6.1.1 Behavior design

Carlos Hernandez

Robot behavior

- detect object
- compute grasp
- move to pick
- grasp
- retreat

coordinated

set of **actions**

Robot behavior

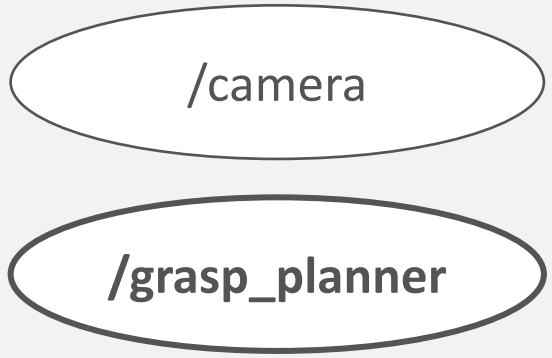
- detect object
- compute grasp
- move to pick
- grasp
- retreat

Robot behavior

- **detect object**
- compute grasp
- move to pick
- grasp
- retreat

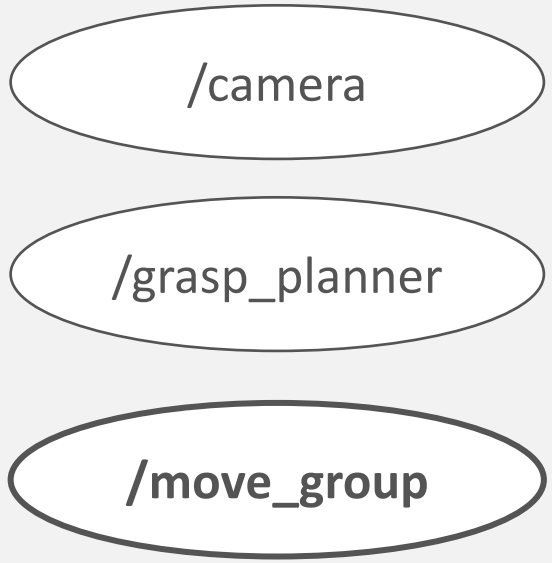
Robot behavior

- detect object
- **compute grasp**
- move to pick
- grasp
- retreat



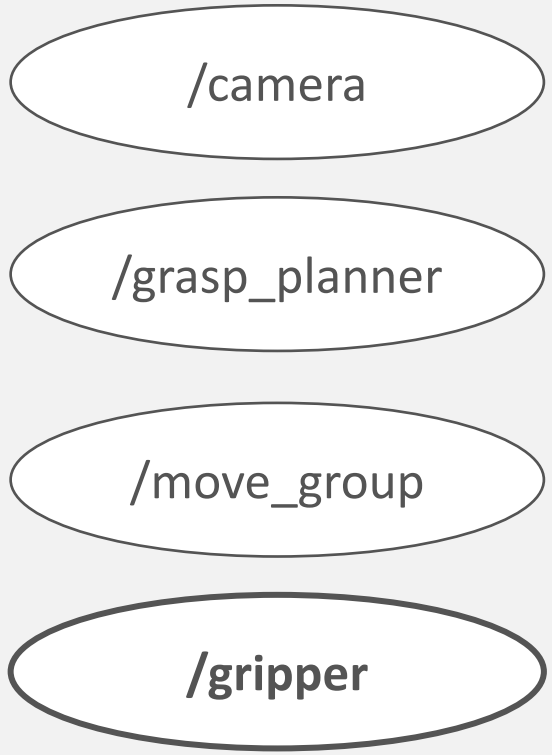
Robot behavior

- detect object
- compute grasp
- **move to pick**
- grasp
- **retreat**



Robot behavior

- detect object
- compute grasp
- move to pick
- **grasp**
- retreat



Robot behavior

- detect object
- compute grasp
- move to pick
- grasp
- retreat
- **coordination**

Behavior design methods

- finite state machines
- flow charts
- behavior trees
- …

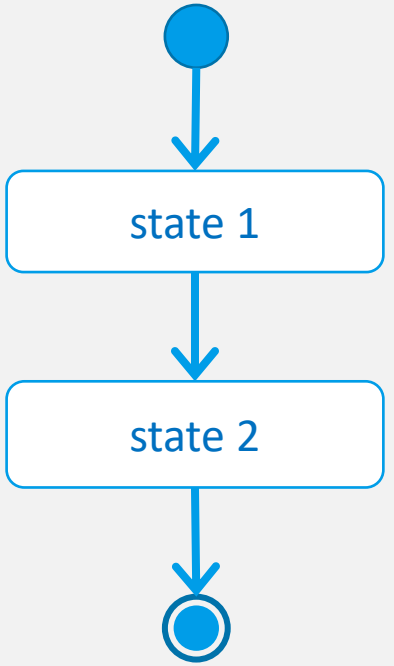
Robot state machines

- A **state machine** defines a behavior as a **sequence** of **actions** that are executed.
  - only one state active at a time
  - ➢ appropriate to design **sequential behavior**

- Each **state** represents an atomic action. Optionally:
  - consumes **input data** for its execution
  - produces **output data** as a result of execution

Robot state machines

- states blobs
- transitions arrows



Pick state machine

- detect object
- compute grasp
- move to pick
- grasp
- retreat