

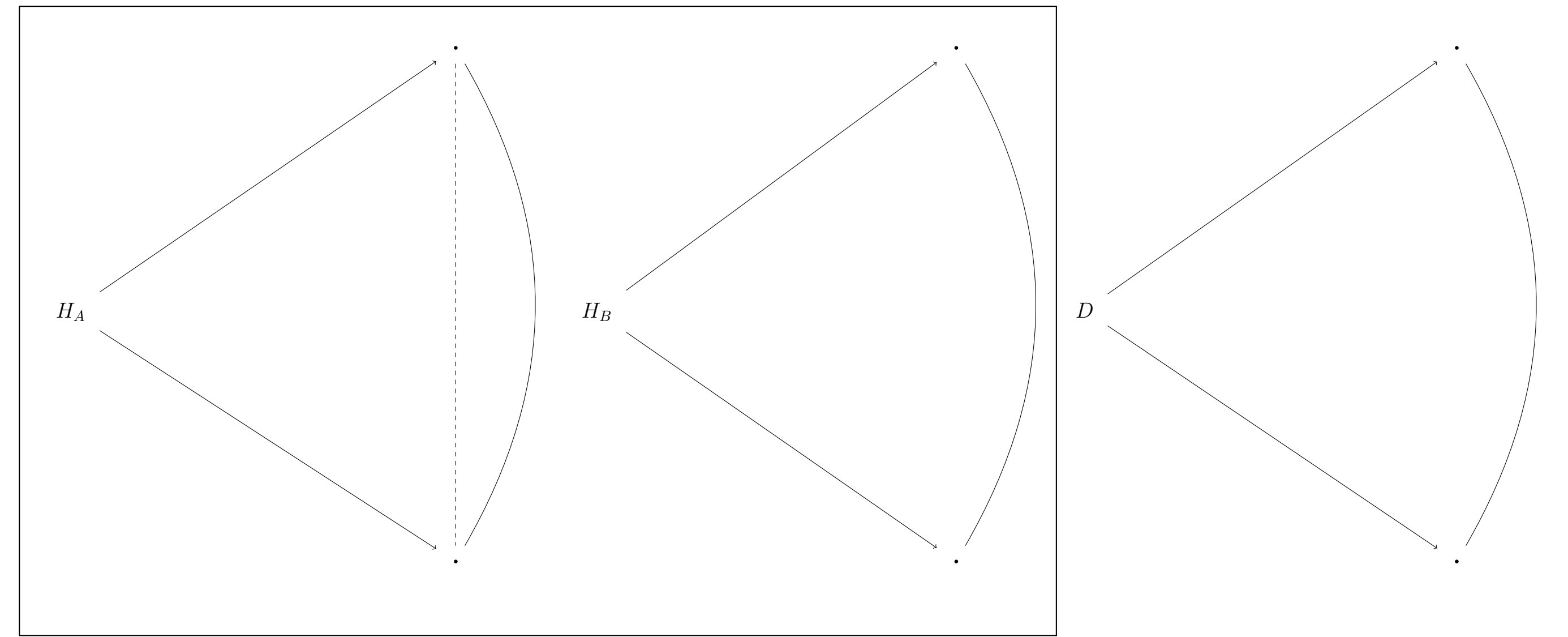
THE AMBULANCE DECISION GAME

Michalis Panayides
Cardiff University

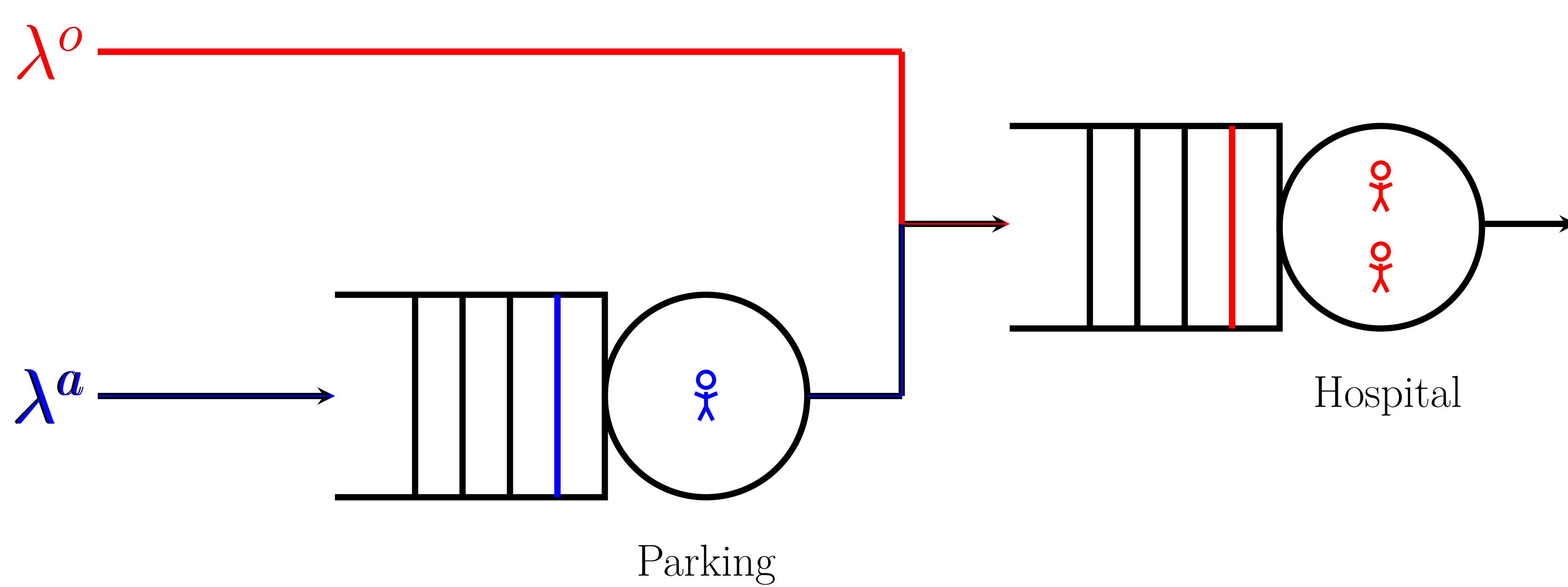
Ambulance Blockage



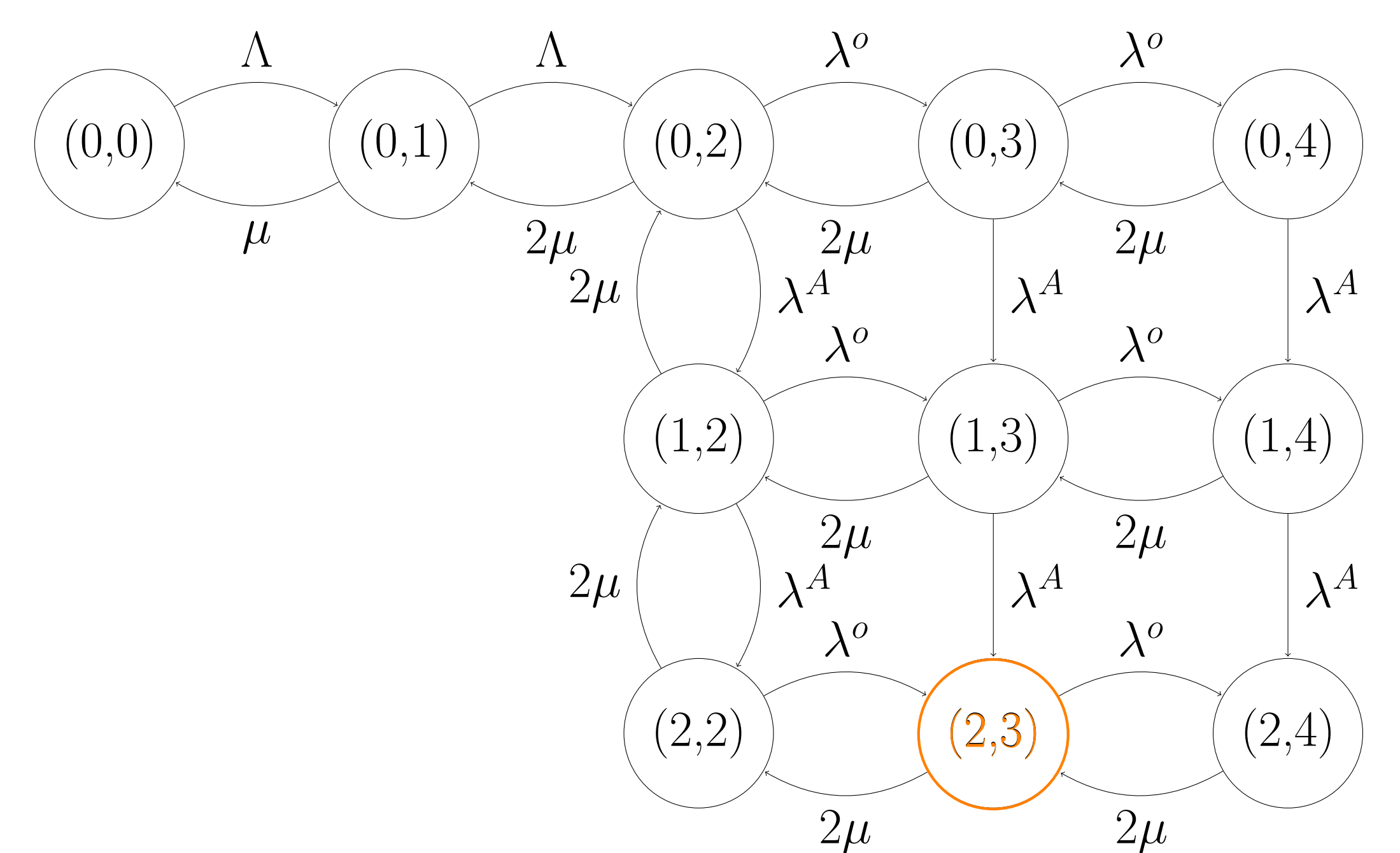
Imperfect information game



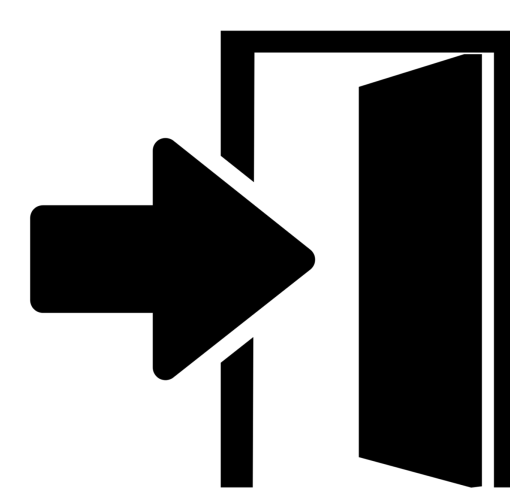
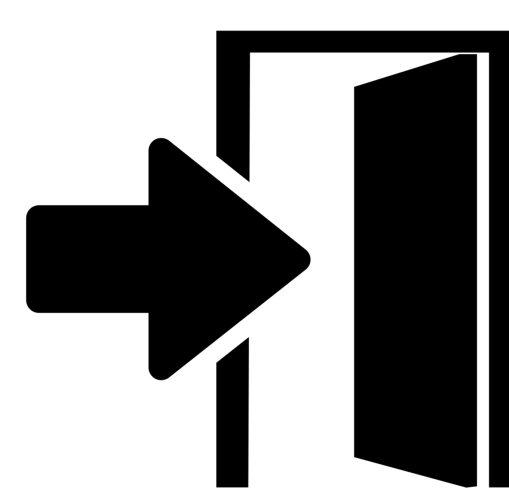
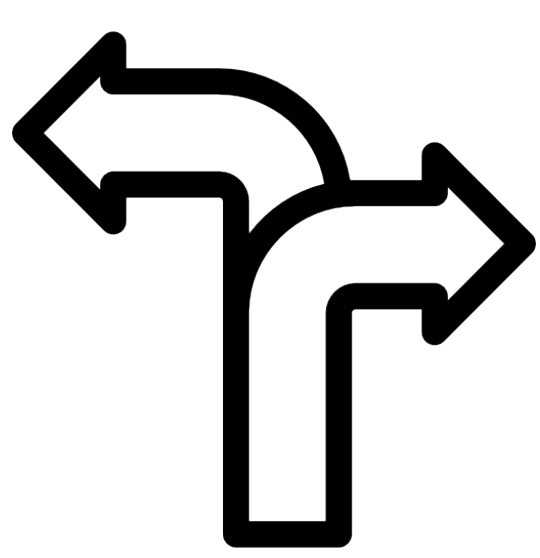
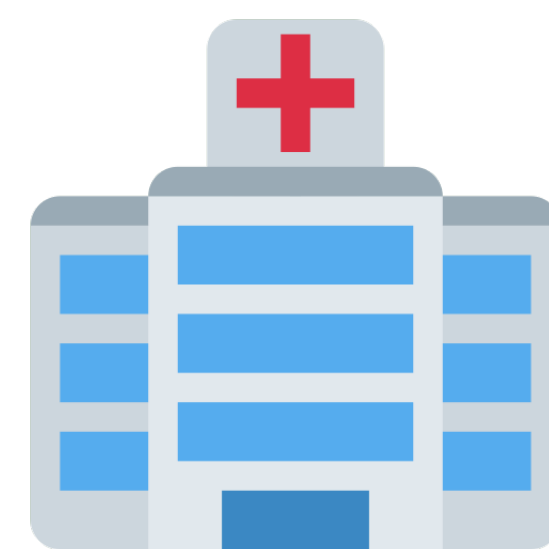
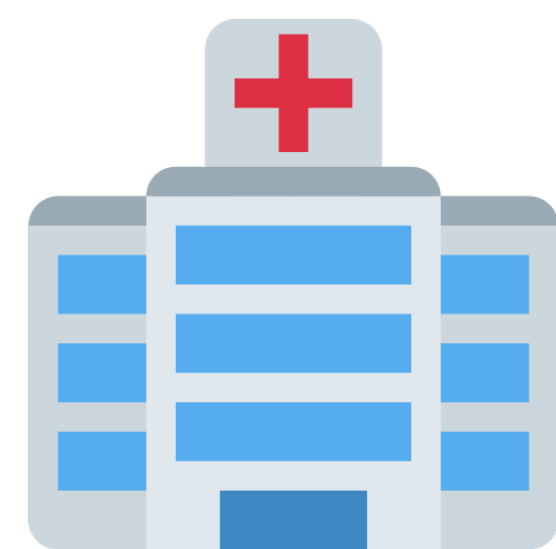
Diagrammatic representation of a queue



Markov Chain model



Players and strategies



$$p_A, p_B \in [0, 1]$$

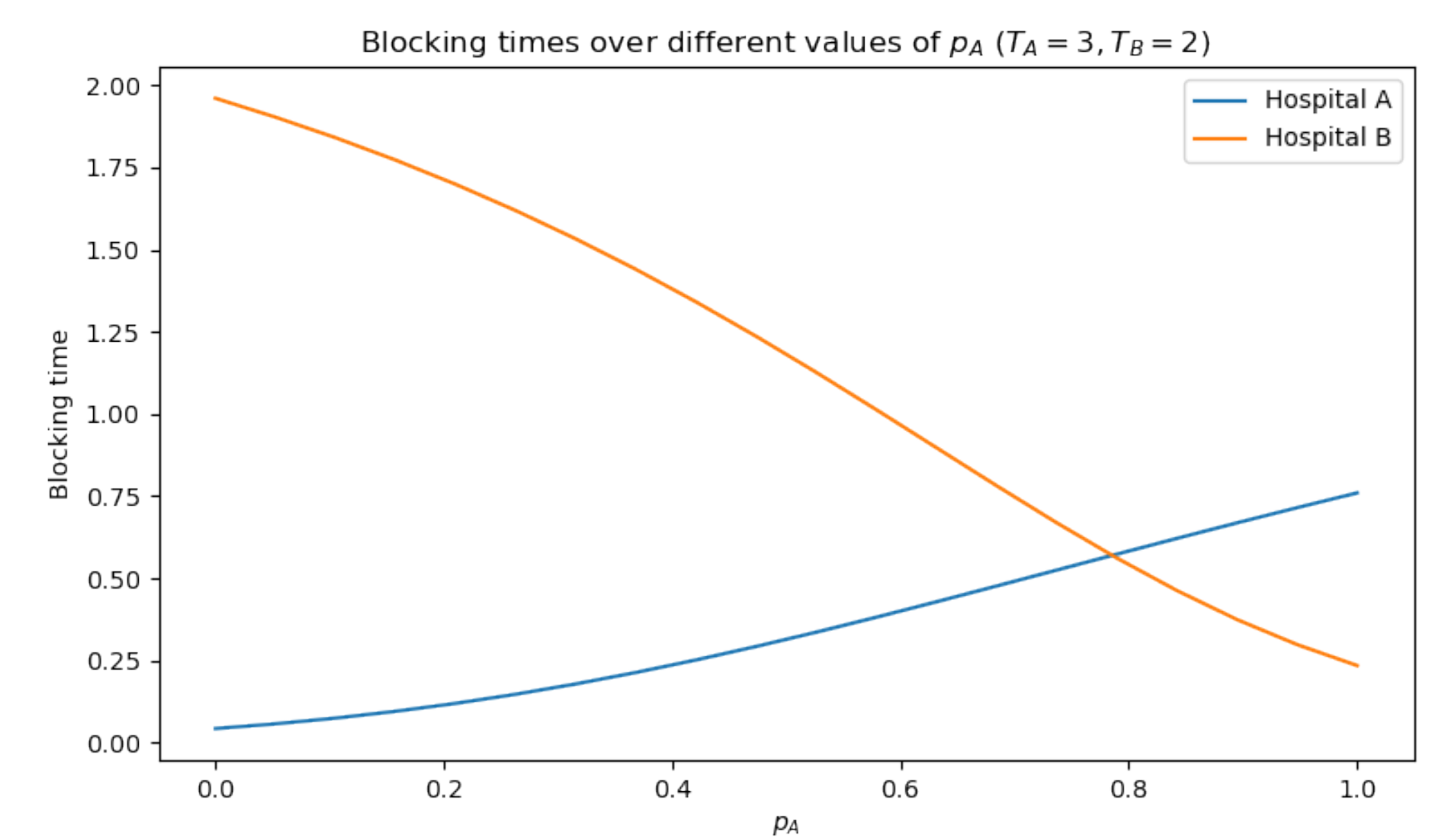
$$p_A + p_B = 1$$

$$T_A \in [1, N_A]$$

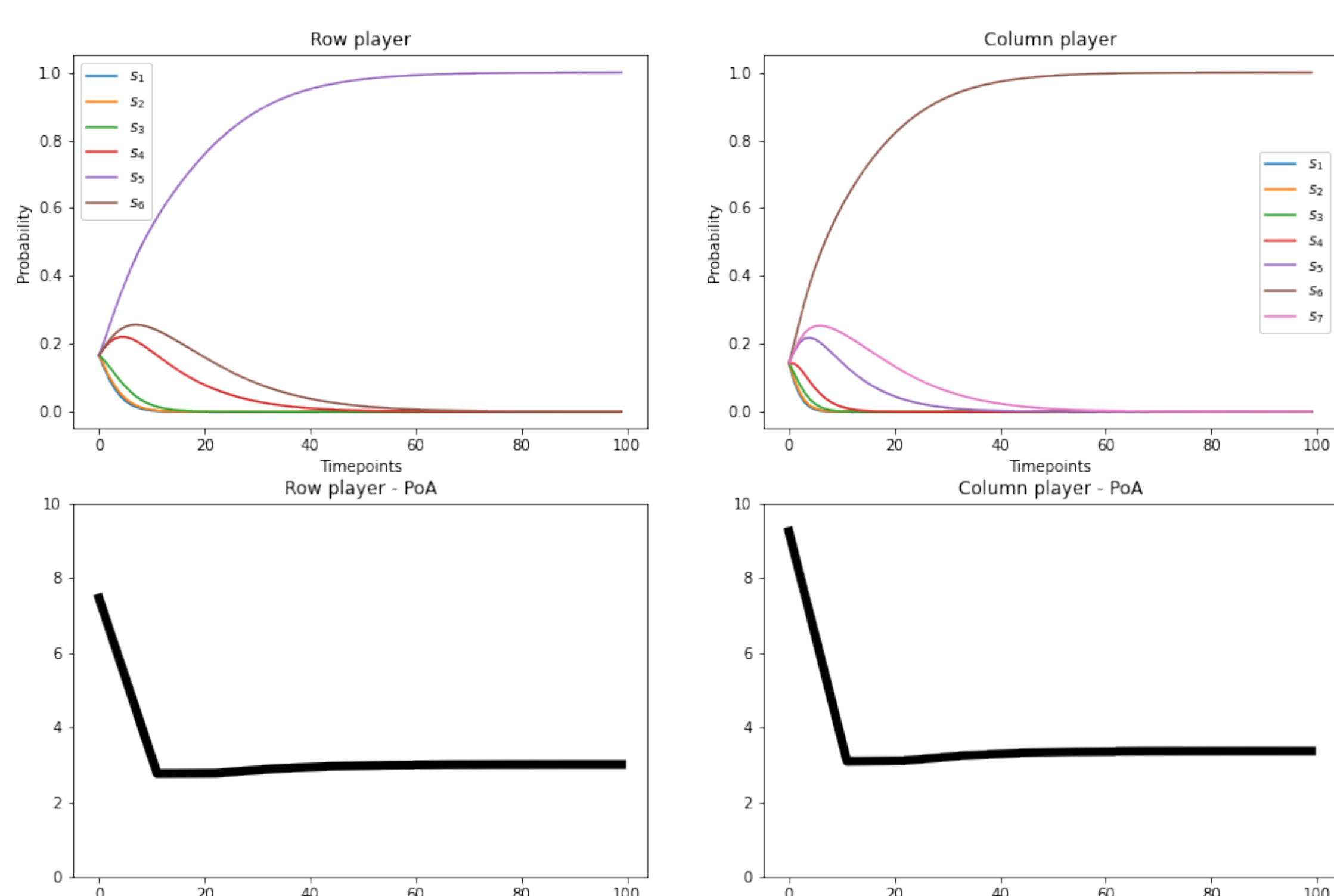
$$T_B \in [1, N_B]$$

Ambulance's decision

$$\begin{matrix} T_A = 3 \\ T_B = 2 \end{matrix} \rightarrow \begin{pmatrix} - & - & - \\ - & - & - \\ - & x & - \\ - & - & - \end{pmatrix} \rightarrow B_A(p_A) = B_B(1 - p_A)$$



Learning algorithm



Learning algorithm with incentives

