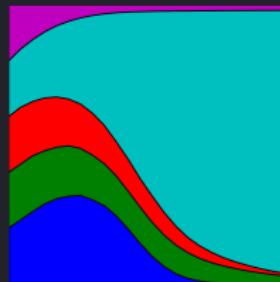


# THE FALLACY OF MERITOCRACY

PyCon Balkan

@NikoletaGlyn





MERITOCRACY [mer-i-tok-ruh-see]

[noun]

1. government or the holding of power by people selected according to merit.



[www.newyorker.com/tech/annals-of-technology/maryam-mirzakhani-s-pioneering-mathematical-legacy](http://www.newyorker.com/tech/annals-of-technology/maryam-mirzakhani-s-pioneering-mathematical-legacy)



[en.wikipedia.org/wiki/List\\_of\\_black\\_Academy\\_Award\\_winners\\_and\\_nominees](https://en.wikipedia.org/wiki/List_of_black_Academy_Award_winners_and_nominees)  
[www.eonline.com/news/836150/](http://www.eonline.com/news/836150/)

# EQUALITY VS EQUITY

EQUALITY

[ih-kwol-i-tee]

[noun]

1. the state of being equal, especially in status, or opportunities.

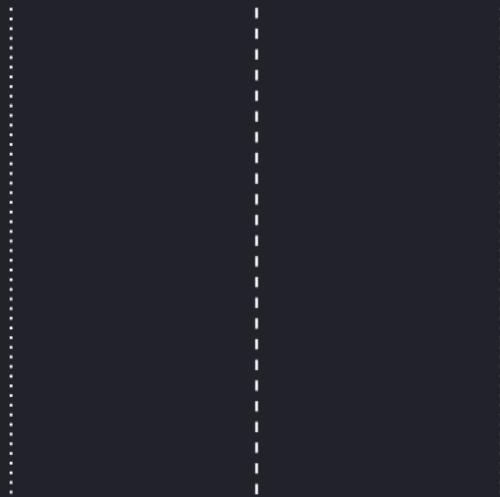
EQUITY

[ek-wi-tee]

[noun]

1. the quality of being fair and impartial.

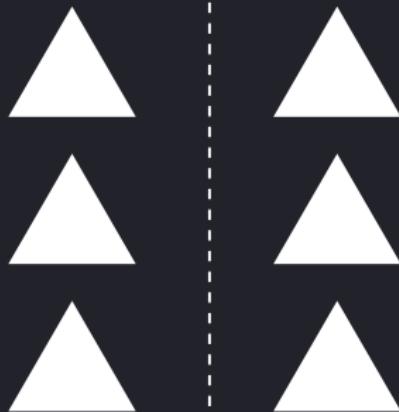
*FINISH LINE*



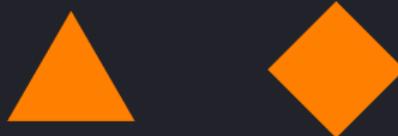
*START LINE*



*FINISH LINE*



*START LINE*



BIAS [bahy-uhs]  
[noun]  
1. a particular tendency, trend, inclination, feeling, or opinion, especially one that is preconceived or unreasoned.

# UNCONSCIOUS BIAS

# AFFINITY BIAS



# HALO EFFECT



# HORNS EFFECT



# ATTRIBUTION BIAS



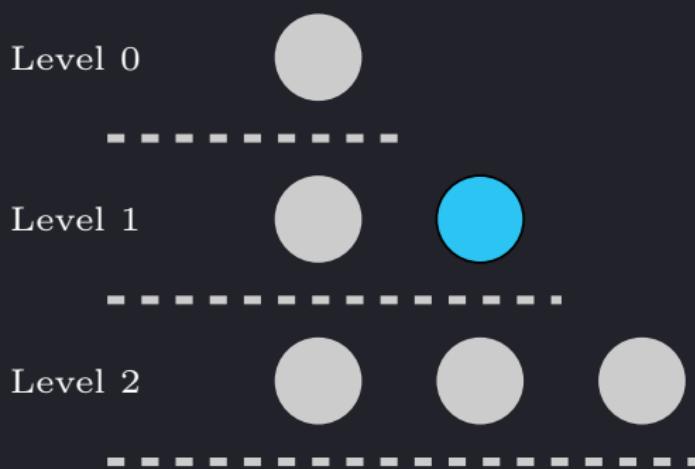
# CONFORMITY BIAS



# EFFECT OF UNCONSCIOUS BIAS IN HIERARCHICAL SYSTEM

# HIERARCHICAL SYSTEM







Level 0



Level 1



Level 2



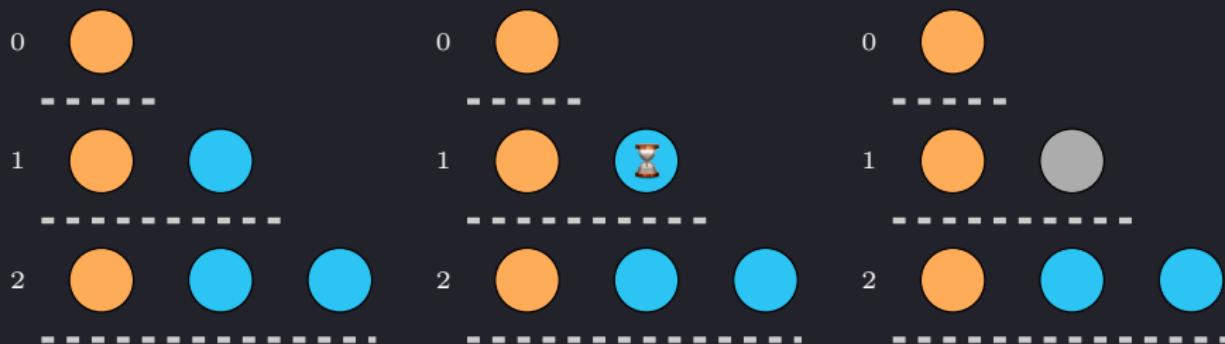
```
>>> import hierarchical as hrcy
>>> import numpy as np
>>> import scipy.stats

>>> competence_distribution = scipy.stats.uniform(0, 1)
>>> retirement_rate = 0.2
>>> capacities = [3, 2, 1]

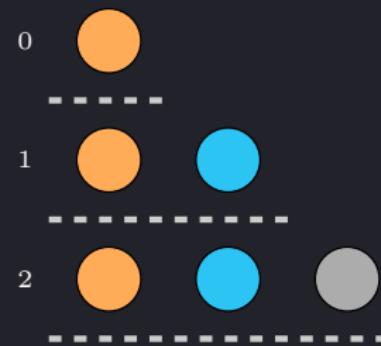
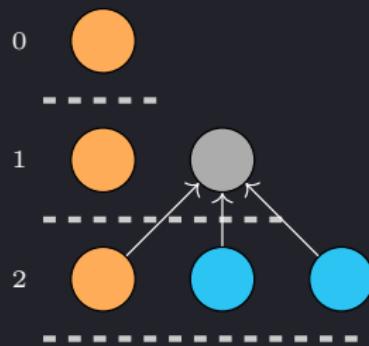
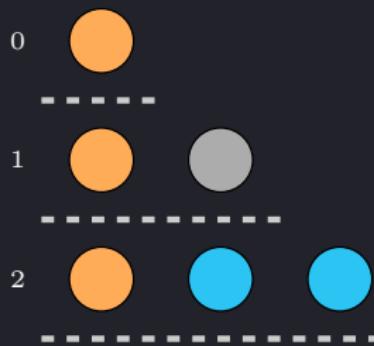
>>> np.random.seed(0)
>>> states = list(hrcy.states.get_competence_states(
...     capacities, competence_distribution, retirement_rate)
... )

>>> for level_index, level in enumerate(states[6]):
...     print(f"Level {2 - level_index}")
...     for individual in level:
...         print(
...             f"""-|type {individual.individual_type} with
...             competence {individual.competence:.3f} retirement {individual.retirement_date:.3f}"""
...         )
Level 2
-|type 0 with
    competence 0.438 retirement 0.445
-|type 1 with
    competence 0.964 retirement 0.097
-|type 1 with
    competence 0.792 retirement 0.151
Level 1
-|type 0 with
    competence 0.360 retirement 0.115
-|type 1 with
    competence 0.698 retirement 0.012
Level 0
-|type 0 with
    competence 0.209 retirement 0.035
```

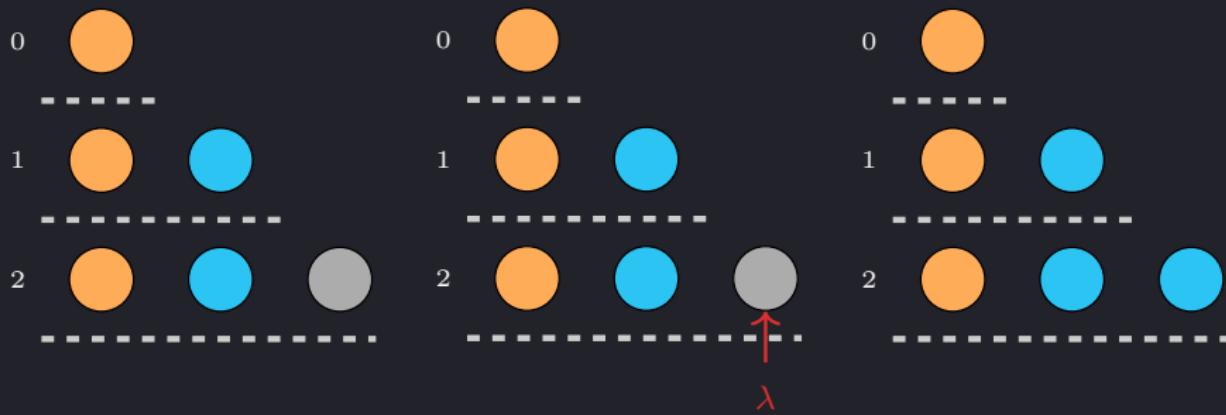
# RETIREMENT



# PROMOTION



# HIRING

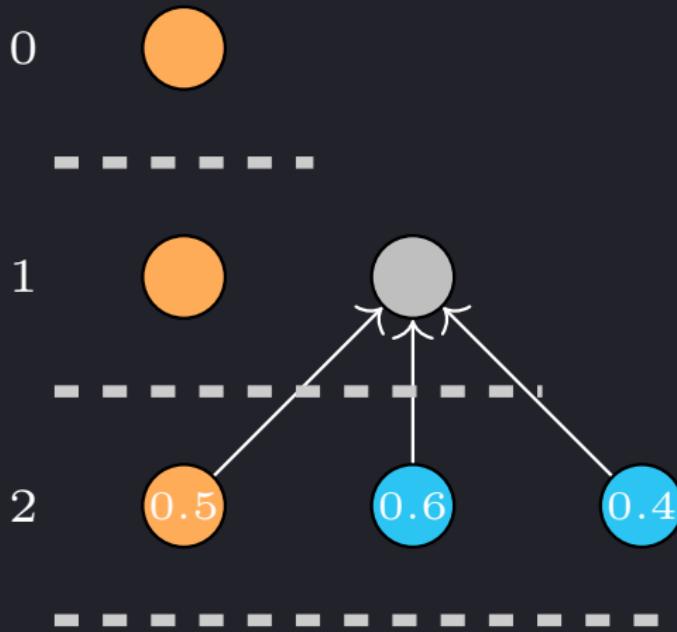


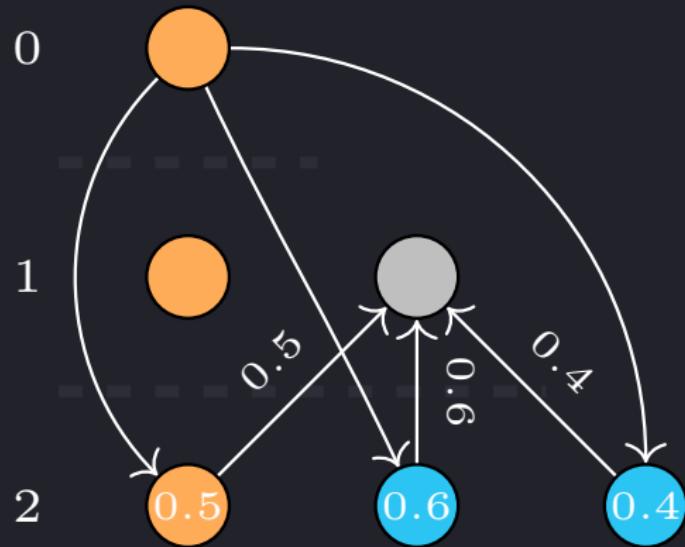
RETIREMENT

HIRING

PROMOTION

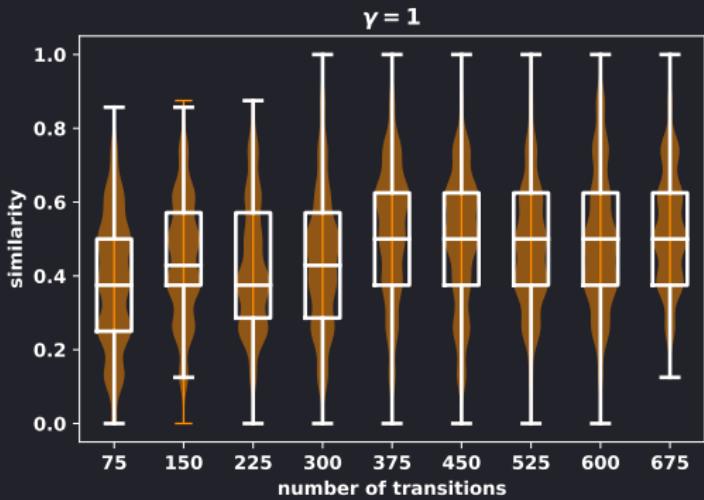






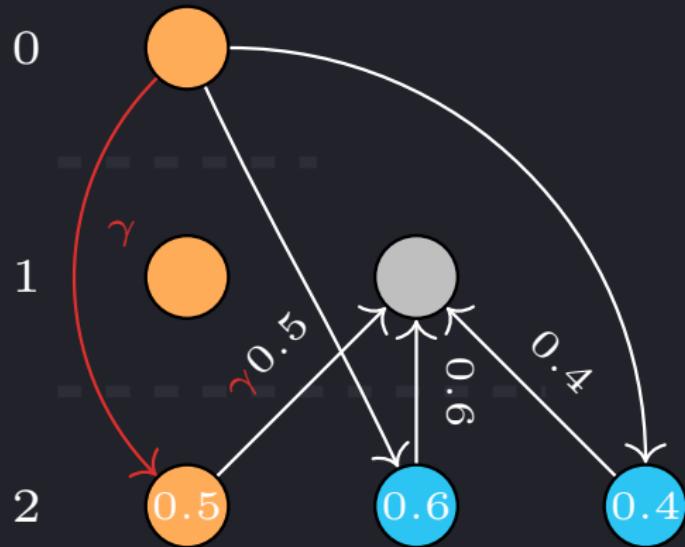
```
>>> capacities = [9, 6, 2, 1]

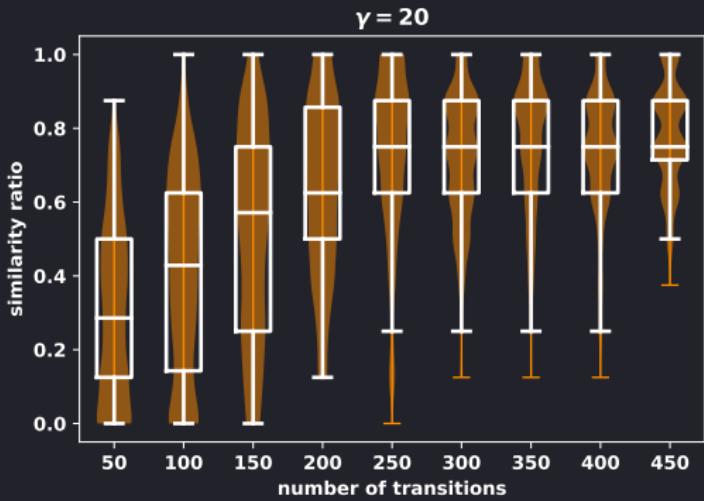
>>> competence_distribution = scipy.stats.uniform(0, 1)
>>> retirement_rate = 0.2
>>> lmbda = [10, 10]
```



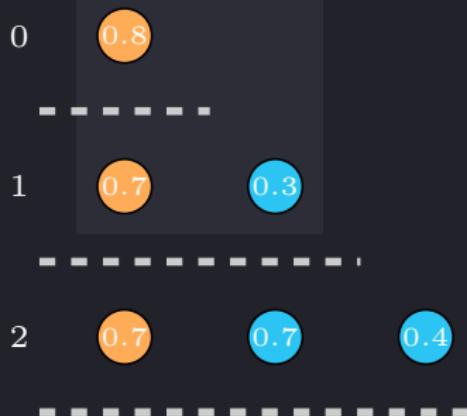
UNCONSCIOUS **BIAS**

**AFFINITY BIAS**

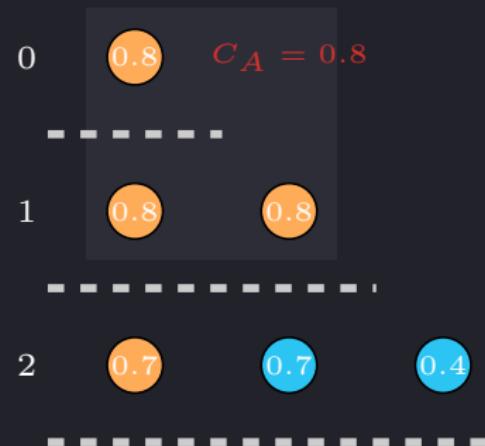




## MERITOCRACY



## AFFINITY



## MERITOCRACY

0      0.8       $C_M = 0.6$

1      0.7      0.3

2      0.7      0.7      0.4

## AFFINITY

0      0.8

1      0.8      0.8

2      0.7      0.7      0.4

## MERITOCRACY

0      0.8       $C_M = 0.6$

1      0.7      0.3

2      0.7      0.7      0.4

## AFFINITY

0      0.8       $C_A = 0.8$

1      0.8      0.8

2      0.7      0.7      0.4

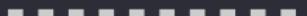
```
np.random.seed(seed)
```

### MERITOOCRACY

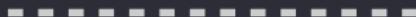
0      0.8       $C_M = 0.6$



1      0.7      0.3



2      0.7      0.7      0.4

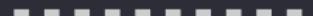


### AFFINITY

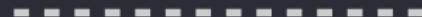
0      0.8       $C_A = 0.8$



1      0.8      0.8

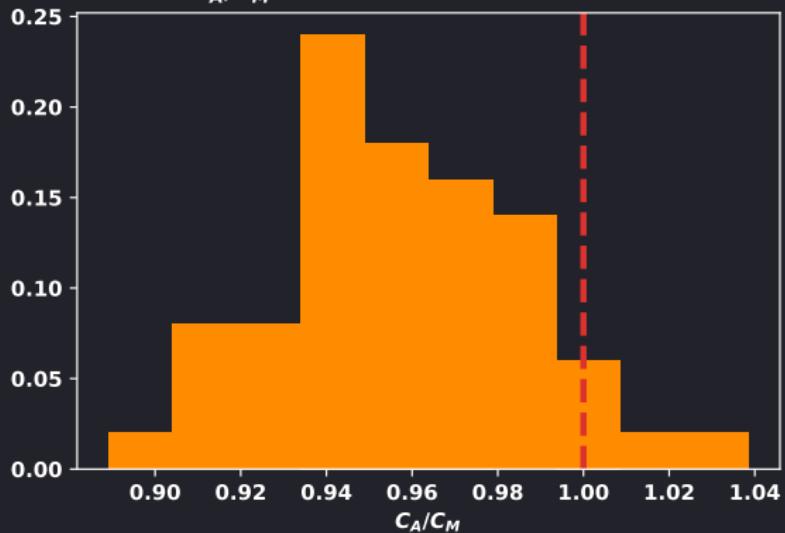


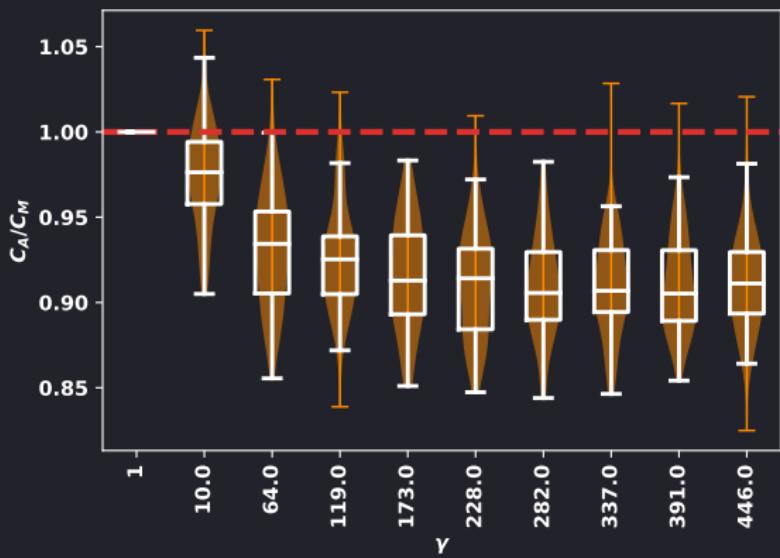
2      0.7      0.7      0.4



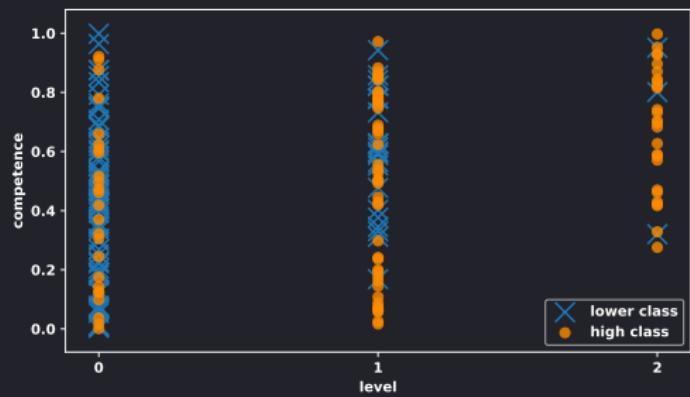
HOW MUCH **WORSE** IS THE SYSTEM  
BECAUSE OF AFFINITY BIAS?

$C_A/C_M$  over 50 different scenarios









ANSWERS?

BE AWARE OF YOUR  
UNCONSCIOUS BIAS

**BE AN ALLY**

DO NOT BE LAZY

@NikoletaGlyn  
@drvinceknight

- <https://nikoleta-v3.github.io>
  - [vknight.org/unpeudemath/math/2017/11/10/  
the-fallacy-of-meritocracy.html](http://vknight.org/unpeudemath/math/2017/11/10/the-fallacy-of-meritocracy.html)
-  [github.com/drvinceknight/HierarchicalPromotion](https://github.com/drvinceknight/HierarchicalPromotion)