

e-4

March 11, 2025

```
[10]: import numpy as np
      from PIL import Image
      from IPython.display import display
```

```
[11]: a = np.array([
      [1, 2, 3],
      [4, 5, 6]
      ])

      b = np.array([
      [7, 8, 9],
      [10, 11, 12]
      ])
```

```
[12]: # element wise operands (works on elements)

      print(a + b)
      print('-----')
      print(a + 1)
      print('-----')
      print(a == b)
```

```
[[ 8 10 12]
 [14 16 18]]
-----
[[2 3 4]
 [5 6 7]]
-----
[[False False False]
 [False False False]]
```

```
[13]: # array wise (works on array)

      print(np.array_equal(a, b))
      print('-----')
      print(np.min(a))
      print('-----')
      print(np.max(b))
```

```
print('-----')
print(np.sum(a))
```

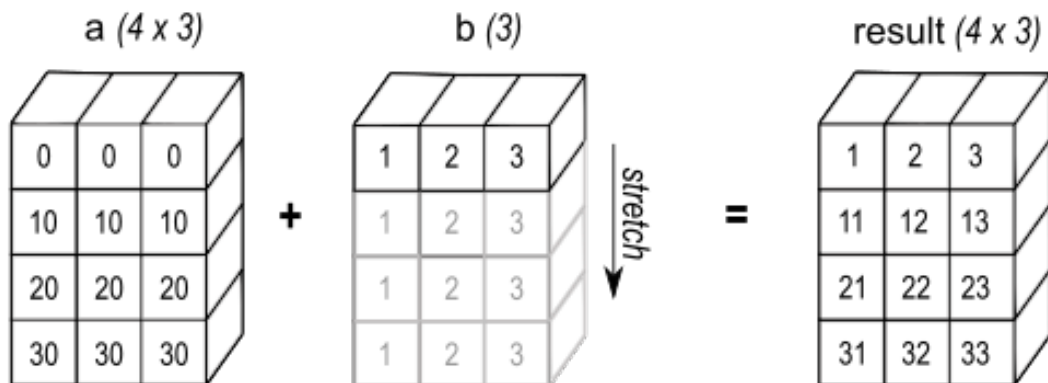
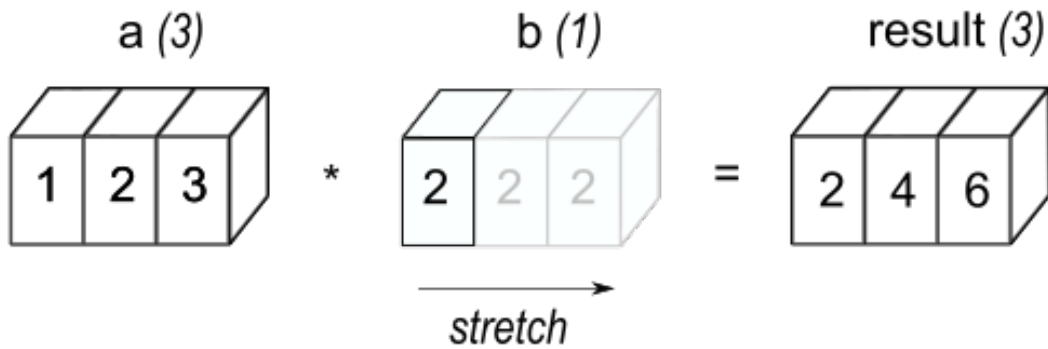
False

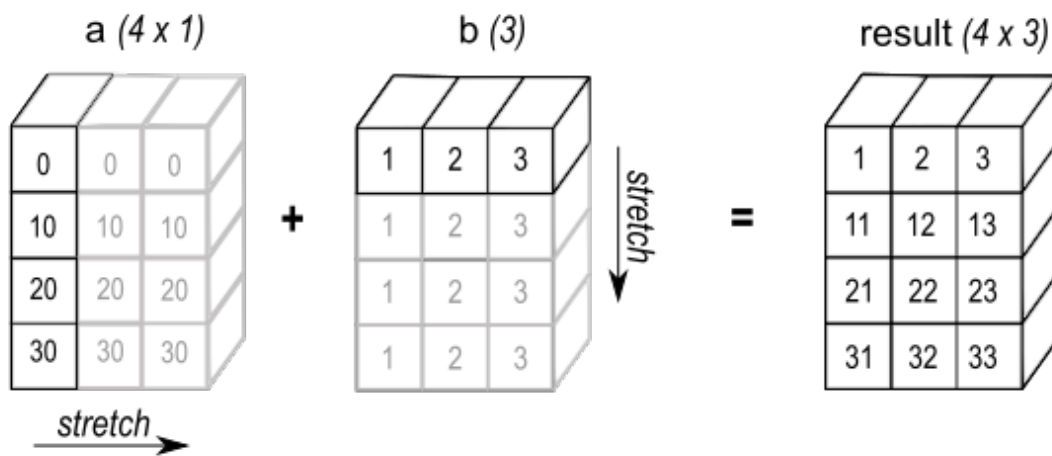
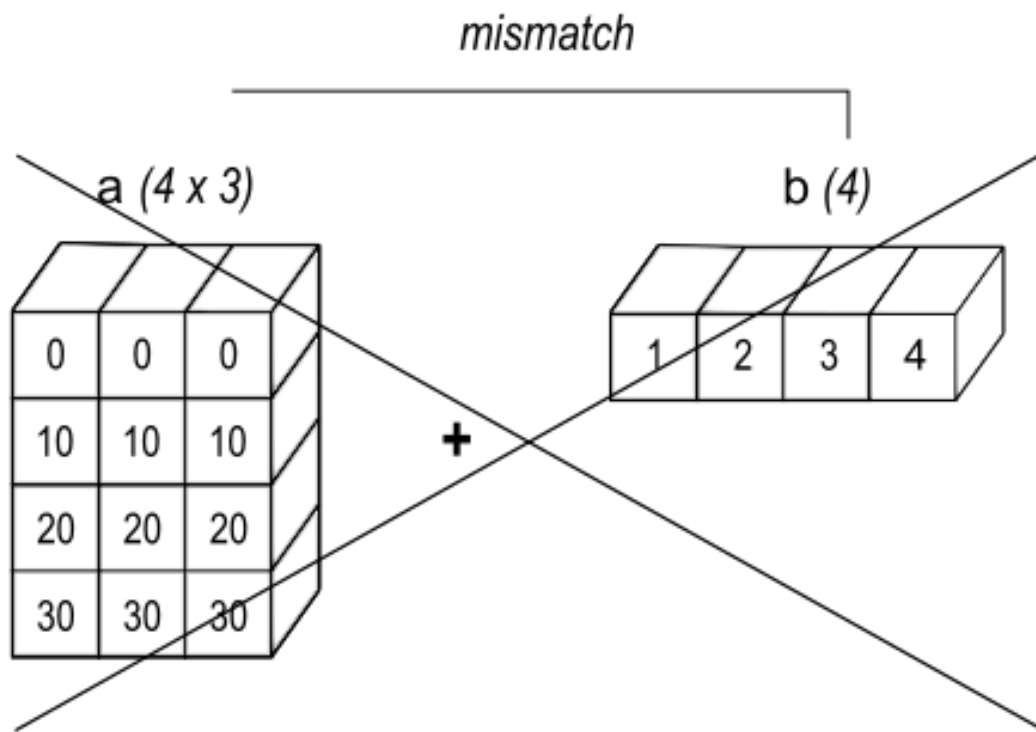
1

12

21

```
[15]: for i in range(1, 5):
      display(Image.open(f'broadcasting_{i}.png'))
```





[]: