1.8 Continuous time Markov processes

Gillespie Implement a flexible base for the Gillespie algorithm so that the following models can be simulated by some simple tweaking.

Lotka-Volterra Run some simulations of the Lotka-Volterra model with the Gillespie algorithm and the parameters $k_1 = 3$, $k_2 = 1/100$, $k_3 = 5\ s^{-1}$. Start from different initial conditions, either close or far from $\mathcal{C}^*$. Do the predators become extinct in some cases? What happens to the prey in that case? Which variation in the parameters can induce or reduce the chance of this extinction?

Brusselator Run some simulations of the Brussellator model with the Gillespie algorithm, using $a = 2, b = 5$ and for different volume sizes: $\Omega = 10^2, 10^3, 10^4$. What can one note by varying Ω?