



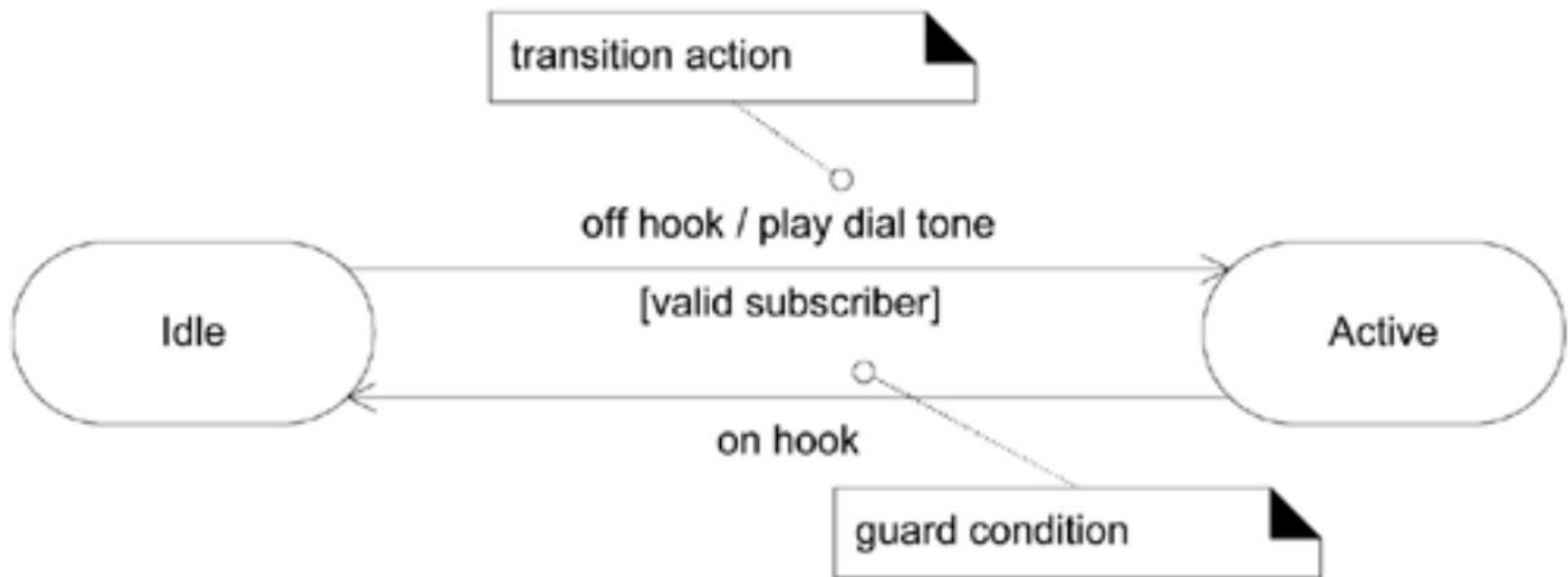
MÁQUINAS DE ESTADO

MODELAÇÃO E ANÁLISE DE SISTEMAS | TP

ILÍDIO OLIVEIRA ico@ua.pt
v2018-05-10

 **deti**
universidade de aveiro
departamento de eletrónica,
telecomunicações e informática

Notação essencial



Notação básica dos D. Estado

Estados → caixas

Condição em que se encontra o objeto

Transições → setas

Evolução de um estado para outro

Triggers → etiquetas

Acontecimentos relevantes que causam transições de estado

Condições de acesso

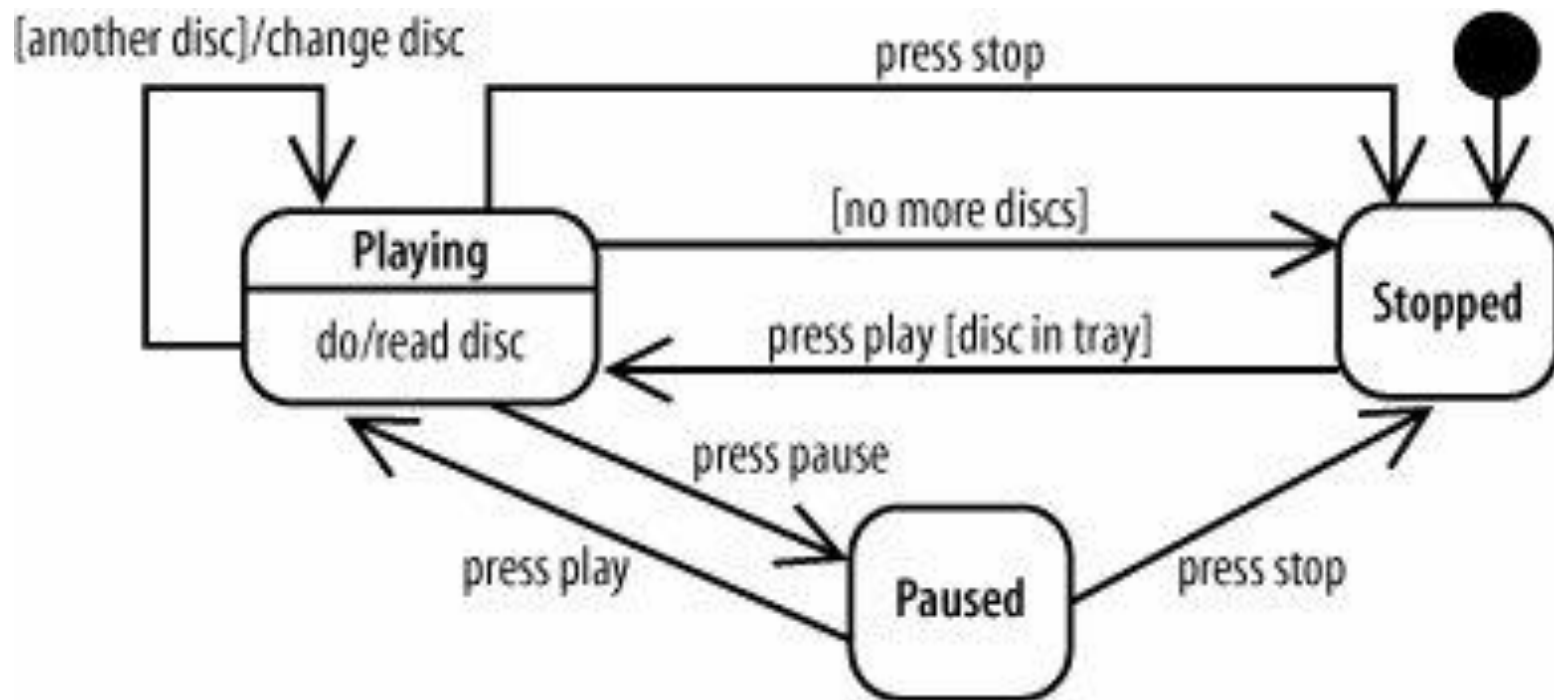
Marcador início/fim

"An **event** is a significant or noteworthy occurrence *e.g. a telephone receiver is taken off the hook.*

A **state** is the condition of an object at a moment in time *e.g. a telephone is in the state of being "idle" after the receiver is place on the hook and until it is taken off the hook.*

A **transition** is a relationship between two states that indicates when an event occurs *e.g. when the event "off hook" occurs, transition the telephone from "idle" to "active" state.*

Exemplo



Domain objects and state

If an object always responds the same way to an event, then it is considered **state-independent** with respect to that event.

If for all events of interest an object always reacts the same way, it is a **state-independent object**.

By contrast **state-dependent objects** react differently to events depending on their state.

Business objects and process controllers

Business information systems have few state-dependent classes

- it is not very helpful to apply a state machine modelling.
- A few exception, in which the lifecycle of an entity is very relevant

E.g.: managing the membership of people in a partner programme: apply for membership, assess the application, approve, may be revoked,...

Process control, device control, protocol handlers, and telecommunication domains often have many state-dependent objects

- state machine modelling would be useful in these cases.

E.g. a telephone is state-dependent; the phone's reaction to pushing a particular button depends on the current mode of the phone (off hook, engaged, . . . etc)

Quando usar?

Objetos com comportamento dependente do estado

Exemplos:

Controlador de um dispositivo físico (hw)

Lógica de objetos de negócio (Venda, Reserva,...)

Protocolos de comunicação

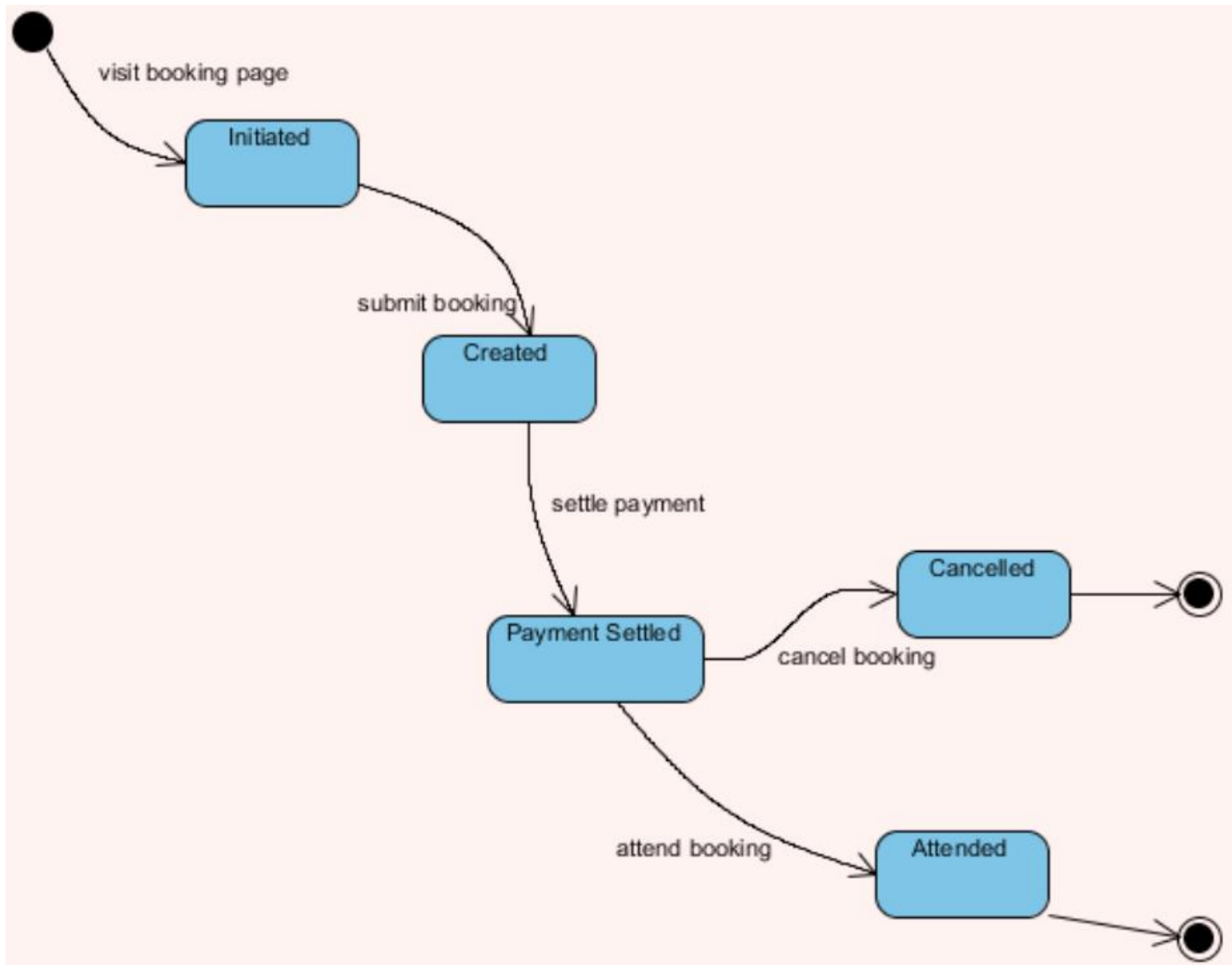
Coordenadores do fluxo da interface gráfica

No modelo do domínio:

Caraterizar os estados de uma classe complexa

e.g.: reserva, inscrição,...

Modeling the states of an appointment



Exemplo: lógica de objeto de código

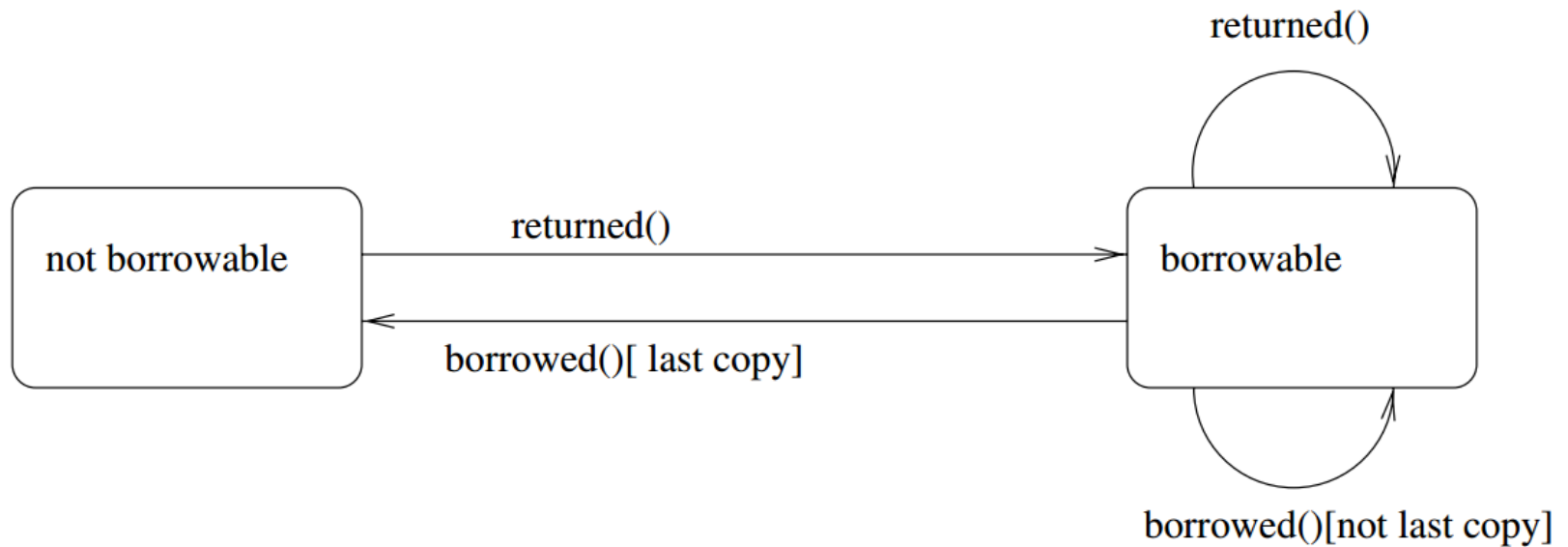


Figure 3.7 State diagram for class `Book`.

ATM controller

State-Chart for One Session

