

tuples  
lists  
dictionaries

tuples

ordered sequence of elements

immutable

represented by parenthesis

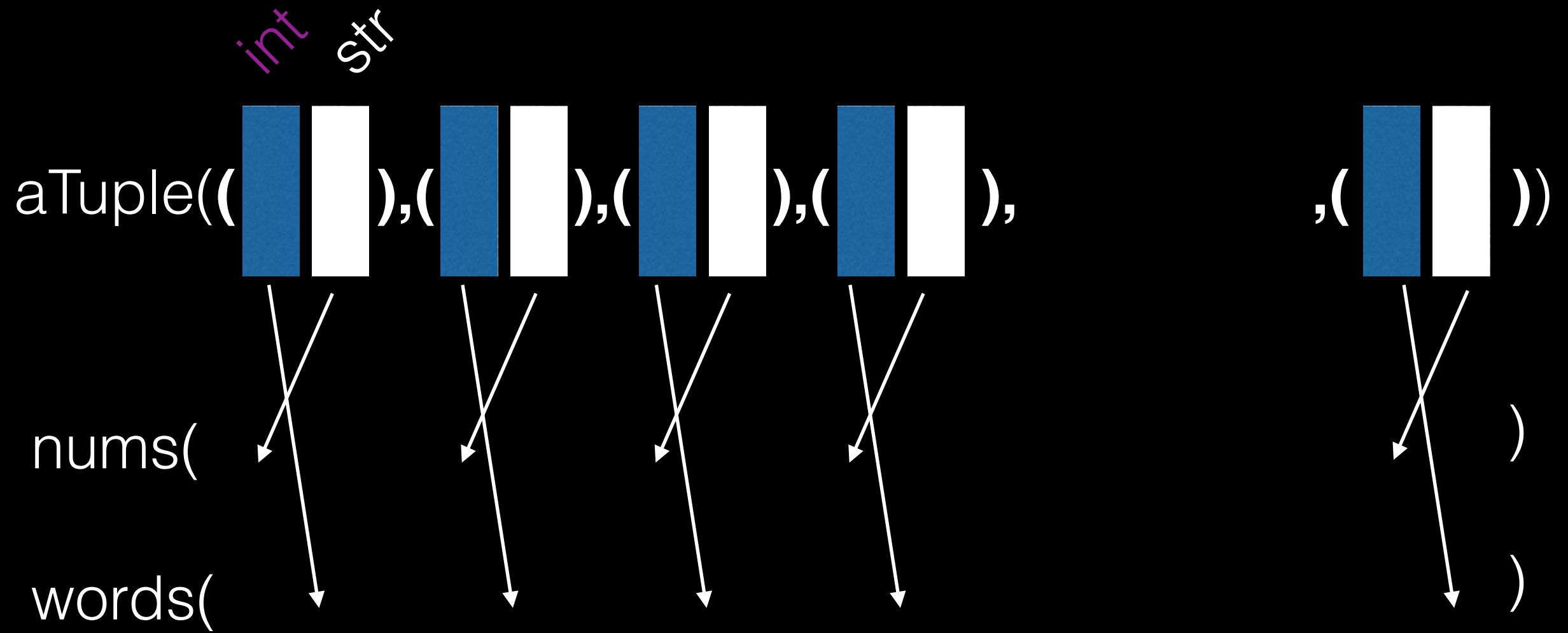
tuples

ordered sequence of elements

immutable

represented by parenthesis

**iterable**



list

ordered sequence of elements

mutable

represented by square brackets

memory

|



2,1,3

5,1,3

list

ordered sequence of elements

mutable

represented by square brackets

**iterable**

# standard operations on lists and tuples

## lists

append

extend

pop

remove

join

sorted

sort

reverse



## standard operations on tuples

`range(5)` - equivalent to tuple `[0,1,2,3,4]`

`range(2, 6)` - equivalent to tuple `[2,3,4,5]`

`range(5, 2, -1)` - equivalent to tuple `[5,4,3]`

```
for i in range(5):  
    <expression>
```

```
for i in (0,1,2,3,4):  
    <expression>
```

# Mutations, Aliasing, Cloning

## lists

are mutable

behave differently than immutable types

is an object in memory

variable name points to object

any variable pointing to that object is effected

keep in mind side effects



Justin Drew Bieber  
Justin Bieber  
JB  
Bieber  
The Bieb  
JBeebs

attributes: singer, rich, troublemaker



cool → blue, green, grey

chill → blue, green, grey

cool → blue,green,gre

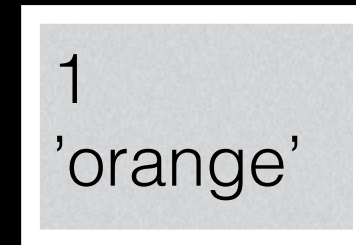
chill → blue,green,gre

# Frames

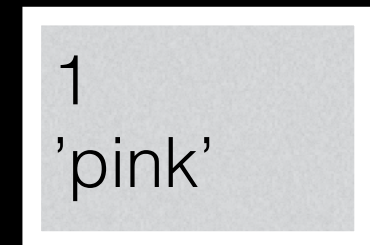


# Objects

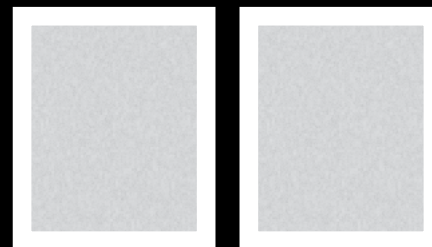
list



list



list



Mutations, Iterations



BREAK