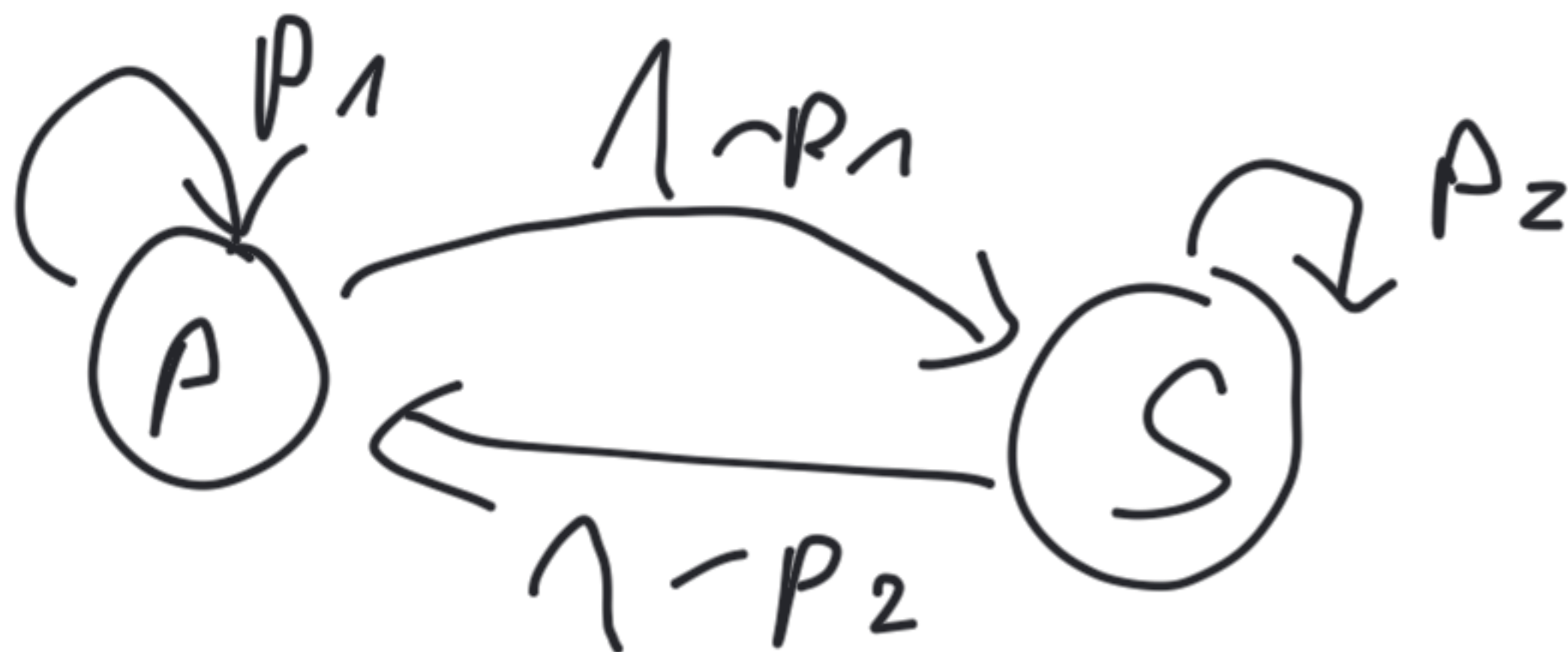
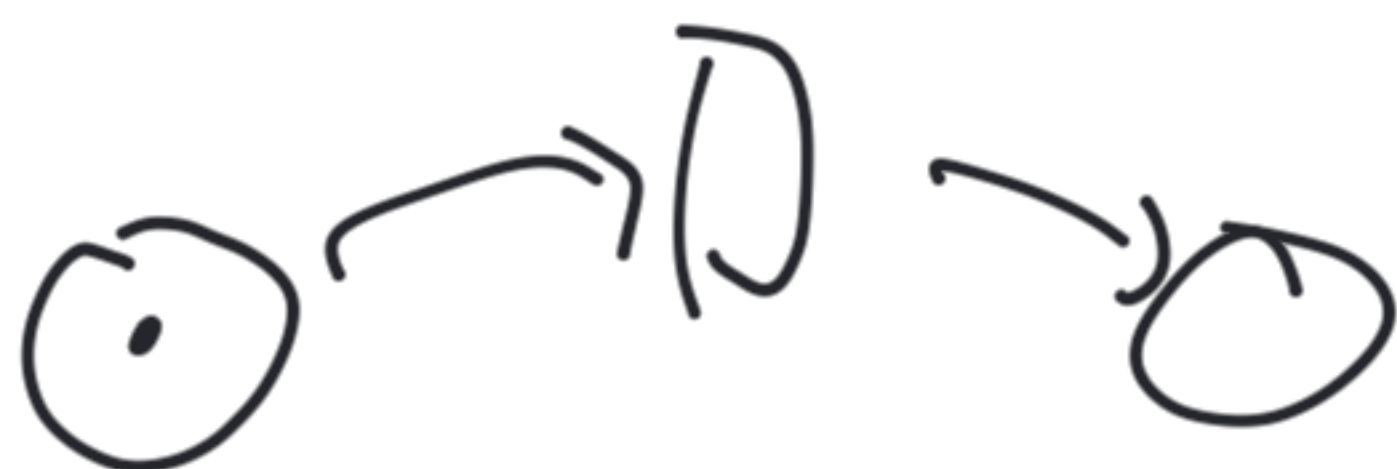


Proxel

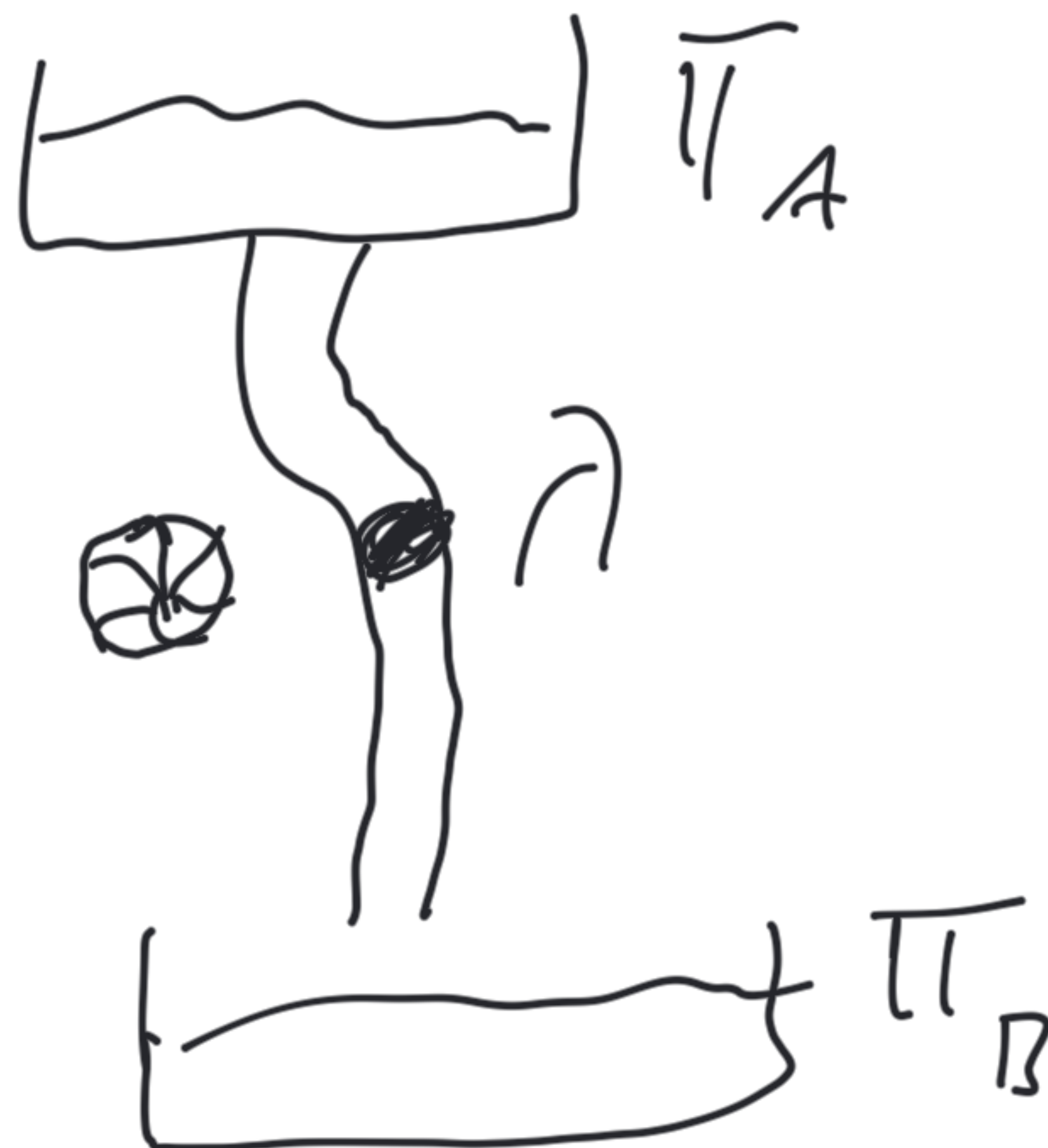
$\sim \text{Exp}(\lambda)$





$$\frac{d\pi(B)}{dt} = \pi(A)$$

$\mu(t)$   
IRF / HRF



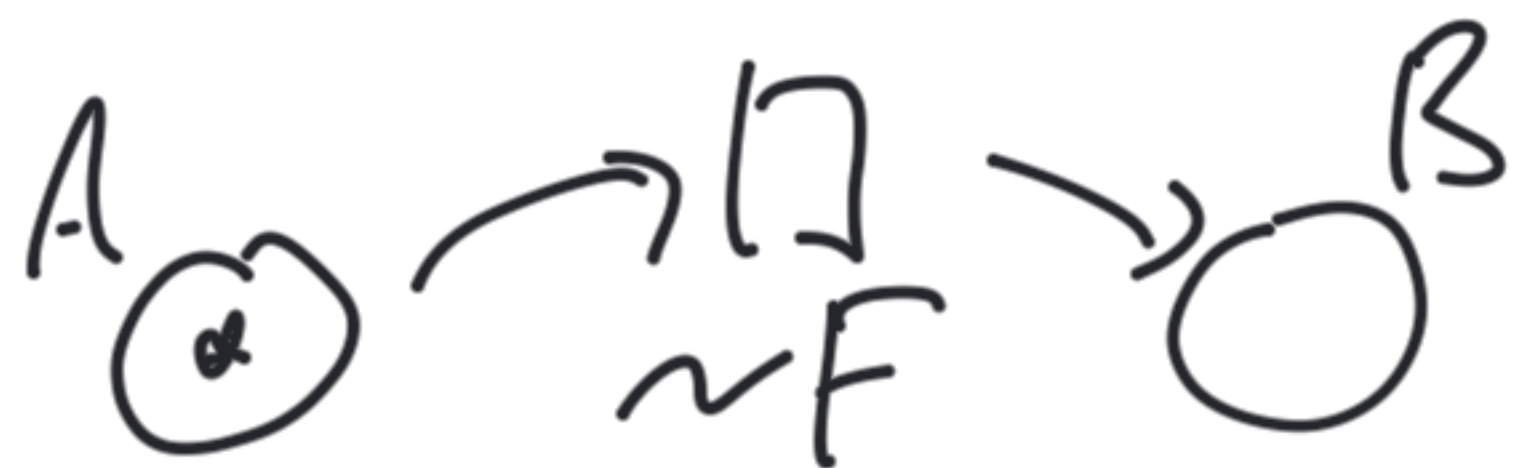
HREF

$$\mu(t) = \frac{f(t)}{1-F(t)}$$

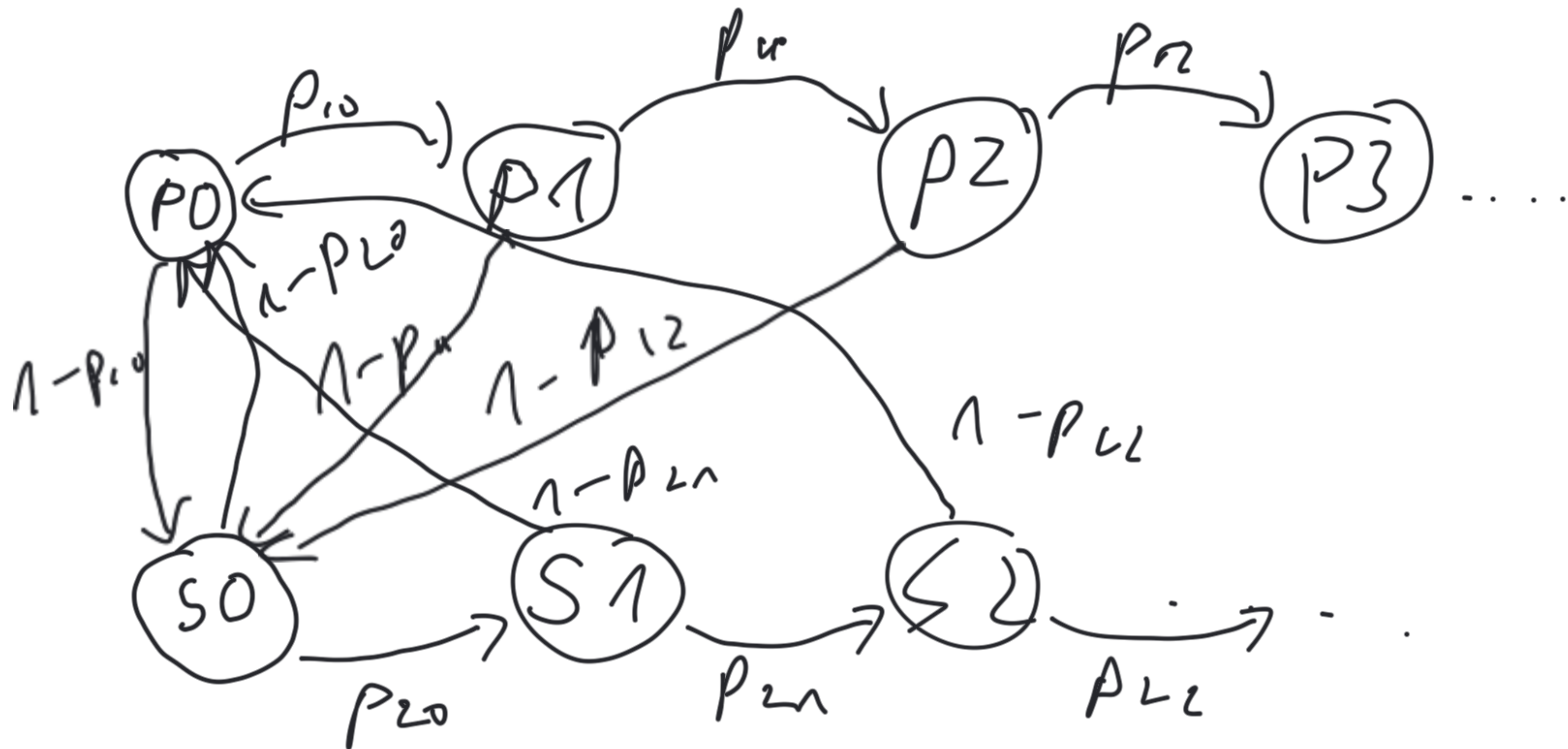


$$\mu(t) = \frac{\lambda e^{-\lambda t}}{1 - (1 - e^{-\lambda t})} = \frac{\lambda e^{-\lambda t}}{e^{-\lambda t}} = \lambda$$



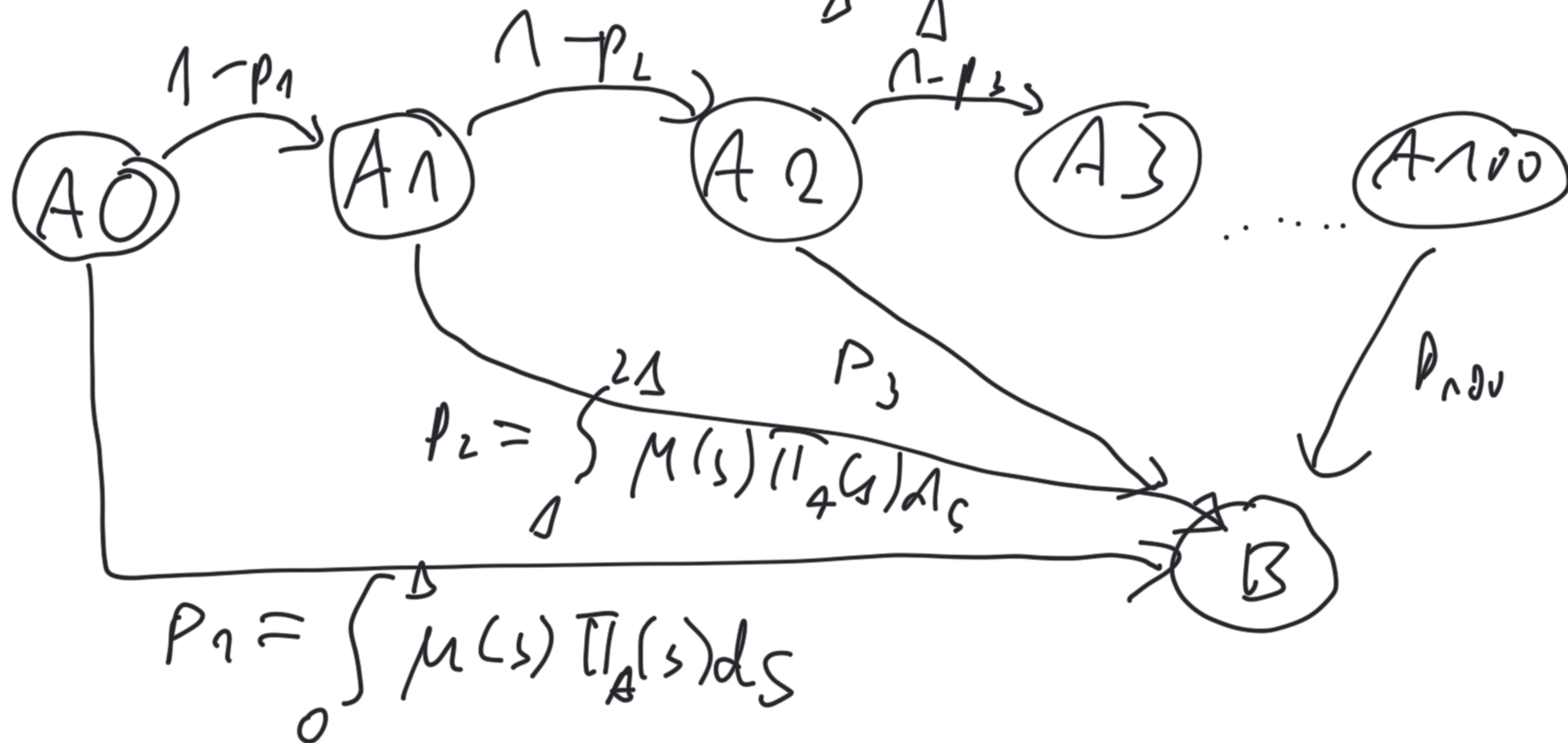
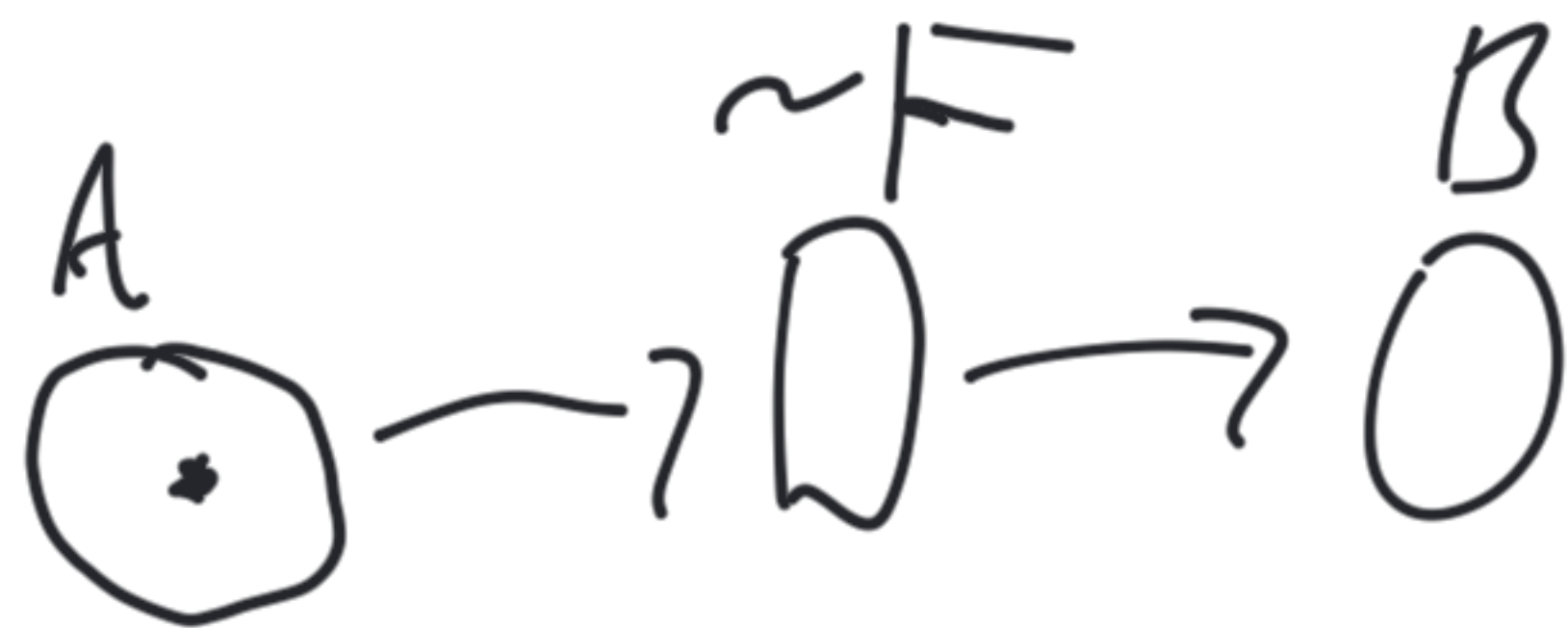


$$\frac{d\pi_B(t)}{dt} = +\mu(t)\pi_A(t)$$



$$P_{1,0} > P_{1,1} > P_{1,2} \dots$$

$$P_{2,0} > P_{2,1} > P_{2,2}$$





$$P_2 = \int_0^{L_A} \mu_F(s) \Pi_A(s) ds$$



$$\begin{aligned} \Pi_A(t+\Delta) &= \Pi_A(t) - P_{AB} \\ &= \Pi_A(t) - \int_t^{t+\Delta} \mu(s) \Pi_A(s) ds \end{aligned}$$

$$\Delta \ll 1$$

$$= \Pi_A(t) - \underbrace{\Delta \cdot \mu(t)}_{P_{AB}} \cdot \Pi_A(t)$$

$$= \Pi_A(t) (1 - \underline{P_{AB}})$$



$$t=0$$

$$(A, 0, 1)$$

$$\mu_F(0) \cdot \Delta$$



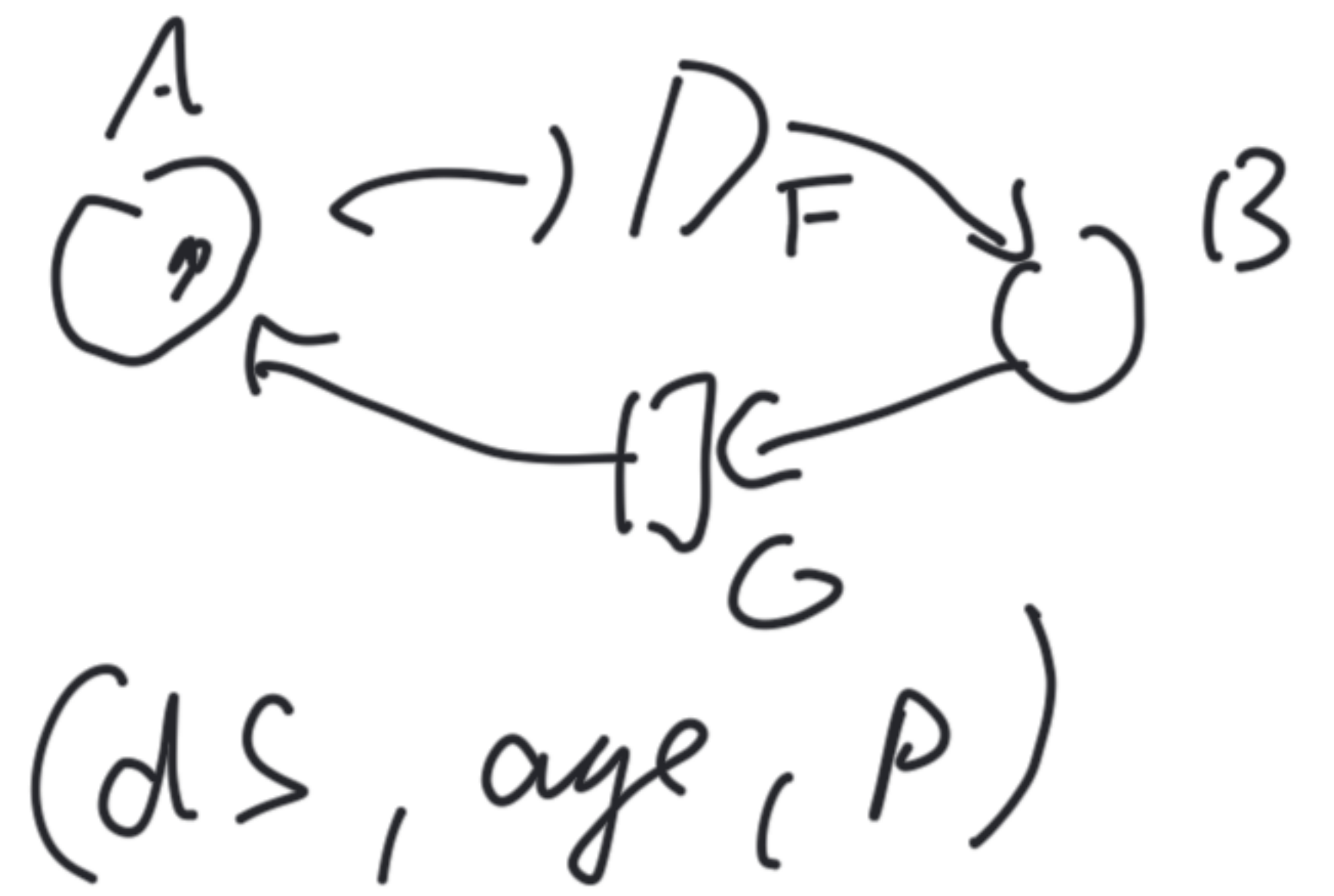
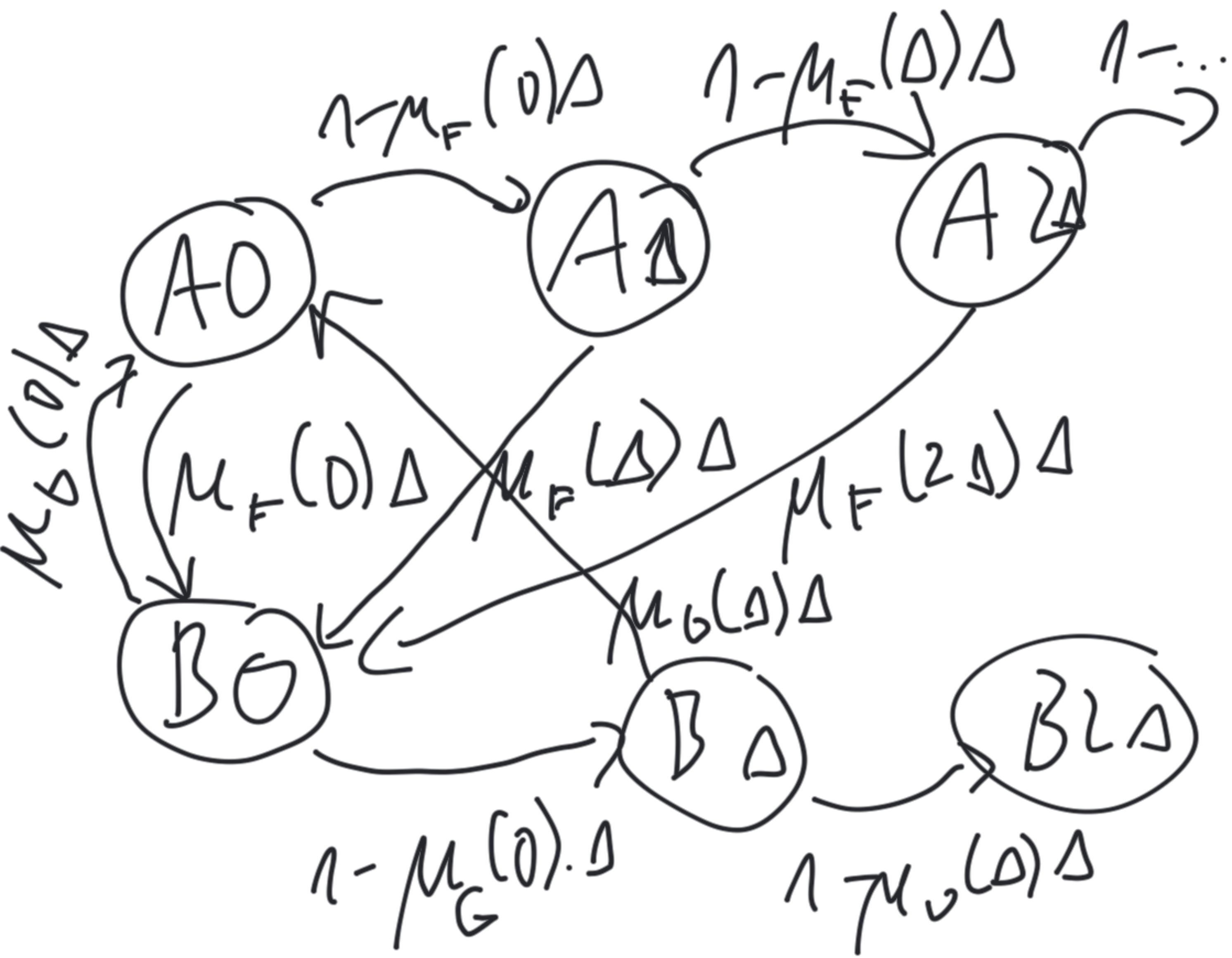
$$t=\Delta \quad (A, \Delta, 1 - \mu_F(0) \cdot \Delta) \quad (B, 0, \mu_F(0) \cdot \Delta) \quad (dS, age, P)$$

$$\downarrow 1 - \mu_P(\Delta) \cdot \Delta \quad \downarrow \mu_F(\Delta) \cdot \Delta$$

$$\mu_G(0) \cdot \Delta = p_2$$

$$t \geq 2\Delta \quad (A, 2\Delta, p_1(1 - \mu_F(\Delta) \cdot \Delta)) \quad (B, 0, p_1 \cdot \mu_F(\Delta) \cdot \Delta) \quad (B, \Delta, \mu_F(0) \cdot \Delta \cdot (1 - p_2))$$

$$(A, 0, \mu_F(0) \cdot \Delta \cdot \mu_G(0) \cdot \Delta)$$



$$P_x = (ds, \text{age}, \cancel{t}, \cancel{R}, p)$$