{31} \sim \text{exponential}(\mathbf{1})$ $T_{32} \sim \text{exponential}(\mathbf{1})$
4	$T(4) \sim \exp(\mathbf{3})$	3 2	1 2	$T_{43} \sim \text{exponential}(\mathbf{1})$ $T_{42} \sim \text{exponential}(\mathbf{2})$

$$Q = \begin{pmatrix} -5 & ? & ? & ? \\ ? & -5 & ? & ? \\ ? & ? & -2 & ? \\ ? & ? & ? & -3 \end{pmatrix} \longrightarrow Q = \begin{pmatrix} -5 & 3 & 2 & 0 \\ ? & -5 & ? & ? \\ ? & ? & -2 & ? \\ ? & ? & ? & -3 \end{pmatrix} \longrightarrow Q = \begin{pmatrix} -5 & 3 & 2 & 0 \\ 0 & -5 & 0 & 5 \\ 1 & 1 & -2 & 0 \\ 0 & 2 & 1 & -3 \end{pmatrix}$$



STATE	How long does the process stay in this state?	To which states can we go to next?	At what rate?	Time until we go to this state?
1	$T(1) \sim \exp(5)$	2 3	3 2	$T_{12} \sim \text{exponential}(3)$ $T_{13} \sim \text{exponential}(2)$
2	$T(2) \sim \exp(5)$	4	5	$T_{24} \sim \text{exponential}(5)$
3	$T(3) \sim \exp(2)$	1 2	1 1	$T_{31} \sim \text{exponential}(1)$ $T_{32} \sim \text{exponential}(1)$
4	$T(4) \sim \exp(3)$	3 2	1 2	$T_{43} \sim \text{exponential}(1)$ $T_{42} \sim \text{exponential}(2)$

$$Q = \begin{pmatrix} -5 & ? & ? & ? \\ ? & -5 & ? & ? \\ ? & ? & -2 & ? \\ ? & ? & ? & - \end{pmatrix}$$

Check the matrix Q:

Rows sum to 0.

Diagonal is negative (or zero)

Off-diagonal positive (or zero)



$$Q = \begin{pmatrix} -5 & 3 & 2 & 0 \\ 0 & -5 & 0 & 5 \\ 1 & 1 & -2 & 0 \\ 0 & 2 & 1 & -3 \end{pmatrix}$$