

Poker Paranoia

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Poker Paranoia

- ◆ Rules, Tables and Players
- ◆ Crooked Dealers
- ◆ Online Card Sharks
- ◆ Poker Bots
- ◆ Countermeasures

Rules, Tables and Players

- ♦ A Simple Game
- ♦ The Business



A Simple Game

- ♦ If you have the best hand of cards you win
 - ♣ But you don't know what everyone else is holding, and staying in can cost a lot
 - ♣ Limited language
 - ♥ Check, Raise, Call, Fold
 - ♣ A mix of Psychology and Probability
- ♦ It's NOT blackjack!



Texas Hold'em

Blind bets

Two hole cards are dealt to each player,
plus 3 river, 1 turn and one flop card.
Players examine their hole cards

First Round of Betting

3 Flop Cards Displayed

2nd Round of Betting

Turn Card Displayed

3rd Round of Betting

River Card Displayed

3rd Round of Betting

Showdown

Best Hand Wins

Texas Hold'em

Blind bets

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plus 3 river, 1 turn and one flop card.
Players examine their hole cards

First Round of Betting

3 Flop Cards Displayed

2nd Round of Betting

Turn Card Displayed

3rd Round of Betting

River Card Displayed

4th Round of Betting

Showdown

Best Hand Wins

The Pot

Card Room
gets Rake

Online Poker

- ◆ Financial
 - ♣ Estimated 2004 turnover of US\$10 *billion*
- ◆ Legal
 - ♣ Operate from tolerant countries
 - ♥ Sweden, Costa Rica, Canada
- ◆ Operate on trust
 - ♣ The lucrative rake
 - ♣ External auditing

TOURNAMENT NETWORK	Costa Rica	DobroSoft
TRIDENT POKER	Quebec	PrimaPoker
TROPICS POKER	Panama	Custom Built
TRUE POKER	Canada	Custom Built
ULTIMATE BET	Wouldn't tell us!	Custom Built
U PLAY POKER	Panama	MicroPower

screenshot from pokerconduct.net

Services

- ◆ The Game
 - ♣ Card Games
 - ♣ Chat
 - ♣ Statistics
- ◆ Somewhere to play
 - ♣ OS Support, Handheld devices
- ◆ Cash transfer facilities
- ◆ Complaint and abuse handling

Crooked Dealers

- ♦ Keeping honest
 - ♣ Customers + Trust = \$\$\$
 - ♣ No need to cheat to earn the rake
- ♦ There is a quick and dirty profit to be made
 - ♣ Trust
 - ♣ Customers



Trust

- ◆ With no customers there is no profit
- ◆ Cheating without appearing to cheat
 - ♣ Non-random deals
 - ♣ Audits and audits
 - ♣ Tournament seating
 - ♣ “Doom Switches”, lockups and lost cards

Customers

- ♦ Keep them coming
 - ♣ Astroturfing forums
 - ♣ Let them win, for a while
- ♦ Keep them playing
 - ♣ Shills
 - ♣ Cashing in and out

“Maybe someone should just identify doomswitched players and always play against them. That could be a way to use it to your advantage.” - imsupermahon

Online Card Sharks

- ♦ In Game Exploits
- ♦ Out of Game Exploits



In Game Exploits

- ◆ Online Differences
- ◆ Computer Assisted Play
- ◆ Teaming: Collaboration and Collusion

Online Differences

- ◆ Disconnection
 - ♣ Going all in: player does not have to bet any further to stay in the hand
 - ♣ Folding: player is out of the hand
- ◆ Sitting out the blinds
 - ♣ The blind, an enforced bet designed to make the pot attractive, rotates around the table with each deal
 - ♣ Bad design may allow avoiding it by sitting out

Computer Assisted Play

- ◆ It's all about probability and strategy
 - ♣ Probability of having the best hand
 - ♣ Strategy for playing the hand
- ◆ Analysis of our own history and that of our opponents helps to tune strategy
 - ♣ Oppositions Aggressiveness, Hand Selection
 - ♣ Patterns of Play

Teaming

- ♦ Collaboration and Collusion
- ♦ More heads and hands
 - ♣ Gain extra knowledge
 - ♥ Multiple hands to one player group
 - ♥ Multiple people to one hand
 - ♣ Snooping other players hands
- ♦ Chip passing to replenish cash

Team Structure

- ♦ Play probabilities and play people
- ♦ Set a trap or hunt for game?
 - ♣ Observers to spot the leaky players and hot tables
- ♦ Avoiding suspicious changes in behaviour
- ♦ Perhaps attempt to put other players 'on tilt' to improve returns

Advantages of Collusion

- ♦ What information do we gain from a few extra cards?
 - ♣ Remove the probability of opponents holding better hands
 - ♣ Reduce the number of outs available

Out of Game Exploits

- ◆ The Card Rooms
- ◆ The Players
- ◆ Bystanders
- ◆ The Cons

The Card Rooms

- ♦ Hack the Infrastructure or insider job
 - ♣ Quite a challenge
 - ♥ Account Database
 - ♥ Random Number Generator
- ♦ DNS Hijacking
- ♦ Phishing
- ♦ Protocol Holes

The Players

- ♦ Account Hijacking
 - ♣ Play and Lose
 - ♥ Safety in Numbers

Bystanders

- ◆ Act as a Proxy
 - ♣ Hide origin
 - ♣ Teaming
 - ♣ Get around IP blocking
- ◆ Credit Card Fraud

The Salesmen

- ◆ They would love to sell you “Cheat at Poker” software
 - ♣ Adverts with 'too good to be true' claims
 - ♣ High upfront costs
 - ♣ Does anybody else claim this software works?

Poker Bots

- ♦ *Can we automate it?*
 - ♣ Technology
 - ♣ Strategy
- ♦ Famous poker bots



Technology

- ♦ Interfacing

- ♣ Encryption, Compression, Protocols

- ♣ Screen Scraping

- ♦ Strategy Engine

- ♣ Hand analysis

- ♣ Player Analysis

```
int delta = 0x9E3779B9;
int sum = delta << 5;
for (int i = 0; i < 32; i++) {
    v[1] -= (v[0]<<4) + k[2]^v[0]+sum
           ^ (v[0]>>5) + k[3];
    v[0] -= (v[1]<<4) + k[0]^v[1]+sum
           ^ (v[1]>>5) + k[1];
    sum -= delta;
}
```

Strategy

- ♦ Strategy
 - ♣ For winning or for losing?
 - ♣ Developing a winning strategy is far from trivial
 - ♥ And then your opponents adapt
 - ♣ Single legal play, or Collusion?
- ♦ Playing straight probabilities will end in tears

(Side Issue) Decompiling Java

Famous Bots

- ◆ Poki

- ♣ A family of bots developed for research
- ♣ Computer Poker Research Group, University of Alberta <http://www.cs.ualberta.ca/~games/poker/>

- ◆ World Poker Bot Championship 2005

- ♣ \$100,000 prize
- ♣ Won by pokerprobot

“It would for sure make money online, bots are better than the average person.”

- Phil Laak



Countermeasures

- ♦ Deterrence
- ♦ Detection
- ♦ Punishment



Deterrence

- ◆ Technology
 - ♣ SSL/Encrypted Channels, Obfuscated Code
 - ♣ Connection Limits per IP
 - ♣ Running Process Checks
- ◆ Structure
 - ♣ Concurrent tables limit
 - ♣ Tournament play

Tournaments as Deterrence

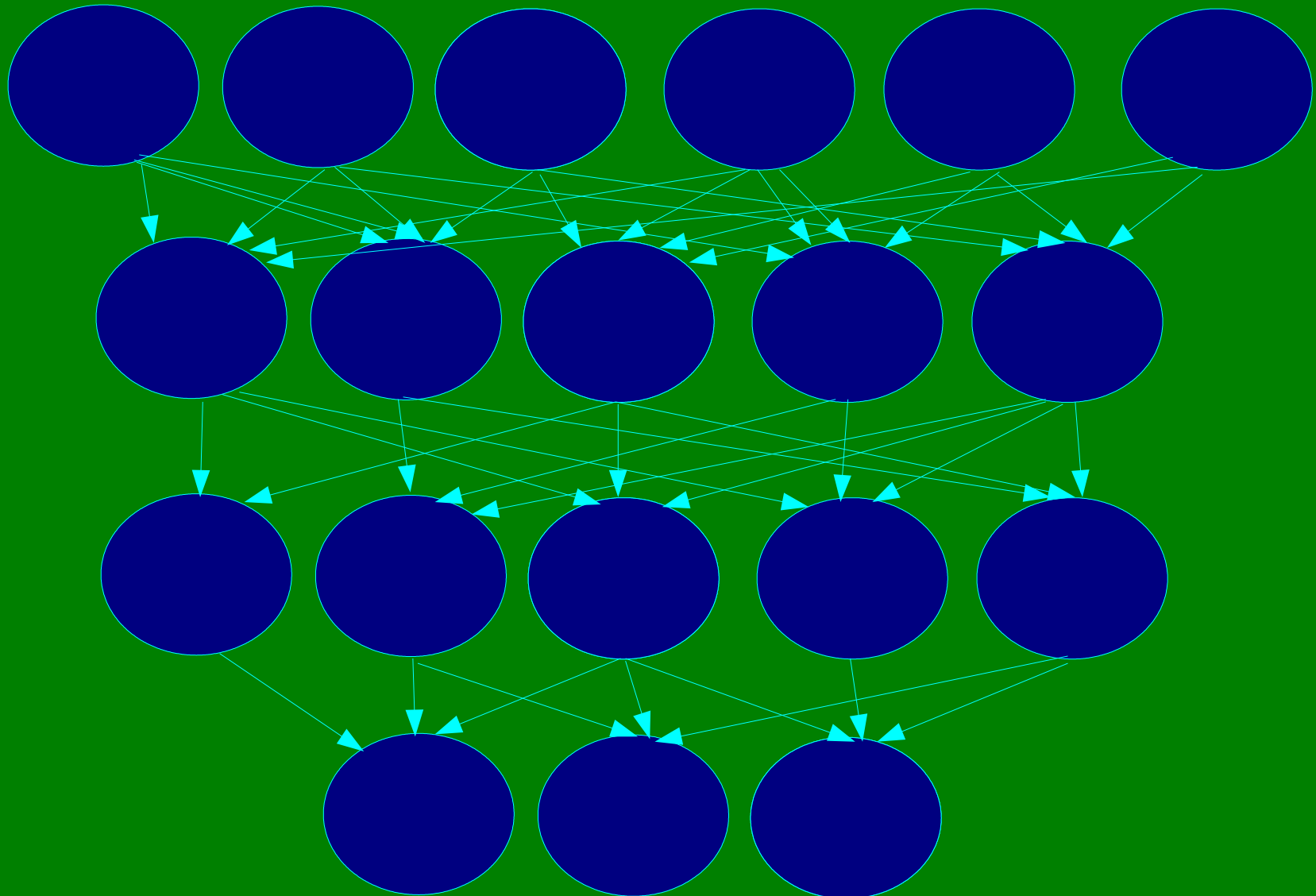
Round

One

Two

Three

Four



Detection

- ◆ Humanity
 - ♣ Abuse Reports
 - ♣ Reactions to Stimulus, eg reporting abusive players
- ◆ Reviewing and authorising cashouts
- ◆ Technology
 - ♣ Analysis: Communication, Play Patterns, Timing
 - ♣ Verify the Client
 - ♣ Protocol Violations

Punishment

- ◆ Account Freeze
- ◆ IP Blocking
- ◆ Legal Measures

As a Player

- ♦ Read the forums
 - ♣ 2+2: <http://www.twoplustwo.com/ubbthreads.php>
 - ♣ pokerconduct: <http://www.pokerconduct.net>
- ♦ Keep your eyes open
 - ♣ Track the deals and your cash
 - ♣ Know who you are playing with
- ♦ Real money satellites associated with big tournaments

Final Words

- ◆ Entertainment
- ◆ Poker Bot Championships

Thank You!

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