

Memory Models

Part 2: Objects



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by Christine Alvarado, Mia Minnes, and Leo Porter, 2015.

By the end of this video you will be able to...

- Draw memory models for reasoning about variable values for object type data
- Update memory models to trace the state of the variables in Java code



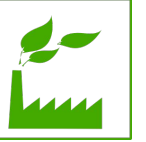
boolean, byte, short, int,
long, float, double, char

Arrays and classes

Primitive types vs. Object types

```
int var1 = 52;
```

```
SimpleLocation ucsd = new SimpleLocation(32.9, -117.2);
```



```
int var1 = 52;
```



```
SimpleLocation ucsd;
```

```
ucsd = new SimpleLocation(32.9, -117.2);
```

```
SimpleLocation lima = new SimpleLocation(-12.0, -77.0);
```

```
lima.latitude = -12.04;
```

var1

52

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int var1 = 52;
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var1

52

ucs

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var1	52
ucsd	

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var1 52

ucsd

The heap

@3
4

SimpleLocation
object



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var1 52

ucsd

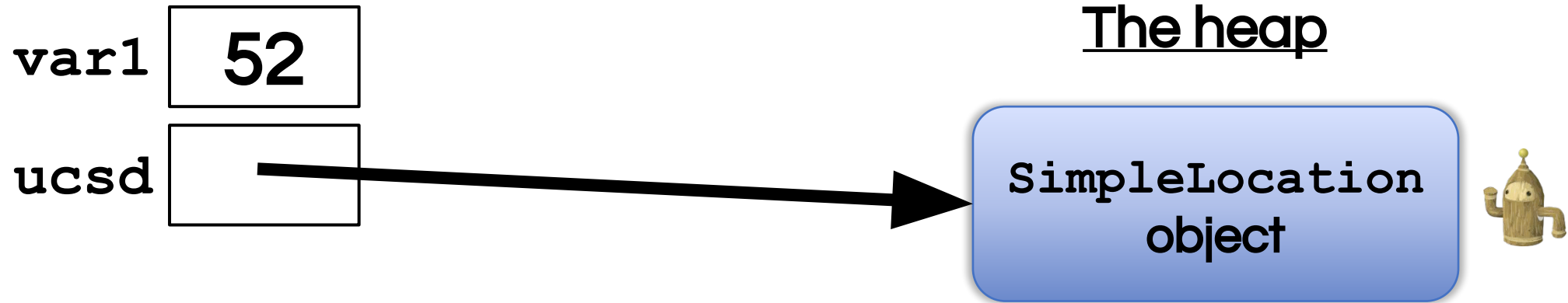
The heap

@3
4

SimpleLocation
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@3
4

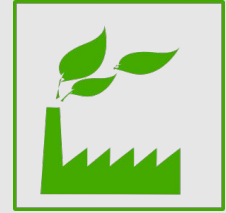
@3
4

The heap

SimpleLocation
object



```
public class SimpleLocation
{
    private double latitude;
    private double longitude;
}
```



var1 52

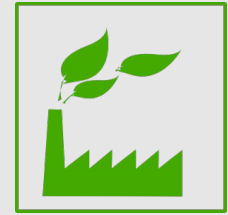
ucsd

The heap

SimpleLocation
object



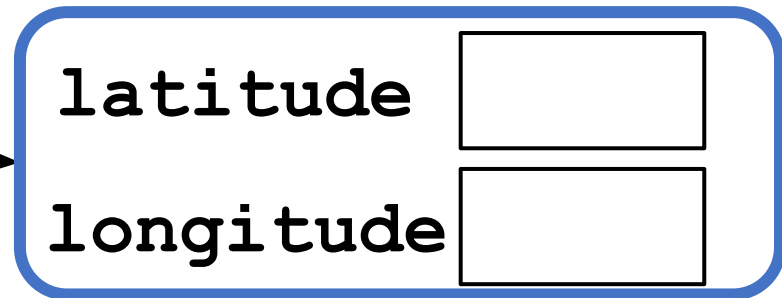
```
public class SimpleLocation
{
    private double latitude;
    private double longitude;
}
```



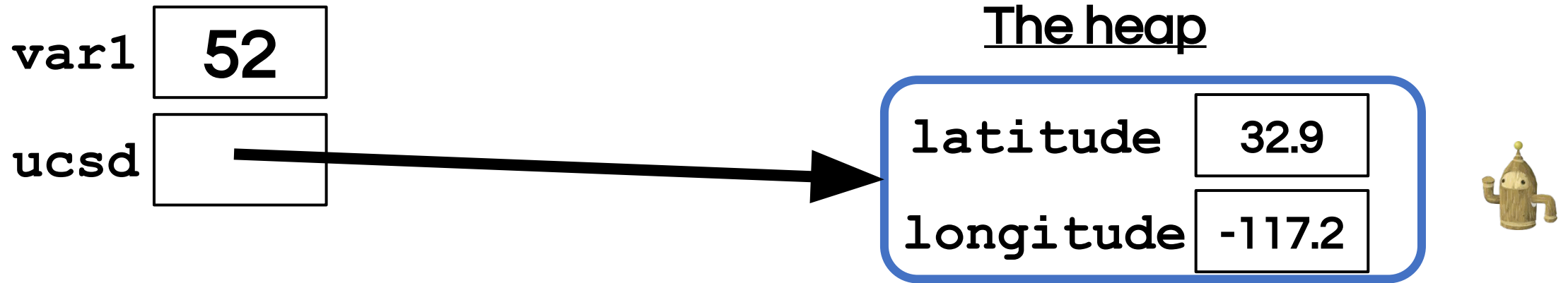
var1 52

ucsd

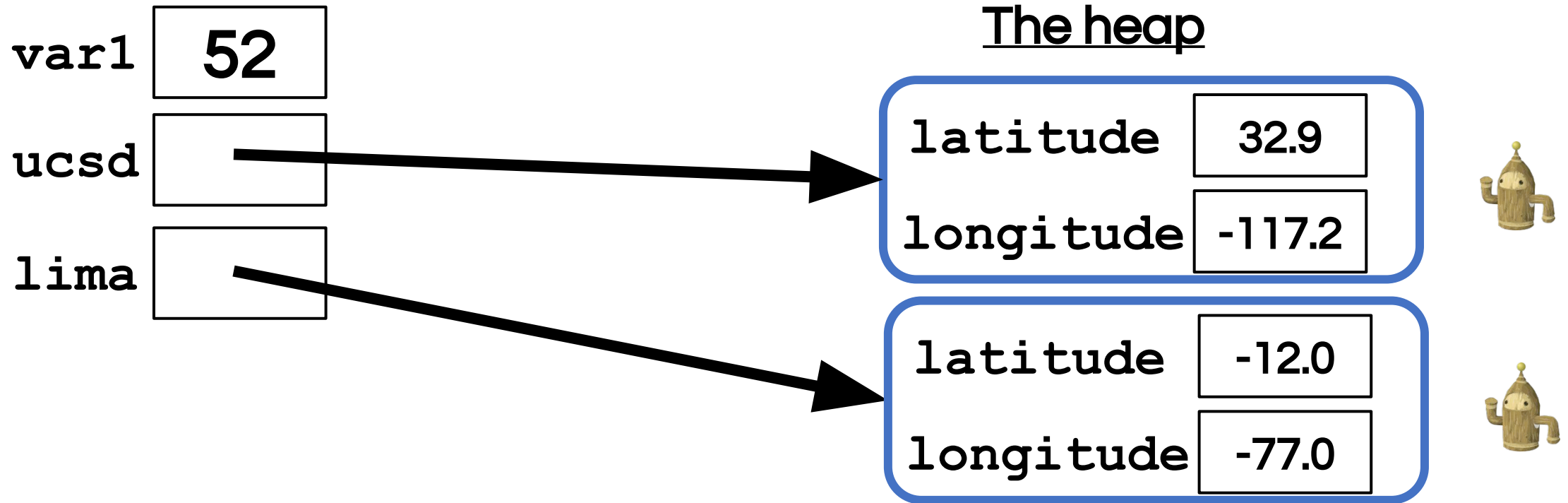
The heap



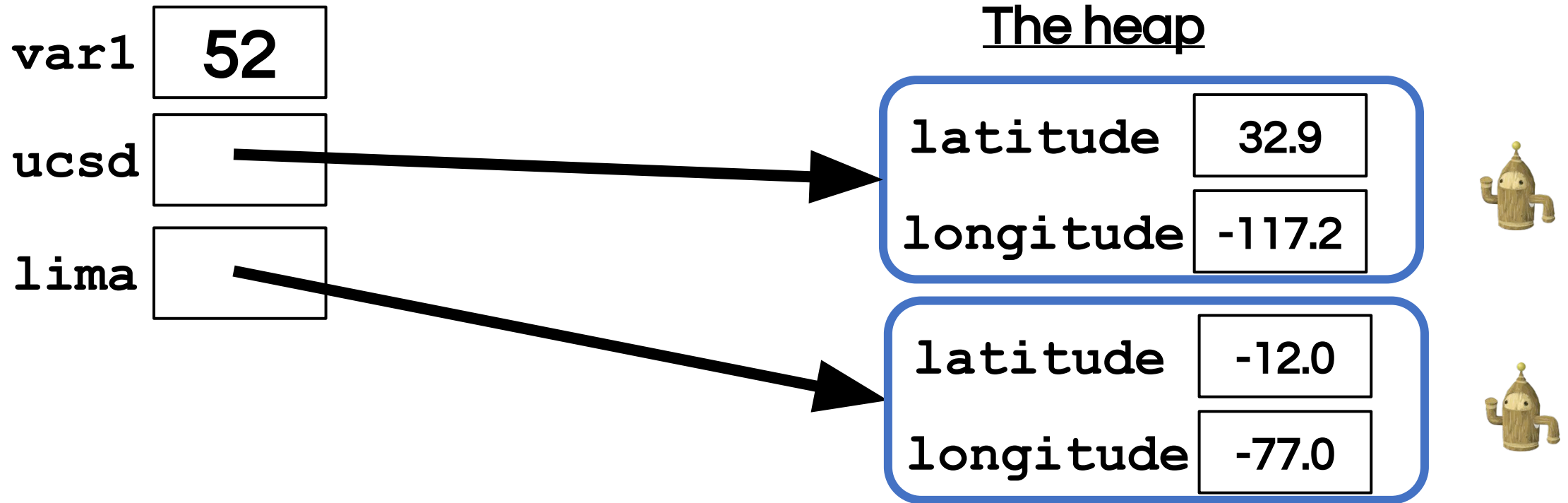
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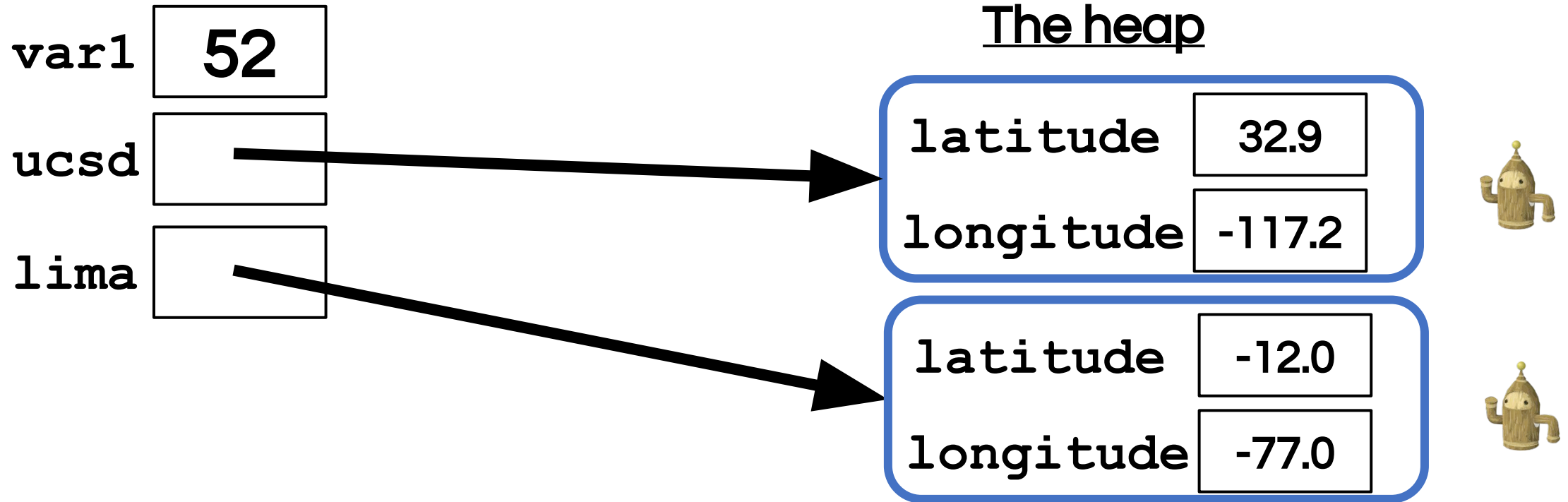


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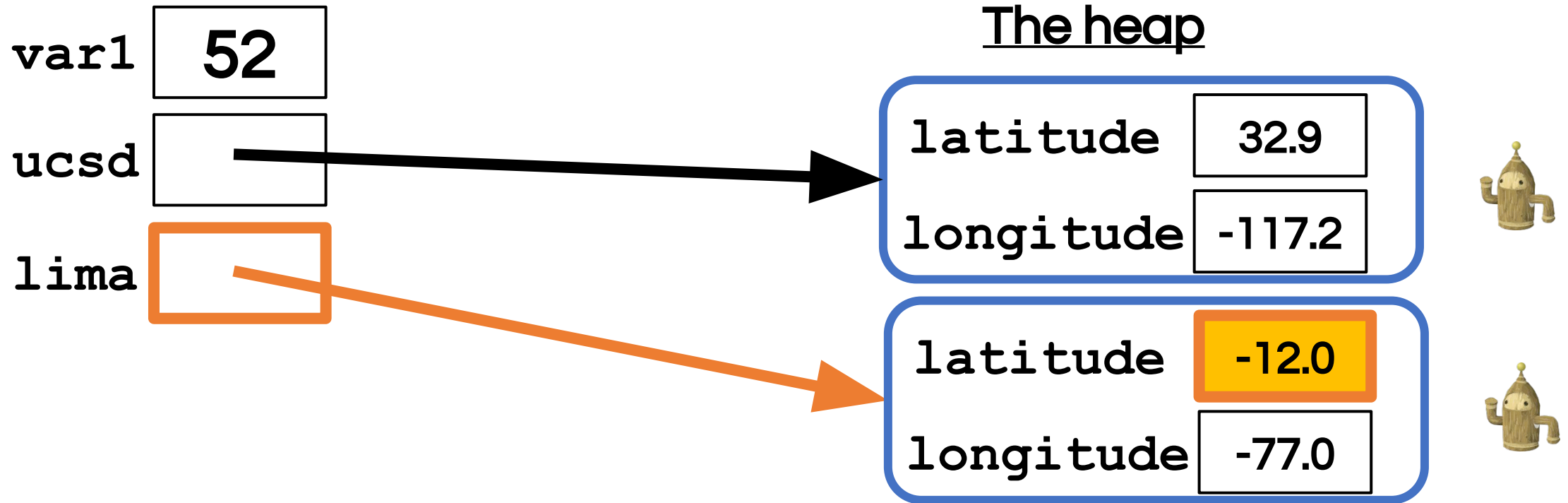
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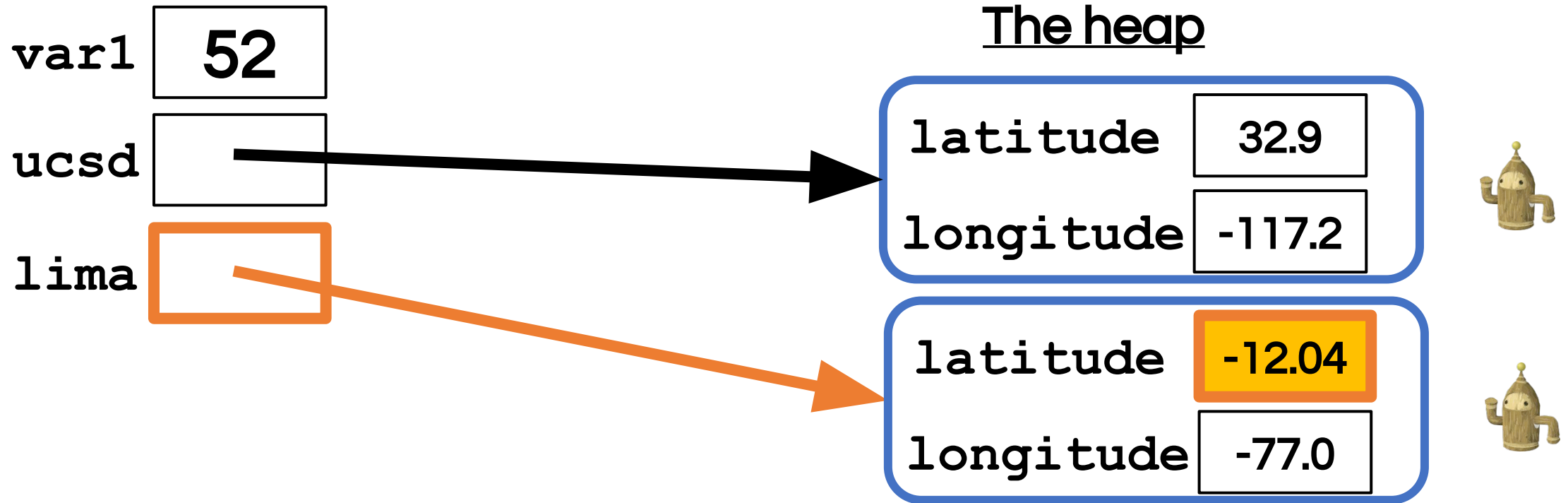
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lima.latitude = -12.04; ←
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