

# Natural Language

- **Skinner's theory**
- **Chomsky's theory**
  - **Poverty of stimulus**
  - **Language window**
  - **Pidgins and Creoles**
  - **"Homework, dog, chomp!, sorry"**
  - **"Colorless green ideas sleep furiously."**
- **Deep-structure**
- **Culturally varied surface structure**

## Prisoner's Dilemma

- **Game theory**
- **Strategic games**
- **Making the rational play**
- **Original version of the prisoner's dilemma**
- **Playing against a random computer**
- **Playing against a rational opponent**

## Prisoner's Dilemma

|                      | You play Heart | You play club |
|----------------------|----------------|---------------|
| Computer plays heart | You get 3      | You get 5     |
| Computer plays club  | You get 0      | You get 1     |

# Prisoner's Dilemma

- **Let's play!**
- **My rational play**
- **Your rational play**
- **Club is dominant play**
- **The paradox**
- **Can we strike a deal?**
- **Let's play again**

|                  | You play heart           | You play club            |
|------------------|--------------------------|--------------------------|
| Jeff plays heart | You get 3<br>Jeff gets 3 | You get 5<br>Jeff gets 0 |
| Jeff plays club  | You get 0<br>Jeff gets 5 | You get 1<br>Jeff gets 1 |

# Problem of Altruism

- **Biological altruism**
  - Vampire bats
  - Chimpanzees
- **Evolutionary problem**
- **Group selection verses individual or gene selection**
- **Kin selection**
- **Empirical confirmation**

## **Solutions to the Prisoner's Dilemma**

- **Bargains**
- **Bargaining to law and government**
  - **State of nature**
  - **Social contract**
- **Rules and sanctions**
- **Cultural rules and sanctions**
- **Innate rules and sanctions?**

## **Repeated Play Tournaments**

- **Robert Axelrod**
- **The tournament**
  - **Each against the others**
  - **200 plays**
  - **Total points**
- **The players**
- **The clear winner**

## **TIT-FOR-TAT**

- **Plays heart on first move**
- **Plays what opponent played on previous move**
- **Simplest program**
- **Can't "win" against any opponent**
- **Still accumulates most points and wins the tournament**

## **Tit-for-Tat's Virtues**

- **Friendly (cooperates first play)**
- **Refuses to be a sucker (retaliates for defections)**
- **Doesn't hold grudges (as soon as opponent begins to cooperate, returns to playing hearts)**
- **Easy for opponents to figure out**

## **The Evolution of Cooperation**

- **In iterated play contexts, rational move may be to play heart (tit-for-tat)**
- **Cooperation may evolve naturally**
- **Empirical support for this view**
- **Is this enough?**

## **Secular Natural Law**

- **Prisoner's dilemma's are not hopeless**
- **Rational to set up and enforce rules**
- **Cooperative behavior is rational in iterated prisoner's dilemmas**
- **Biological basis for altruistic behavior toward kin**
- **Biological basis for cooperative behavior in general?**

# Biologically Based Moral Realism

- **Deep-structure to morality**
  - Tit-for-tat
  - Constrained-maximization
  - Predisposition to cooperation
- **Cultural dimension**
  - Obvious cultural differences
  - What is fair, reasonable, cooperative
  - Who one owes this constraint to

**Judges as constrained maximizers**

**Same potential problem as with efficiency**

**Tort rules as attempts at cooperation**

*Secular Natural Law & Torts*

**Constrained maximization as Dworkin's value?**

**Corrective justice as a model for cooperation?**

**Explaining *Vincent v. Lake Erie Transportation***