Objektorientierung in Java

Java-Kurs 2008 - LE 5

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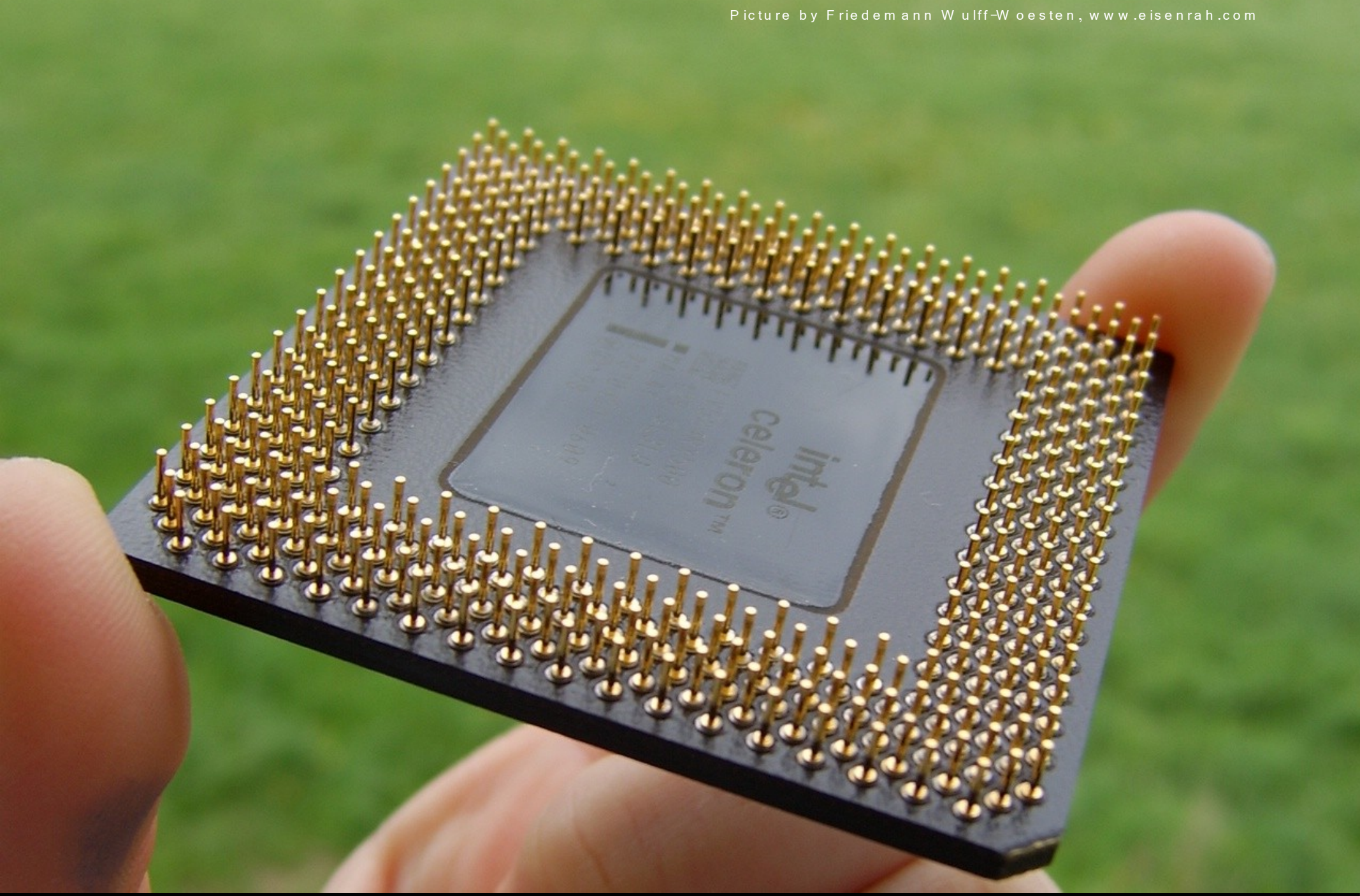
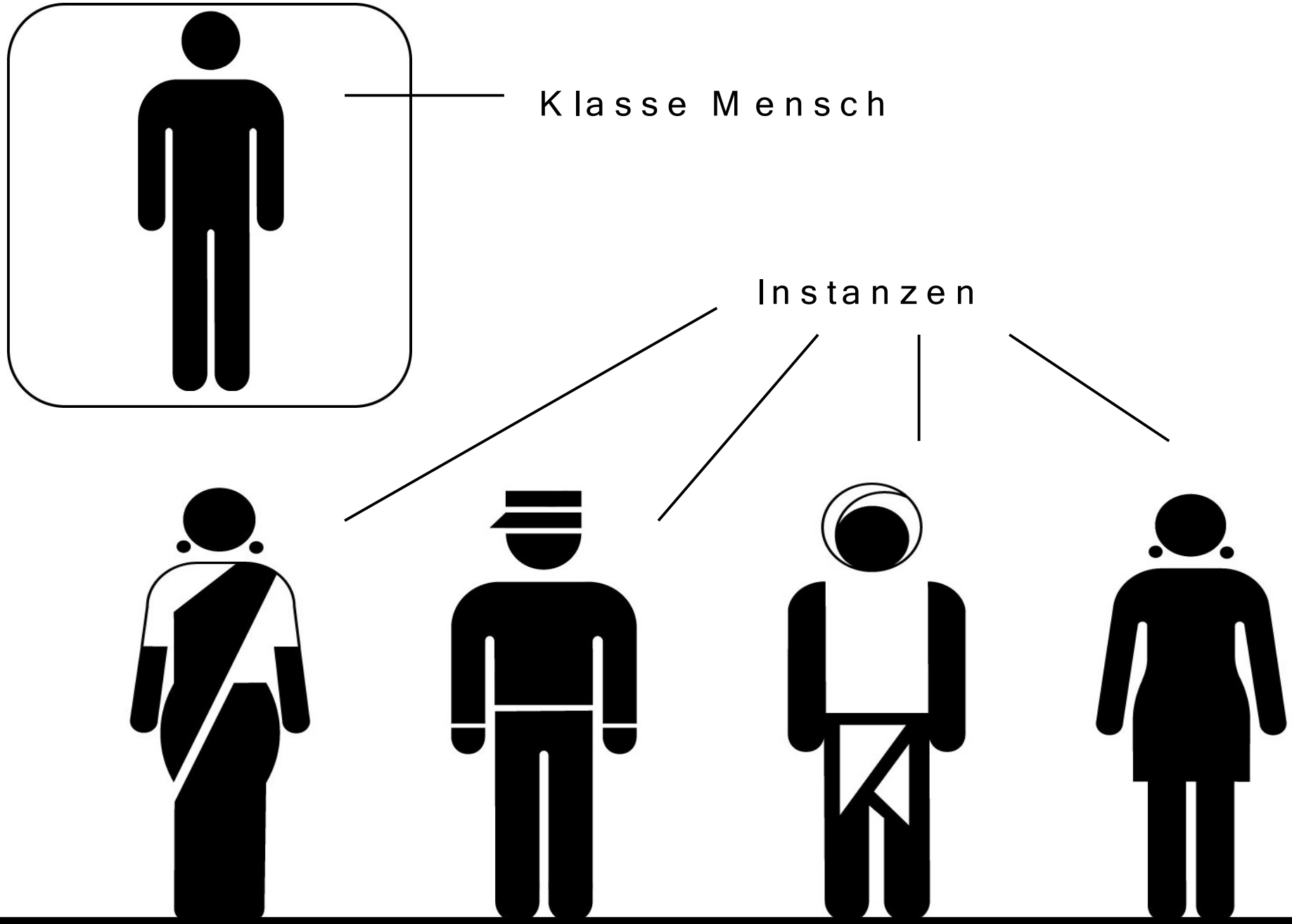
```
Human robert =
  new Human("Robert","pulshead@cs.tu-berlin.de“);

Human katrin =
  new Human("Katrin", "langk@cs.tu-berlin.de");
```


Picture by Friedemann Wulff-Woesten, www.eisenrah.com
intel
Celeron


Haarfarbe
Alter
Name
Geschlecht

Picture by Joe Huminiak, flickr.com


Klasse Mensch
Instanzen

```
class Human {

  String name;
  int age;

}
```

Human.java

```
class Human {

    String name;
    int age;

}
```

---

z.B. HumanTest.java
Main-Methode

```
Human robert= new Human();

robert.name= "Robert Lubkoll";
robert.age= 29;

System.out.println("Name: " + robert.name);
System.out.println("Age: " + robert.age);
```

Human.java

HumanTest.java

Compilieren: javac Human.java HumanTest.java

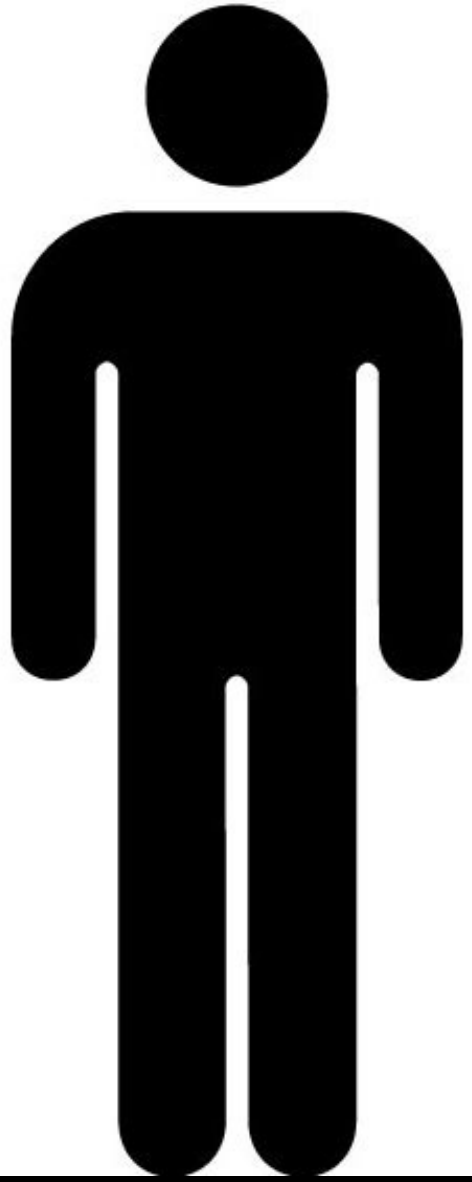
Ausführen: java HumanTest


Picture by Kevin Cole, flickr.com
laufen
laufen

```
class Human {

        String name;
        int age;

        void celebrateBirthday() {
                this.age= this.age + 1;
                if(this.age >=18){
                        //TODO: sex drugs and rock'n'roll
                }
        }

}
```

```
Human katrin= new Human();

katrin.age= 30;
katrin.celebrateBirthday();

System.out.println(„Age: “ + katrin.age);
```

Ausgabe
Age: 31



Ich (Instanz)

bin ein Mensch (Klasse),

ich habe Beine (Attribute),

ich kann laufen (Methoden).


Picture by TedsBlog, flickr.com

```
class Human {

    String name;
    int age;

    Human() {
        this.name= "unnamed";
        this.age= 0;
    }

}
```

```
Human robert= new Human();
```

```
class Human {

        String name;
        int age;

        Human( String aName, int anAge ) {
            this.name= aName;
            this.age= anAge;
        }

}
```

```
Human robert = new Human("Robert", 29);
```

Picture by yousoundhollow, flickr.com

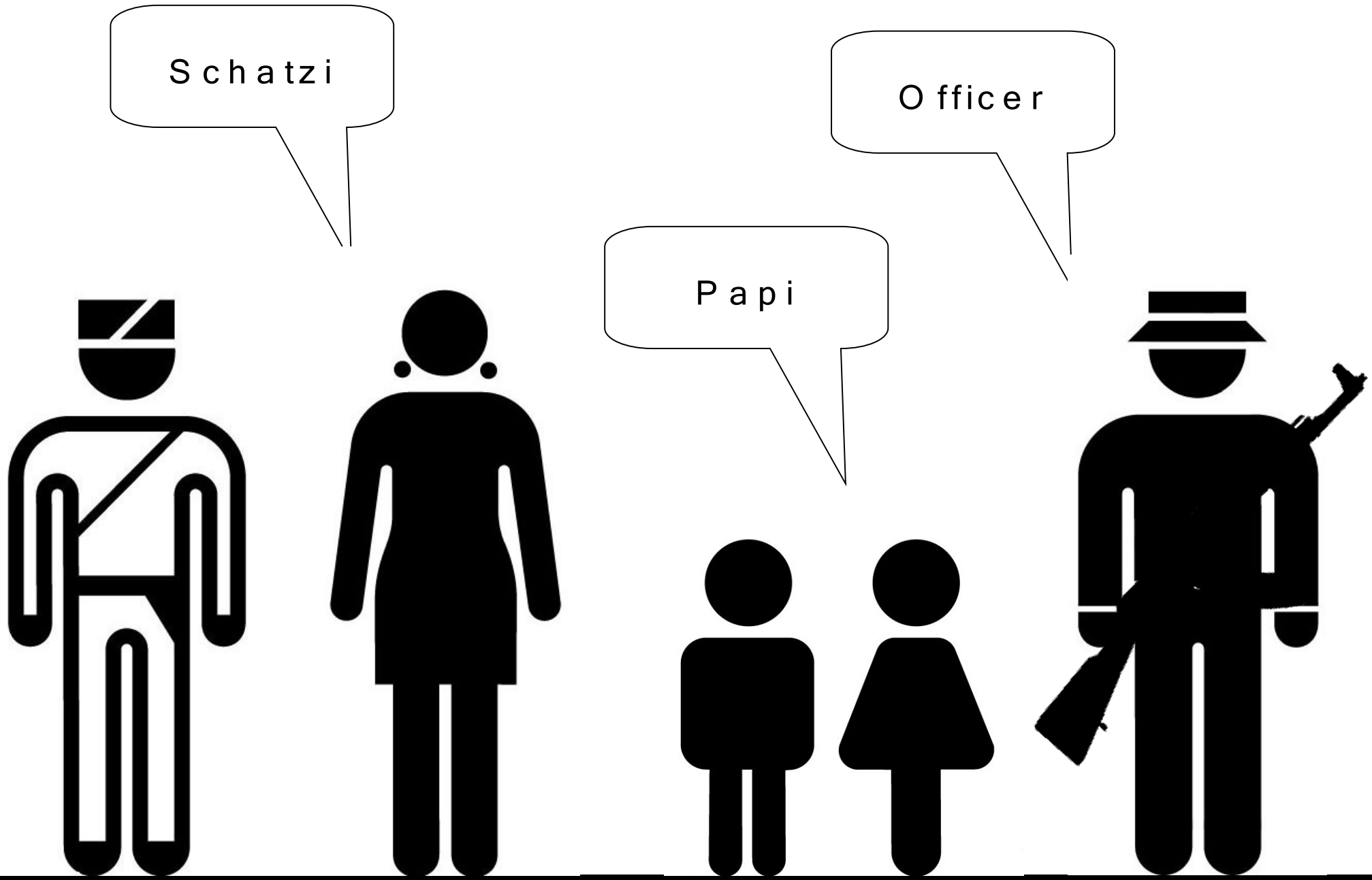
```
class Human {

  String name;
  int age;



  Human(String name){
    name= name;
    age= 0;
  }

}
```

BAAAAD

```
Human(String aName){
      this.name= aName;
      this.age= 0;
}
```

GOOOOD

Picture by pizzo, flickr.com


Schatzi
Officer
Papi

```
int a = 0;
int b = a;

a = a + 1;
```

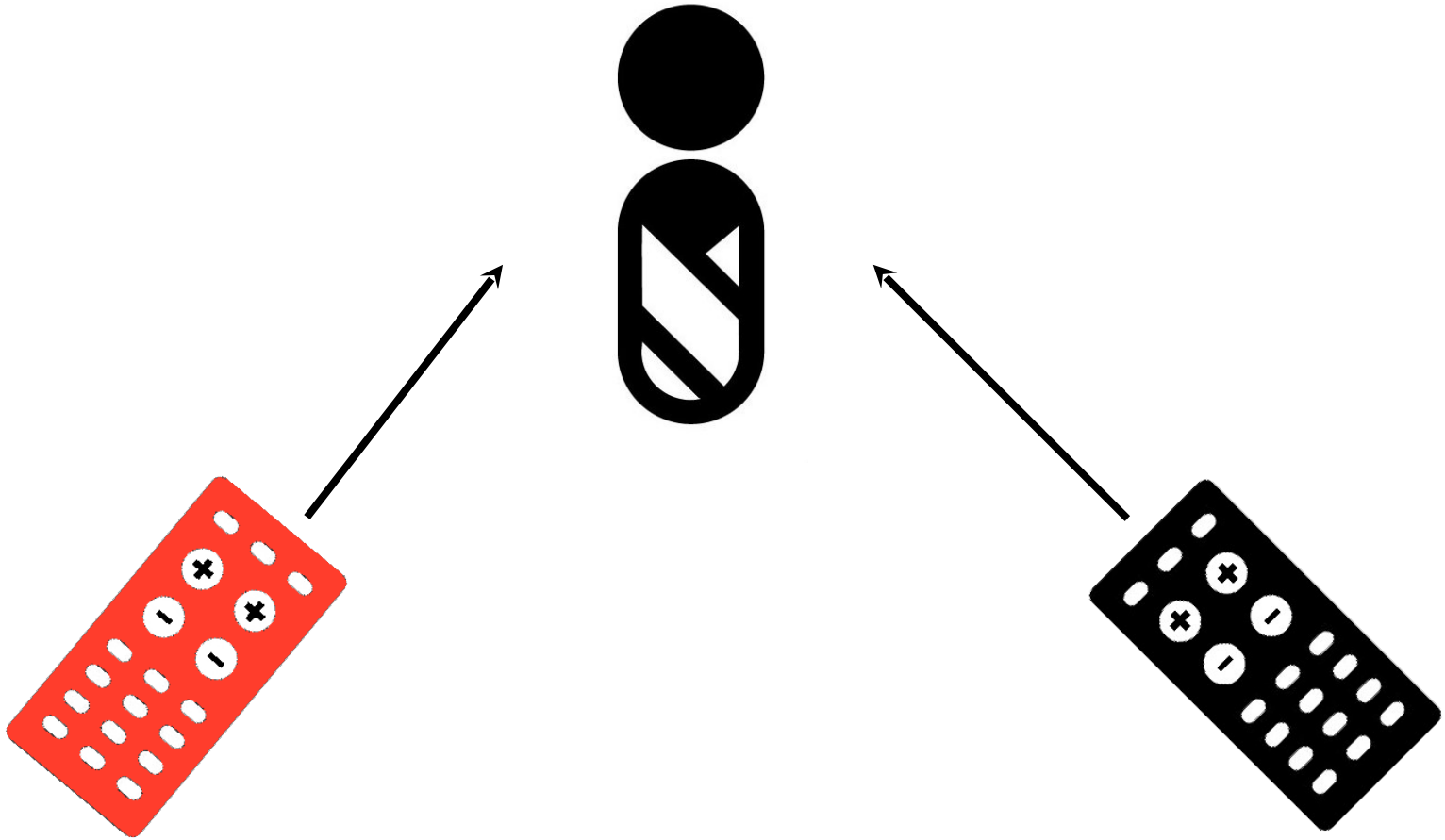
Ergebnis:

a ist: 1
b ist: 0

```
Human a = new Human();
Human b = a;

a.age = a.age + 1;
```

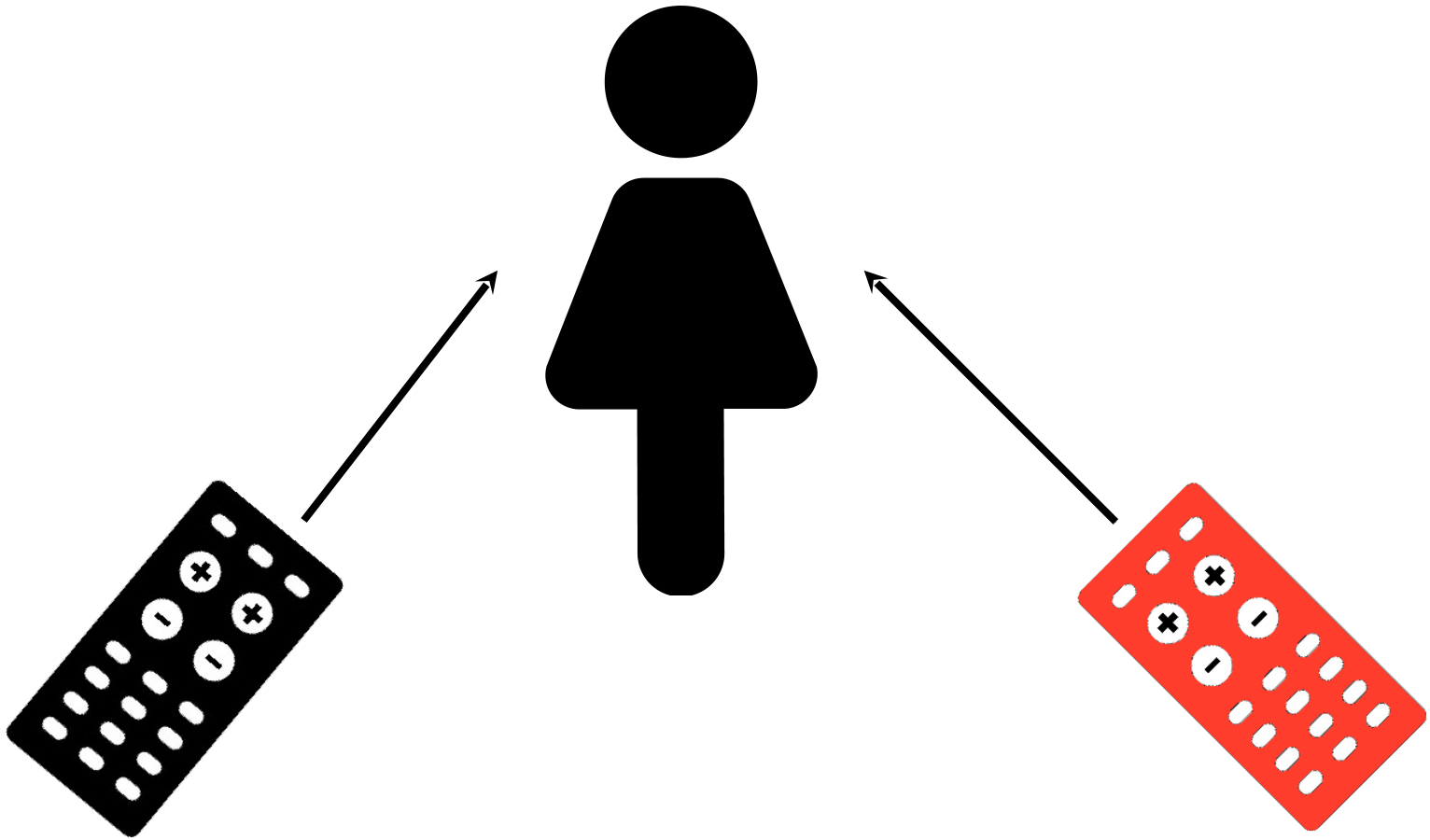
Ergebnis:

a.age ist: 1
b.age ist: 1 **!!!**



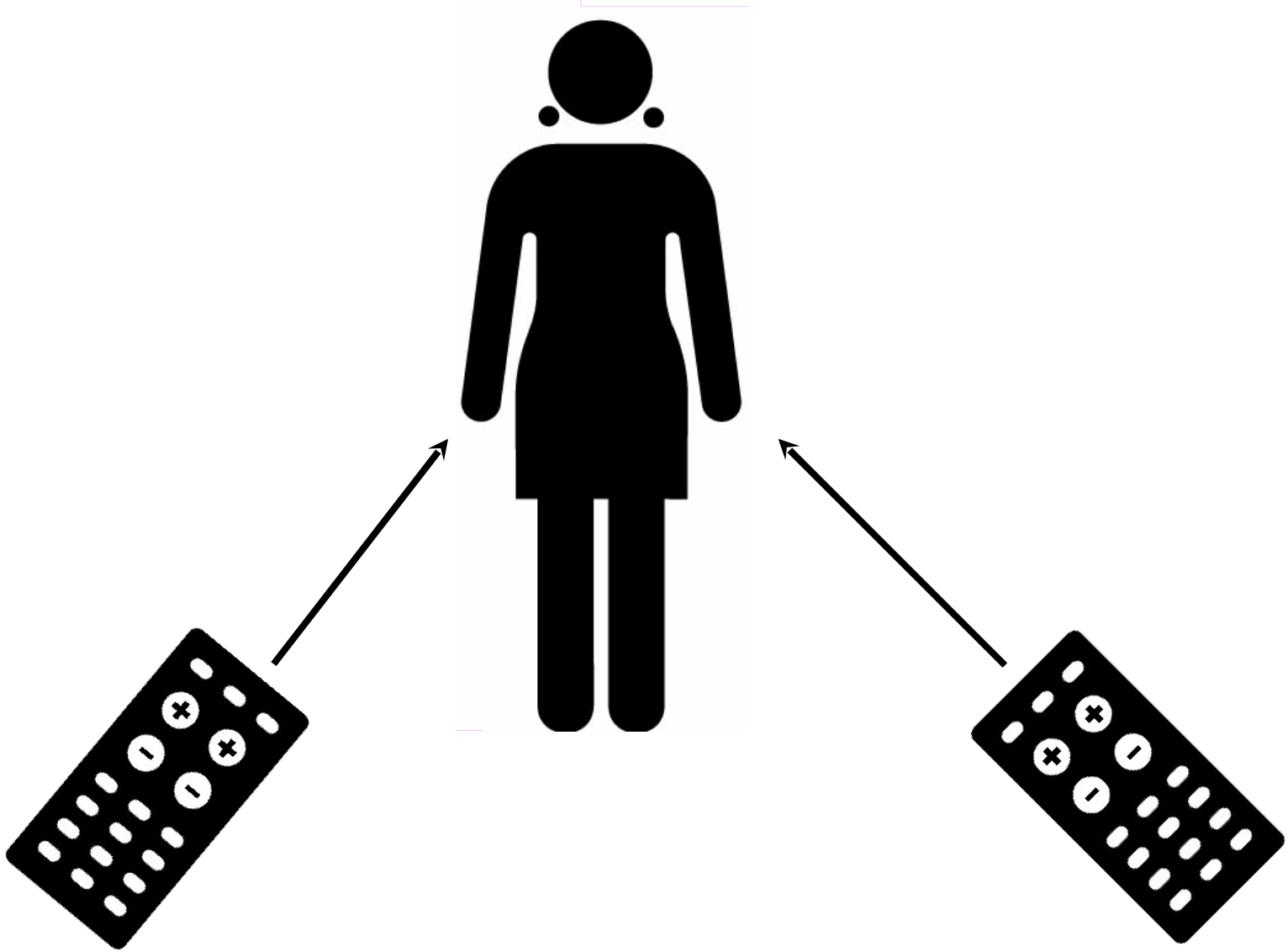
Referenz a

Referenz b



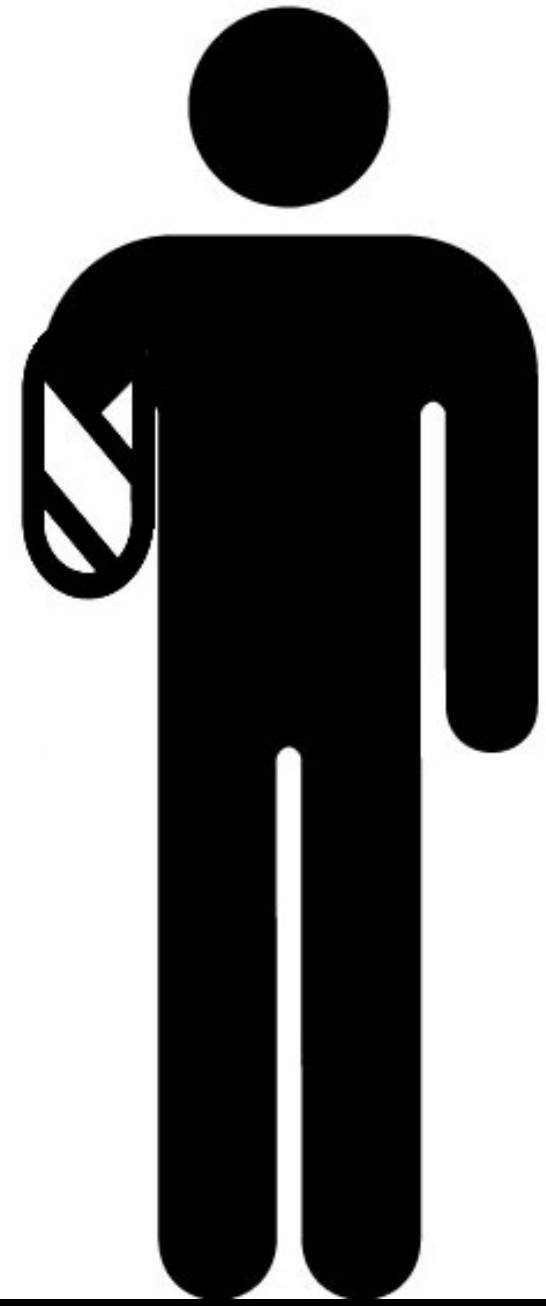
Referenz a

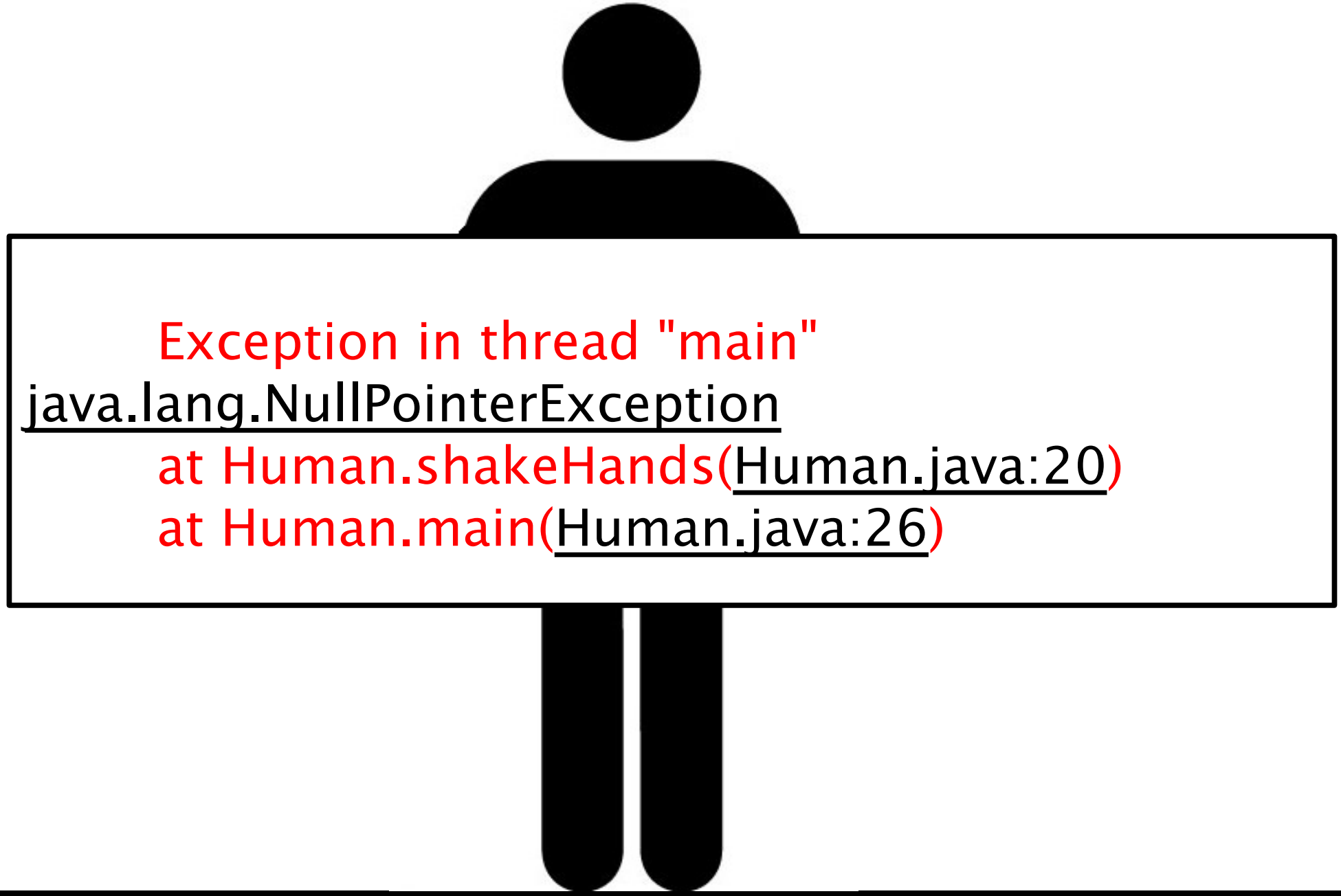
Referenz b



Referenz a

Referenz b




Exception in thread "main"
java.lang.NullPointerException
at Human.shakeHands(Human.java:20)
at Human.main(Human.java:26)

```
Human nobody;
nobody.celebrateBirthday();
```

Compilerfehler !

```
Human nobody = null;
nobody.celebrateBirthday();
```

Laufzeitfehler !

```
Human somebody = new Human();
somebody.celebrateBirthday();
```

OK

```
Human alsoSomebody = somebody;
alsoSomebody.celebrateBirthday();
```

OK


Picture by Helga Kopp (Helga_262), flickr.com

```
Human katrin= new Human();

katrin.age= 30;
katrin.celebrateBirthday();

System.out.println(„Age: “ + katrin.age);
```

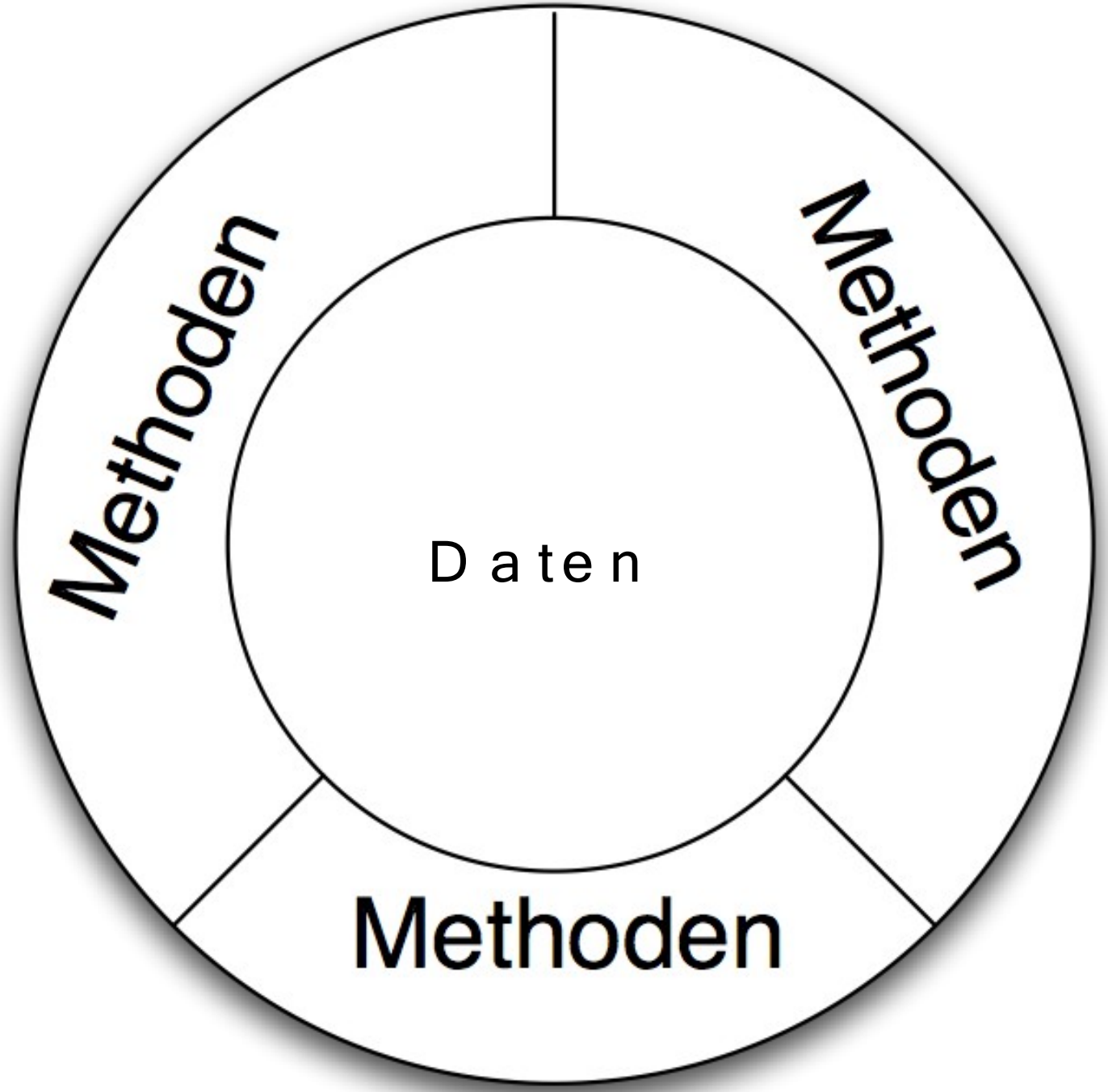
Ausgabe
Age: 31

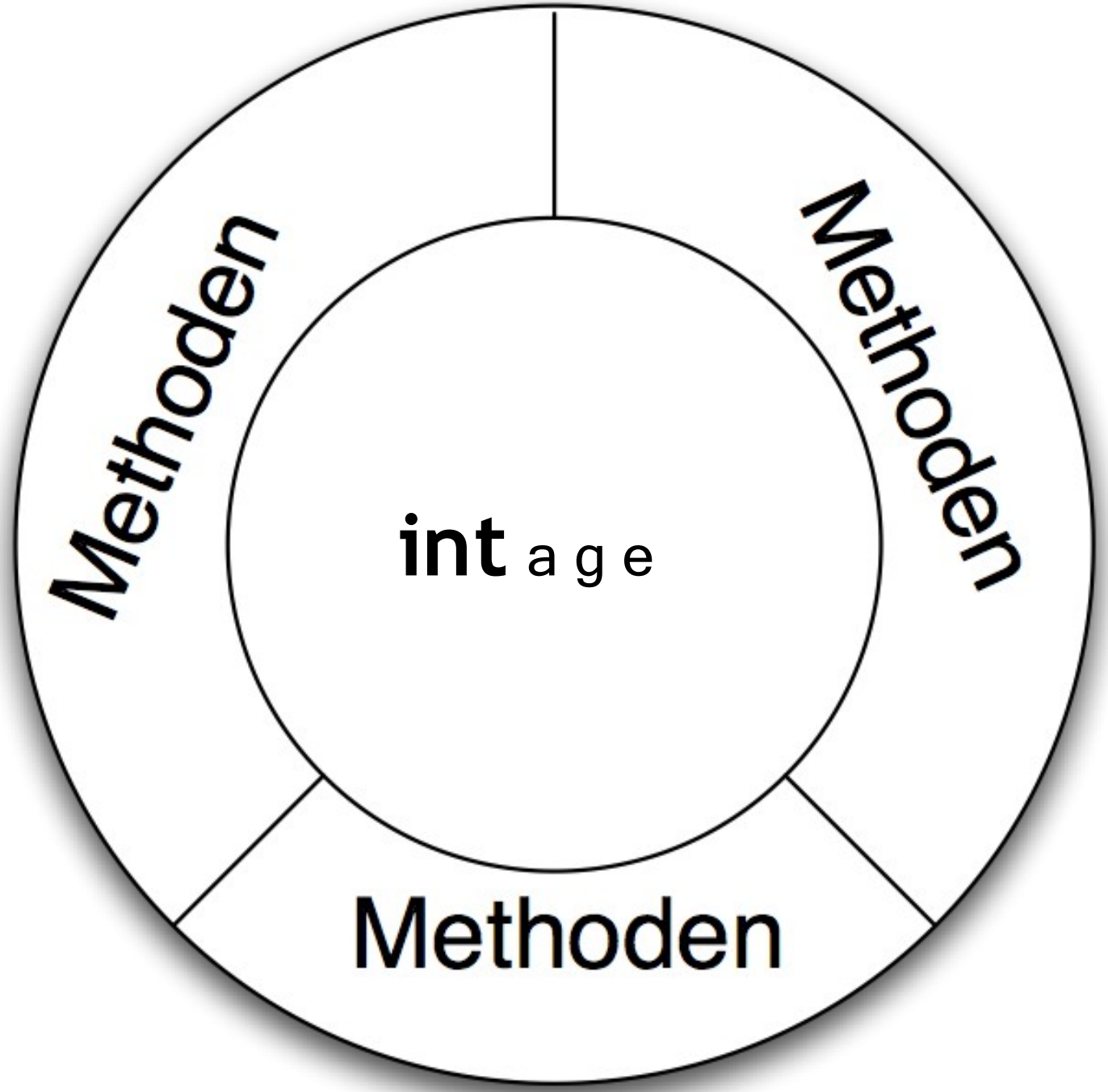
```
Human katrin= new Human();

katrin.age= -2;
katrin.celebrateBirthday();

System.out.println(„Age: “ + katrin.age);
```

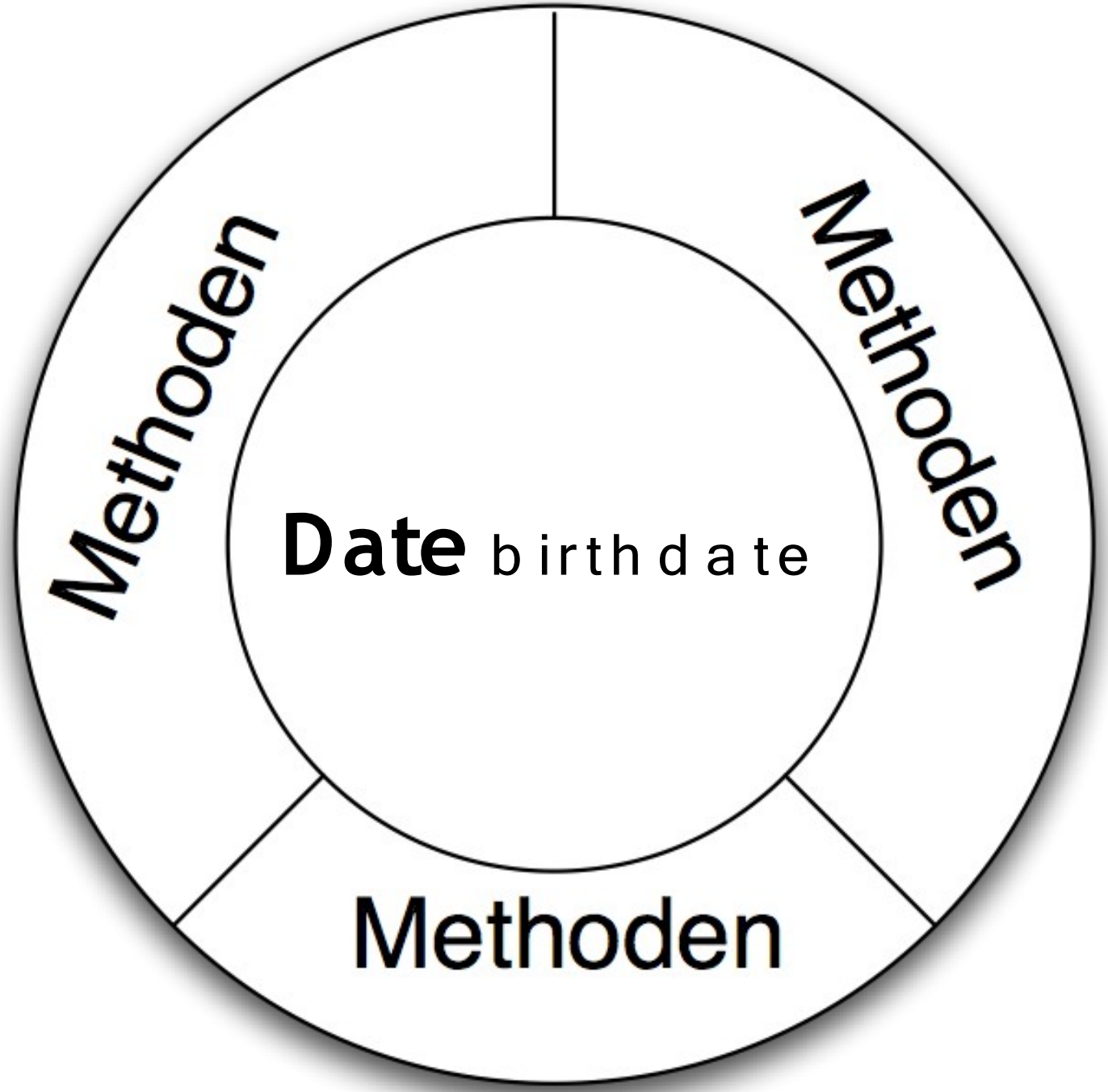
Ausgabe

Age: -1

```
class Human {

        String name;
        int age;

        void setAge(int anAge) {
                if(anAge > 0){
                        this.age= anAge;
                }
        }

        int getAge(){
                return this.age;
        }
}
```


Methoden
Methoden
Daten
Methoden


Methoden
Methoden
int age
Methoden


Methoden
Methoden
Date birthdate
Methoden

```
class Human {

  String name;
    int age;

    Human( String aName, int anAge ){
        this.name= aName;
        this.age= anAge;
    }

    void celebrateBirthday() {
        this.age++;
   }
}
```

```
static void main(String [] args) {
    Human robert = new Human(„Robert“, 29);
    robert.celebrateBirthday();
}
```

katrin.talk(„Conclusion“);

Danke!

Quellen:

Piktogramme: IIT Bombay
http://www.designofsignage.com

Fotos:
http://www.flickr.com