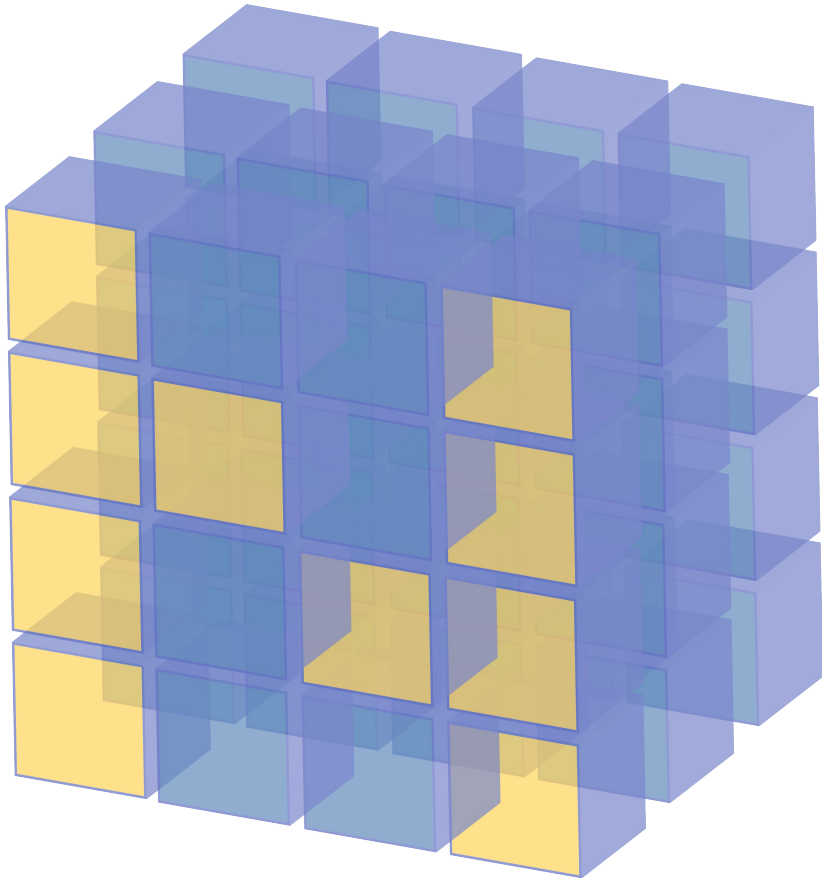
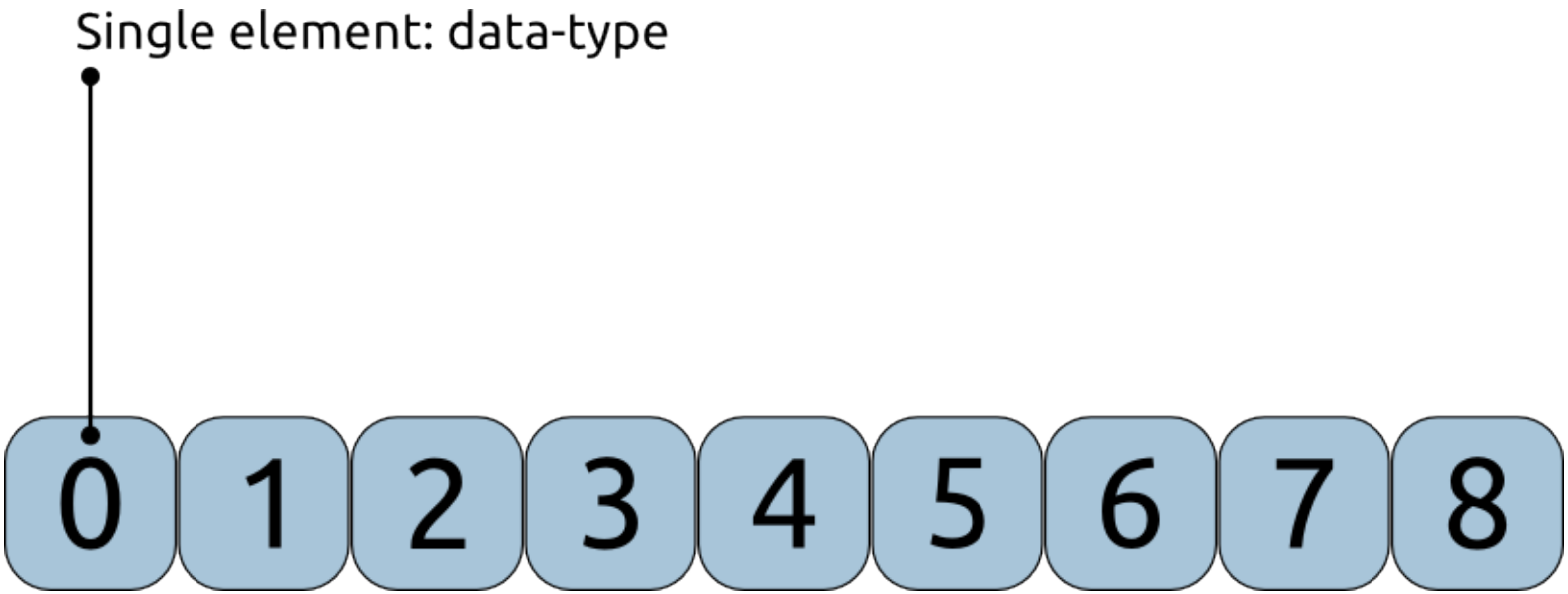


An introduction to NumPy

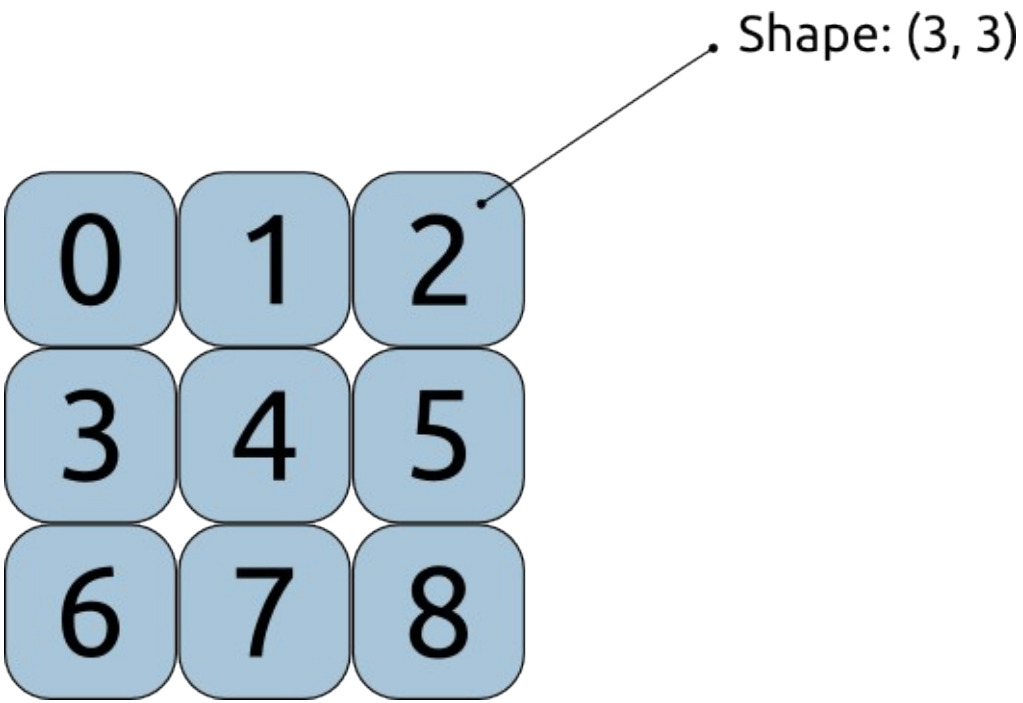
Travis Oliphant
Stéfan van der Walt

The ndarray data structure

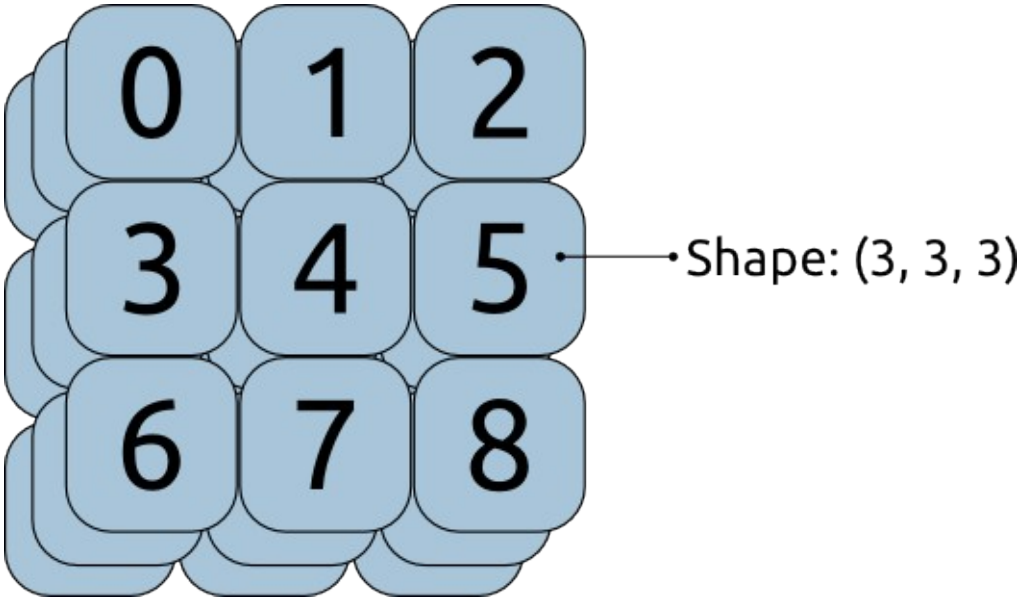
The ndarray data structure



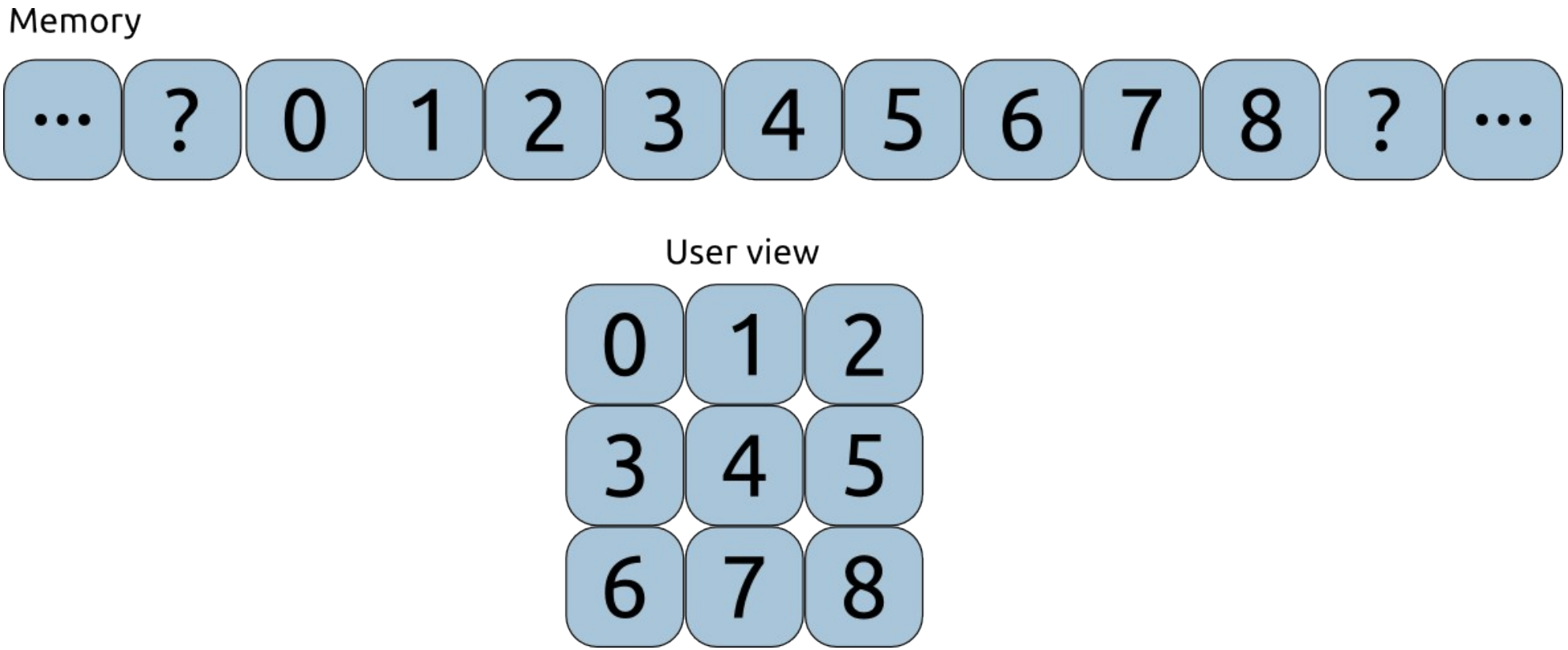
The ndarray data structure



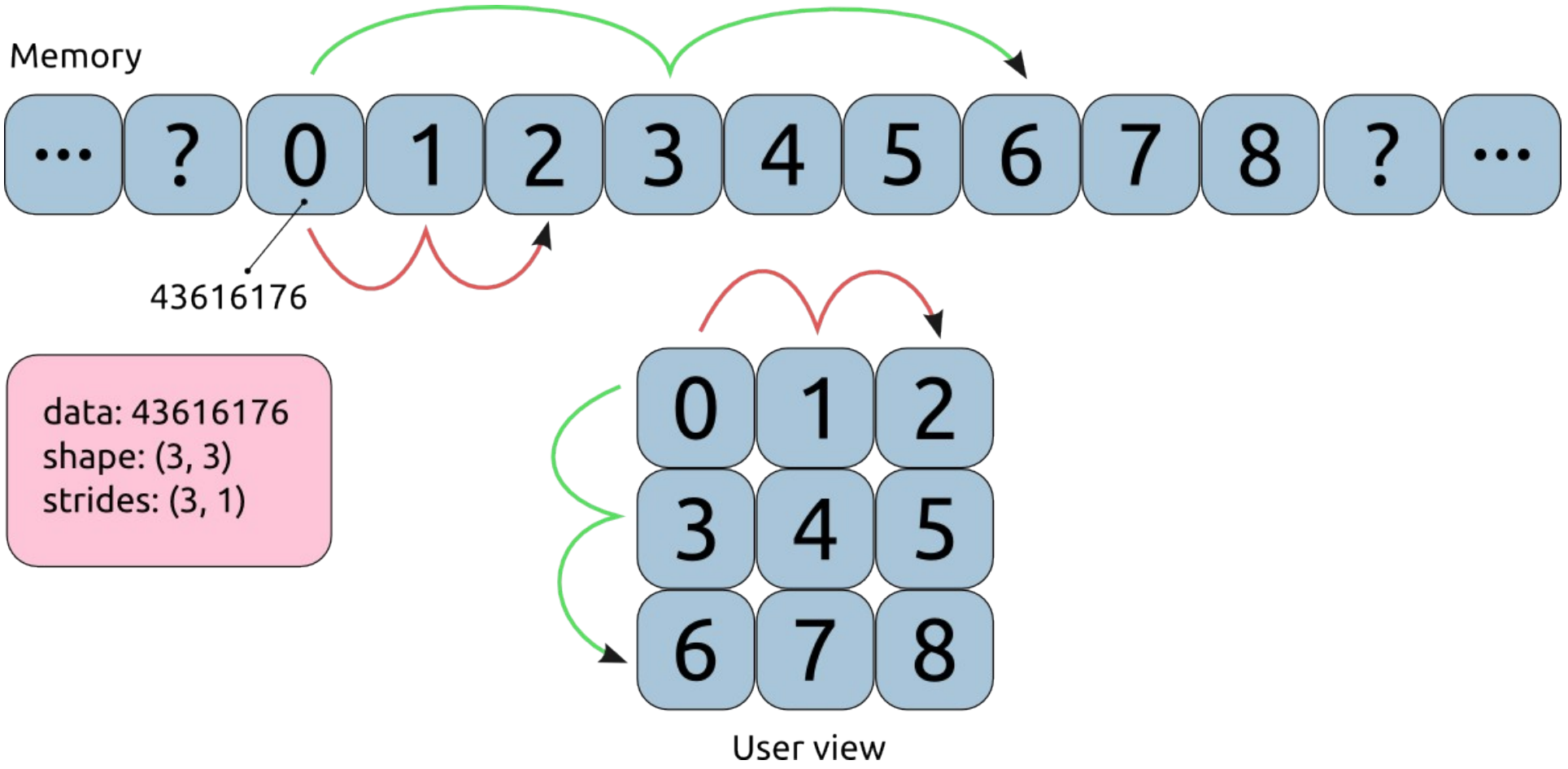
The ndarray data structure



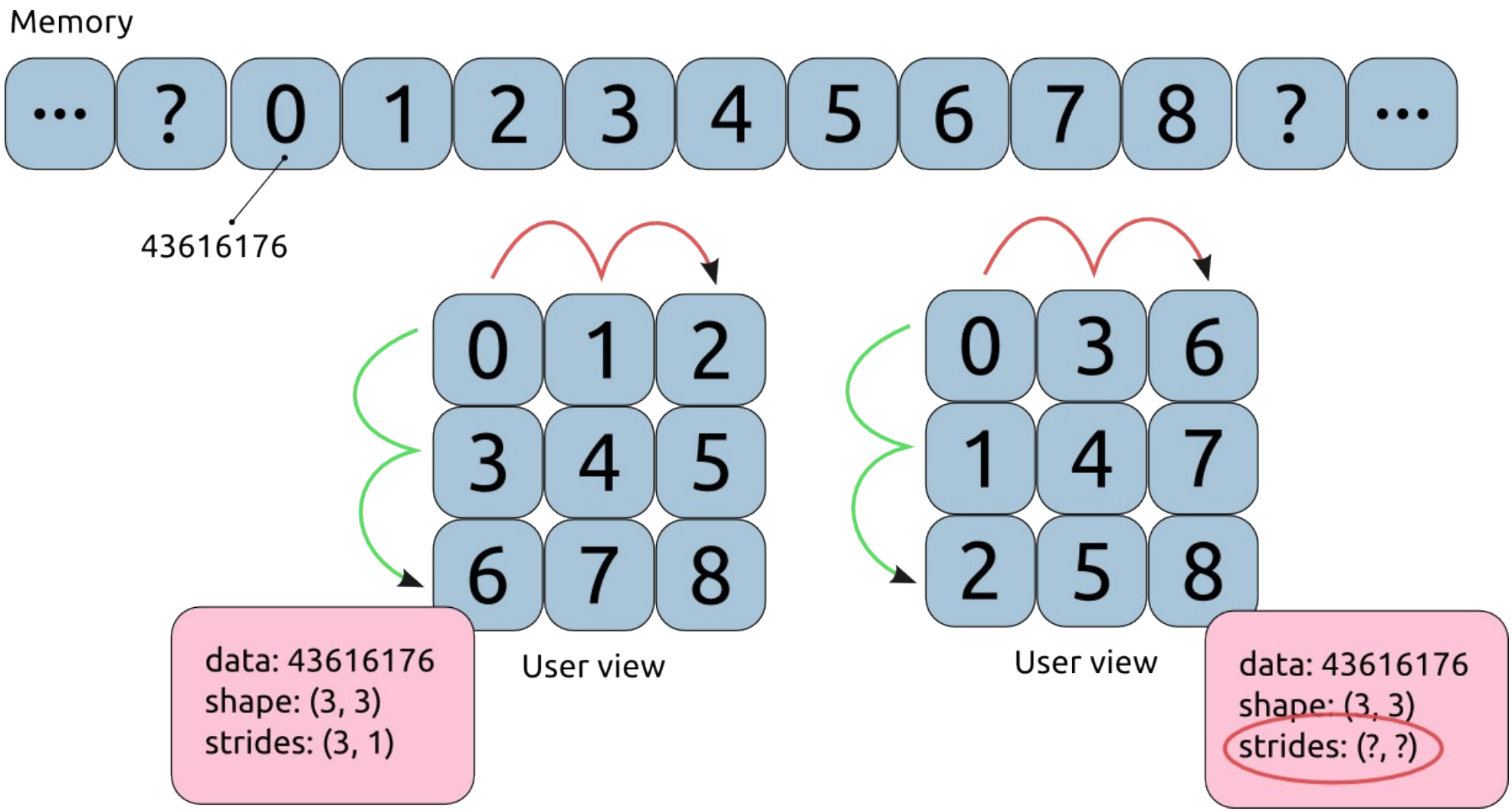
The ndarray data structure



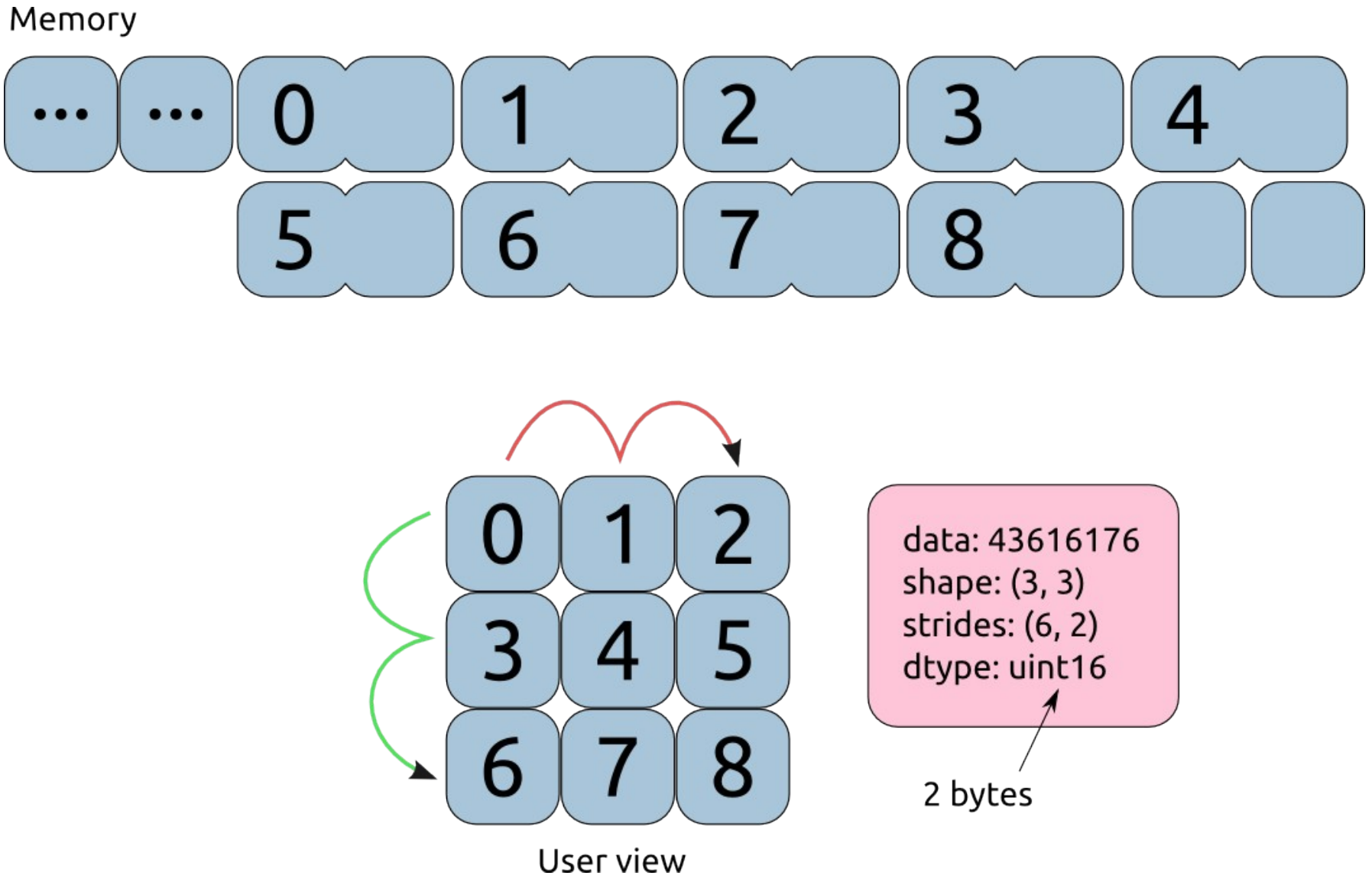
The ndarray data structure



The ndarray data structure



The ndarray data structure



Array methods

- Construct:

  np.zeros((3, 4)), np.arange(12), np.eye(3), np.array
- Reductions, operations:

  a.mean(), a.mean(axis=0), a.argmax()
- Manipulation:

  a.reshape((4, 3)), a.real, a.ravel(), a.fill(0),

  a.clip(0, 1)
- Structure: a.shape, a.dtype, a.strides, a.data

Demo

Beyond the ndarray

```
Available subpackages
---------------------
random
    Random number generation
linalg
    Linear algebra
fft
    Fast Fourier transform
polynomial
    Polynomials
f2py
    Fortran to Python interface generator
```

Beyond NumPy