

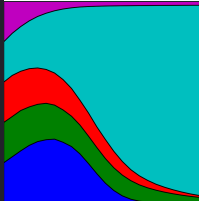
# Prisoners, Game Theory & the Axelrod Library

@NikoletaGlyn



Software  
Sustainability  
Institute

django  
girls





player 1



player 2

Cooperate? Defect?



player 1



player 2

$$\begin{pmatrix} (3, 3) & (0, 5) \\ (5, 0) & (1, 1) \end{pmatrix}$$

	1	2	3	4	5	score
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Tit For Tat						
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Defector						
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	1	2	3	4	5	score
--	---	---	---	---	---	-------

Tit For Tat						
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Defector						
----------	--	--	--	--	--	--

	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	
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	1	2	3	4	5	score
Tit For Tat	<i>C</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	
Defector	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	



	1	2	3	4	5	score
Tit For Tat	<i>C</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	0.8
Defector	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	1.8

	1	2	3	4	5	score
Tit For Tat	<i>C</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	0.8
Defector	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	1.8

	1	2	3	4	5	score
Tit For Tat	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>	3
Cooperator	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>	3

```
class TitForTat(Player):
    """A player starts by cooperating and then mimics previous
    move by opponent."""

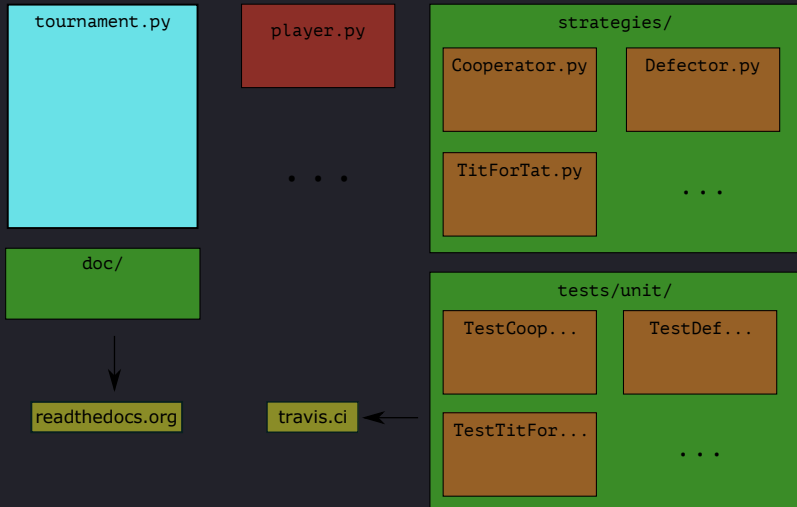
    name = 'Tit For Tat'
    classifier = {
        'memory_depth': 1, # Four-Vector = (1.,0.,1.,0.)
        'stochastic': False,
        'inspects_source': False,
        'manipulates_source': False,
        'manipulates_state': False
    }

    @staticmethod
    def strategy(opponent):
        return 'D' if opponent.history[-1:] == ['D'] else 'C'
```

```
class TestTitForTat(TestPlayer):

    name = "Tit For Tat"
    player = axelrod.TitForTat
    expected_classifier = {
        'memory_depth': 1,
        'stochastic': False,
        'inspects_source': False,
        'manipulates_source': False,
        'manipulates_state': False
    }

    def test_strategy(self):
        """Starts by cooperating."""
        self.first_play_test(C)
```



Research





# Contributions



“And I really wanted to thank you all, I discovered your project because of a course where we needed to participate in an open source project, and I had the occasion to compare the welcome me and my coworkers received here compared to other people from my class who worked on different project. And I’ve got to said you are awesome on that part and on the help your provide to newbies I like your project so I’ll try to continue to contribute now and then!”

Julie Rymer - @Chadys -10 May 2017

#ChooseToChallenge

🐦 @NikoletaGlyn

🐦 @AxelrodPython

🐙 <https://github.com/Axelrod-Python/Axelrod>

- <https://axelrod.readthedocs.io/>
- <https://axelrod.readthedocs.io/en/latest/tutorials/contributing/index.html>

🐙 <https://github.com/drvinceknight>

🐙 <https://github.com/gaffney2010>

🐙 <https://github.com/marcharper>

🐙 <https://github.com/meatballs>