CO 480 Project Proposal – Spring 2015

Group Membership

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Project Summary

Person	John Forbes Nash Jr.
Place	Princeton University circa 1950
Problem	Equilibria in Strategic Games
Hook	This is the story of a man who achieved equilibrium between players who were not cooperative in games.

Project Outline

John Forbes Nash Jr.

1. Early Life
2. Undergraduate Studies - From Chemical Engineering to Mathematics
3. Princeton & Thesis
4. Interests other than Game Theory
5. Alicia Larde
6. Struggles with Mental Illness
7. Nobel Prize & Other Recognitions

Princeton University

1. The end of World War II
2. Communism vs Capitalism
   (a) Creation of the Eastern Bloc
   (b) Mutually Assured Destruction - Nuclear Armament
   (c) Korean War
   (d) McCarthy & the Red Scare
3. Continued Development of Game Theory and its Applications
4. Beginning of Civil Rights Movements
5. Liberalization of Trade & Rebuilding of Europe

Equilibria in Strategic Games

1. Introduction to Strategic Games
2. Best Response Functions
3. Pure Equilibria & Cournot Oligopoly
4. Mixed Equilibria
5. Existence of Mixed (Nash) Equilibria
   (a) Sperner's Lemma
   (b) Browser's Fixed Point Theory
   (c) Nash's Existence Proof
6. Practical Applications
7. Lemke-Howson Method for Finding Equilibria

Source Material

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3. Hart, S. (2011). *Commentary: Nash equilibrium and dynamics. Games and Economic Behaviour,* 71(1), 6-8.
4. Mccain, K. W., & Mccain, R. A. (2010). Influence & incorporation: John Forbes Nash and the Nash Equilibrium. *Proceedings of the American Society for Information Science and Technology*, 47(1), 1-2.
5. Meltzer, H. (1999). A Beautiful Mind: A Biography. *The Journal of Clinical Psychiatry*, 60(4), 266.
6. Nasar, S. (2001). A Beautiful Mind: *The Life of Mathematical Genius and Nobel Laureate John Nash.* New York: Simon & Schuster.
7. Nash, John F. *Non-cooperative Games.* Thesis. Princeton University, 1950.
8. Nosal, E., & Rupert, P. (2002). A beautiful theory. *Federal Reserve Bank of Cleveland*, 1-4.
9. Saint-Laurent, P. (n.d.). Beautiful minds: The competitive world of financial planning meets the mathematical. *Advisor's Edge*, 5(6), 45.
10. Young, H. P. (2011). Commentary: John Nash and evolutionary game theory. *Games and Economic Behaviour*, 71(1), 12-13.