

Chapter 17. Application to Business: Management-Labor Arbitration

- The Problem
- Applying Nash Arbitration
- Interpreting Arbitrated Solutions
- False Representation of Utilities

Asymmetric Nash Arbitration

- Others after Nash have extended his arbitration procedure:
 $\max(U)$ where $U = (x-x_0)^\alpha(y-y_0)^{1-\alpha}$
- The quantity α becomes a general measure of bargaining power for player x
- Among the things that affect bargaining power are inside options ("payoffs earned while bargaining"), and discount factors ("solutions needed now")

The Problem

- Management and labor have a list of demands of each other
- They cannot come to an agreement and the consequence – striking – is expensive for both
- So they seek outside arbitration
- How can we use Nash arbitration to help?

UK Miner's Strike 1984-1985

- UK government closed unprofitable mines and automated jobs at still others
- Mines were federated and terms and conditions varied widely
- Miner's grievances were not answered and they went on strike
- Ultimate the strike was broken resulting in massive unemployment in many regions
- A major political and ideological victory for Margaret Thatcher's Conservatives



Image by Nick from Bristol, UK, released under cc-by-2.0

Inside Options for the Miners

- The miners were receiving welfare payments while striking, with consequent positive effects on their bargaining power
- On the other hand the British government had the longer discount factor, and could afford to wait them out
- Ultimately the British government denied pension benefits to miners, severely weakening the bargaining power of the the strikers

Procedures for Use in Arbitration

- Case discussed in book
- Sets the status quo to zero
- Get parties to list grievances or desired outcomes
- Have each party rate the outcome relative to the status quo of zero
- “most interesting part of the process was getting representative to answer cardinal utility questions”
- If possible, use brainstorming or other techniques to widen the space of possible agreements or swaps

Getting to Yes

- *Getting to Yes: Negotiating Agreement without Giving In*, Fisher and Ury (1983)
- Informed by game theory, as well as real world experiences in arbitration
- Recommendations include
 - Separate people and issues
 - Focus on interests rather than positions
 - Generate creative options
 - Use objective criteria to assess options

Setting the Status Quo

- Straffin's example chooses the status quo to be $(0,0)$
- The status quo is business as usual, favoring the business
- On the other hand, using a threat point of striking favors labor

Concessions

- List all the possible concessions, singly or in combination
- Assume additive utility
- Could there be a set of concessions which together add up to more than the sum of the parts?
- Now we have the status quo, can calculate the security level of the players, and can determine the negotiation set
- Then calculating the Nash arbitration scheme is straight-forward

Interpreting the Nash Outcome

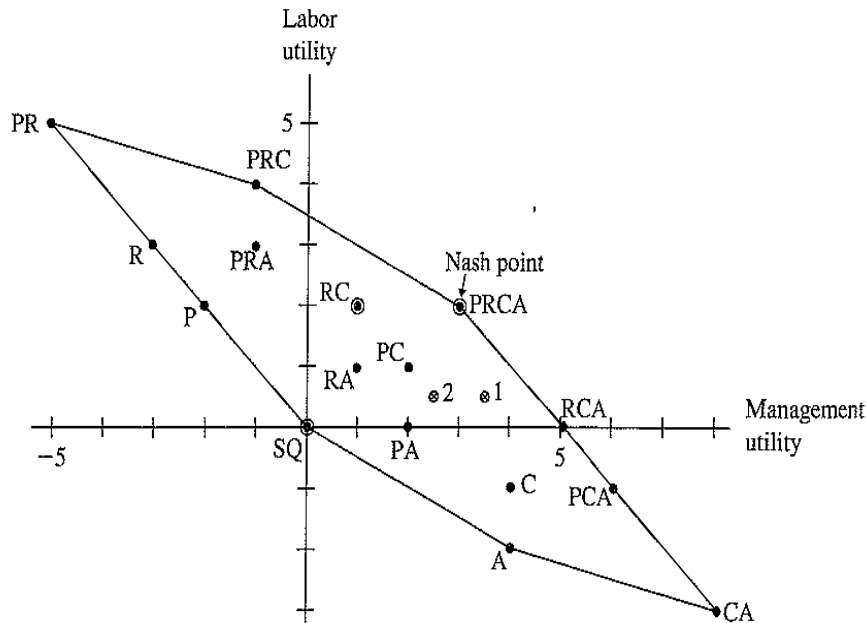
- Solutions result in points in space, not specific concessions
- Thus we have to set up an equation to determine which mixture of outcomes do we need to achieve the specified solution
- There may be several implementations possible
- But how to determine mixes? An example in the book was eliminating half a coffee break as the recommended concession by labor.

False Utilities

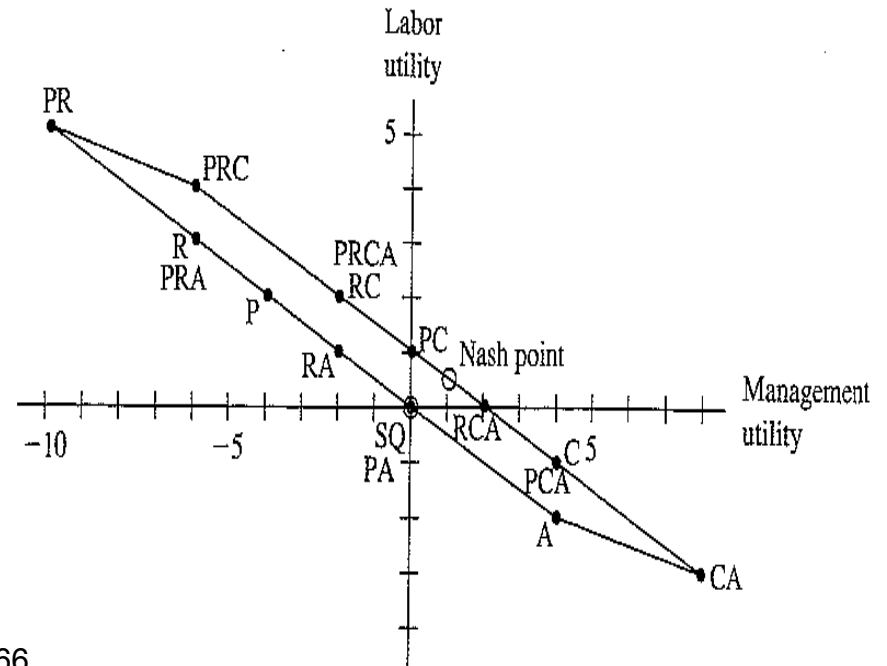
- Another big challenge in the procedure is if either party gives false utilities
- A realistic example would be for instance if labor gave the correct valuation of management concessions, but exaggerated the costs of its own concessions
- Example in the book results in flattening the payoff polygon, eliminating options
- If players are not careful they may even harm themselves by reporting incorrect utilities!

Payoff Polygons: Sincere and Strategic

Sincere



Strategic



Diagrams from Game Theory and Strategy (Straffin 1993) p.114, 166

Valuation and Uncertainty

- Even if players offer genuine utilities, they will be suspected by others of having given a false account
- We could easily extend the procedure to include uncertainties
- Rasmussen (2007) in a context of auction, finds an equilibrium of strategies involving falsehoods
- A linear function of the true valuations
- Unfortunately the falsehood strategies result in good exchanges not being made