

# Lesser known gems of the standard library

The ?? and ??s of “batteries included”

Kenneth Nielsen<sup>1</sup>

<sup>1</sup>Center for Individual Nanoparticle Functionality (CINF)  
Institute of Physics  
Technical University of Denmark (DTU)

Python and beers presentation,  
Aprils 29, 2015

# About me

- ▶ My name is Kenneth Nielsen and I work at CINF
- ▶ Free and open source software (FOSS) enthusiast
- ▶ Use way too much time on python conference presentations on youtube

## Slides and examples

```
git clone https://github.com/KennethNielsen/presentations.git
```

```
https://github.com/KennethNielsen/presentations
```

```
http://bit.ly/1Fc1zDR
```

# Outline

A peak into some of the lesser known (at least in the circle of scientists) gems of the standard library

- ▶ Convenient containers (... and more)
  - ▶ defaultdict, Counter
- ▶ Special operators for key functions (get rid of lambdas)
  - ▶ itemgetter, attrgetter
- ▶ Function tools
  - ▶ partial
- ▶ Part way between anonymous data and full classes
  - ▶ namedtuple
- ▶ Random stuff ;)
  - ▶ choice

# Defaultdict

```
from collections import defaultdict  
groups = defaultdict(default_callable)
```

A dictionary that will fill in values for unknown keys with defaults supplied by a callable

- ▶ Useful e.g. for grouping, where you would otherwise have to write annoying first-item-init code
- ▶ Supply a callable when creating it, that will be called to ask for a default value

LIVE! Example `ex1_default_dict.py`

# Counter

```
from collections import Counter  
counter = Counter()
```

A default dict with default value 0 (and some special counter relevant math)

- ▶ Useful for counting!
- ▶ Can be added and subtracted
- ▶ Flattens out at 0 when subtracted

LIVE! Example `ex2_counter.py`

# itemgetter and attrgetter

```
from operator import itemgetter, attrgetter
```

Gives you a function that returns a numbered element from an iterable or a specific attribute from an object

- ▶ **EXTREMELY** usefull as key functions for sort, sorted, min and max ...
- ▶ ... specially becuase they make it possible to get rid of those pesky unreadable lambda expressions

LIVE! Example `ex3_counter.py`