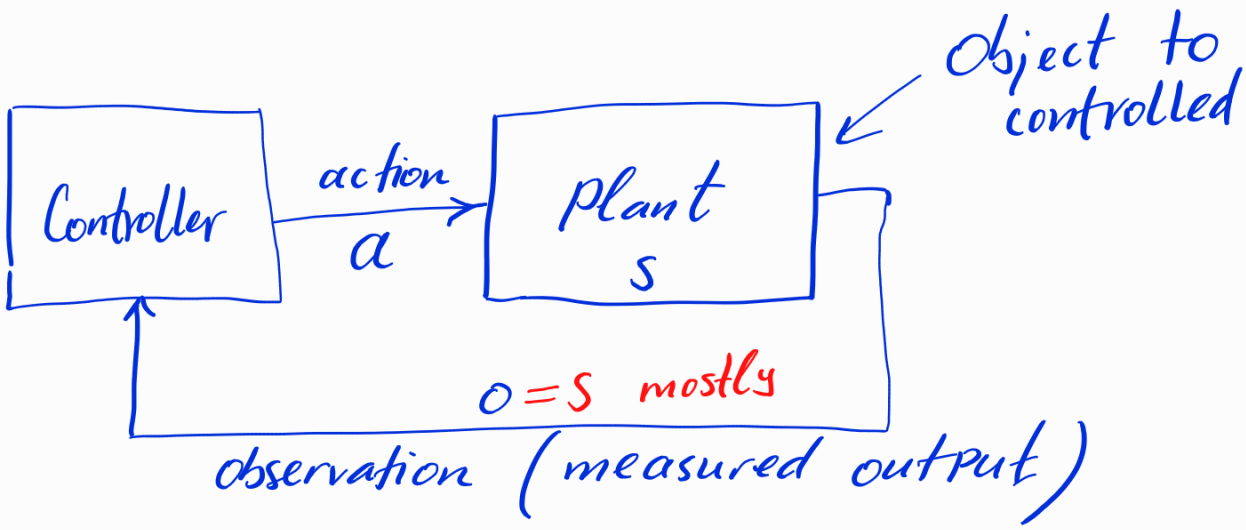
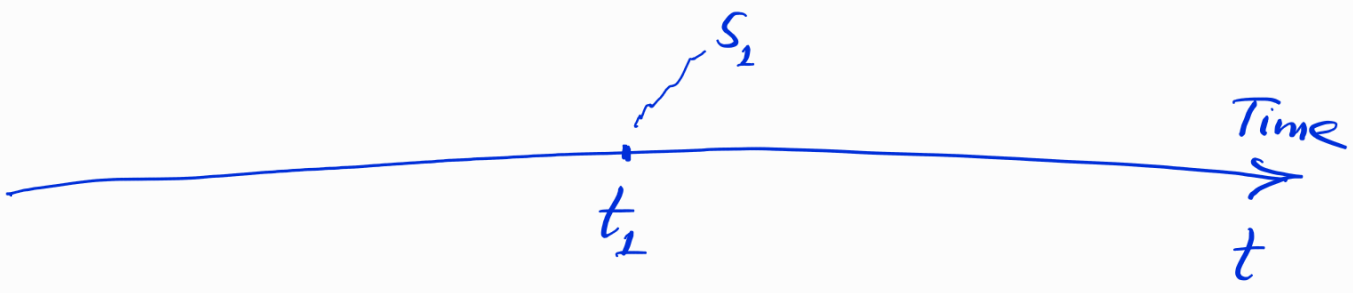


Plant = dynamical system

state $\in \mathbb{R}^n$



Transition law : $s_t \mapsto s_{t+1}$

$$s_{t+1} = P(s_t, a_t)$$

↑ "current" state

Mostly $\dot{s} = P(s, a)$

Time derive $\frac{ds}{dt}$

$$s_{t+1} = s_t + \Delta t\, P(s_t, a_t)$$

↑ discretization step size

$$\frac{d}{dt} L(s) = \underbrace{\langle \nabla_s L, \dot{s} \rangle}_{P} = \mathcal{L}_P L$$

vs.

$$\Delta L_t = L_{t+1} - L_t$$
$$= L(p(s_t, a_t)) - L(s_t)$$