

# Prisoner's Dilemma Tournament with Side Payments

## Introduction

The Prisoner's Dilemma is a classic scenario in Conflict Theory. It conventionally consists of two players who can either choose to cooperate (C) or defect (D). Mutual C results in 3 points for both players, but C-D awards the solo D with 5 points and the opponent is awarded none. However, mutual D's award only 1 point to each player.

Side payments assume a new payoff matrix where solo D now receives 8 points. However, 4 points are given to the sucker when side payments are given.

## Hypothesis

Side payments within the classic Prisoner's Dilemma tournament will create a new equilibrium strategy for both players. This "new" equilibrium would feature a perpetual D-C outcome where the player giving side payments plays a D, receiving 8 points but then giving the opponent 4 points for being the sucker.

### All-C vs. Pavlov

C-C (3-3)  
C-C (3-3)

**C-C (3-3)**  
**C-D (0-8)**

### All-D vs. Pavlov

D-C (5-0)  
D-D (1-1)

**D-C (4-4)**  
**D-C (4-4)**

C-C (3-3)  
C-C (3-3)

**C-D (0-8)**  
**C-D (0-8)**

D-D (1-1)  
D-C (5-0)

**D-C (4-4)**  
**D-C (4-4)**

C-C (3-3)  
C-C (3-3)

**C-D (0-8)**  
**C-D (0-8)**

D-D (1-1)  
D-C (5-0)

**D-C (4-4)**  
**D-C (4-4)**

C-C (3-3)  
C-C (3-3)

**C-D (0-8)**  
**C-D (0-8)**

D-D (1-1)  
D-C (5-0)

**D-C (4-4)**  
**D-C (4-4)**

C-C (3-3)  
C-C (3-3)

**C-D (0-8)**  
**C-D (0-8)**

D-D (1-1)  
D-C (1-1)

**D-C (4-4)**  
**D-C (4-4)**

**Bold** characters indicate: with side payments

## Experimentation

In order to test our theory, we had to find strategies that would be unresponsive to outcomes measured in D's and C's since the concept of a "win" is redefined with side payments. With side payments, a win is now considered any outcome that you receive 4 or more points, consistent with declaring the top two results in the conventional game "win(s)".

## Results

Comparing the control group with the side payment scenarios, the side payments almost always settled into perpetual D-C outcomes, supporting our hypothesis