
Paradoxes.

Is this sentence true or false: This sentence is false.

In a small town, a barber cuts (only) the hair of all people who don’t cut their own hair. Who cuts the barber’s hair?

If you try to fail and succeed, have you failed?

Consider the set S of all sets that do not contain themselves. Does S contain itself?
About using method specifications

```java
public class FramingFrame {
    private JFrame partner = new JFrame();

    /** Create a partner at location … and with size … */
    public void createPartner() {
        partner.setLocation(…);
        partner.setSize(…);
    }

    /** Set partner’s location, size as defined in createPartner */
    public void resetPartner() { createPartner(); }
}
```

This is bad because

(1) `createPartner` does not do what the spec says.

(2) acc. to `createPartner`’s spec, `resetPartner` does more than it should.
Redoing the methods of previous slide

```java
public class FramingFrame {
    private JFrame partner;

    /** Create a partner at location ... and with size ... */
    public void createPartner() {
        partner = new JFrame();
        resetPartner();
    }

    /** Set partner’s location, size as defined in createPartner */
    public void resetPartner() {
        partner.setLocation(…);
        partner.setSize(…);
    }
}
```
A function produces a result

/** = smallest of b, c, d */

```java
public static int smallest(int b, int c, int d) {
    if (b <= c && b <= d) {
        return b;
    }
    // { The smallest is either c or d }
    if (c <= d) {
        return c;
    // { the smallest is d }
        return d;
    }
    return d;
}
```

Assertions
Top-down programming, stepwise refinement

We developed a method to anglicize numbers (e.g. from 25 produce “twenty five”). using stepwise refinement.

Please study section 2.5 on stepwise refinement.