

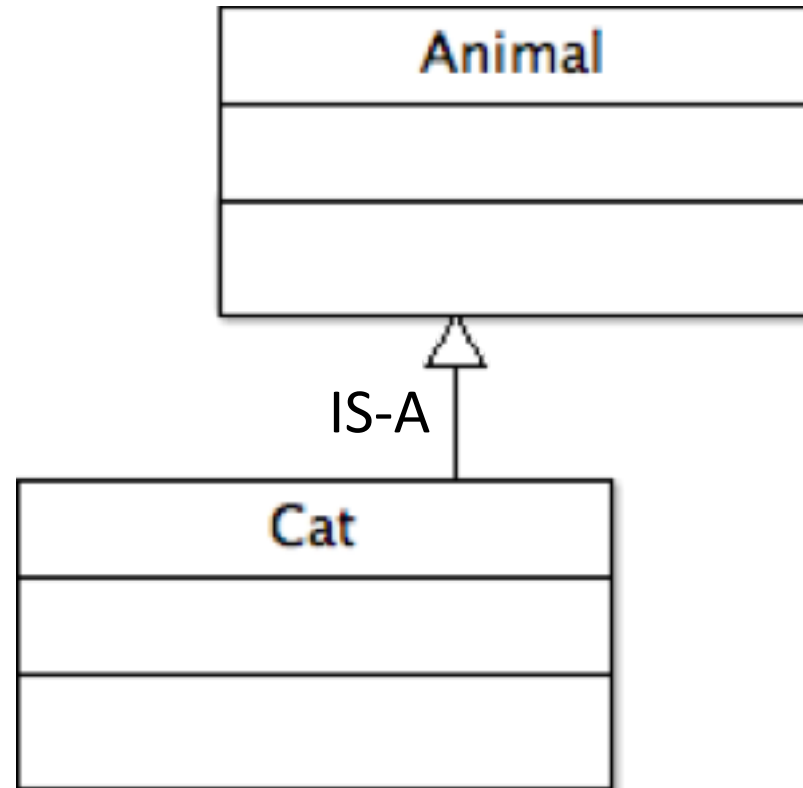
LSP



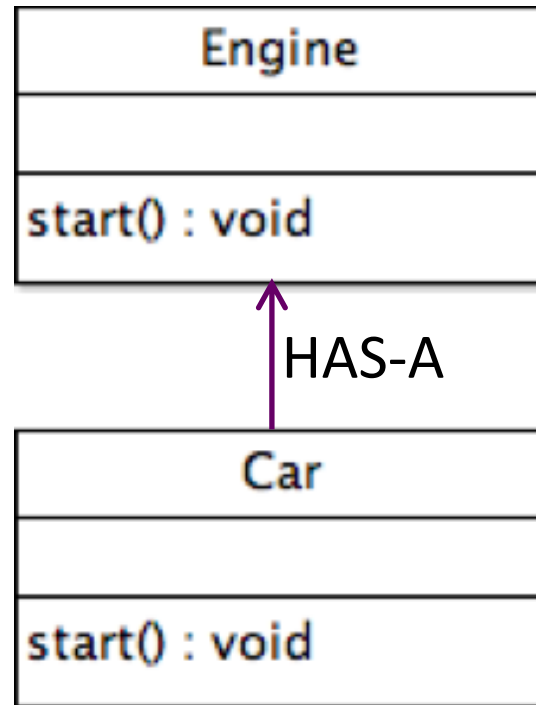
UC Leuven
Limburg
MOVING MINDS

Design principles

IS-A?



IS-A?



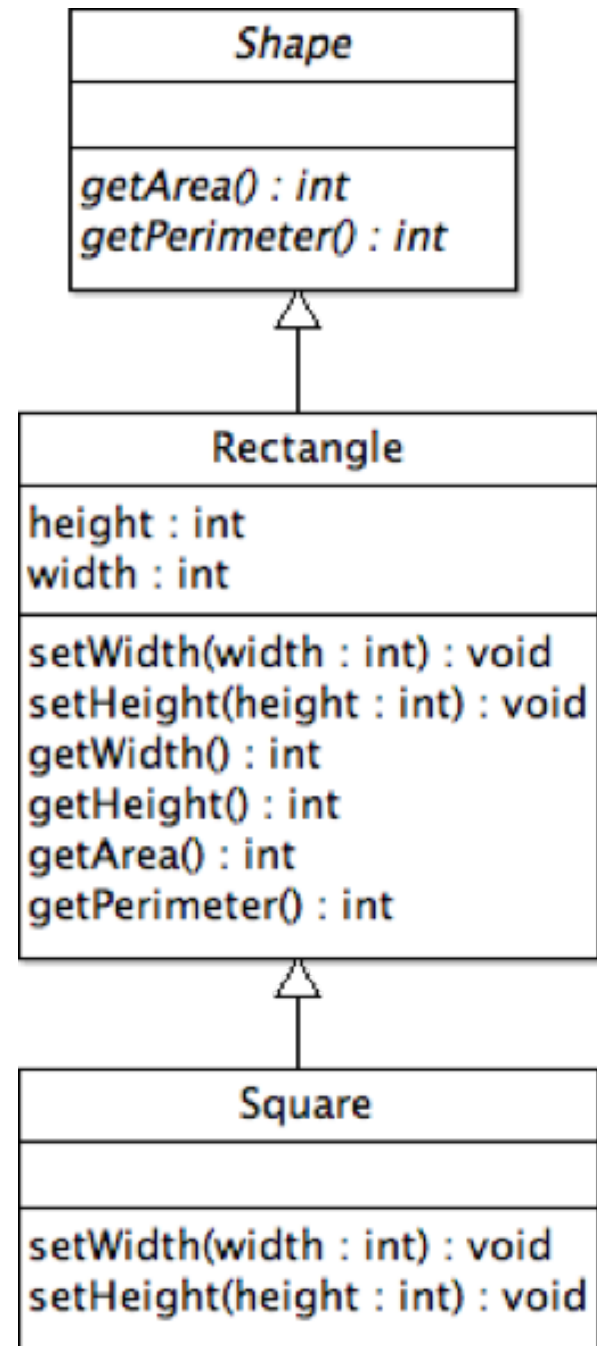
IS-A?

Shape

Rectangle

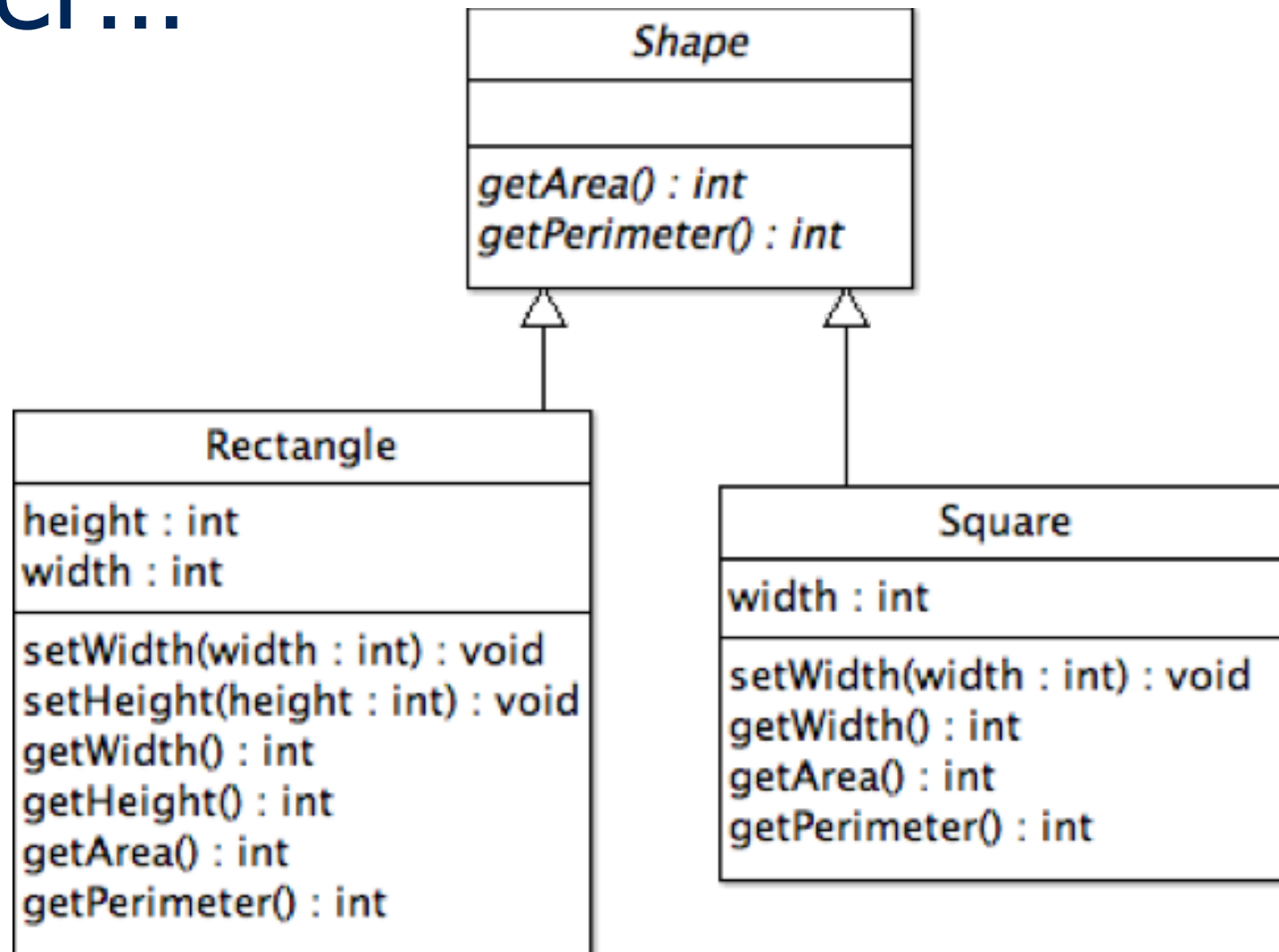
Square

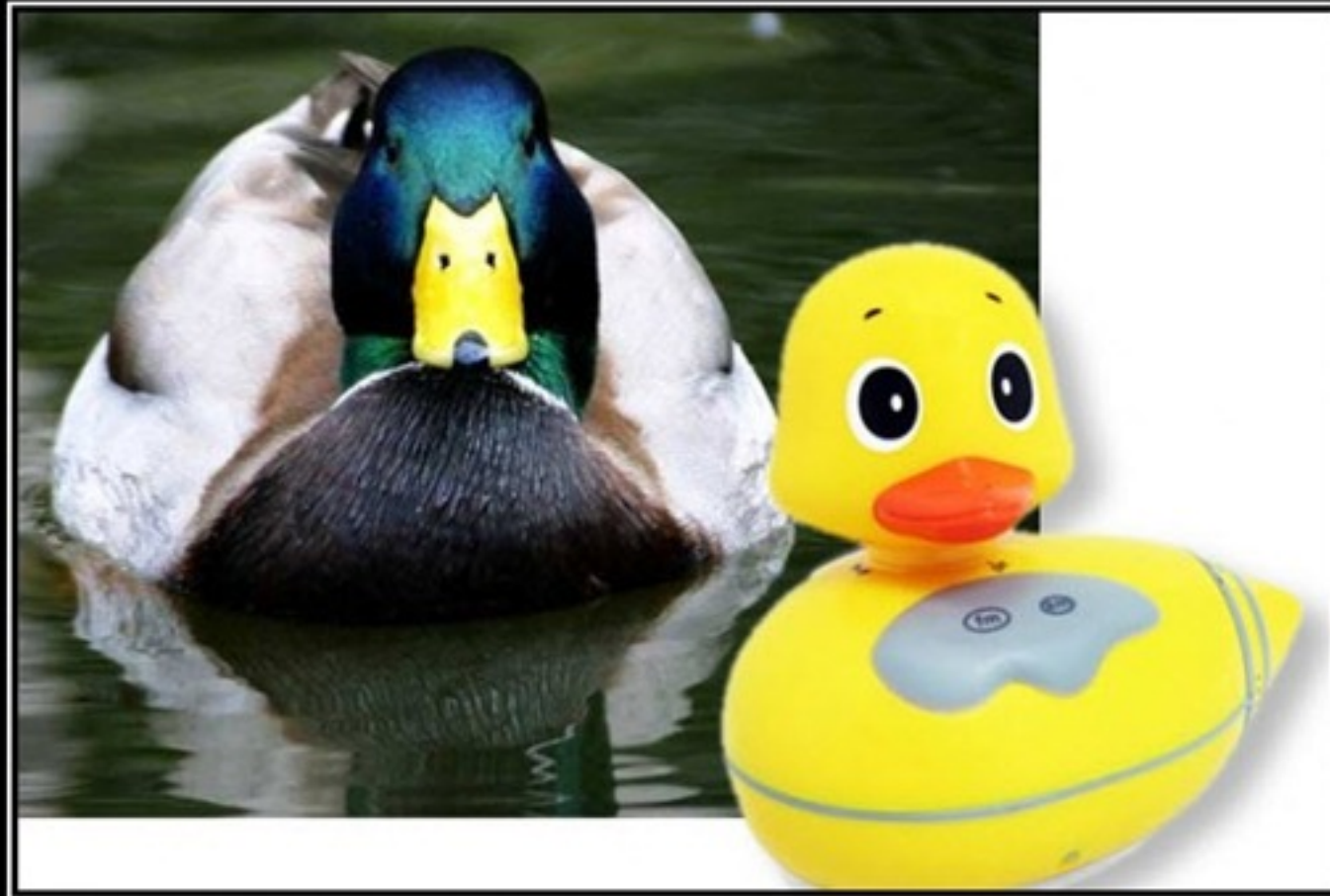
IS-A?



```
public class RectangleTest {  
    private Rectangle rectangle = new Square();  
  
    @Test  
    public void testGetArea(){  
        rectangle.setHeight(4);  
        rectangle.setWidth(5);  
  
        assertEquals(20, rectangle.getArea());  
    }  
  
    @Test  
    public void testGetPerimeter(){  
        rectangle.setHeight(4);  
        rectangle.setWidth(5);  
  
        assertEquals(18, rectangle.getPerimeter());  
    }  
}
```

Better...





LISKOV SUBSTITUTION PRINCIPLE

If It Looks Like A Duck, Quacks Like A Duck, But Needs Batteries - You Probably Have The Wrong Abstraction

Liskov substitution principle

"If a program module is using the reference of a Base class, then it should be able to replace the Base class with a Derived class without affecting the functioning of the program module"

Everywhere you use an instance of a Base class, you should be able to replace that instance with an instance of a sub class.

Sub classes are allowed to do MORE than a super class, but NOT LESS.

Quiz

Can you override a method of a superclass and...

- Change the access modifier

- Change the throw clause

- Change the return type

Barbara Liskov

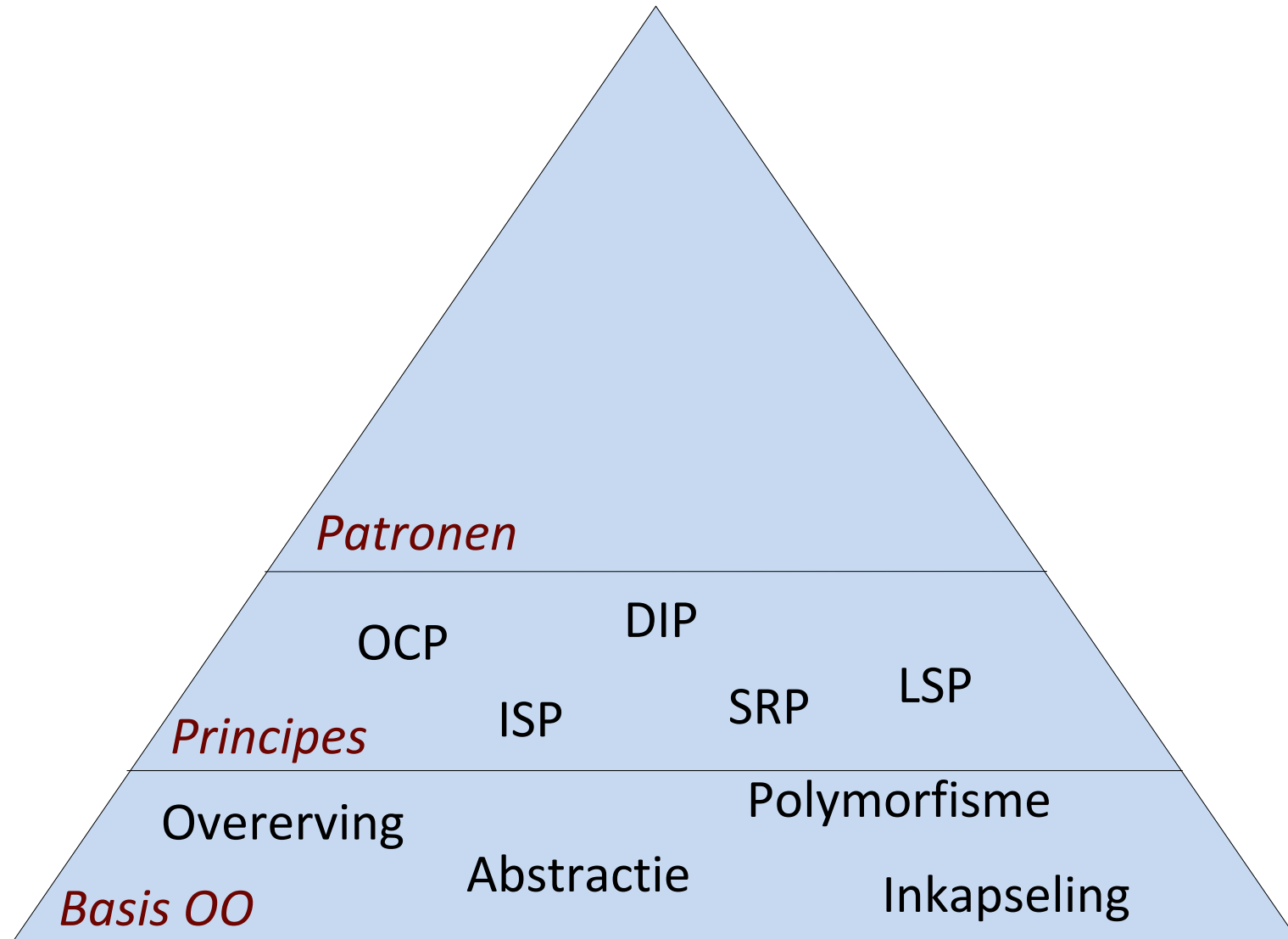


- *Barbara Liskov – In her later years she lost the stylish eyewear, and therefore I had to use an earlier photo. If you think that her Harry Potter spectacles are amazing, just wait until you hear that she was the first woman to receive a computer science PHD. Oh, and she helped develop the first language with data abstractions. And the first distributed language. And she rocked the house.*

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SOLID

- SRP
- OCP
- LSP
- ISP
- DIP

