

LING 300 - Topics in Linguistics:
Introduction to Programming and Text Processing for Linguists

Week 4



Basic Python 2

Notes from Assignment 3

Biggest thing:

please make sure your assignment runs all the way through on Quest!

Notes from Assignment 3

- Core ways to read files:

```
for line in open(f):
```

VS

```
text = open(f).read()
```

- You can do operations in defining `for` loops, e.g.:

```
for word in s.split():
```

- `continue` statement in loops

Notes from Assignment 3

- Meaningful variable names!
 - Be aware of clashes - can still work but be confusing!

```
def mean(vals):  
    mean = 0  
    for val in vals:  
        mean += val  
    return mean / len(vals)
```

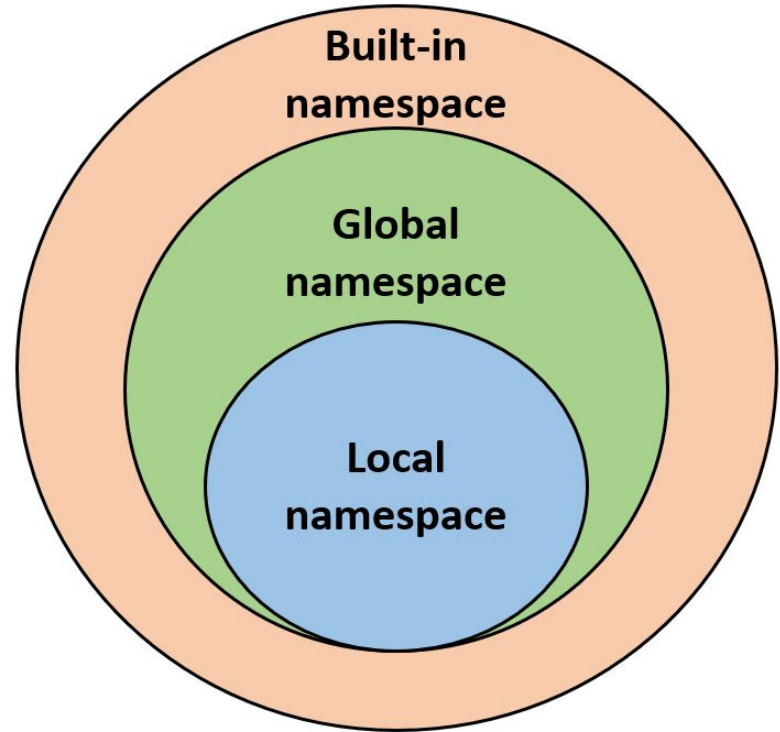
Scope determines where objects are defined

```
# `print` is built-in
print('hi!')

# non-indented is global
my_var = 'helloooo'

def my_func():
    # only available
    # inside the function
    local_var = 'hey?'

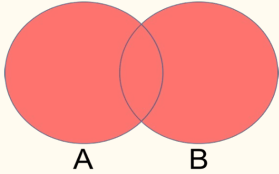
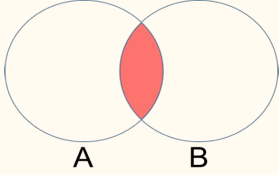
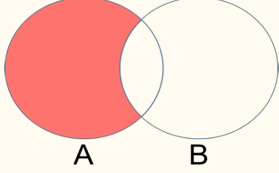
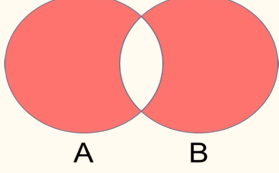
# gets NameError
print(local_var)
```



Type of Namespaces

Sets are unordered collections of unique elements

Analogous to sets in math,
lists of unique items

Set Operation	Venn Diagram	Interpretation
Union		$A \cup B$, is the set of all values that are a member of A , or B , or both.
Intersection		$A \cap B$, is the set of all values that are members of both A and B .
Difference		$A \setminus B$, is the set of all values of A that are not members of B
Symmetric Difference		$A \triangle B$, is the set of all values which are in one of the sets, but not both.

Set Methods

```
s = set()           # create an empty set

s.add(val)         # add a value to the set

s.remove(val)     # remove a value from the set

s1 & s2           # set intersection

s1 - s2           # set difference

s1.issubset(s2)   # set operations
s1.issuperset(s2)
s1.union(s2)
s1.intersection(s2)

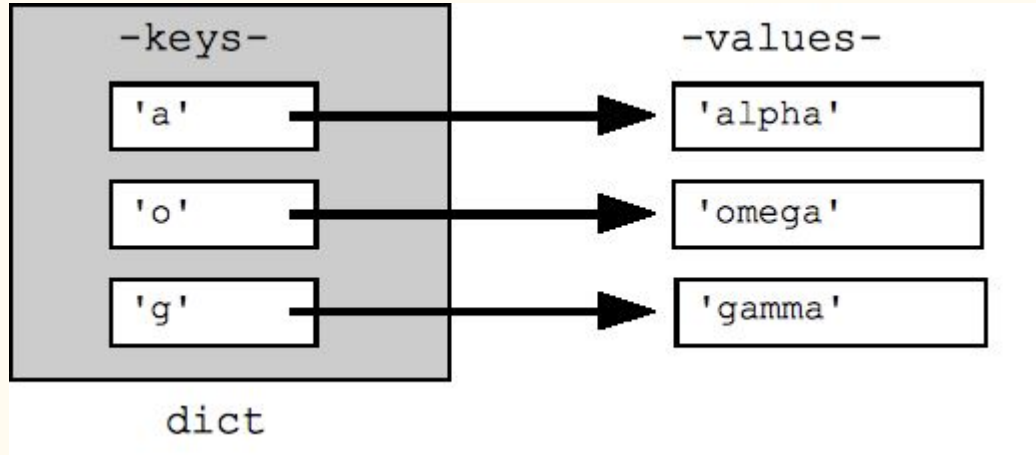
len(s)            # number of items in the set
```

Dictionaries define key-value mappings

Versatile mappings
between (almost) whatever
and whatever else

Dict keys must:

- Be immutable
- Appear only once



<https://developers.google.com/edu/python/dict-files>

Dictionary Methods

```
d = {}           # create an empty dictionary and assign it to d
d[key] = value  # assign a value to a given dictionary key
d.keys()       # the list of keys of the dictionary
d.values()     # the list of values in the dictionary
if key in d:   # test whether a particular key is in the dictionary
for key in d:  # iterate over the keys of the dictionary
len(d)        # number of keys in the dictionary
```

Random Built-in Module

We'll use it a lot in this assignment!

`random.random()` with nested conditionals:

```
randval = random.random() # float between 0 and 1
if randval < 0.35:
    # 35% chance of entering here
elif randval < 0.6:
    # 25% chance of entering here
else:
    # 40% chance
```

`randval == 0.53462123213`

