



Smooosh all the things

by Rodrigo Girão Serrão

EuroPython 2022

(this time, in person 🦊)



@mathsppblog

quiz time

>>> 1 + 2 + 3 + 4

??

quiz time

```
>>> 1 + 2 + 3 + 4
```

```
10
```

quiz time

>>> 1 + 2 + 3 + 4

10

>>> 1 * 2 * 3 * 4

??

quiz time

```
>>> 1 + 2 + 3 + 4
```

```
10
```

```
>>> 1 * 2 * 3 * 4
```

```
24
```

quiz time

```
>>> 1 + 2 + 3 + 4
```

```
10
```

```
>>> 1 * 2 * 3 * 4
```

```
24
```

```
>>> True & True & False & True
```

```
??
```

```
# pretend & is and 'cuz space 
```

quiz time

```
>>> 1 + 2 + 3 + 4
```

```
10
```

```
>>> 1 * 2 * 3 * 4
```

```
24
```

```
>>> True & True & False & True
```

```
False
```


pattern?

```
>>> 1 + 2 + 3 + 4
```

```
10
```

```
>>> 1 * 2 * 3 * 4
```

```
24
```

```
>>> True & True & False & True
```

```
False
```

binary function

+ >>> 1 2 3 4

* >>> 1 2 3 4

& >>> True True False True

binary function, list of values

+ [1, 2, 3, 4]

* [1, 2, 3, 4]

& [True, True, False, True]

binary function, list of values, single result

+ [1, 2, 3, 4]

10

* [1, 2, 3, 4]

24

& [True, True, False, True]

False

is this pattern useful?

+ [1, 2, 3, 4]

10

* [1, 2, 3, 4]

24

& [True, True, False, True]

False

this pattern is useful!

```
10 == sum([1, 2, 3, 4])
```

```
24 == math.prod([1, 2, 3, 4])
```

```
False == all([True, True, False, True])
```

this pattern is a reduce!

```
reduce(+, [...]) == sum
```

```
24 == math.prod([1, 2, 3, 4])
```

```
False == all([True, True, False, True])
```

this pattern is a reduce!

`reduce(+, [...]) == sum`

`reduce(*, [...]) == math.prod`

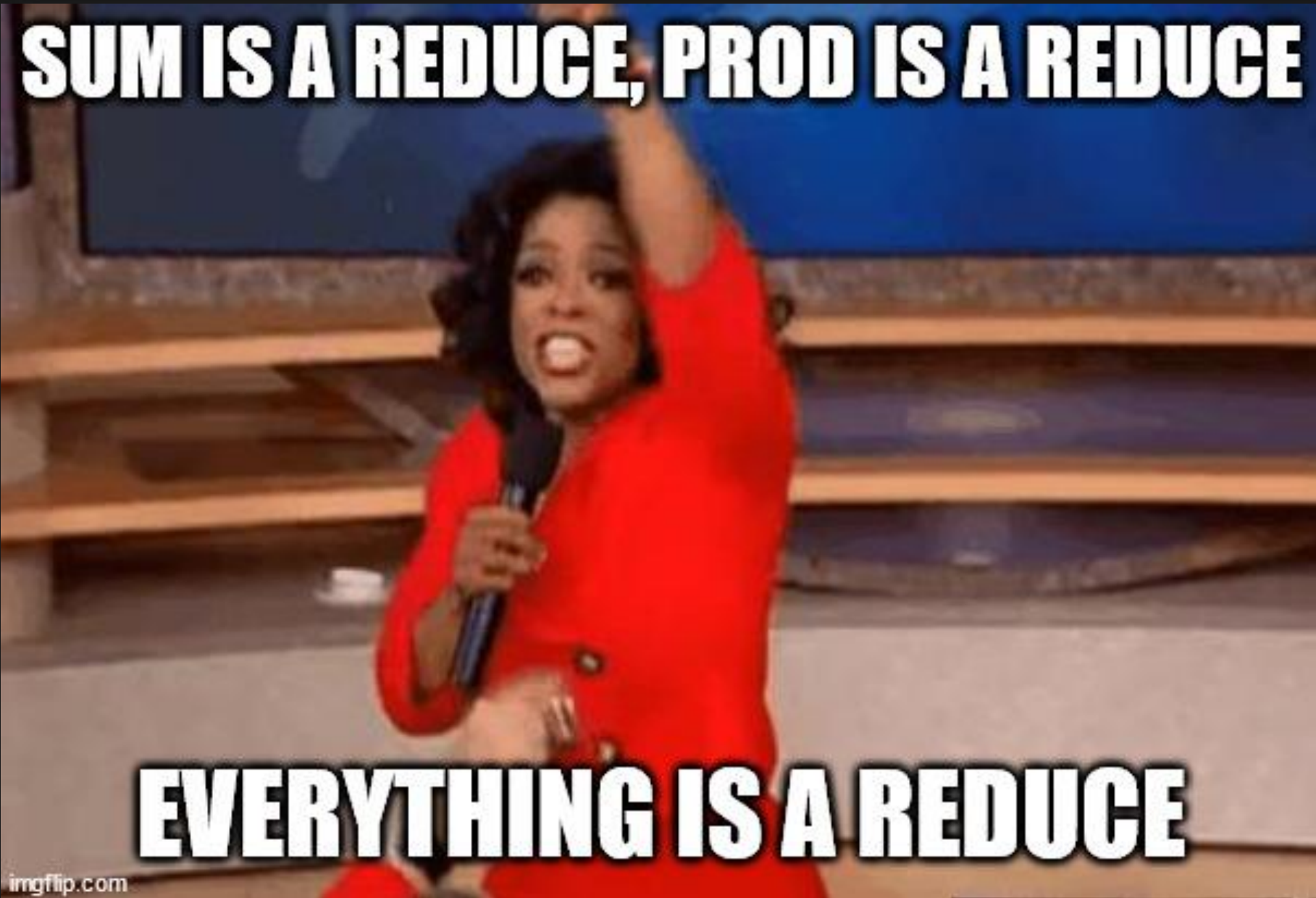
`False == all([True, True, False, True])`

this pattern is a reduce!

`reduce(+, [...]) == sum`

`reduce(*, [...]) == math.prod`

`reduce(&, [...]) == all`



what gives?

- deeper understanding of the functions;
- one more tool in your toolbox;
- connect different ideas in your brain.

email

rodrigo@mathspp.com

name website