

State



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Overview



Motivation

State Machine

Boost.MSM

Actions and Guards



Motivation



Consider an ordinary telephone

What you do with it depends on the state of the phone/line

- If it's ringing or you want to make a call, you can pick it up
- Phone must be off the hook to take/make a call
- If you are calling someone, and it's busy, you put the handset down

Changes in state can be explicit or in response to events (e.g., Observer)

State

A pattern in which the object's behavior is determined by its state. An object transitions from one state to another (something needs to *trigger* the transition). A formalized construct which manages states and transitions is called a *state machine*.



Summary



Given sufficient complexity, it pays to formally define possible states and events/triggers

Can define

- State entry/exit behaviors
- Action when a particular event causes a transition
- Guard conditions enabling/disabling a transition
- Default action when no transitions are found for an event