

Chapter 22. Applications to Athletics: Prisoner's Dilemma and the Football Draft

- Drafting in American Football
- Sincere and Strategic Drafts
- Medical Internships

NFL Drafting Process

- Straffin's discussion of the National Football League drafting process still correct
- Winner of the Superbowl picks last
- Note that player salaries are determined by a collective bargaining agreement
- There are nominally seven rounds, seven picks
- Teams can negotiate with each other for extra picks
- Teams may be penalized for breaking rules during the year by losing picks

In Short

- Sincere strategies result in less than Pareto optimal play
- Yet, if every team drafts strategically, all teams are made worse off
- There are equilibrium plays in the sense that no team will defect from the arrangement or they will make themselves worse off

The Lying Season: Deception key to NFL draft strategies

- The days before the draft are filled with misinformation campaigns, media leaks and smokescreens as teams play what amounts to a high-stakes game of bluffing.
- “Some teams feign interest in players they have no intention of taking ... while virtually ignoring players they want most.”

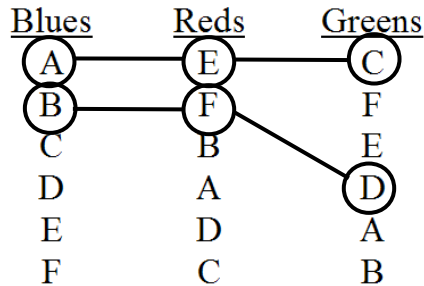
Bell, Jarrett (2008), USA Today, Accessed online:
http://www.usatoday.com/sports/football/nfl/2008-04-24-lying-season-cover_N.htm

Also a Game Between Team and Player

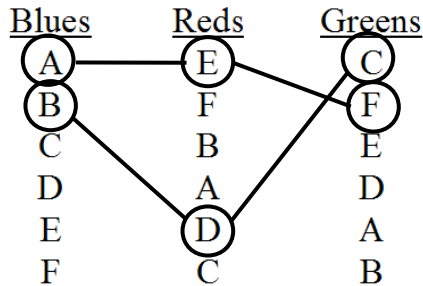
- "Every head coach, every GM, everyone involved with any team right now is playing poker," Kansas City Chiefs coach Herm Edwards says. "Whatever someone says, it's about half true. That's the way the game is played."
- "Among the suspected tactics: exaggerating concern about medical reports or other issues. Through media leaks or the NFL grapevine, misleading information can be circulated with the idea of affecting a player's stock to the point he is available later in the draft than expected — and therefore less able to demand a huge contract."

Bell, Jarrett (2008), USA Today, Accessed online:
http://www.usatoday.com/sports/football/nfl/2008-04-24-lying-season-cover_N.htm

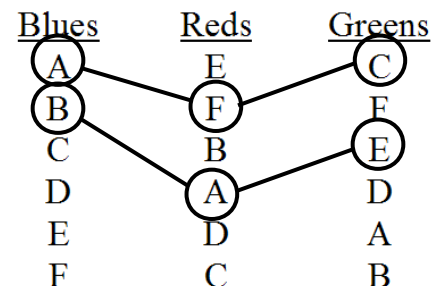
Drafting Game . . .



Sincere selection
Yet Greens defect . . .



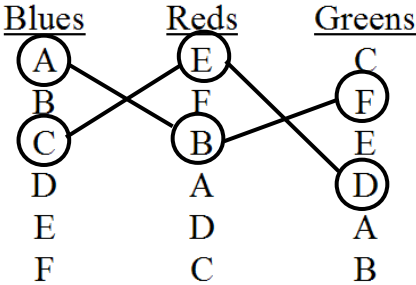
by Choosing F first pick
Resulting in Red worse off



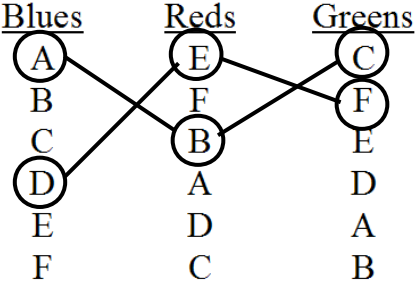
Red choosing F first
doesn't help . . .

Example adapted from Game Theory and Strategy (Straffin 1993) p.146 - 148

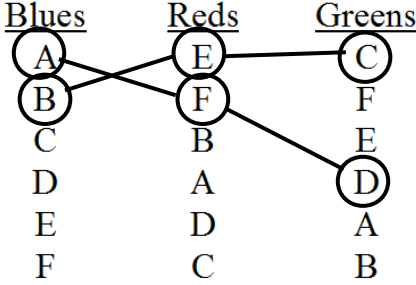
Played via Fictitious Play . . .



While red choosing B does help causing . . .



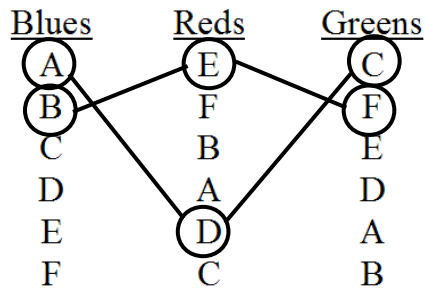
Sincere voting for Green. Resulting in Blue worse off



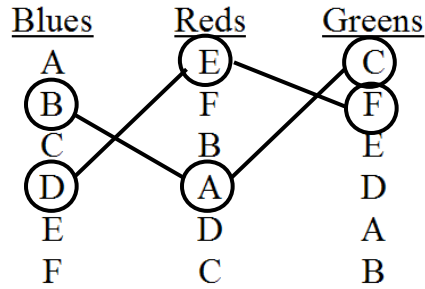
Blue choosing B at first looks good

Example adapted from Game Theory and Strategy (Straffin 1993) p.146 - 148

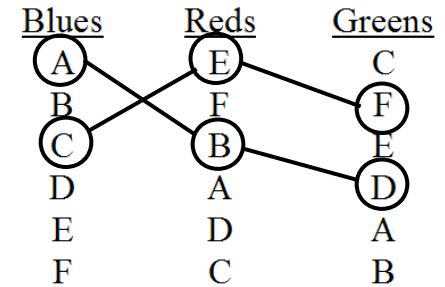
Until an Equilibrium is Reached



Yet Greens defect once again harming red.



Red makes an easy improvement by taking A



Leaving Blue to settle for C rather than B.

Example adapted from Game Theory and Strategy (Straffin 1993) p.146 - 148

Equilibrium Proof

- Sequential game, complete information
- Rank ordering can be expressed in terms of strategies:
s1 ABC, s2 ACB, s3 CAB, s4 BAC, s5 CBA, s6 BCA
- There are a lot of potential strategies; if there are n players then there are $n!$ strategies
- Outcome results from intersection of strategies
- Rank ordering results in payoffs for receiving a player
- Two player game is a zero-sum game, and therefore optimal not just at equilibrium
- Brams and Straffin (1979)

National Resident Matching Program

- Medical students and hospitals find it challenging to create productive matches
- A n-Person prisoner's dilemma much like the football draft
- A centralized system was implemented
- At right – Medical students learn their assignments to hospitals for their internships



Picture by Dvolk7, in public domain

Market for Medical Interns

- Roth (1984), Journal of Political Economy
- Until 1945: market suffers from a Prisoner's Dilemma problem
- Competition by hospitals results in a signing race for contracts
- Employment contracts signed earlier and earlier in a medical student's career
- Inefficient: Hospitals do not know the final grade or class standing of hires; students find their studies disrupted

The Problem Resolved?

- 1950: A new centralized procedure implemented, removing incentives for early recruitment
- NRMP National Resident Matching Program
- Interns soon find the system punishes them for listing their true preferences for internship locations
- If they don't get their first choice, their second or third or further choice might disappear in the draft
- Remedy proposed by having both interns and hospitals rank order their choices
- Insincere ranking almost eliminated