Math of Games

Week 2 Journal/Ch. 1–2 Study Guide

Due: start of class, 21 February 2012

Terms

In your own words, define the following concepts from Chapters 1 and 2 of Rock, Paper, Scissors.

1. social dilemma
2. Nash equilibrium
3. coordinated agreement
4. reward structure
5. minimax
6. preference ranking
7. fair allocation
8. independent authority

Short Essays

1. The perceived value of an education at a college is strongly influenced by the “sticker price” of tuition there. As a result, Stanford, Yale, Princeton and other top-tier institutions all have roughly similar advertised tuitions, despite vast discrepancies in their endowments and their operating expenses [1]. If the yearly tuition at every top-tier institution were $5000 lower, no perceived quality difference would exist, yet their students would graduate with much less debt and considerably more flexibility in career choice (not being forced by the burden of student loans to take a high-paying job over a more pleasant one). Discuss this situation in terms of the Prisoner’s Dilemma, identifying the players involved, what it would mean to cheat or to cooperate, and what kind of strategy the arrows in the matrix suggest for each player. Explain the payoffs both qualitatively (e.g., in terms of infrastructure changes that lower tuition would necessitate) and quantitatively (e.g., in terms of applicant volume after lower tuitions are advertised).
2. Fisher claims that “social conventions ... may be powerful, but there is no guarantee that they will be adhered to” [2]. To what extent do you think the power of social conventions depends on the homogeneity of the society? Give examples from history or modern societies that demonstrate different reward structures for analogous acts of cheating or cooperation. In which types of society would violation of social convention entail less stigma or guilt for the perpetrator?

References
