

PIP INSTALL AXELROD

PRISONERS DILEMMA

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

	C	D
C	3, 3	0, 5
D	5, 0	1, 1

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

	1	2	3	4	5	6
SneakyTitForTat	C	C	D	D	C	C
Grudger	C	C	C	D	D	D

```
>>> import axelrod as axl

>>> 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')]

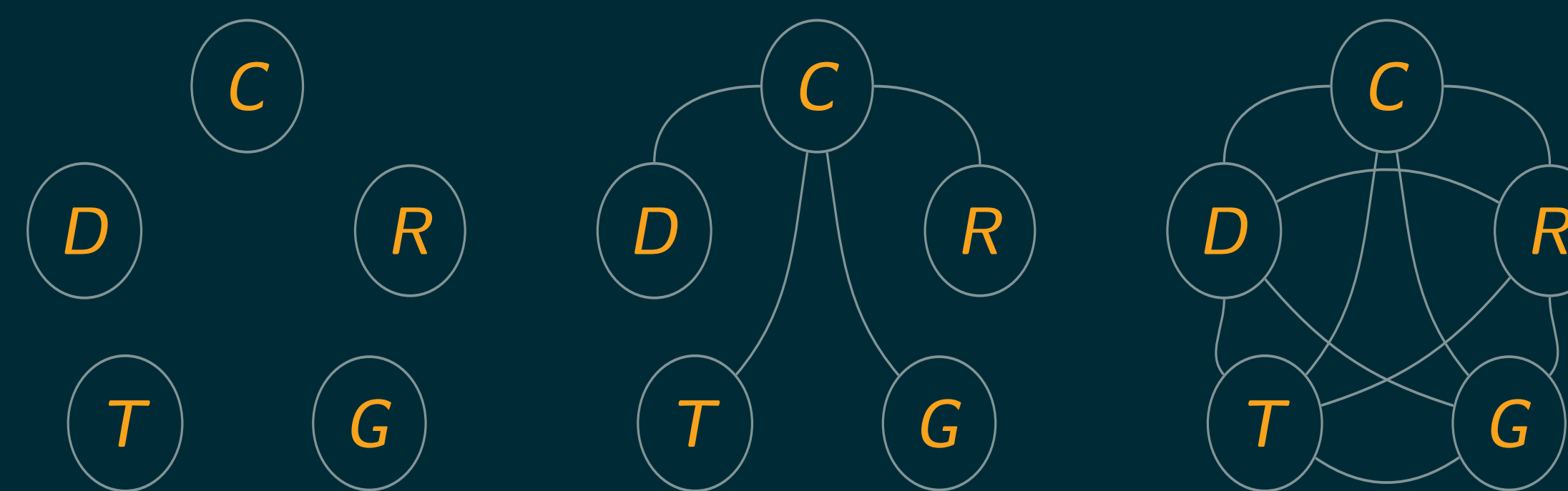
>>> print(first_match.sparklines())

>>> 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)
```

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

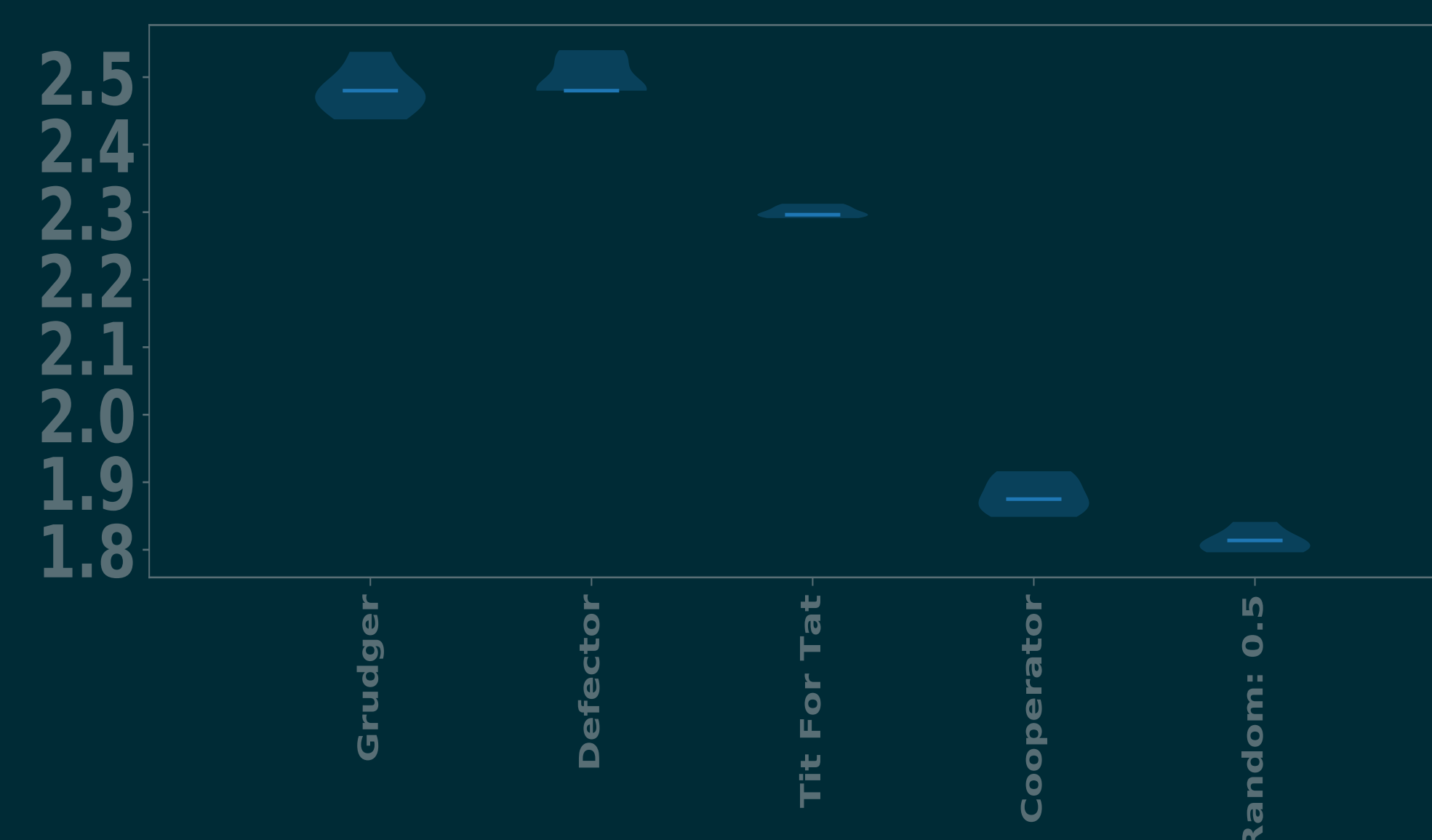


```
>>> import axelrod as axl

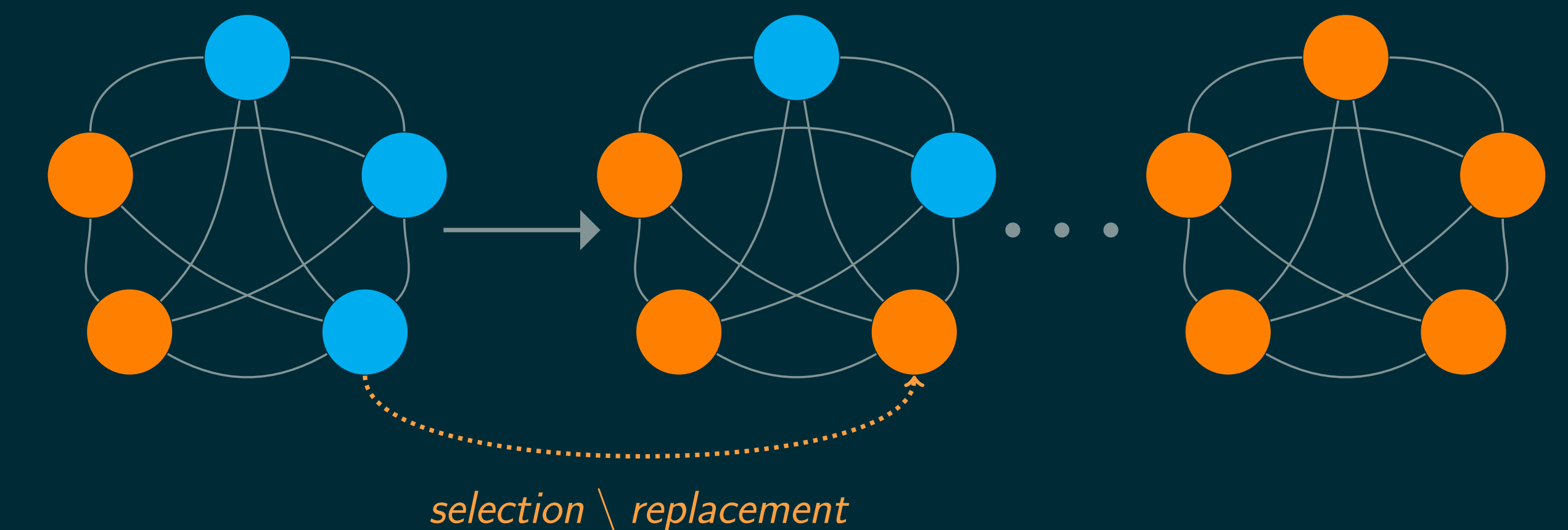
>>> axl.seed(0)
>>> players = [axl.Cooperator(), axl.Random(),
    axl.TitForTat(), axl.Grudger(),
    axl.Defector()]

>>> tournament = axl.Tournament(players)
>>> results = tournament.play()
>>> results.ranked_names
['Defector', 'Grudger', '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,
    axl.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}),
 Counter({'Cooperator': 1, 'Defector': 4}),
 Counter({'Defector': 5})]
```

