Learning Object-Oriented Programming and Design with TDD

About Types and Lookup (Interface variation)
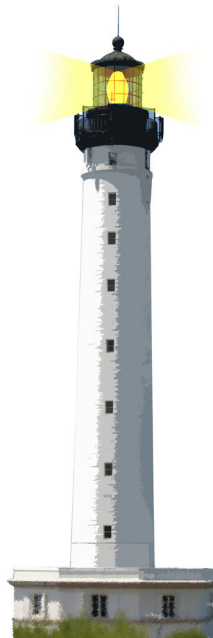
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Remember: Static vs. Dynamic Types

```
A a = new B();
```

- The static type of variable `a` is A i.e., the statically declared class to which it belongs.
  - The static type never changes.
- The dynamic type of `a` is B i.e., the class of the object currently bound to a.
  - The dynamic type may change throughout the program.

Setting the stage

```java
public interface Acceptable {
    public void accept();
}
```

```java
public class Person implements Acceptable {
    public void accept(){
        System.out.println("accept");
    }
    public void agree(){
        System.out.println("agree");
    }
}
```

Normal

```
Person p = new Person();
p.accept();
p.agree();
```

```
accept
agree
```

Normal too

```
Person p = new Person();
Acceptable r = p;
r.accept;
```

```
accept
```

Influence of static type

```
Person p = new Person();
Acceptable r = p;
r.agree(); >>> BREAK!
```

```
java: cannot find symbol
 symbol:   method agree()
 location: variable a of type designCorner.Acceptable
```

- At compile time, the typechecker does not use the dynamic type of the object.
- Within the static type Acceptable there is no method agree().
- So the compiler rejects the program as invalid (even though at runtime no error would occur).

What you should know

- Static types are used to identify at compile time which methods to lookup
- Lookup will look for such method at runtime

A course by Stéphane Ducasse
`http://stephane.ducasse.free.fr`

Reusing some parts of the Pharo Mooc by

Damien Cassou, Stéphane Ducasse, Luc Fabresse
`http://mooc.pharo.org`