Python's Expressions

Using Operators and Operands

by

Lilian Blot

A statement is an instruction that the Python interpreter can execute.

Python shell

```
>>> name = 'Lilian Blot'
>>> print(name)
Lilian Blot
>>>
```

An expression is a combination of values, variables, and operators.

Python shell

```
>>> 'Dr ' + name
'Dr Lilian Blot'
>>>
```

Operators are special symbols that represents computations like addition and multiplication.

The values the operator uses are called operands.

As in Mathematics, when more than one operator appear in an expression, the order of evaluation depends on the rules of precedence.

the result of `3 + 4 * 2` is `11`, not `14`

Operators having same precedence are evaluated from left to right.

Python shell

```
>>> 3*2/6*4
4.0
>>> 3*2/(6*4)
0.25
>>>
```

Parentheses have the highest precedence:

the result of `(3 + 4) * 2` is 14, not 11

Use of parentheses is encouraged in long and complex expressions.

The **left-hand** side of the assignment operator has to be a variable, not an expression.

Python shell

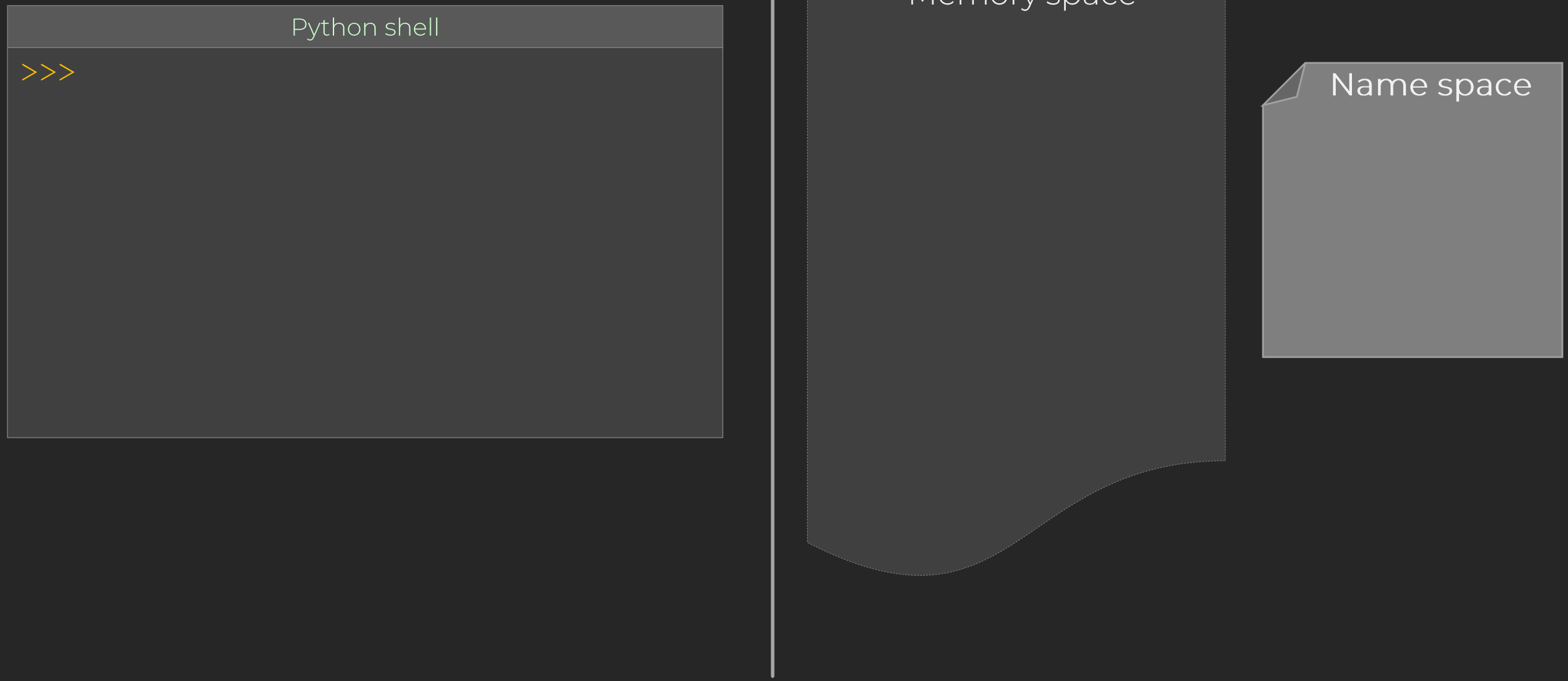
```
>>> 'Dr ' + name = title_name
SyntaxError: can't assign to operator
>>>
```

Expressions can be combined to create more complex expressions

For example:

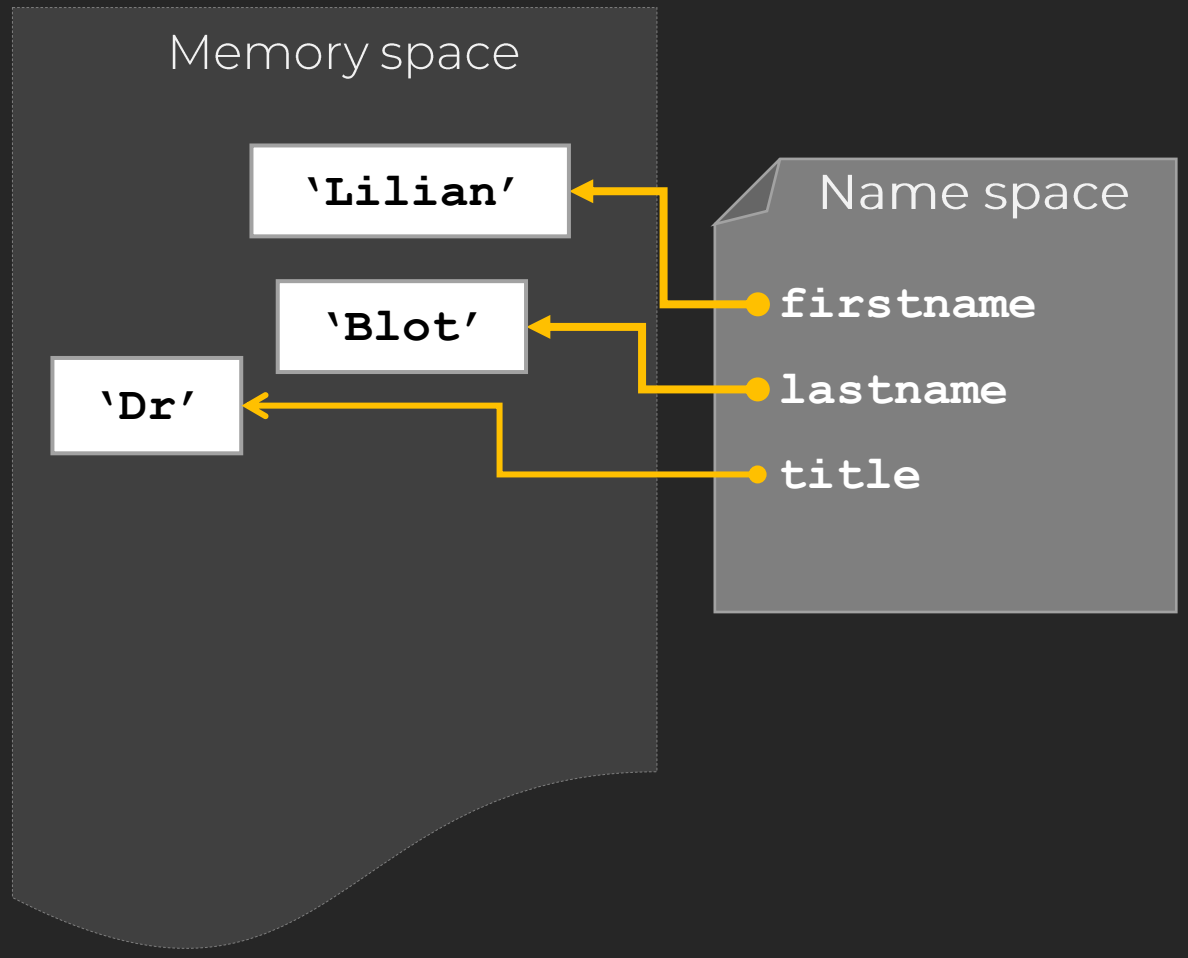
<expression_1> operator <expression_2>

```
  (age * 10)     +     (height_cm / 100)
print(('Dr' + name) +     ("">"* 3))
```


Python shell
>>>
Memory space
Name space

Python shell

```
>>> firstname = 'Lilian'
>>> lastname = 'Blot'
>>> title = 'Dr'
>>>
```



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>>> title = 'Dr'
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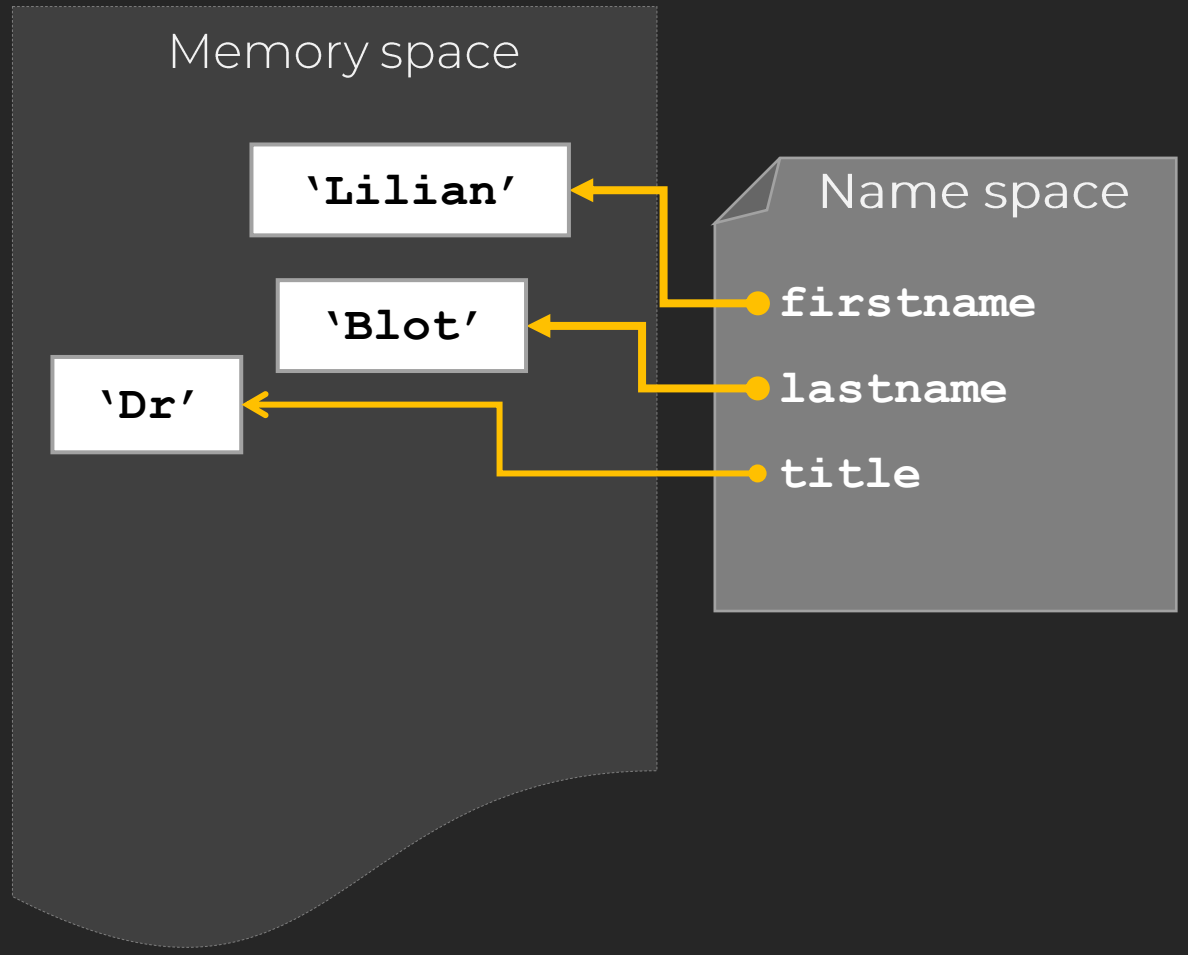
```



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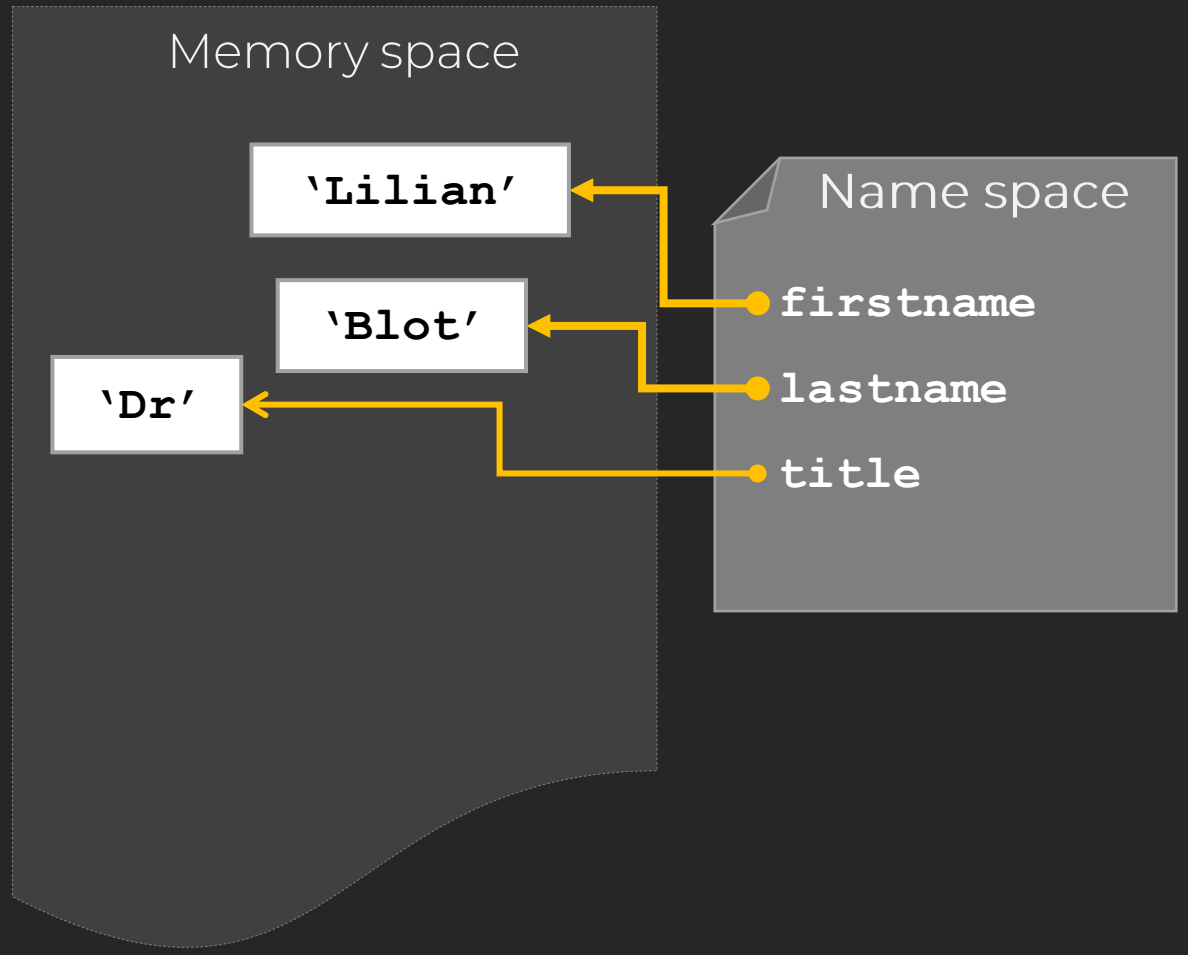

Python shell

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>>> firstname = 'Lilian'
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>>> title = 'Dr'
>>> name = firstname + ' ' + lastname
```
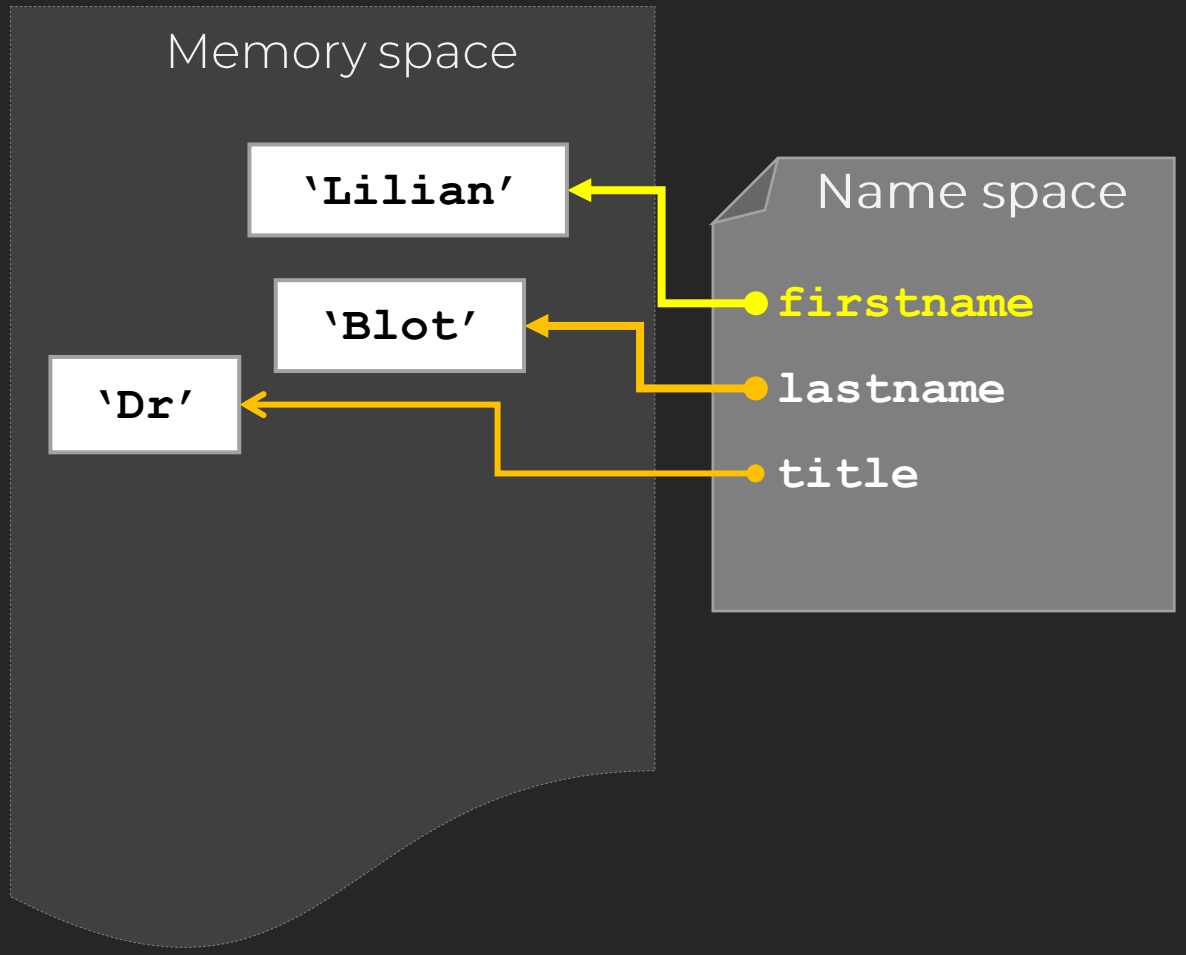

'Lilian' + ' '



Python shell

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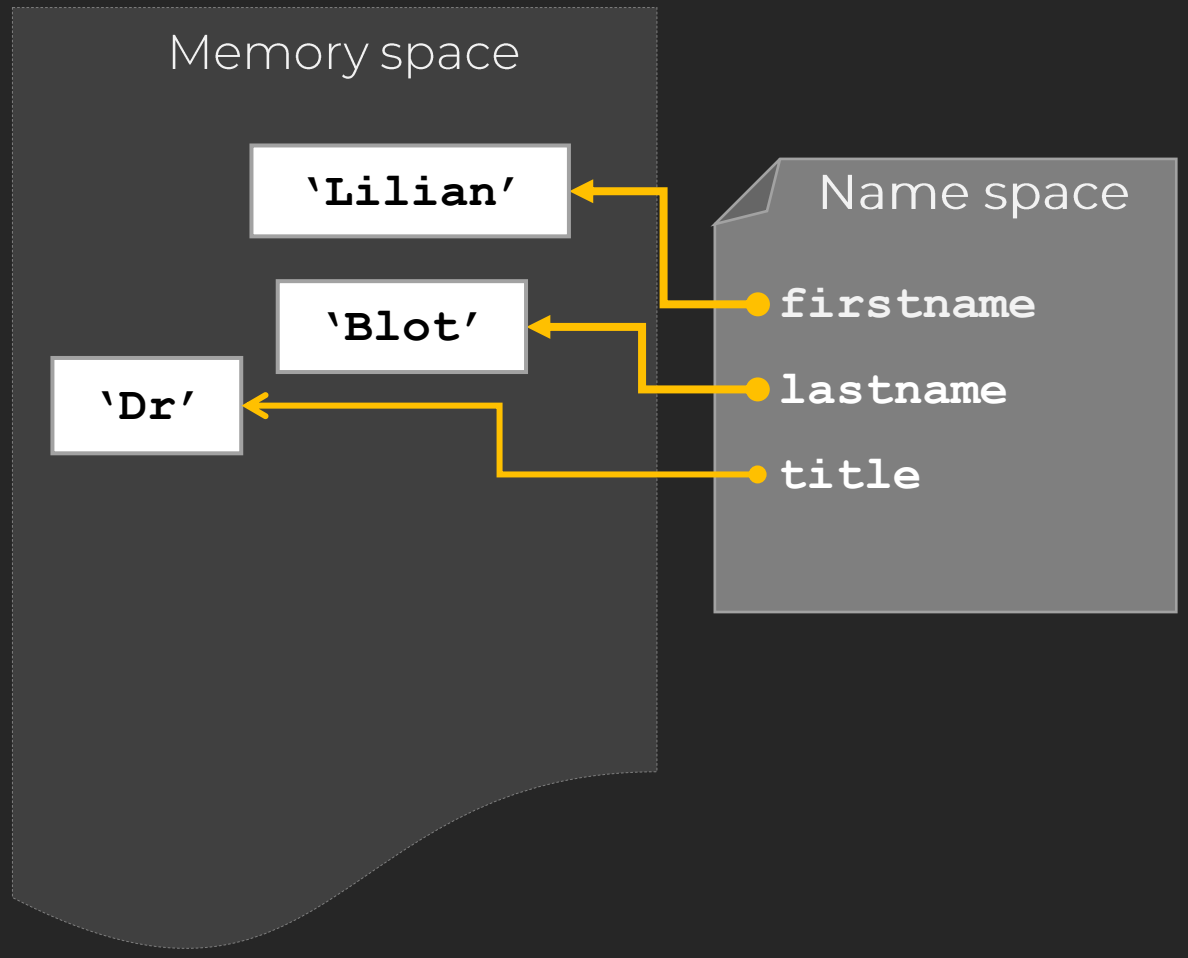
>>> title = 'Dr'
>>> name = firstname + ' ' + lastname
```

'Lilian '



Python shell

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>>> title = 'Dr'
>>> name = firstname + ' ' + lastname
```
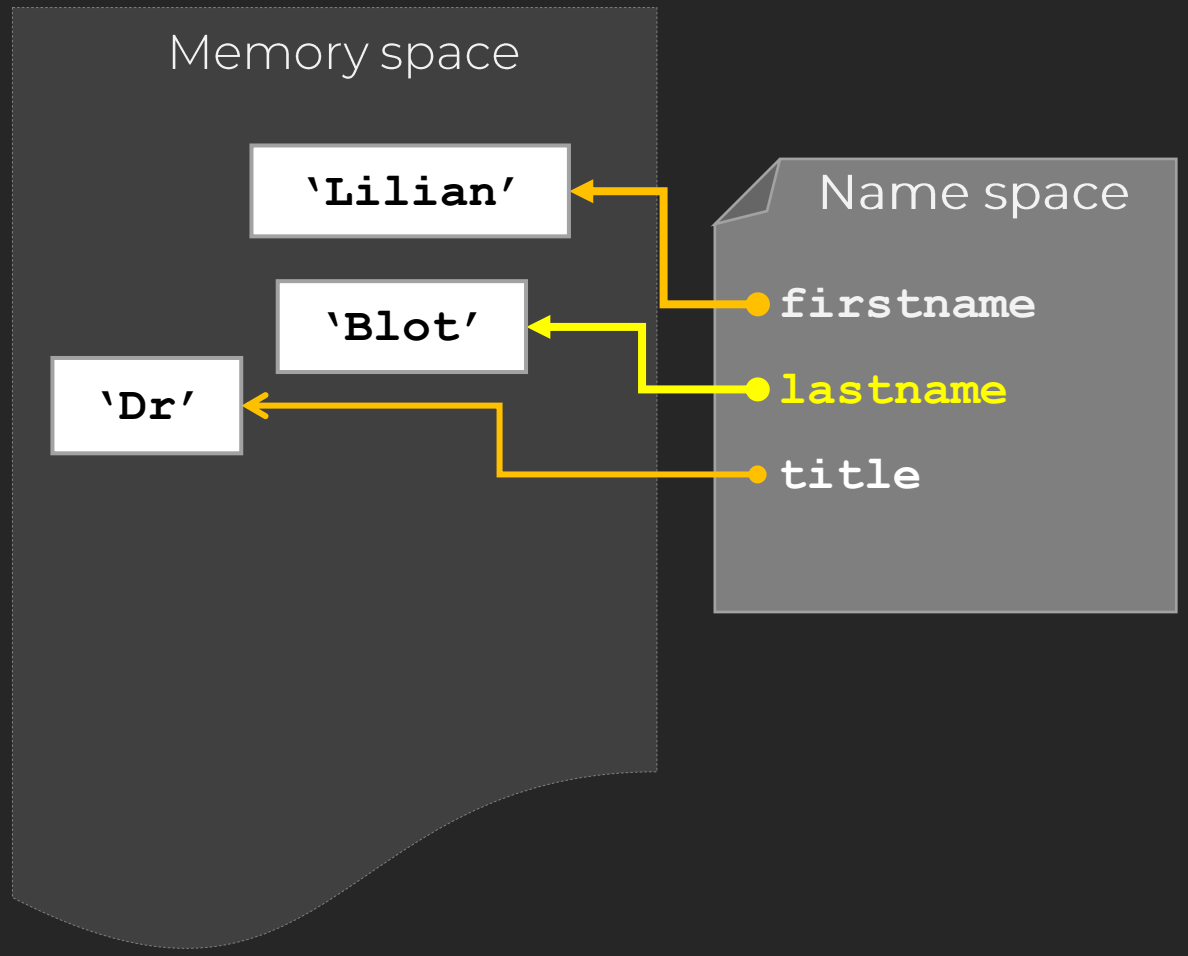

'Lilian ' + 'Blot'



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>>> title = 'Dr'
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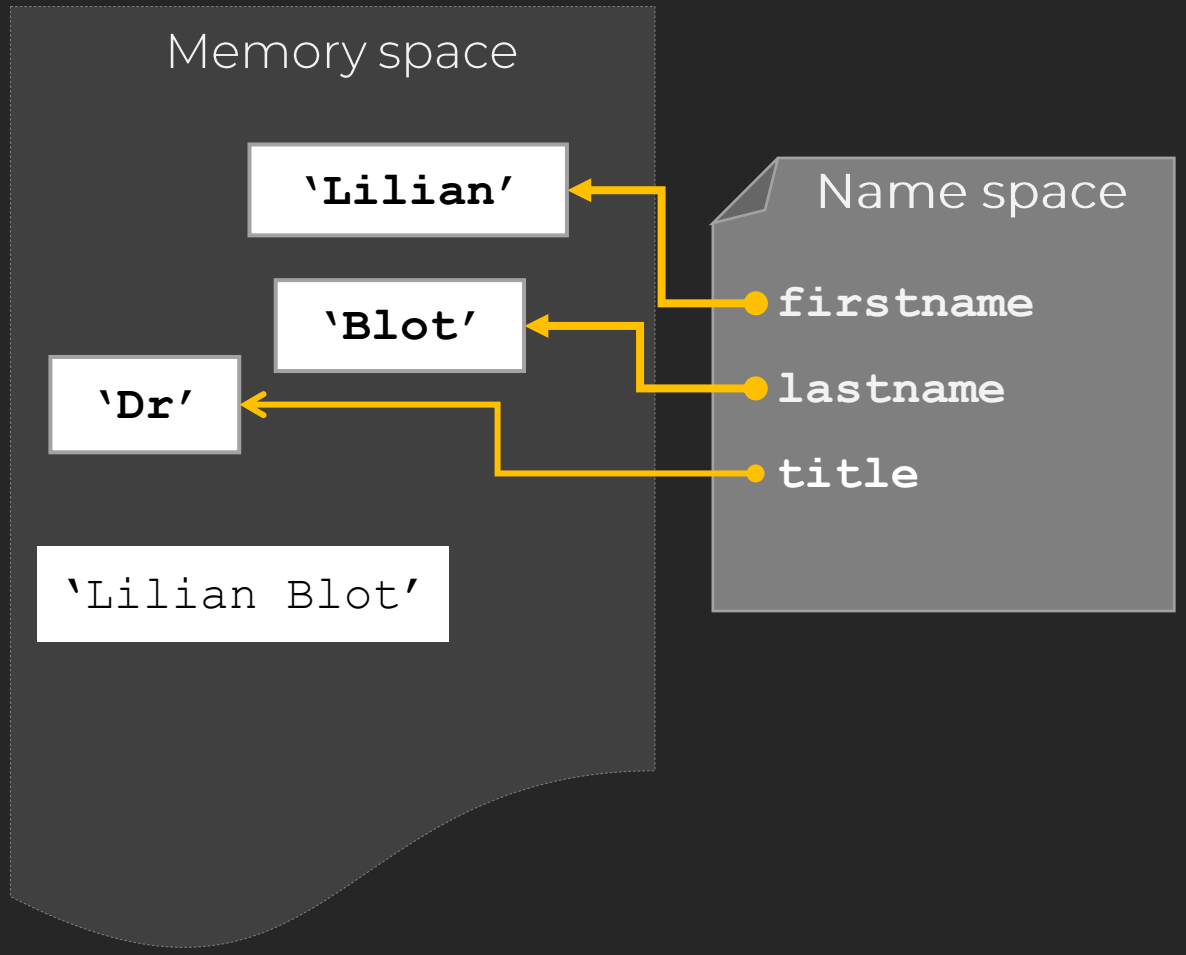

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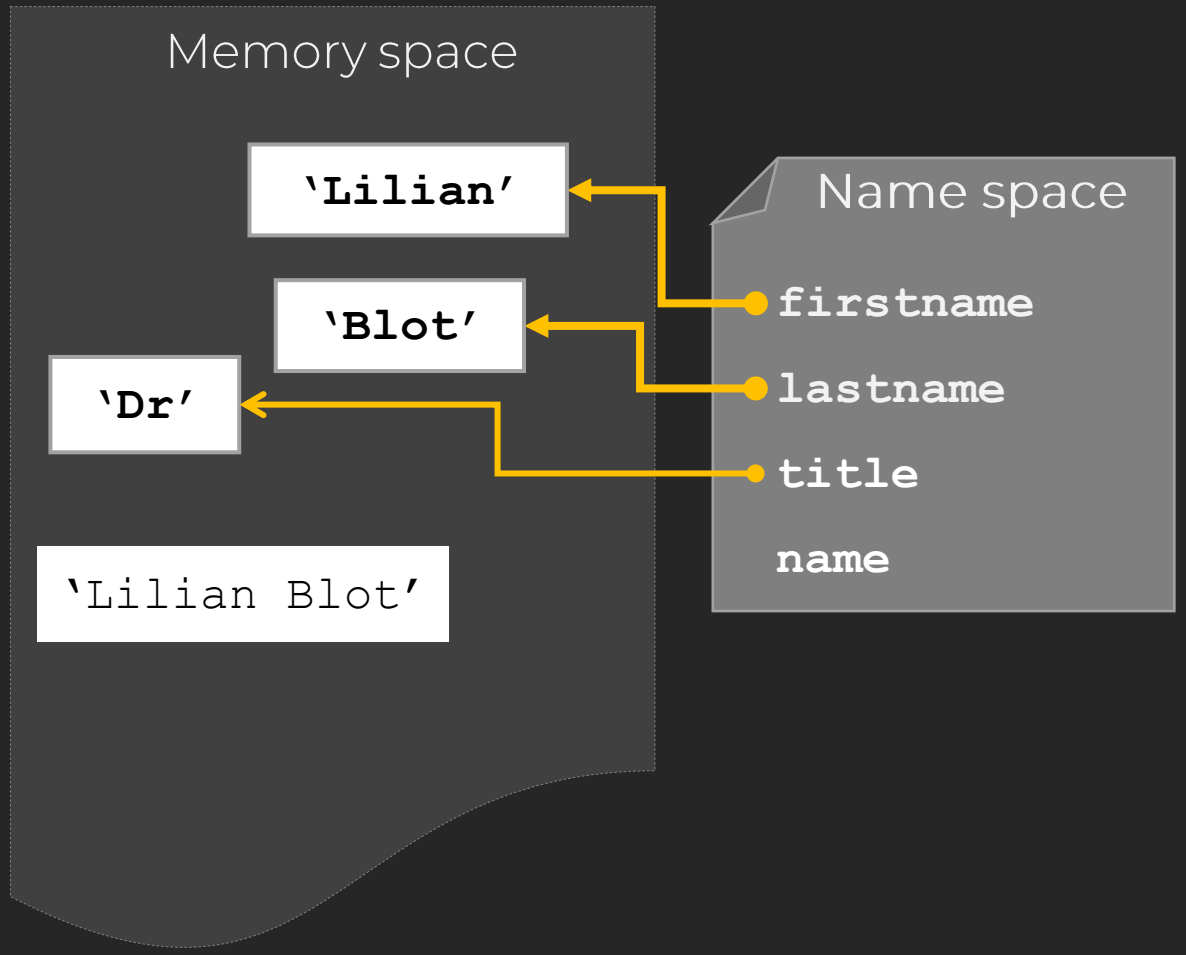

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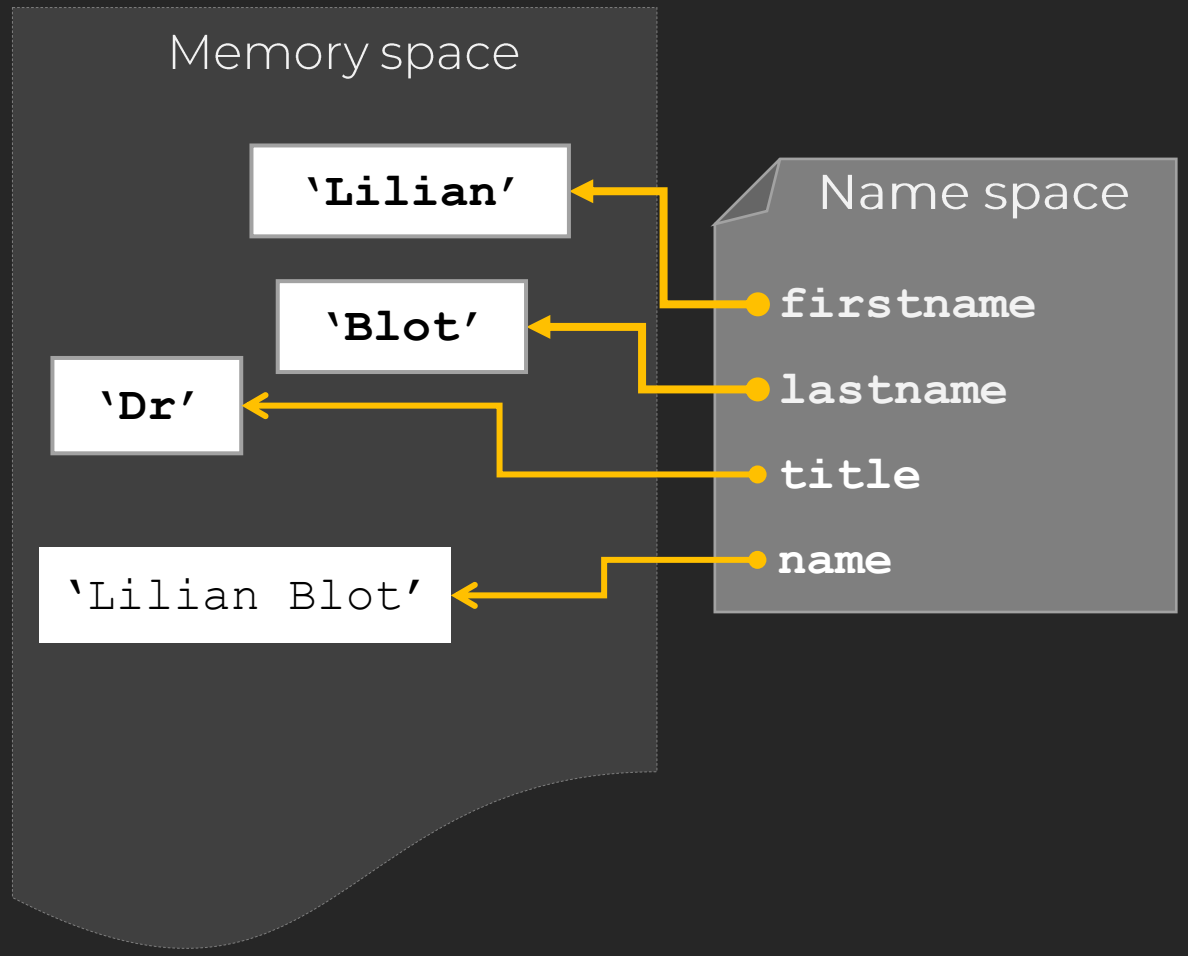

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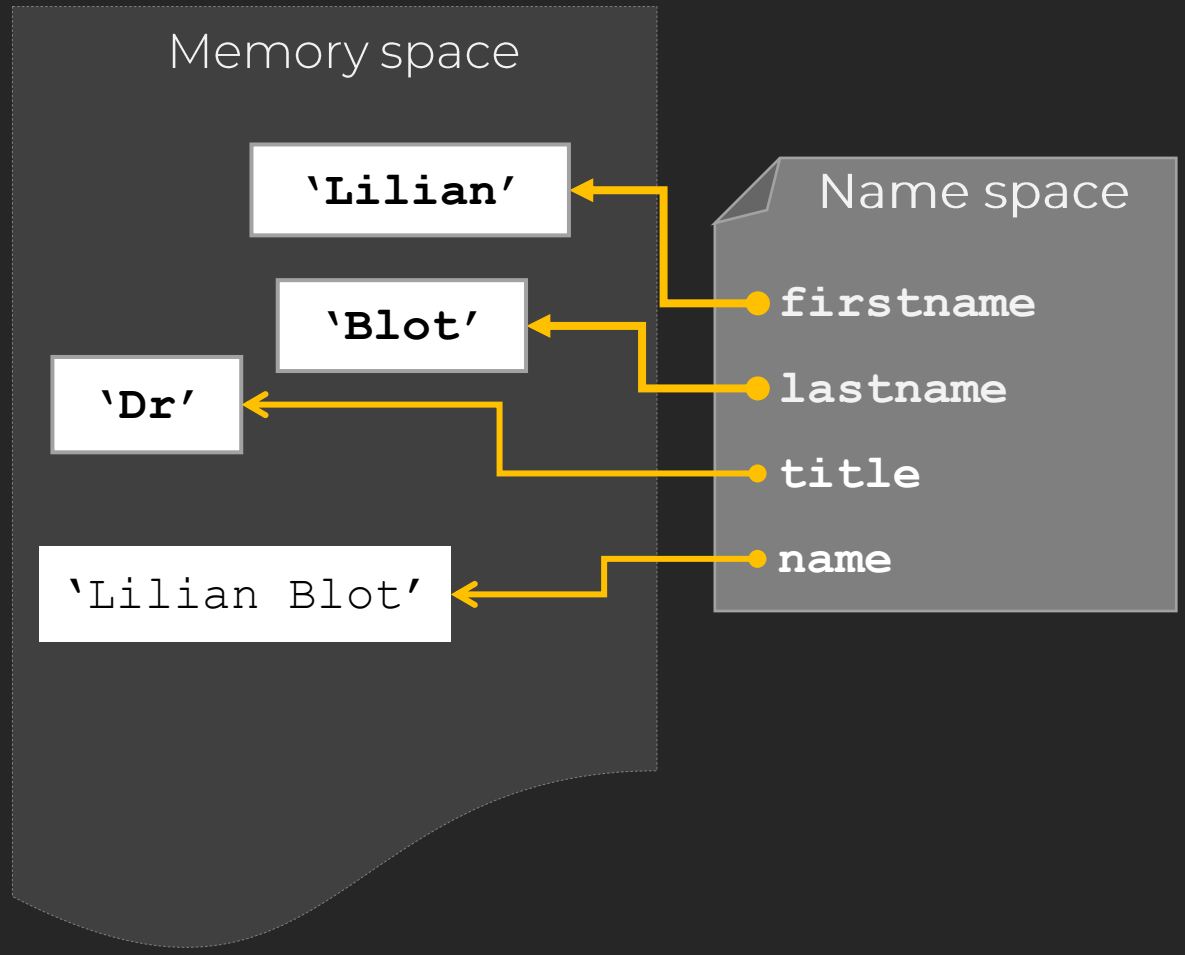

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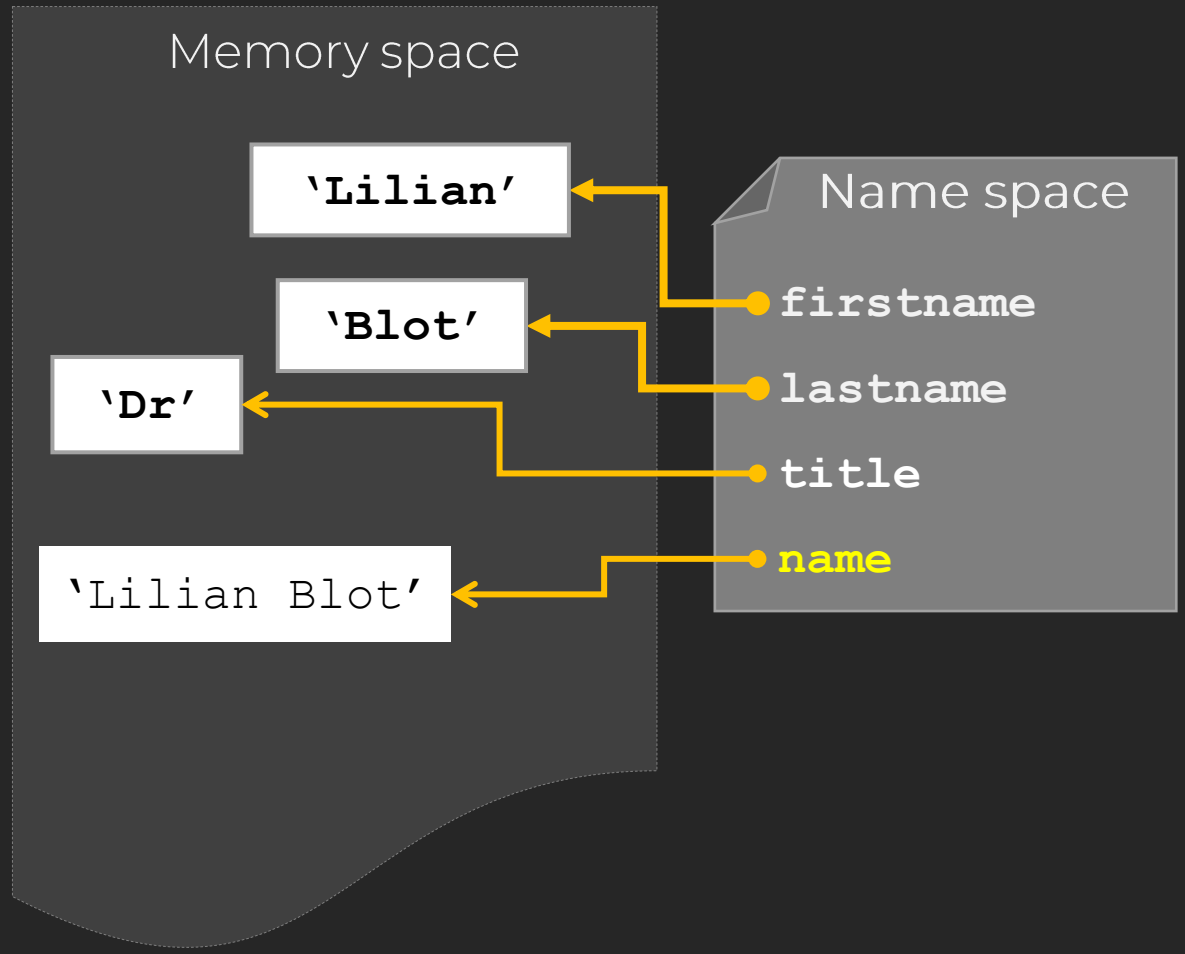

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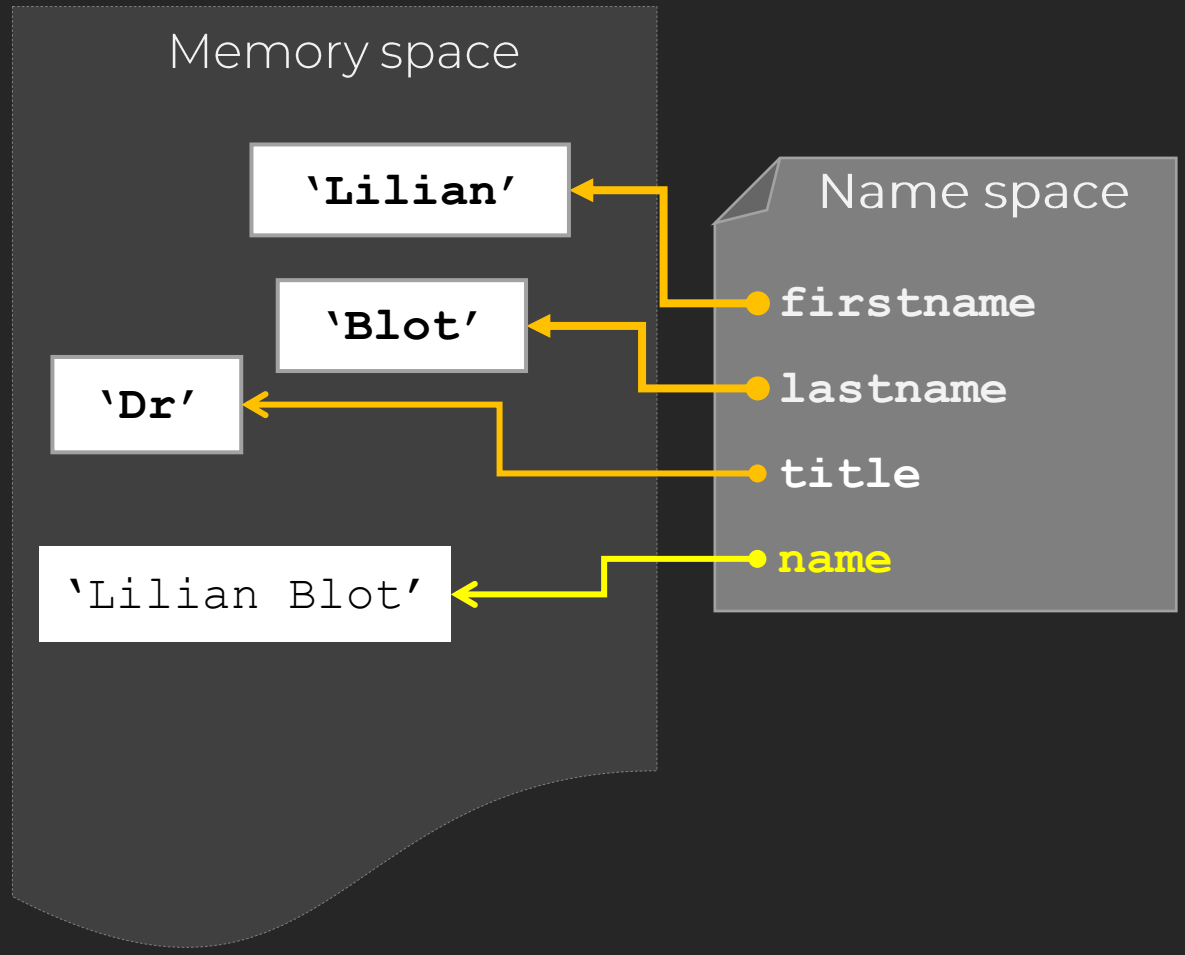

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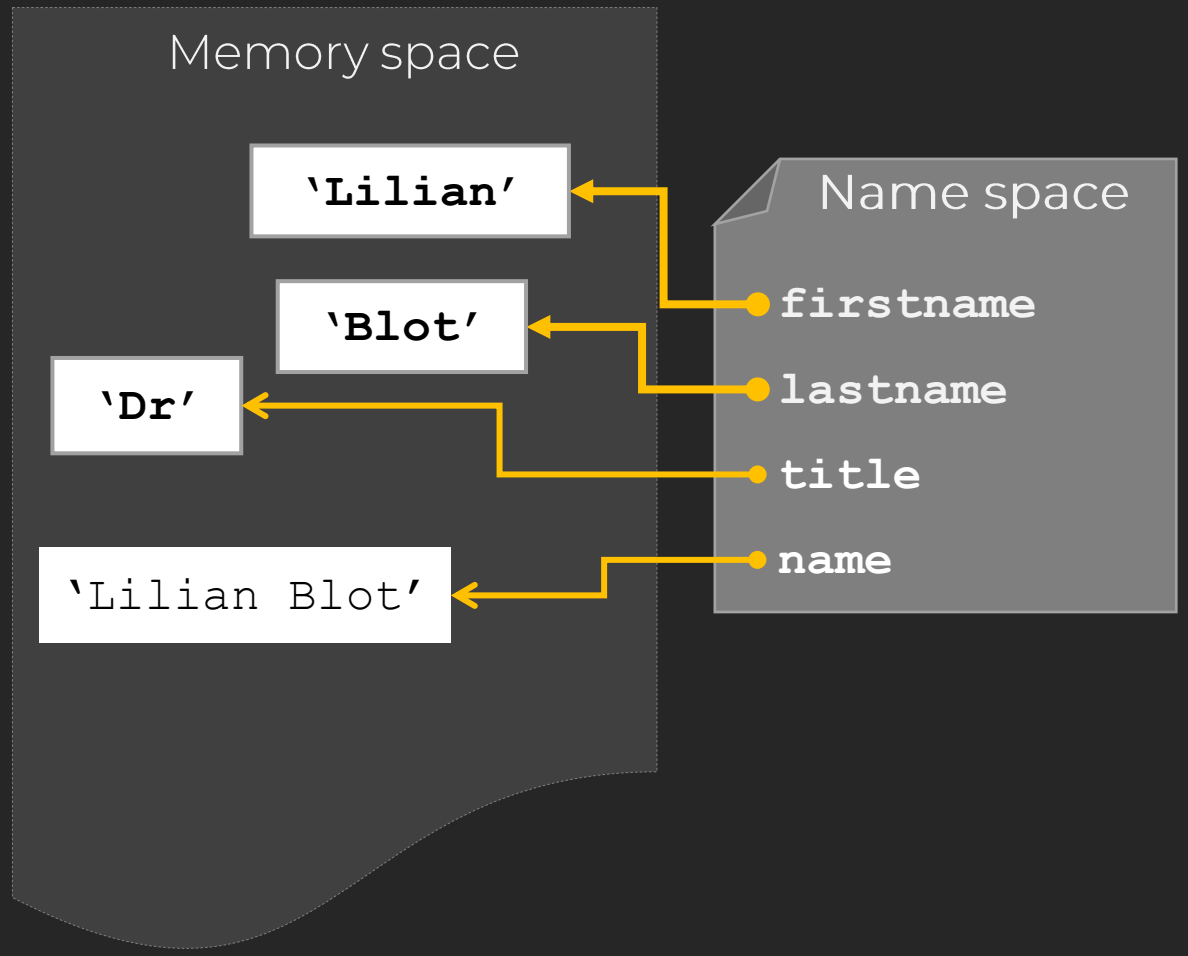

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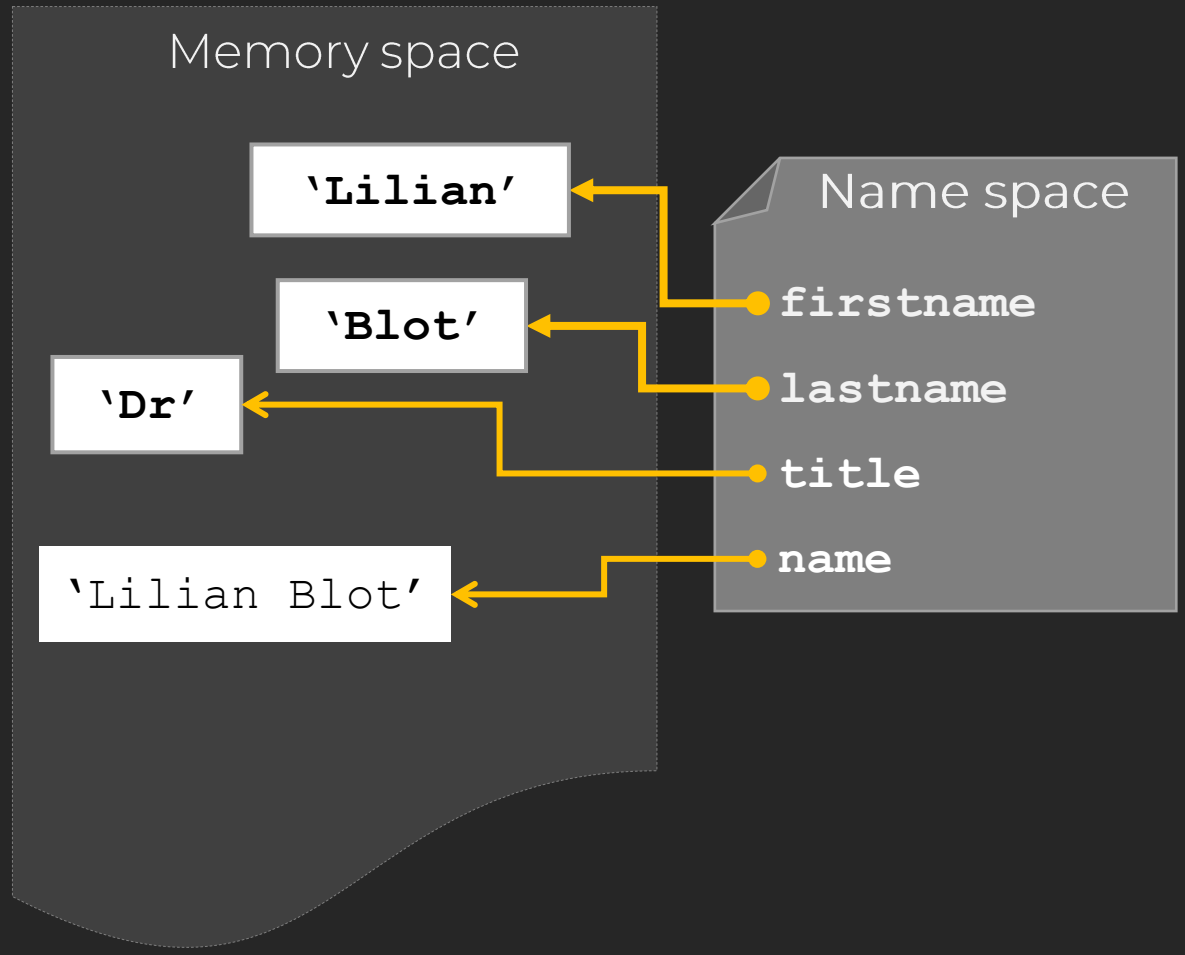

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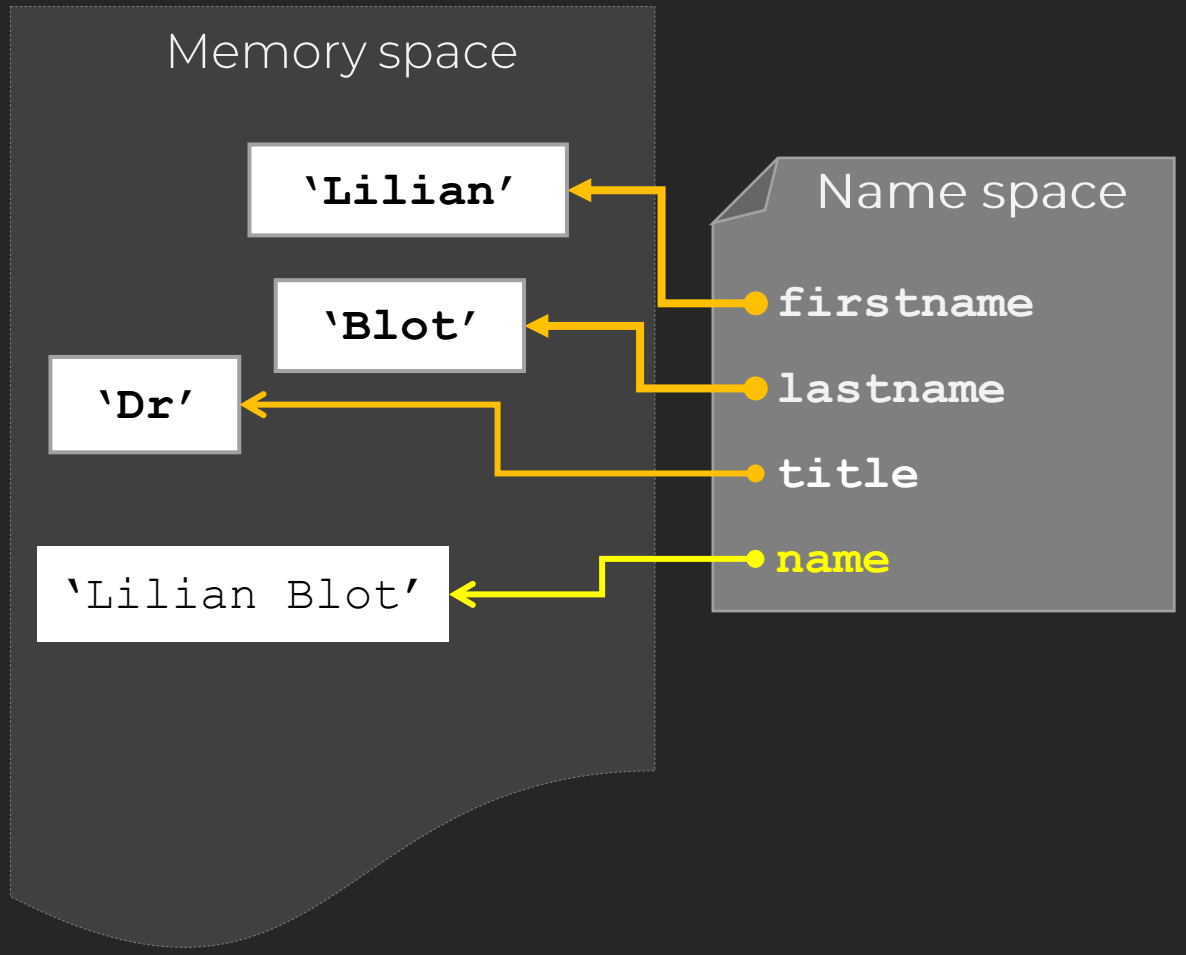
```

'Dr ' + name



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```
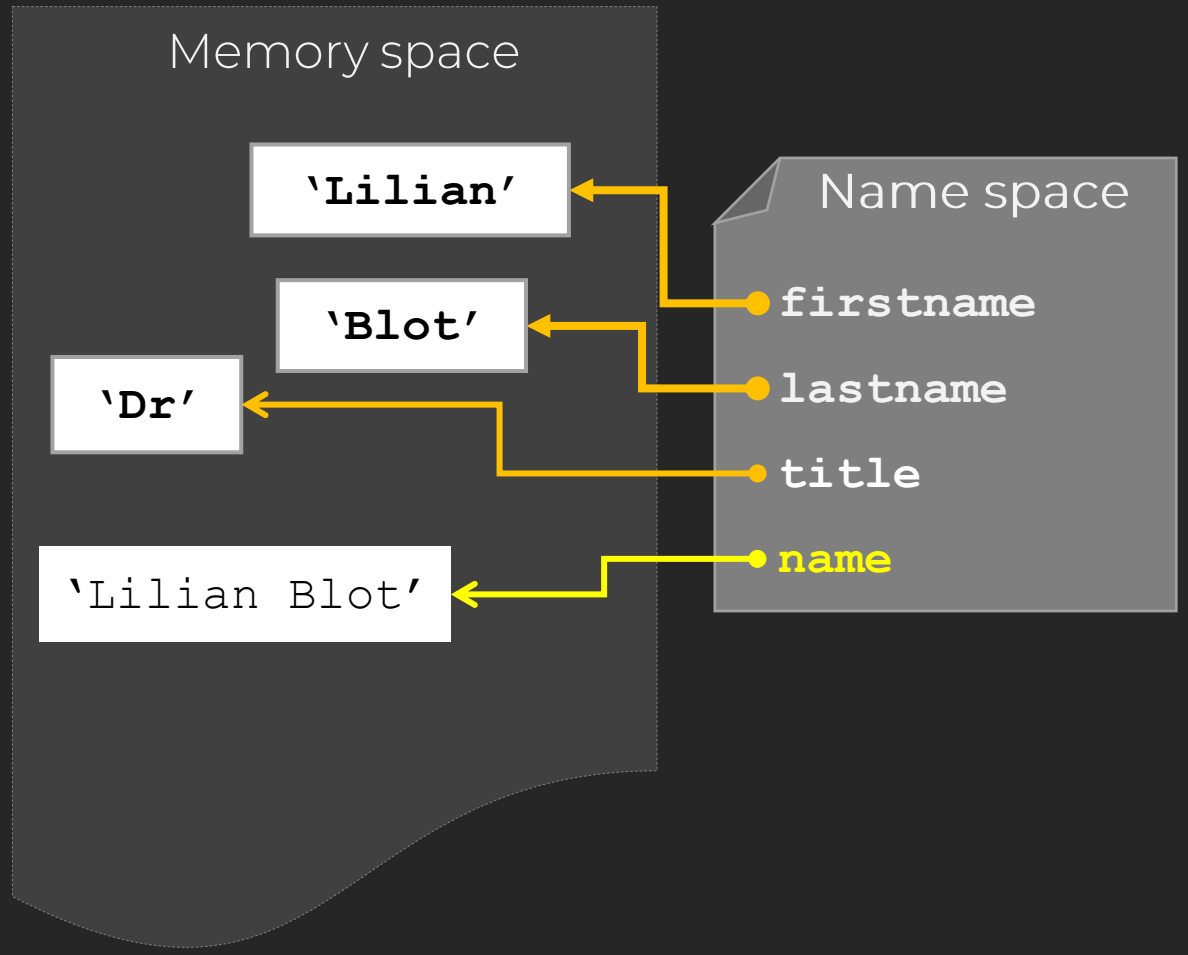

'Dr ' + 'Lilian Blot'



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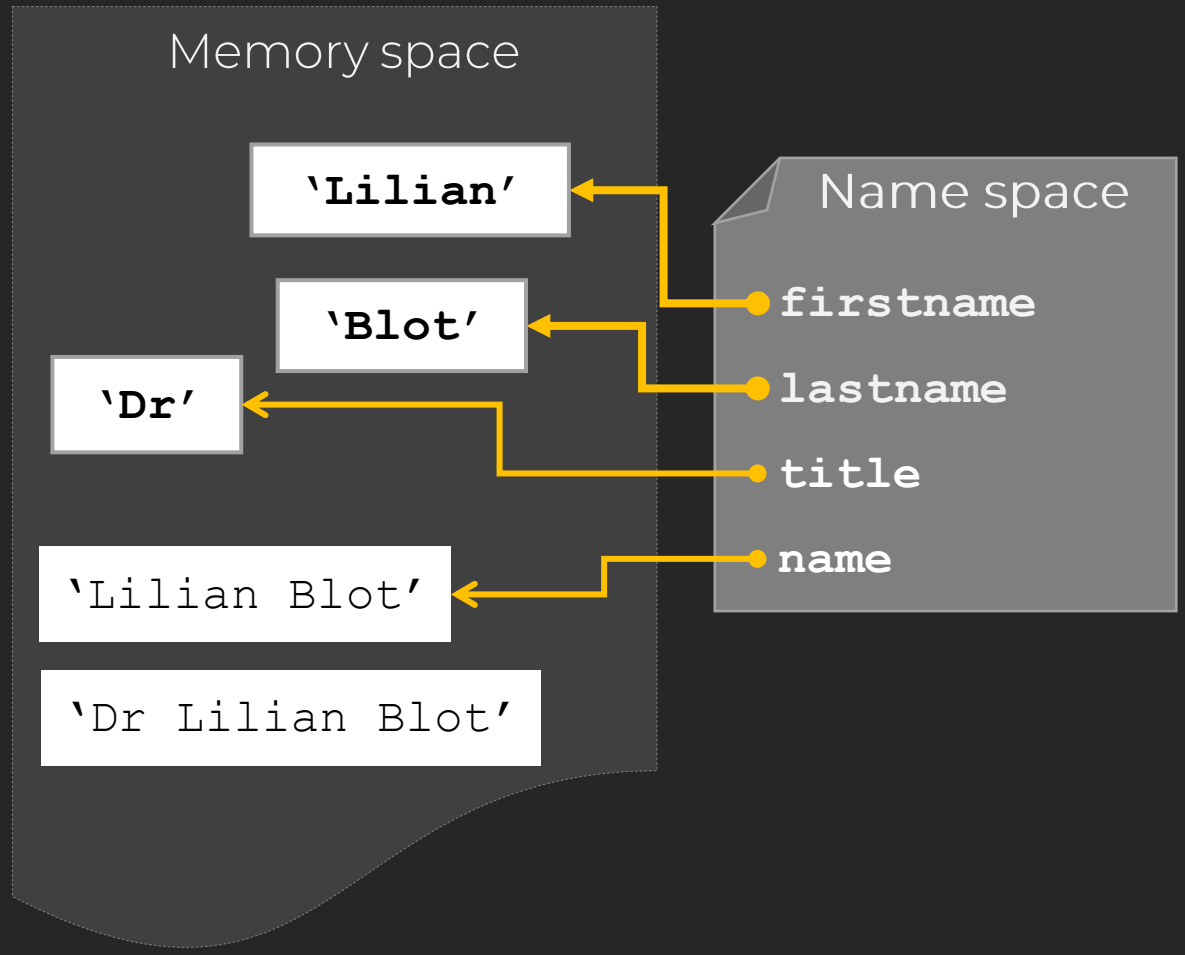

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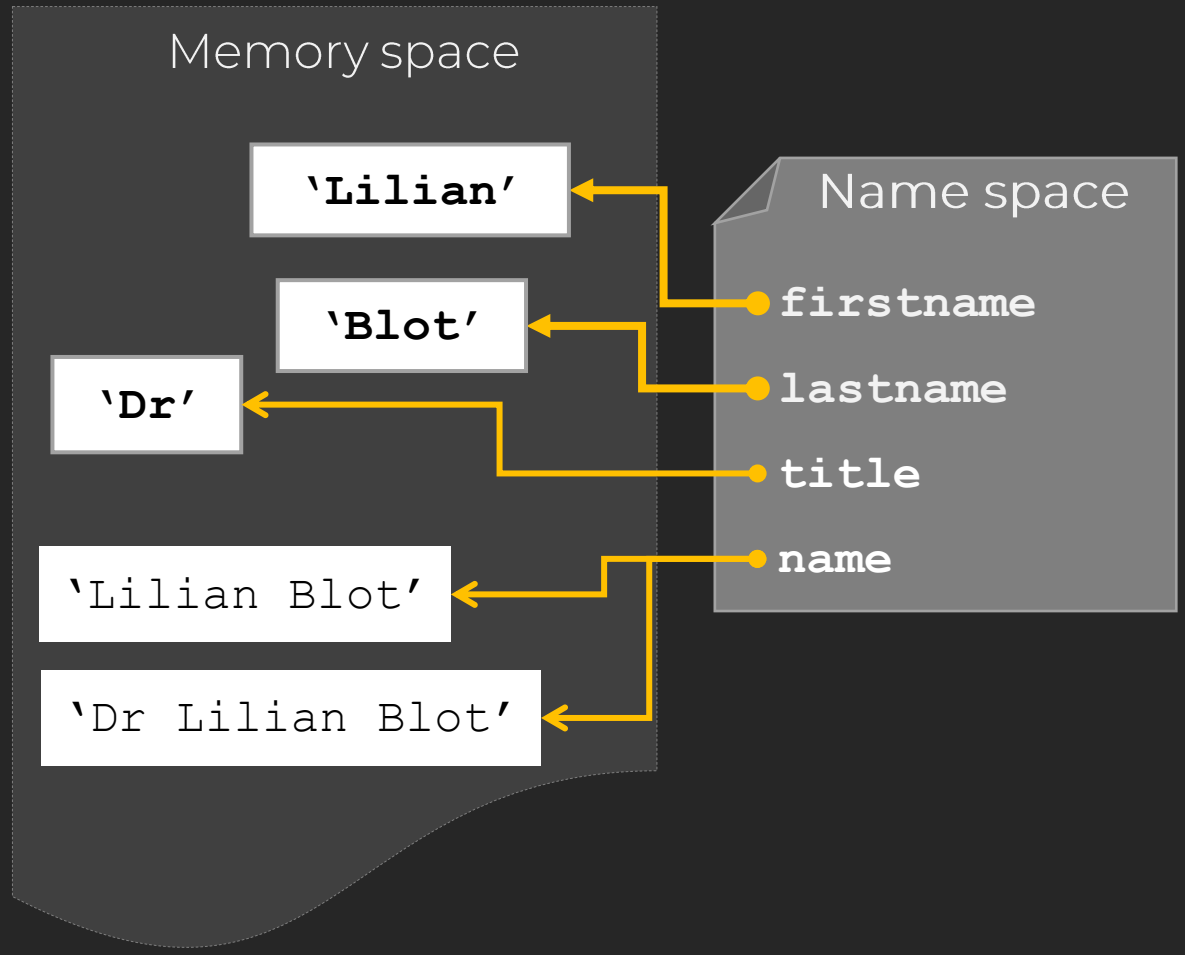

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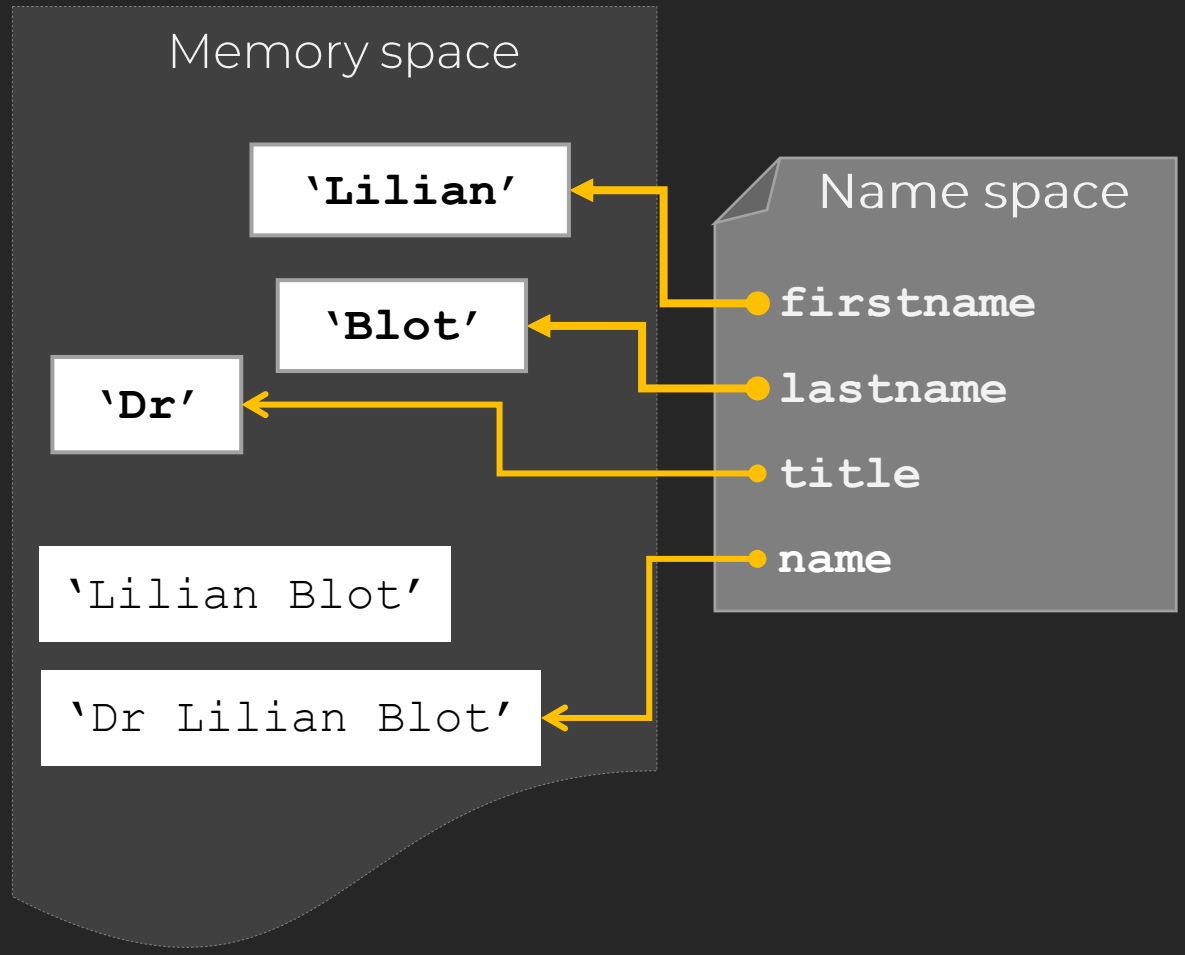

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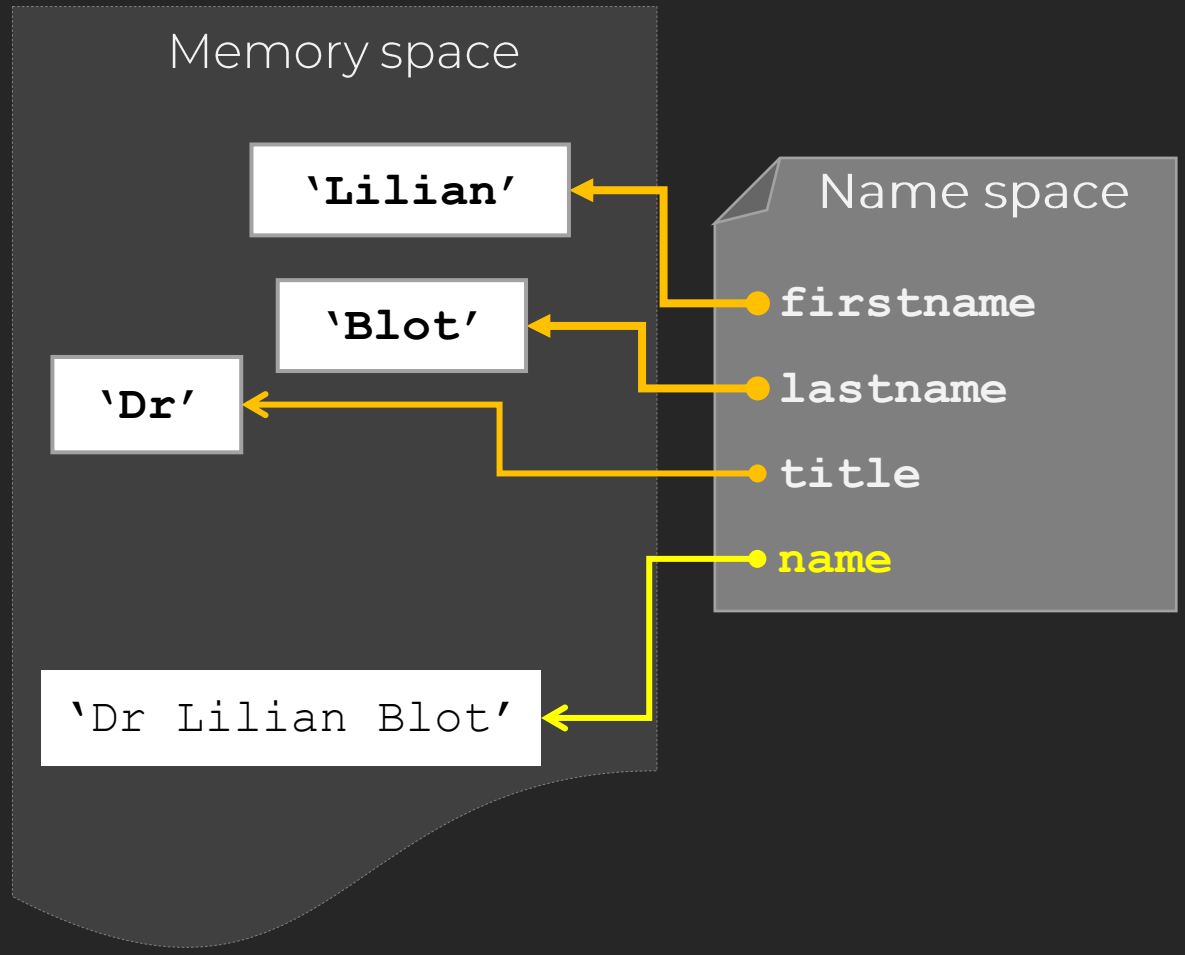

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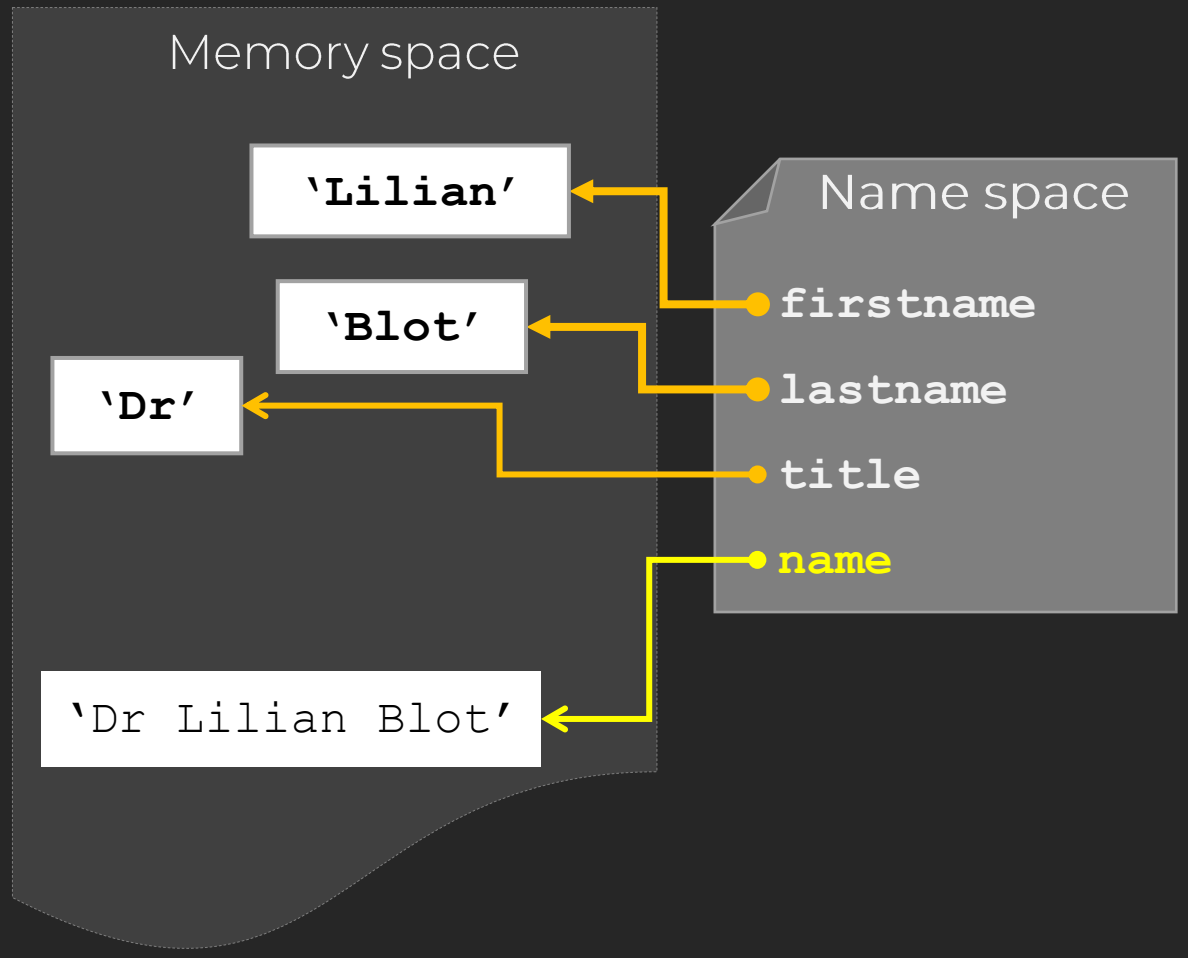

At this stage, you will be able to implement very simple programs, making simple computation and displaying the results.

Next, we need to look at more complex flow-control structures.