INF011 – Padrões de Projeto

3n – PState

Sandro Santos Andrade
od r@e d r@ed r si f b dus r pu e

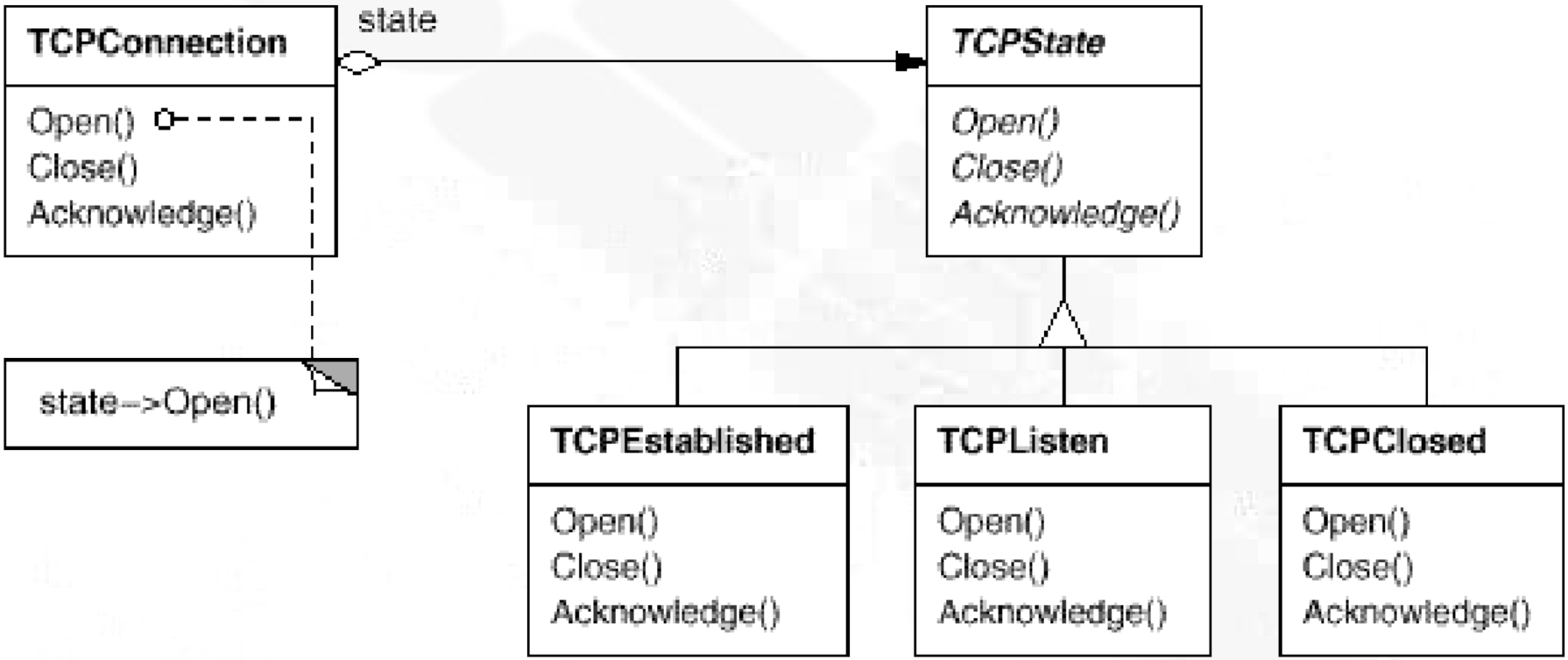
Instituto Federal de Educação, Ciência e Tecnologia da Bahia
Departamento de Tecnologia Eletro-Eletrônica
Graduação Tecnológica em Análise e Desenvolvimento de Sistemas

State

- [illegible]
  - [illegible]
- [illegible] *objects for States*
- [illegible]
  - [illegible] *TCPConnection* [illegible] *Established* [illegible] *Listening* [illegible] *Closed*
  - [illegible]
  - [illegible] *TCPState* [illegible]

State

- v j 1 2 d (m

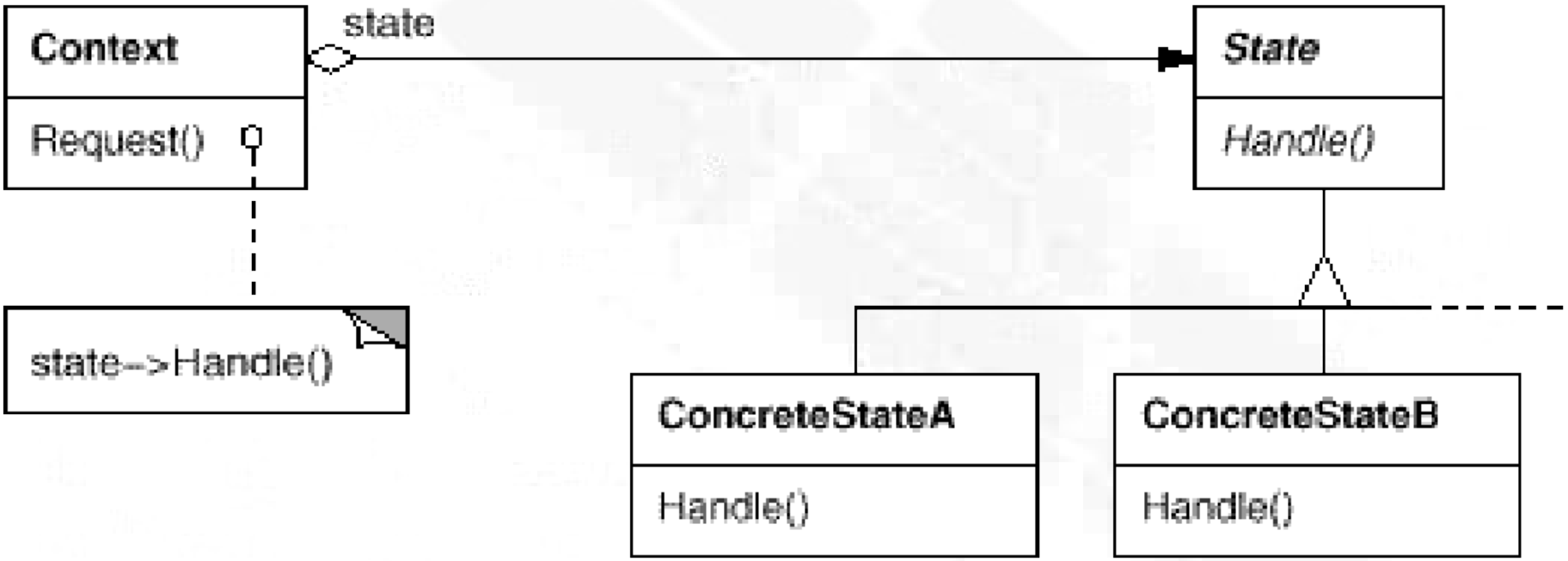


State

- z ˜: f c d f fr d s m
  - pd r@ j – j q ˜: j ˜e 2dq s @ – j j. t s 2 r – s ˜: s r@ s – j – o s p – s o2 d j – s – s o2 s – j q ˜: j ˜e 2dq s @ – s d s – o s ˜e – q j r f b d j – s q *run-time*
  - pd r@ j – o – q h 2 r j o ÷ j o o p s q – o s @ ¸@ d o – j r@ f j @ o – ˜e d r@ s o – s – j q – e ˜f d o j – ˜: ¸ o s o u – A ÷ d ˜e C *State* – j j c d – d d – ˜e d q j r – d – o s @ ¸@ d – j r@ f j @ c – s q – p q d – c d o o s – o s ˜: d ˜e d d

State

- o2ep2põed m



State

- [illegible]
  - *Context* [illegible]
    - [illegible]
    - [illegible] *ConcreteState* [illegible]
  - *State* [illegible]
    - [illegible]
  - *ConcreteState* [illegible]
    - [illegible]

State

- , j cd j ~ed̨ osom
  - A Context r sc d~es pf d̨ osos ō:s b dor s so2d j e ‒ *ConcreteState* e2pdc
  - A Context ÷j r s÷ doode sc÷~e ~:~e j ‒j qj e~e pqs j@÷ d~edj ‒ j. ts j2 *State* e2s r@s r@ e~es pf d̨ C
  - *Context* h df @~eb d s÷~e q ~e d÷ d~ed ‒ cs @ou ‒ cs @o‒ j b@ p~edq j *Context* ‒j q j. ts j2 c *State*
  - Ap j *Context* j p do op cdoos c *ConcreteState* ÷j r s q ‒ r s fr f~e pdc so2d j op sr sj p2e s sq l pd o f~e p @2 @do

State

- , j @ds p^ @do m
  - j dfc d–j q˜:j ˜e2dq s j@–so˜: s lbj r–s–so2dr j –s÷ dde2 fj @d– j –j q˜:j ˜e2dq s j@r–s–fbs˜es @o–so2dr j o m
    - sjr j–j q˜:j ˜e2dq s j@˜esodfj @dj –d–pq –so2dr j ÷ doodd– so2de–sq –pq – f@ j–. ts?2 u–aj r s os–bdfoq s @–drf fj @de– j@j e o–so2dr j o–s–2ed @ oso
    - sqj–*State* –d–drf¸ (C r–s–pq –j@j e –so2dr j –es ps˜e–d– qjrfb d¸ (C r–s–fdes˜ej o–q h?2r j o
    - A*State* ÷j r s–dpq s @de j– –@q s˜e r–s–odoos o÷j ˜ehq –sde2d– os @ ¸@do–j r@fj @do–˜ed r@so–d j –qj r sodej– –j @sf?2 – r s–so2dr j r–s–s s p¸ (C –j qj –pq d–s @dr sr–s÷˜eq sf˜ed– odoos

State

- [illegible]
  - [illegible]
    - [illegible]
    - [illegible] *Context* [illegible] *State* [illegible]
  - [illegible] *State* [illegible]
    - [illegible]
    - [illegible] *Flyweights*

State

- [illegible]
  - [illegible]
    - [illegible] *Context*
    - [illegible] *State* [illegible]
    - [illegible] *Context* [illegible] *ConcreteState* [illegible]
      - [illegible] *ConcreteState* [illegible]
      - [illegible] *ConcreteState* [illegible] *ConcreteState*

State

- Nq~:csqs @q Cm
  - z c2s~e @d2edd-dosdr d-sq-2d scdom
    - 2fc de-pq d-2d scd~÷ded-q d:sde-s @dr do-sq-2ed @ osor-s-so2drj o
    - aded-dr d-so2drj @l-2d scd-q d:sfd-j2r d-s @dr d~÷j oo dsc-sq-pq-so2drj -op soj ~e
    - , j @s~e2s-os @ ,@do-j r@fj @do-j p-£c d osor-f @qf do-j@-dj r-j *State* -sq-pq d-2d scdr-s *look-up*
      - d @d sq ñes pcdfr dr su-ajr s os-q pr dej--~é2ñéj r-s-2ed @ Cq-qjrfb dr@j-or-drj o-qj f-@dor-j -´rfj þ @
      - sodd @d s @m
        - 0~es ps @qs @-qs j@o-sbfs @l-ps-£c d Cq-rf @qf d
        - sj ~e @dj--~é2ñéj r-s-2ed @ Cq-qs j@o-s ~:cfj2
        - FCq-só:sfb d-do-q osdl-ps-r-sds q-dj q~:d @df-do-2ed @ oso

State

- Ñq˜: csqs @d̦ ÇC m
  - , ˜éd r@ –sr–so2ef r@ j–. tsj2 o*State*
    - *Trade-off* m
      - ,–˜édẽj–*State* –j qs @l–pd r@ –@soo˜éj –sr–so2p jc–d:´ oj––pj j–p
      - 3 ,–˜édẽj2rj oj–o÷j oodsf o*States* –d @f˜: d dqs @–s–@@d–r so2p jc o
    - –h÷˜esbs˜edsd–pd r@ –j@jd o*States* ÷pr s˜esq –d: d˜es sq –˜é233d *a*: pl÷bF2ˆ dsuo2*ptime* jl–sj–o*Contexts* –q pr Ñˆlala÷

State

State

- , ´ r f j –s sq˜:þ c m

```
class TCPOctetStream;
class TCPState;

class TCPConnection {
public:
        TCPConnection();

        void ActiveOpen();
        void PassiveOpen();
        void Close();
        void Send();
        void Acknowledge();
        void Synchronize();

        void ProcessOctet(TCPOctetStream*);
private:
        friend class TCPState;
        void ChangeState(TCPState*);
private:
        TCPState* _state;
};
```

State

- , ´ r f j –s sq˜:þ m

```
class TCPState {
public:
        virtual void Transmit(TCPConnection*, TCPOctetStream*);
        virtual void ActiveOpen(TCPConnection*);
        virtual void PassiveOpen(TCPConnection*);
        virtual void Close(TCPConnection*);
        virtual void Synchronize(TCPConnection*);
        virtual void Acknowledge(TCPConnection*);
        virtual void Send(TCPConnection*);
protected:
        void ChangeState(TCPConnection*, TCPState*);
};
```

State

- , ´ r f j –s sq˜:þ m

```
TCPConnection::TCPConnection () {
        _state = TCPClosed::Instance();
}

void TCPConnection::ChangeState (TCPState* s) {
        _state = s;
}

void TCPConnection::ActiveOpen () {
        _state->ActiveOpen(this);
}

void TCPConnection::PassiveOpen () {
        _state->PassiveOpen(this);
}
```

```
void TCPConnection::Close () {
        _state->Close(this);
}

void TCPConnection::Acknowledge () {
        _state->Acknowledge(this);
}

void TCPConnection::Synchronize () {
        _state->Synchronize(this);
}
```

State

- , ´ r f j –s sq˜:þ m

```
class TCPEstablished : public TCPState {
public:
        static TCPState* Instance();

        virtual void Transmit(TCPConnection*, TCPOctetStream*);
        virtual void Close(TCPConnection*);
};
```

```
class TCPListen : public TCPState {
public:
        static TCPState* Instance();

        virtual void Send(TCPConnection*);
        // ...
};
```

```
class TCPClosed : public TCPState {
public:
        static TCPState* Instance();

        virtual void ActiveOpen(TCPConnection*);
        virtual void PassiveOpen(TCPConnection*);
        // ...
};
```

State

- , ´ r f j –s sq˜:þ m

```
void TCPClosed::ActiveOpen (TCPConnection* t) {
        // send SYN, receive SYN, ACK, etc.
        ChangeState(t, TCPEstablished::Instance());
}

void TCPClosed::PassiveOpen (TCPConnection* t) {
        ChangeState(t, TCPListen::Instance());
}

void TCPEstablished::Close (TCPConnection* t) {
        // send FIN, receive ACK of FIN
        ChangeState(t, TCPListen::Instance());
}
```

State

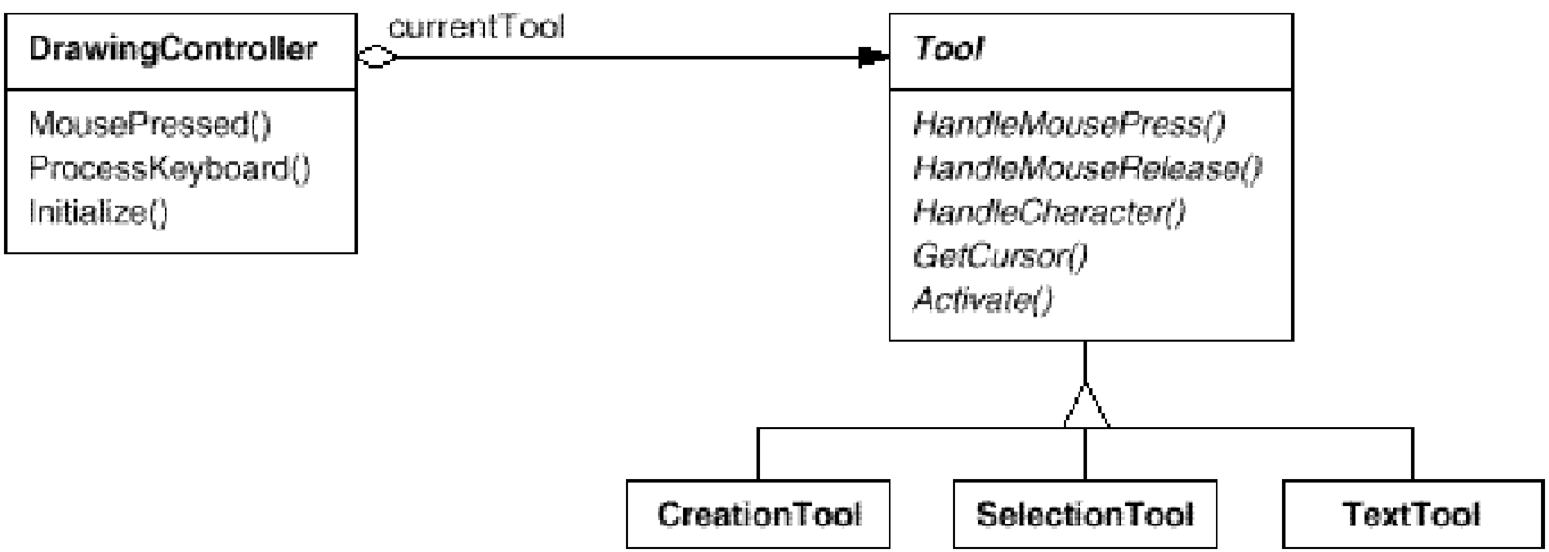
- , ´ r f j –s sq˜:þ m

```
void TCPEstablished::Transmit ( TCPConnection* t, TCPOctetStream* o ) {
        t->ProcessOctet(o);
}

void TCPListen::Send (TCPConnection* t) {
        // send SYN, receive SYN, ACK, etc.
        ChangeState(t, TCPEstablished::Instance());
}
```

State

- [illegible]
  - [illegible]
  - [illegible]
    - *HotDraw*
    - *UniDraw*



State

- [illegible]
  - *States* [illegible] *Flyweights*
  - [illegible] *State* [illegible] *Singletons*

INF011 – Padrões de Projeto 2

3n – PState

Sandro Santos Andrade
od r@e d r@ed r si f b dus r pu e

Instituto Federal de Educação, Ciência e Tecnologia da Bahia
Departamento de Tecnologia Eletro-Eletrônica
Graduação Tecnológica em Análise e Desenvolvimento de Sistemas