## PIP INSTALL AXELROD

## PRISONERS' DILEMMA

- ▶ both sides are better off **Cooperating** (3)
- ▶ there is always a temptation to **Defect** (5)

## WHEN INTERACTING WITH A SNEAKY OPPONENT SHOULD PEOPLE HOLD A GRUDGE AGAINST THEM?

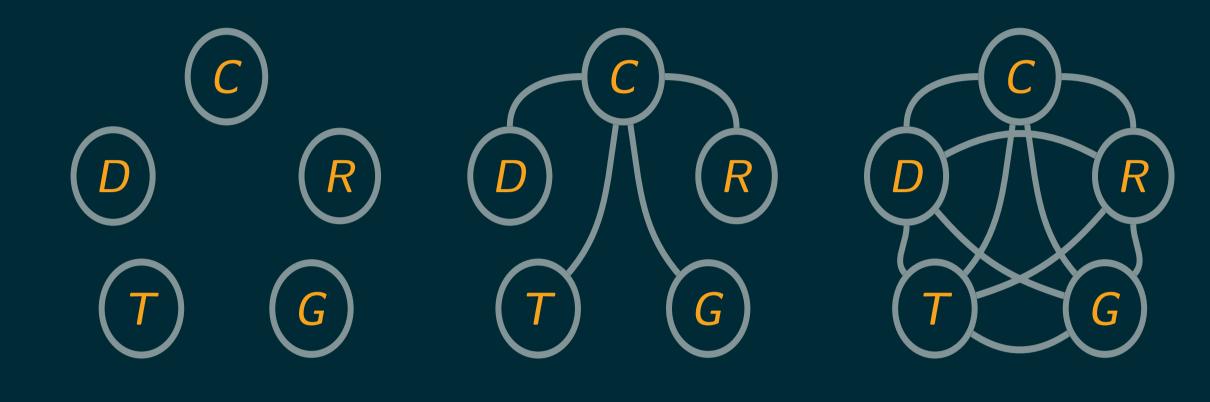
```
>>> import <u>axelrod</u> as <u>axl</u>
>>> first_match = axl.Match([
        axl.SneakyTitForTat(),
        axl.Grudger()],
        turns=20)
>>> first_match.play()[:6]
[('C', 'C'), ('C', 'C'), ('D', 'C'),
('D', 'D'), ('C', 'D'), ('C', 'D')]
>>> first_match.final_score()
(20, 55)
>>> second_match = axl.Match([
        axl.SneakyTitForTat(),
        axl.TitForTat()],
        turns=20)
>>> _ = second_match.play()
>>> second_match.final_score()
(57, 57)
```

```
>>> assert axl.__version__ == "3.5.0"

$ python -m doctest poster.tex

# 3 expected failures for readability
```

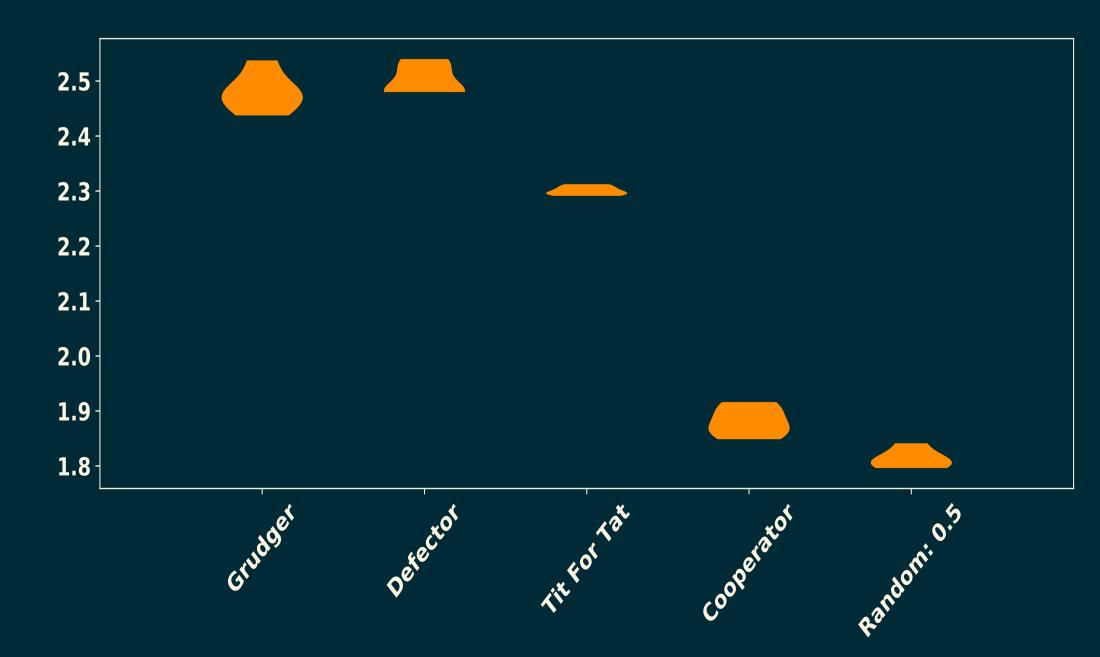
WHAT IS THE OPTIMAL STRATEGIC PLAY AGAINST THE MANY FACES OF WAR?

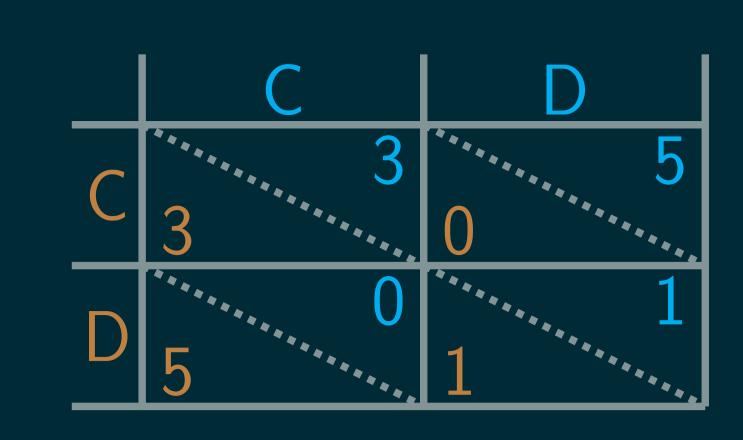


```
>>> import axelrod as axl
>>> axl.seed(0)
>>> players = [axl.Cooperator(), axl.Random(),
... axl.TitForTat(), axl.Grudger(),
... axl.Defector()]

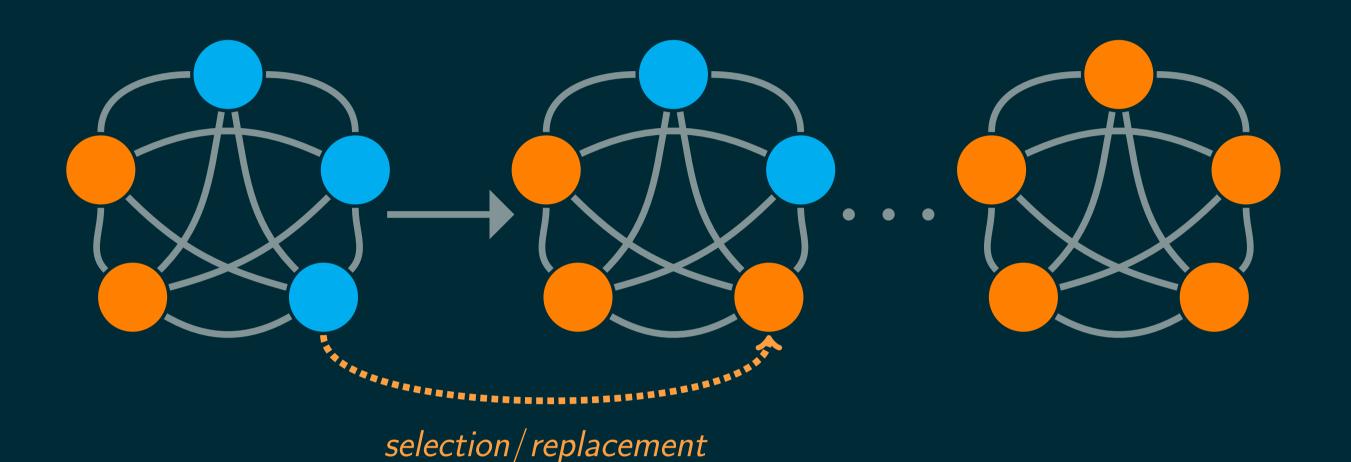
>>> tournament = axl.Tournament(players)
>>> results = tournament.play()
>>> results.ranked_names
['Grudger', 'Defector', 'Tit For Tat',
'Cooperator', 'Random: 0.5']

>>> plot = axl.Plot(results)
>>> p = plot.boxplot()
>>> p.show()
```



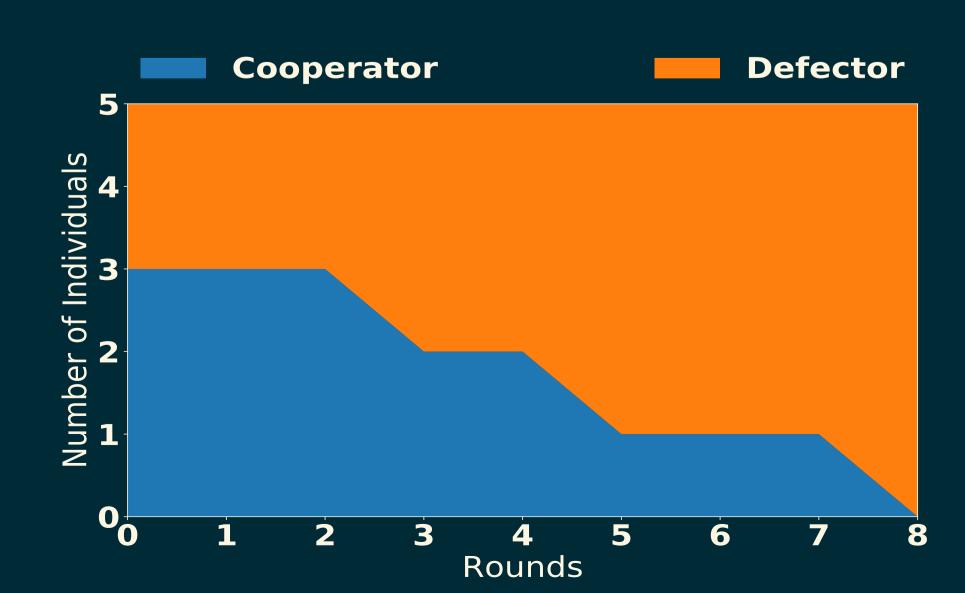


## SHOULD THE NORTH JOIN HANDS WITH THE SOUTH TO DEFEAT THE NIGHT KING?



>>> import random >>> N = 5 >>> players = [] >>> axl.seed(5)>>> for \_ in range(N): player = random.choice([axl.Defector, ax1.Cooperator]) players.append(player()) >>> mp = axl.MoranProcess(players=players, turns=200) >>> mp.play() [Counter({'Cooperator': 3, 'Defector': 2}), Counter({'Cooperator': 3, 'Defector': 2}), Counter({'Cooperator': 3, 'Defector': 2}), Counter({'Cooperator': 2, 'Defector': 3}), Counter({'Cooperator': 2, 'Defector': 3}), Counter({'Cooperator': 1, 'Defector': 4}), Counter({'Cooperator': 1, 'Defector': 4}),

>>> import <u>axelrod</u> as <u>axl</u>



Counter({'Cooperator': 1, 'Defector': 4}),

Counter({'Defector': 5})]