Under the Hood: Method Calls

This slidedeck shows how method calls are evaluated under the hood.

It shows the meaning of `this` in Java code.

KNOWN CLASSES

```
Public class Dillo {
   public int length;
   public boolean isDead;

   Dillo (int length, boolean isDead) {
     this.length = length;
     this.isDead = isDead;
   }

   public boolean canShelter() {
     return this.length > 60 && this.isDead;
   }
}
```

HEAP (OBJECTS)

ENVIRONMENT

PROGRAM (current expression highlighted)

```
Dillo babyDillo = new Dillo(8, false);

boolean answer = babyDillo.canShelter();
```

KNOWN CLASSES

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Public class Dillo {
   public int length;
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   }
}
```

HEAP (OBJECTS)

Dillo

length = 8
isDead = false
public boolean canShelter() ...

Every object contains its values for the fields and *the code for all of the methods*

Objects are self-contained

ENVIRONMENT

PROGRAM (current expression highlighted)

```
Dillo babyDillo = new Dillo(8, false);

boolean answer = babyDillo.canShelter();
```

KNOWN CLASSES

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}
```

HEAP (OBJECTS)

Dillo
length = 8
isDead = false
public boolean canShelter() ...

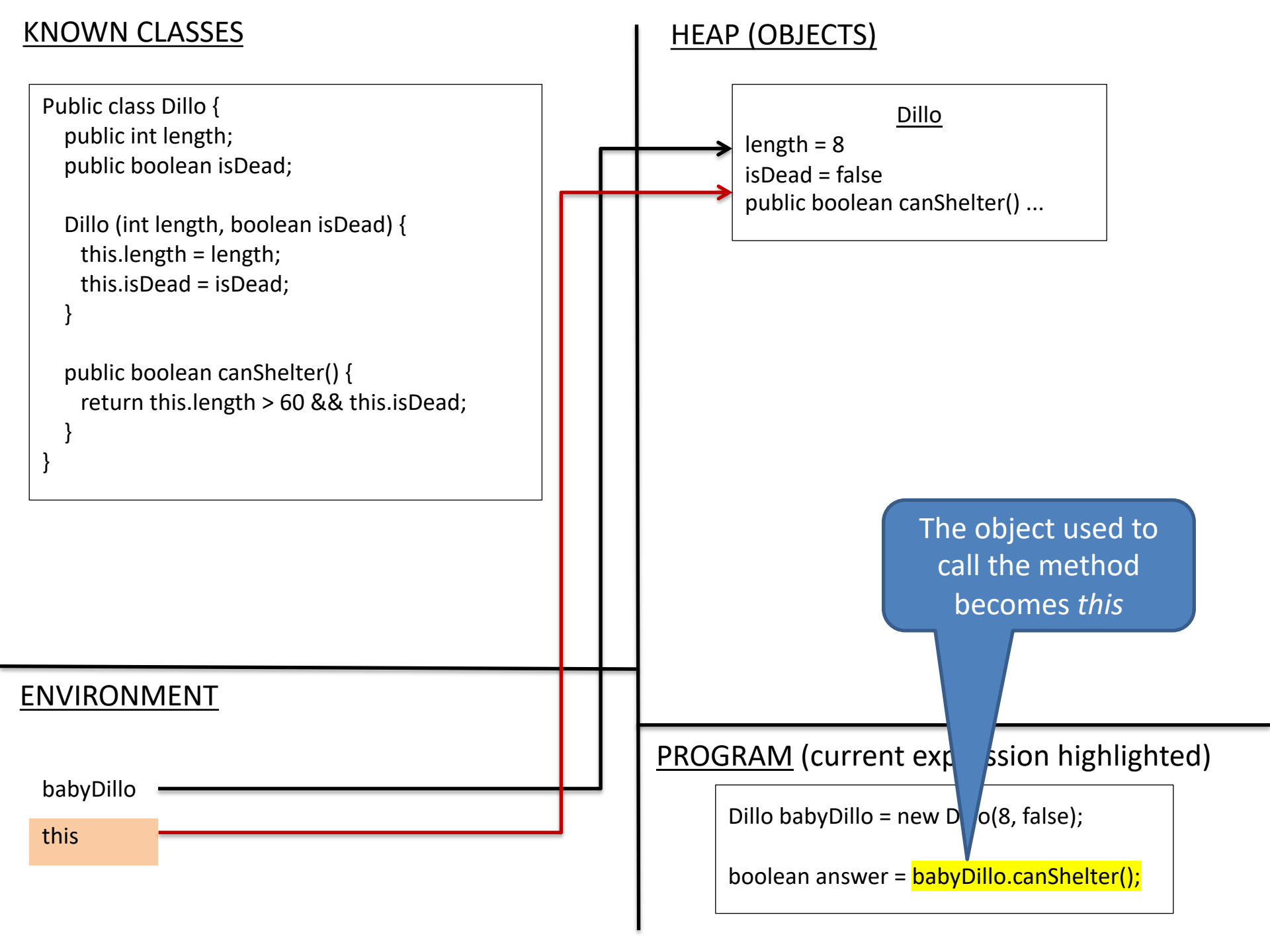
ENVIRONMENT

babyDillo

PROGRAM (current expression highlighted)

```
Dillo babyDillo = new Dillo(8, false);

boolean answer = babyDillo.canShelter();
```


KNOWN CLASSES
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public int length;
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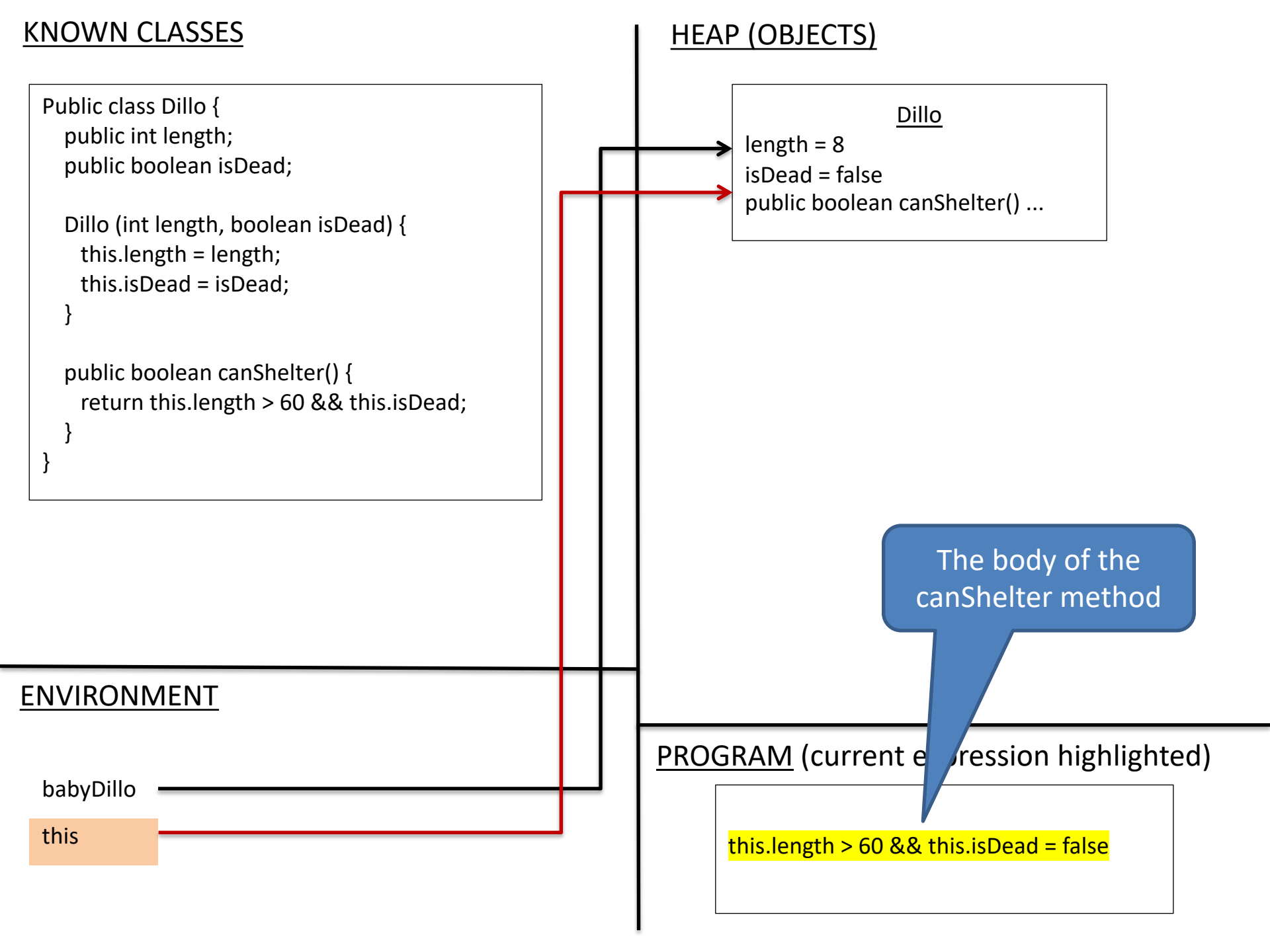
Dillo (int length, boolean isDead) {
this.length = length;
this.isDead = isDead;
}
public boolean canShelter() {
return this.length > 60 && this.isDead;
}
}
HEAP (OBJECTS)
Dillo
length = 8
isDead = false
public boolean canShelter() ...
The object used to call the method becomes this
ENVIRONMENT
babyDillo
this
PROGRAM (current exp ssion highlighted)
Dillo babyDillo = new D o(8, false);
boolean answer = babyDillo.canShelter();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Dillo (int length, boolean isDead) {
this.length = length;
this.isDead = isDead;
}
public boolean canShelter() {
return this.length > 60 && this.isDead;
}
}
HEAP (OBJECTS)
Dillo
length = 8
isDead = false
public boolean canShelter() ...
The body of the canShelter method
ENVIRONMENT
babyDillo
this
PROGRAM (current expression highlighted)
this.length > 60 && this.isDead = false

KNOWN CLASSES

```
Public class Dillo {
   public int length;
   public boolean isDead;

   Dillo (int length, boolean isDead) {
     this.length = length;
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   }

   public boolean canShelter() {
     return this.length > 60 && this.isDead;
   }
}
```

HEAP (OBJECTS)

Dillo
length = 8
isDead = false
public boolean canShelter() ...

ENVIRONMENT

babyDillo

answer = false

Once the method call finishes, *this* is removed from the environment

PROGRAM (current expression highlighted)

```
Dillo babyDillo = new Dillo(8, false);

boolean answer = babyDillo.canShelter();
```