POL: Kommunikation im Stil von QT

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1 Befehle

Slot *in*; Deklariert den Eingang *in* einer Klasse

Signal *out*; Deklariert den Ausgang *out* einer Klasse

***Sender.out*.connect(*Receiver.in*);** Verbindet das Signal *out* des Objekt *Sender* mit dem Slot *in* des Objekts *Receiver*

***Sender.out*.disconnect(*Receiver.in*);** Trennt das Signal *out* des Objekt *Sender* von dem Slot *in* des Objekts *Receiver*

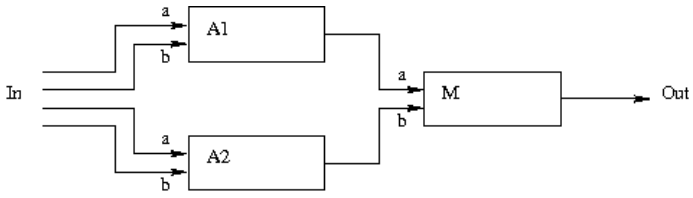
***out*.emit(*value*);** Sendet eine Nachricht mit Inhalt *value* an alle mit dem Signal *out* verbundenen Slots

***in*.get()** Blockiert, bis eine Nachricht an Slot *in* anliegt und holt diese ab

***in*.get(*default*)** Holt eine Nachricht von Slot *in* ab oder gibt *default* zurück, falls keine Nachricht anliegt

2 Beispiel: Addierer und Multiplizierer

2.1 Datenfluss

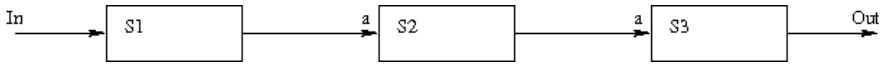


2.2 Code

```
class simplePOL extends ParObj {

  class Multiplier extends ParObj {
    Slot a, b;
    Signal p;

    int result;

    calc() {
      result = a.get() + b.get();  // blocking wait on a and b
      out.emit(result);
    }
  }

  class Adder extends ParObj {
    Slot a, b;
    Signal s;

    int result;

    calc() {
      result = a.get() + b.get();
      s.emit(result);
    }
  }

  Adder A1;
  Adder A2;
  Multiplier M;
  Input In;        // Library obejcts
  Output Out;

  simplePOL() {
    Out= new Output;
    M  = new Multiplier;
    A1 = new Adder;
    A2 = new Adder;
    In = new Input;

    M.p.connect(Out.in);
    A1.s.connect(M.a);
    A2.s.connect(M.b);
    In.out1.connect(A1.a);
    In.out2.connect(A1.b);
    In.out3.connect(A2.a);
    In.out4.connect(A2.b);

    calc() {
    //empty
    }
}
```

3 Beispiel: Pipeline

3.1 Datenfluss



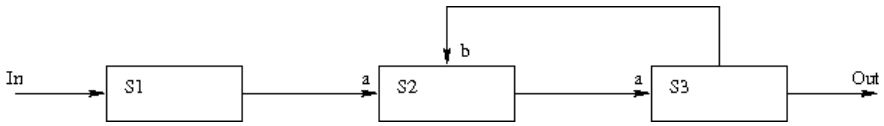
3.2 Code

```
class simplePOL extends ParObj {

  class Stage1 extends ParObj {
    Slot a;
    Signal out;

    int p;

    calc() {
      p = a.get() + 1;  // blocking wait on a
      out.emit(p);
    }
  }

  class Stage2 extends ParObj {
    Slot a;
    Signal out;

    int p;

    calc() {
      p = a.get() + 2;
      out.emit(p);
    }
  }

  class Stage3 extends ParObj {
    Slot a;
    Signal out;

    int p;

    Stage3(receiver output) {
      out = output;
    }

    calc() {
      p = a.get() + 3;
      out.emit(p);
    }
  }

  Stage1 S1;
  Stage1 S2;
  Stage1 S3;
  Input In;
  Output Out;

  simplePOL() {
```

```
    Out = new Output;
    S3 = new Stage3;
    S2 = new Stage2;
    S1 = new Stage1;
    In = new Input;

    S3.out.connect(Out.in);
    S2.out.connect(S3.a);
    S1.out.connect(S2.a);
    In.out.connect(S1.a);
  }

  calc() {
    //empty
  }
}
```

4 Beispiel: Pipeline mit Rückführung

4.1 Datenfluss



4.2 Code

```
class simplePOL extends ParObj {

  class Stage1 extends ParObj {
    Slot a;
    Signal out;

    int p;

    calc() {
      p = a.get() + 1;
      out.emit(p);
    }
  }

  class Stage2 extends ParObj {
    Slot a;
    Slot b;
    Signal out;

    int p;

    calc() {
      p = a.get() + b.get();    // blocking wait on a
      out.emit(p);
    }
  }

  class Stage3 extends ParObj {
    Slot a;
```

```
    Signal out;
    int p;

    calc() {
      p = a.get() + 3;
      out.emit(p);
    }
  }

  Stage1 S1;
  Stage1 S2;
  Stage1 S3;
  Input In;
  Output Out;

  simplePOL() {
    Out = new Output;
    S3 = new Stage3;
    S2 = new Stage2;
    S1 = new Stage1;
    In = new Input;

    S3.out.connect(Out.in);      // output with 2 inputs assigned
    S3.out.connect(S2.b);
    S2.out.connect(S3.a);
    S1.out.connect(S2.a);
    In.out.connect(S1.a);
  }

  calc() {
    //empty
  }
}
```