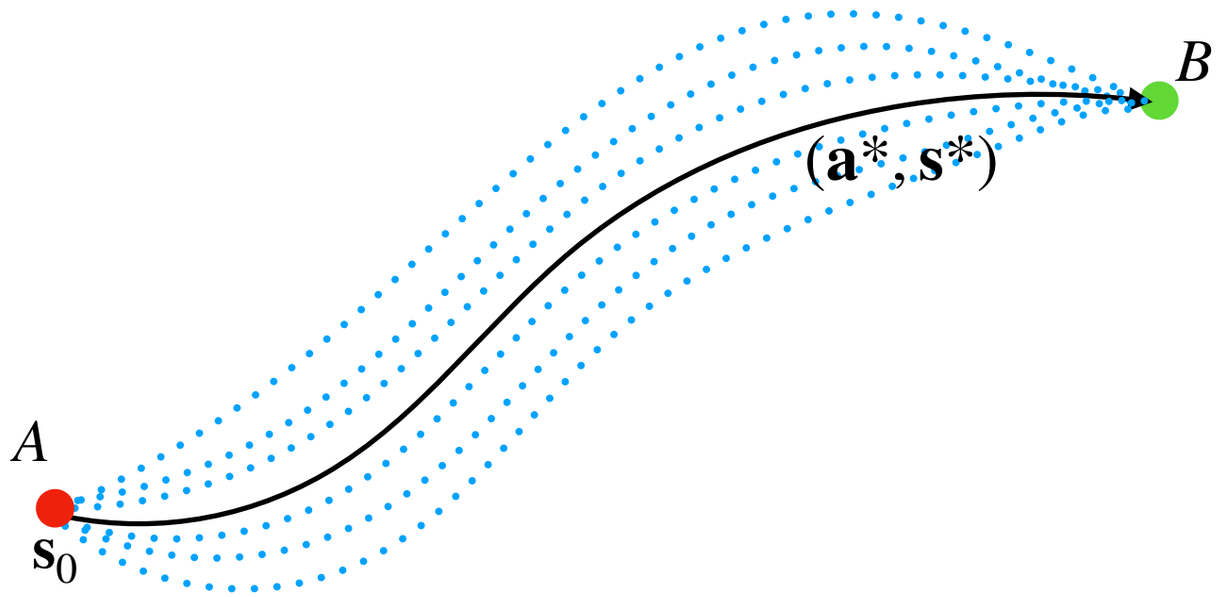
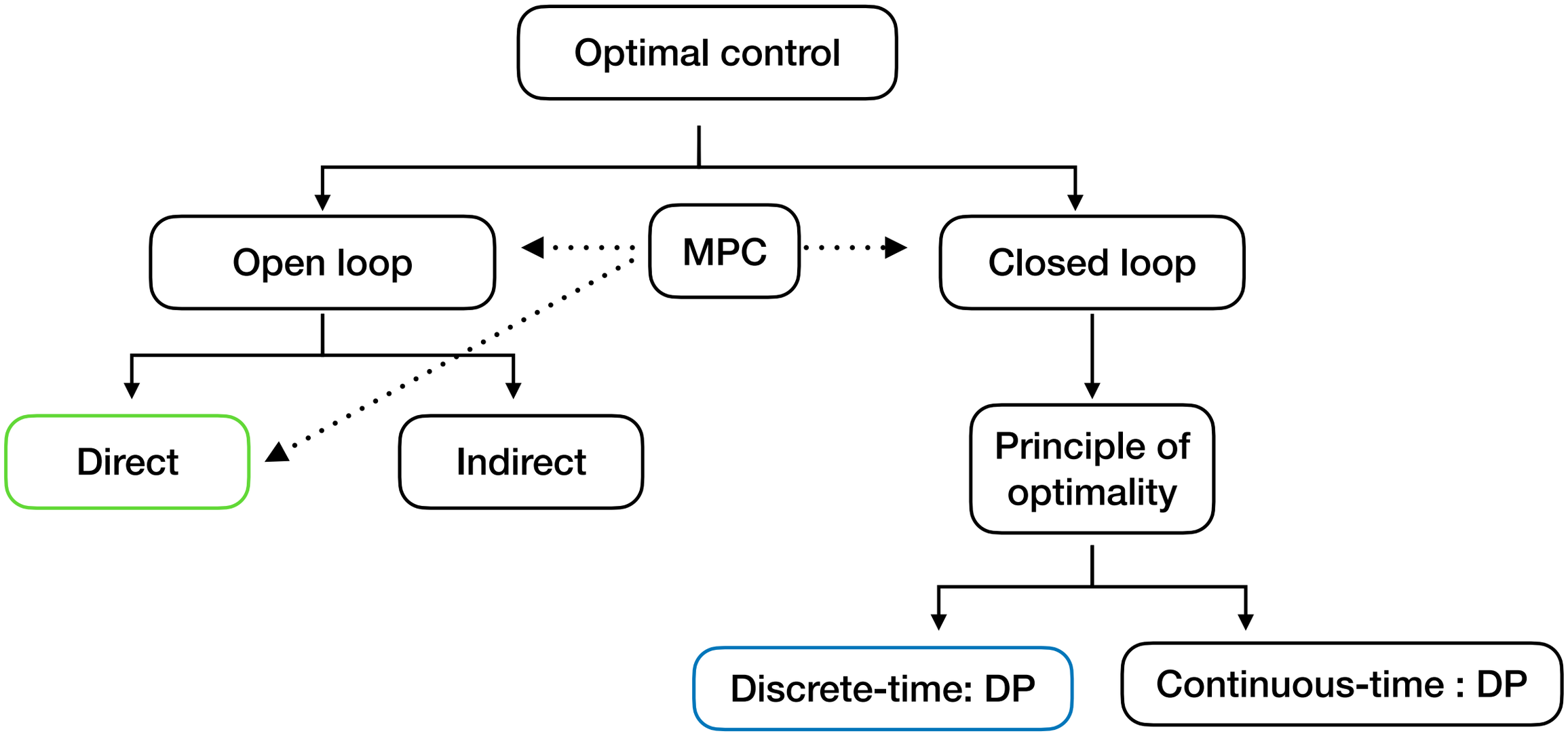
Solution 2: Non-feedback control

- Calculus of Variations - Pontryagin Maximum Principle PMP (necessary condition)
- PMP turns functional minimisation in a function minimisation at each point in time
- Find a solution-sequence $(\mathbf{a}^*, \mathbf{s}^*)$ for a given initial state $\mathbf{s}_0$
- Can handle constraints e.g. $\mathbf{s}_t \in S, \mathbf{a}_t \in A$
- But: open loop cannot stabilise the system!



Best of both worlds - model predictive control (MPC)



Adapted from AA 203: Optimal and Learning-Based Control