

Topic 6: Finite State Machines

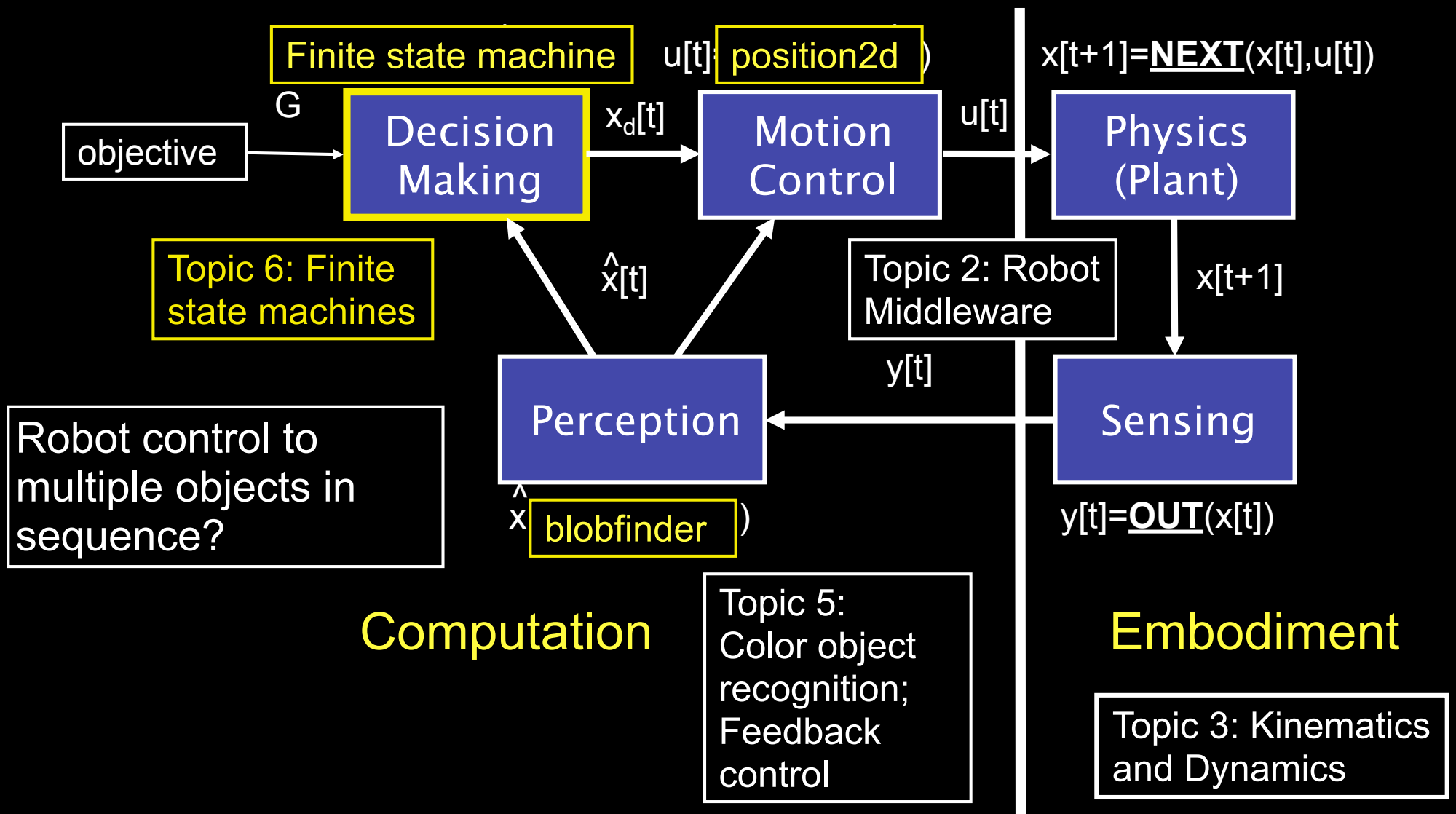
fast reactive
decision making



robot control loop

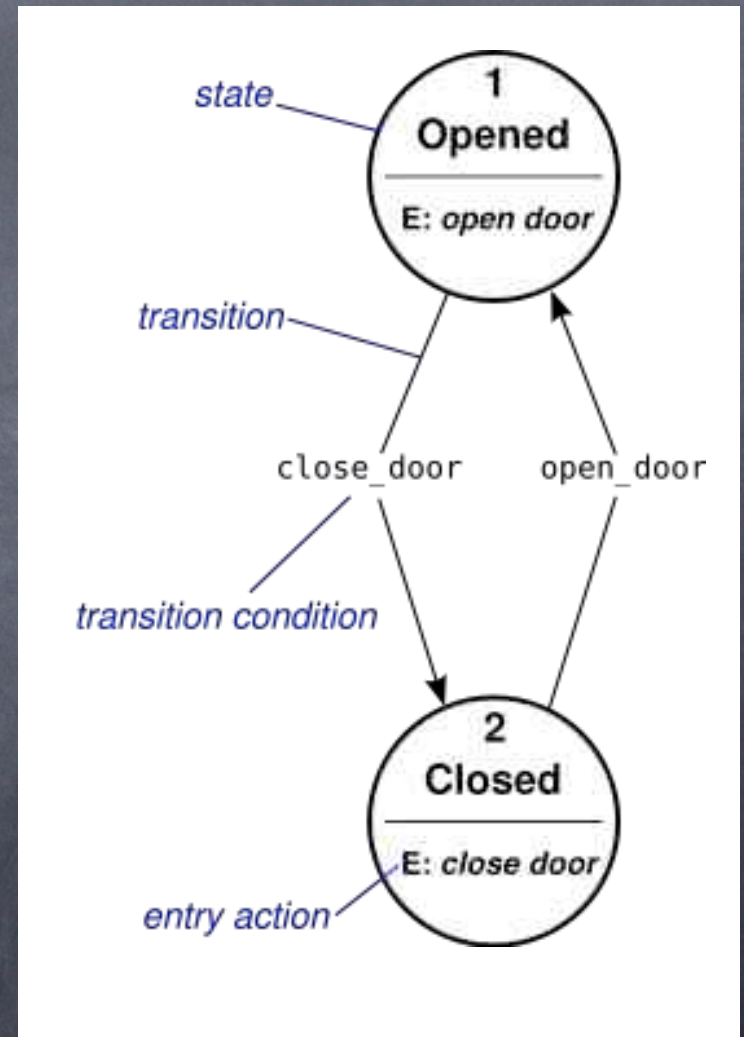
- someone please sketch on the board

The Robot Control Loop



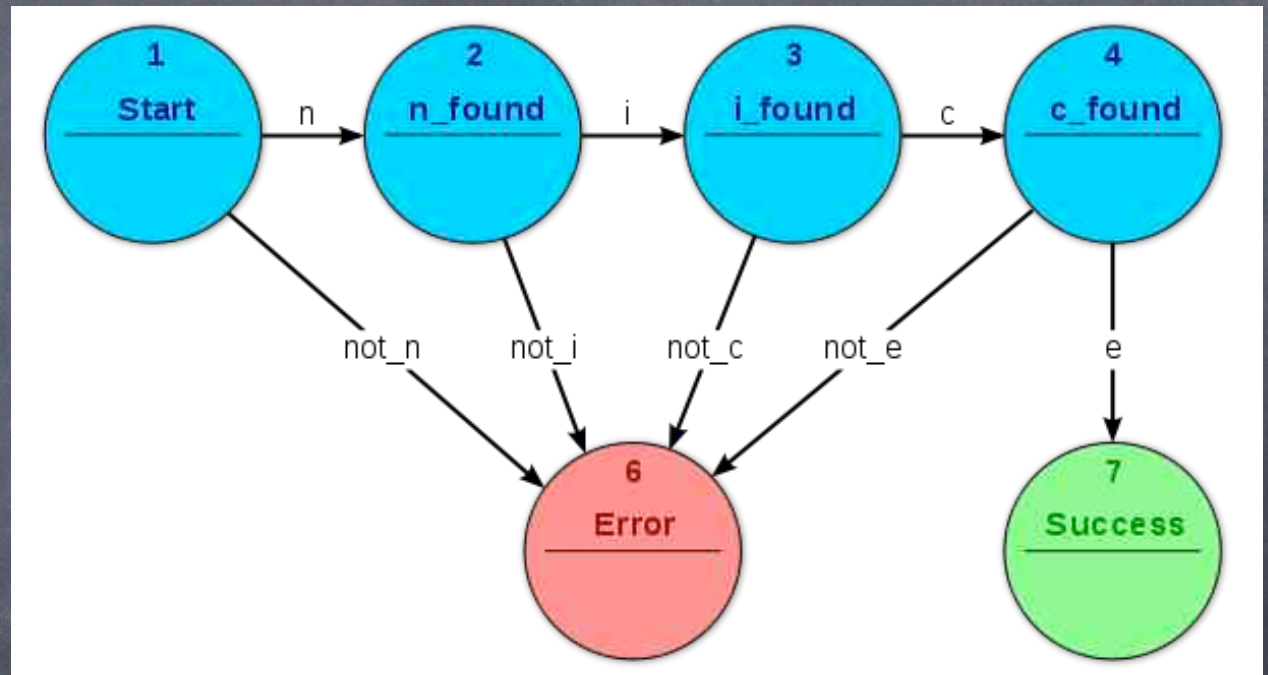
Finite State Machines

- Components
 - alphabet (or inputs)
 - "observations" in robotics
 - states
 - transitions (between states)



"nice" recognizer

- recognize the string "nice"



- robotics uses
 - preconditions (enter state)
 - postconditions (exit state)

Move to objects in sequence?

- How can our robot move to a given sequence of objects?
 - yellow ball
 - green/orange landmark
 - pink landmark
 - orange/green landmark





Remember this

OBJECT SEEKING

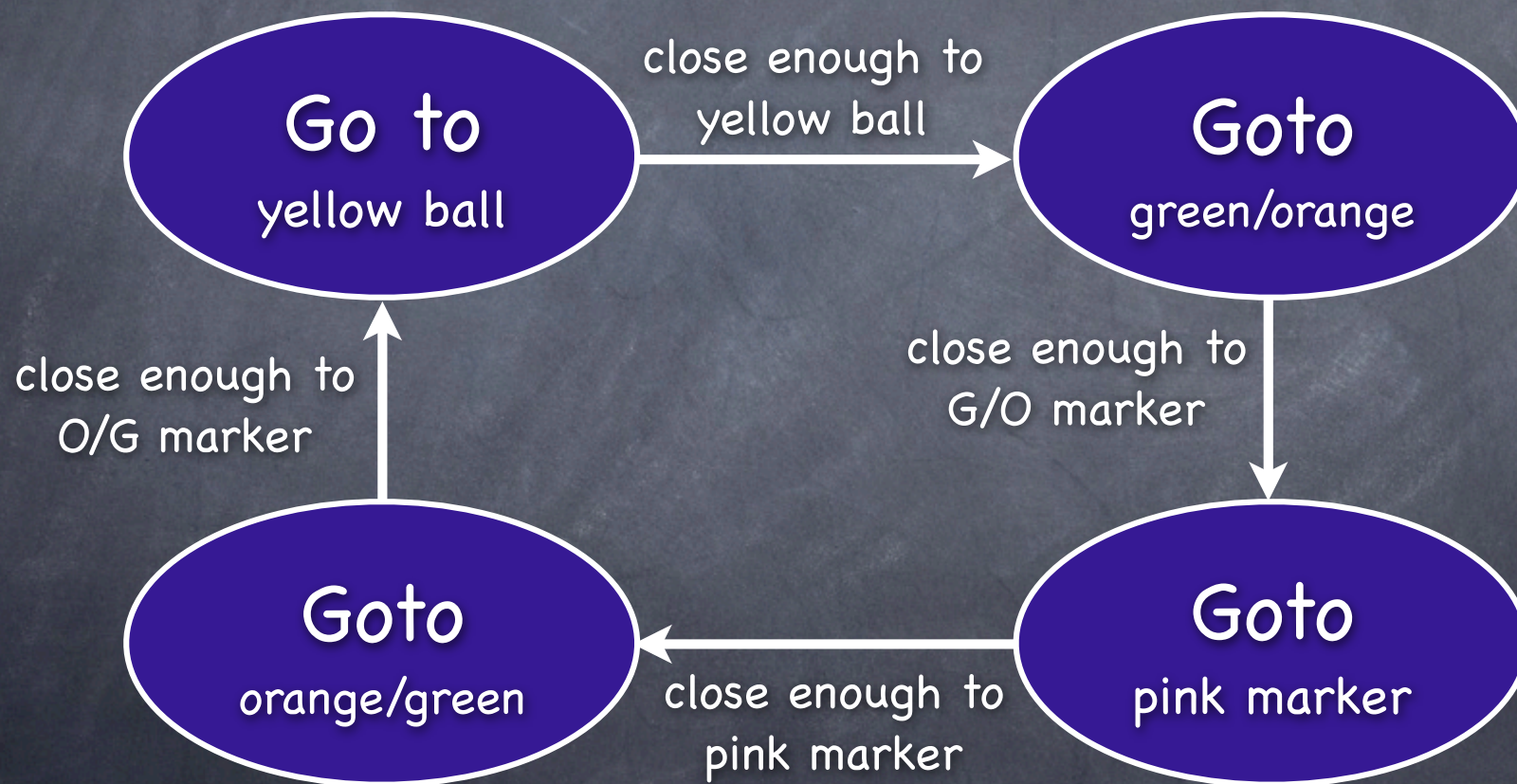
<http://www.youtube.com/watch?v=-hOA0jMUggg>

Move to objects in sequence?

- What are the states?
 - What are the transitions?
 - Preconditions for states?
 - Postconditions for states?
-
- Can someone sketch on board?



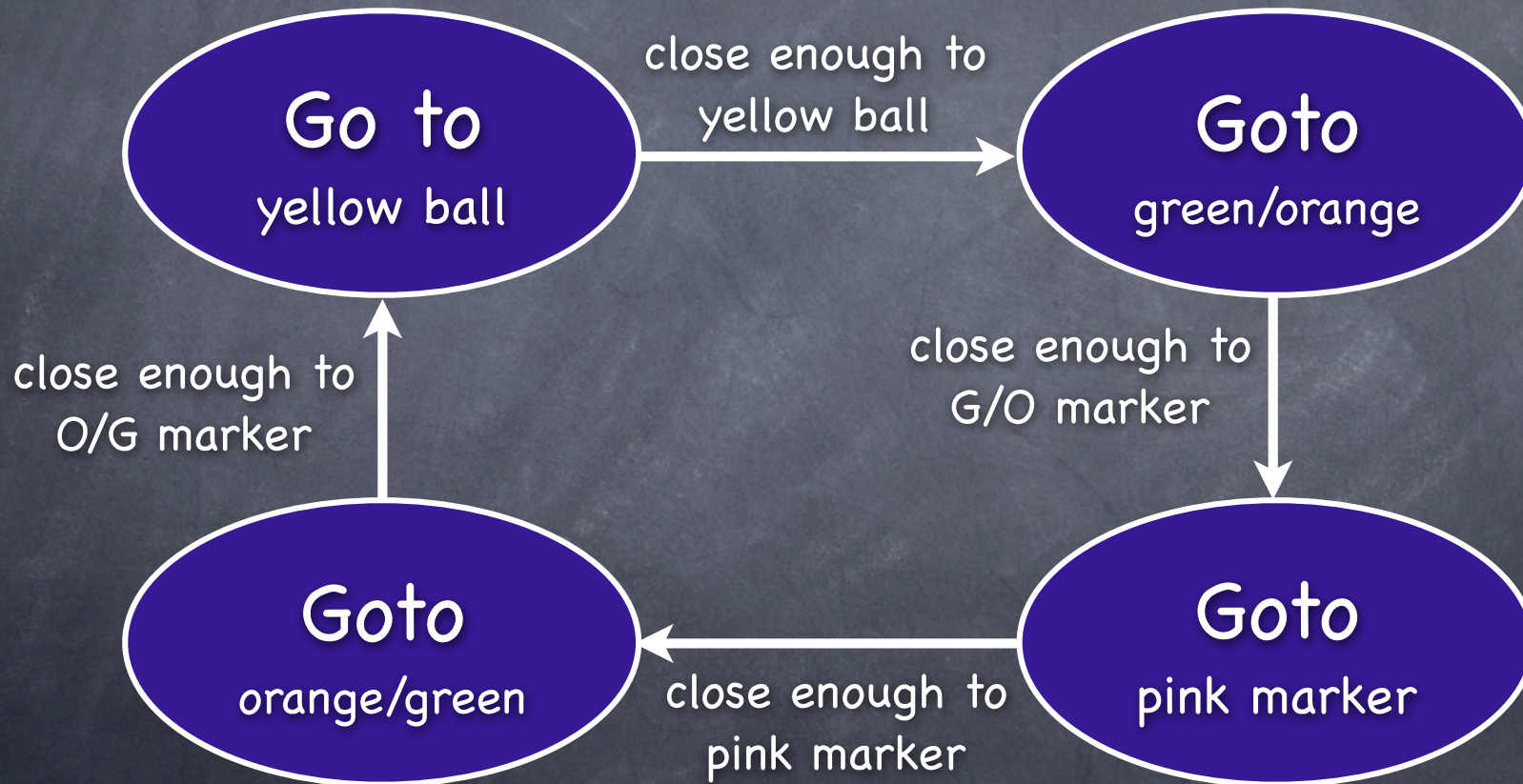
Object seeking FSM



Object seeking FSM

How to implement state?

How to detect "close enough"?



FSMs for Other Tasks

- Robot foraging?
- Pushing a ball into a goal?
- Robot tennis/pong?
- Driving a car?

