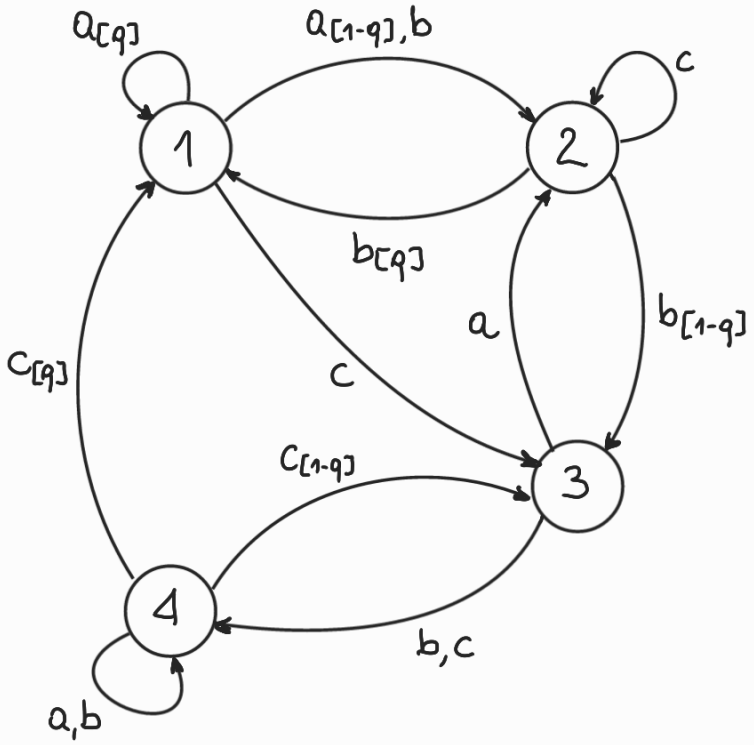
EXERCISE 1



$$\mathcal{E} = \{a, b, c\}$$

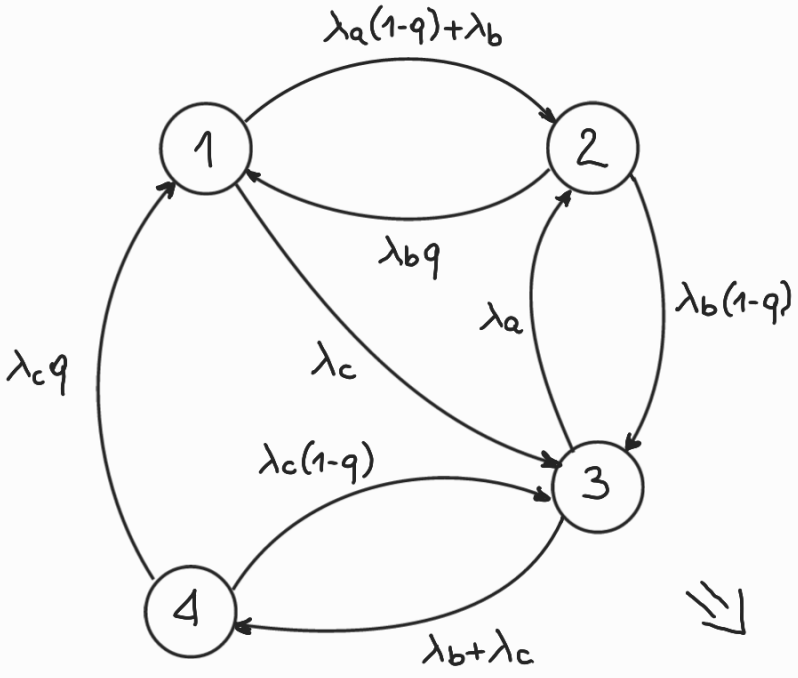
λ_a λ_b λ_c rates

$$p_{x_0}(1) = \frac{1}{2}$$

$$p_{x_0}(2) = 0$$

$$p_{x_0}(3) = p_{x_0}(4) = \frac{1}{4}$$

Equivalent CTHMC:



$$\pi_0 = \left[\frac{1}{2} \quad 0 \quad \frac{1}{4} \quad \frac{1}{4}\right]$$

$p_{x_0}(1)$ $p_{x_0}(2)$ $p_{x_0}(3)$ $p_{x_0}(4)$

$$Q = \begin{bmatrix} -\lambda_a(1-q)-\lambda_b-\lambda_c & \lambda_a(1-q)+\lambda_b & \lambda_c & 0 \\ \lambda_b q & -\lambda_b & \lambda_b(1-q) & 0 \\ 0 & \lambda_a & -\lambda_a-\lambda_b-\lambda_c & \lambda_b+\lambda_c \\ \lambda_c q & 0 & \lambda_c(1-q) & -\lambda_c \end{bmatrix}$$