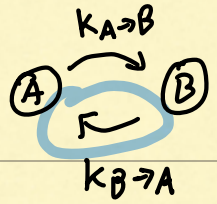
CONTINUOUS TIME MARKOV CHAIN

EX

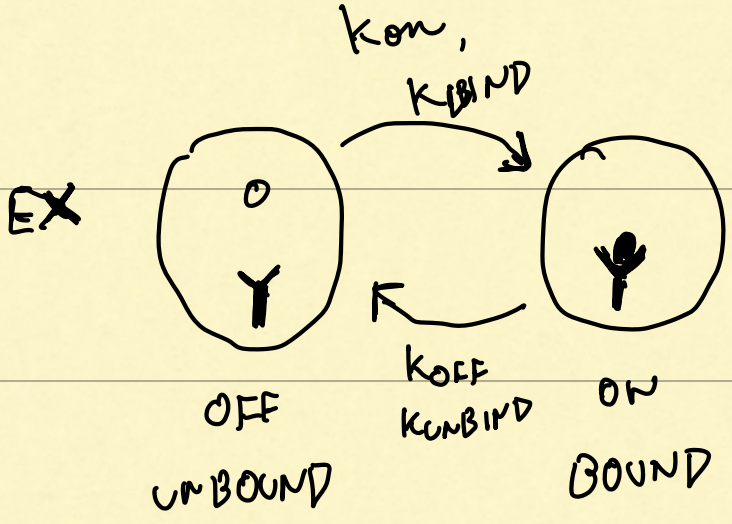


$$\frac{d}{dt}P_A = -k_{A\to B}\cdot P_A + k_{B\to A}\cdot P_B$$

$$\frac{d}{dt}P_B = +k_{A\to B}\cdot P_A - k_{B\to A}\cdot P_B$$

$$\frac{d}{dt}\begin{bmatrix}P_A\\P_B\end{bmatrix} = \begin{bmatrix} & +k_{B\to A}\\ +k_{A\to B} & \end{bmatrix}\cdot\begin{bmatrix}P_A\\P_B\end{bmatrix}$$

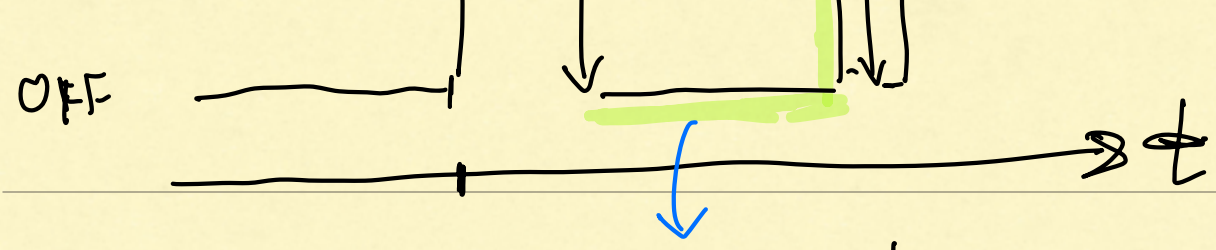
EX



$$\frac{d}{dt}P_{ON} = +k_{on}P_{OFF} - k_{off}P_{ON}$$

$$\langle T_{ON}\rangle = \frac{1}{k_{off}}$$

ON



$$\langle T_{OFF} \rangle = \frac{1}{k_{on}}$$