
15.S50 - Poker Theory and Analytics

Tournaments



Massachusetts Institute of Technology



Tournaments

- Tournament Life Cycle
 - Flop Turn River Play
 - Psychology
- Bankroll Management
- PokerStars Prize League Results





Cash Games vs Tournaments

Cash Games	Tournaments
Chips = Winnings	Finish Position = Winnings
Chip EV = \$EV	Chip EV \cong \$EV
Come-and-Go at Will	Locked into Tournament Structure
Unlimited Buy-ins	One Fixed Buy-in
Fixed Blinds	Increasing Blind Levels
Table Selection	Player Pool Selection
Higher Liquidity	Higher Overhead
Lower Variance	Higher Variance
Well-documented	Limited Literature





Why tournaments?

- Tournaments are more difficult to master
 - Cash games have lots of published literature, tournaments have very little
 - Tournaments are generally more publicized
 - Tournament results are permanent (track record)
 - Tournaments let you play higher stakes against people used to lower stakes
 - ROI on tournaments is generally higher
-





Why not tournaments?

- Tournaments are harder to master
- Less obvious when you're bad, long run takes forever
- More variance
- Tournaments take a long time
- High stakes generally required to get a worthwhile hourly
- Lots of incidental costs like dealer tipping, travel/hotels
- Requires more planning/research





Tournament Life Cycle

The most important tournament concept is tempo

- Early Game
- Bubble and Early Cashes
- Late Game/Final Table





Early Game

- Early Game is the majority of the tournament
- Play is very similar to cash games
- Chip EV = \$EV
- Playing style based on stack size
- Establishing reads/image is extra value





Stack Sizes

- $M < 2$ – Dead Zone
- $2 < M < 8$ – Steal Period
- $8 < M < 12$ – Steal/Re-steal Period
- $12 < M < 30$ – Value Betting Zone
- $M > 30$ – Set Mining Zone





A note on tournament tempo

- The most important aspect of a tournament is playing at the right level of aggression
- You will have to win coin flips to cash
 - That's inevitable
- Your goal is to slowly grow your stack without showdowns and avoid voluntarily entering flips





M < 2 – Dead Zone

- If you get to this Zone, it should only be because you lost a hand where you had slightly more chips
- You have virtually no Fold Equity since the BB will have odds to call any push
- Your goal is to get enough chips to regain Fold Equity
- Never fall under $M=1$ under any circumstance
 - This is particularly bad since even if you win at Showdown, you will still be in the dead zone





2 < M < 8 – Steal Period

- Your only move here is all-in or fold
- Every time you steal blinds, your stack increases by 10%-40%
- This is much more value than the edge you have by playing good cards
- Identify players who don't protect their blinds and steal from them
- Adopt an image of someone who defends their blinds, but don't
- Avoid showdowns if at all possible
- Gap Theory (Sklansky)
 - Calling requires a much stronger hand than betting



8 < M < 12 – Steal/Re-steal Period

- At this point, you have the option to fold to a raise
- Why? Your standard steal-bet will be 3BB, or about 2M.
- A re-raise of 6M more will make it +EV to call with $6/17 = 35\%$ equity, so it's not +EV to call ATC vs a re-raise





15 < M < 30 – Value Betting Zone

- In this zone, you might actually see some flops
- Avoid flat calling pre flop, come in for a raise and c-bet the flop when heads up
- I think it's okay to go broke on a set on an uncorrelated board
- Don't go broke on a low two pair or TPTK, or a set on a board where a flush/straight is obvious





M > 30 – Set Mining Zone

- “Set Mining” is when you flat call a pocket pair preflop for cheap with hopes of flopping a hidden set
- In general, I recommend waiting for monster hands and value betting aggressively them once they are made
- When you are in a hand that is raised and re-raised, you should consider how many hands can beat you
 - If your hand is not the absolute best possible hand, don't go broke for 50M
- See flops cheaply and use pot odds to assess draws to nut hands
 - Use implied odds conservatively
- If you can't keep it together, fold JJ- until you have 30M



Flop, Turn, River Play

- Psychology – Levels of Thinking
- Medium Stack Play ($M > 10$)
- Psychology (Tells and Other Concepts)





Levels of Thinking

- L0 – Not reading/indifference to hand value
- L1 – What cards do I have? **Hand Reading**
- L2 – What cards does he have? **Opponent Reading**
- L3 – What cards does he think I have? **Representation**
- L4 – What cards does he think he's representing?
- L5 – etc...





Levels of Thinking





LEAVE TABLE
VIEW LOBBY

d1ssembler
\$1500

aNKERRRRRRR
\$1500

nylin53
\$1500

tonecas76
\$1490

We have a
good hand
vs ATC



Desmond MIT
\$1500

Post BB

\$1500

bieelsg
\$1500

\$1500

trifluvian
\$1500

\$1500

tonmon001
\$1500

Chat Notes Stats Info

Chat window area

Last Action
cucky83 posts big blind



d1ssembler
\$1500

nylin53
\$1500

Desmond MIT
\$1500

bieelsg
\$1500

tonmon001
\$1500

aNKERRRRRRR
\$1500

LEAVE TABLE
VIEW LOBBY

tonecas76
\$1490

cucky83
\$1480

We have a good hand vs ATC

UTG has 77+, ATo+, TJs+

Raise

Chat Notes Stats Info

Last Action
trifluvian raises to 80\$











Levels of Thinking

- You want to be exactly **one** level above your opponents
- L0 – Not reading/indifference to hand value
- L1 – What cards do I have? **Hand Reading**
- L2 – What cards does he have? **Opponent Reading**
- L3 – What cards does he think I have? **Representation**



Annette Obrestad

- Annette
 - One of the best poker players from Norway
 - Youngest player to win WSOP bracelet @ 18 yrs
 - Started playing poker online @ 15 yrs with screen name Annette_15



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Annette Obrestad Interview

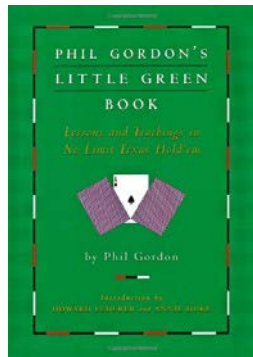
- *Annette Obrestad's Best Poker Moment: The No-Look Tournament Win*. August 2014. Pokerlistings. Accessed March 19, 2015.





Mismatched Levels of Thinking

- “The Fourth Raise Means Aces”



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 Gordon, Phil. *Phil Gordon's Little Green Book: Lessons and Teachings in No Limit Texas Hold'em*. Simon Spotlight, 2005.



Massachusetts Institute of Technology



Mismatched Levels of Thinking

- “The Fourth Raise is Aces”







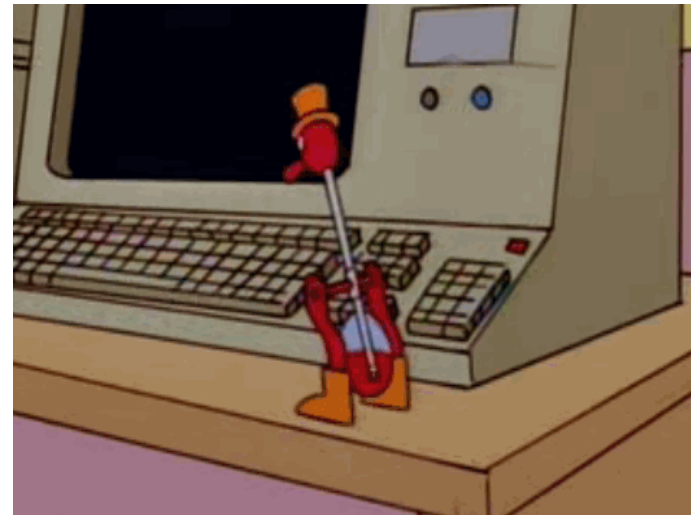
Mismatched Levels of Thinking

- “The Fourth Raise is Aces”

Phil Ivey



Level 1 Thinking Player



VS

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Mismatched Levels of Thinking

- Thinking on Level 3 (“What am I representing?”) when opponent isn’t trying to read you (Not Level 2)





LEAVE TABLE
VIEW LOBBY

CO
\$2000

Hero
\$1150

SB
\$1975

\$600

7
10
3

\$1750

\$575

All In

BB
\$1950

MP2
\$2000

UTG
\$2000

Chat Notes Stats Info

MP1
\$2000

UTG+1
\$2000

Last Action

Villain is All-in



Mismatched Levels of Thinking

Villain (LP): \$2000

Blinds 25/50

Hero (BTN): \$2000

Pre Flop: (\$75) Hero is BTN with K♣ J♣

Villain calls \$50, Hero raises \$200 to \$250, Villain calls

Flop: (\$575) 7♣ T♣ 3♣ (2 players)

Villain bets \$200, Hero raises \$400 to \$600, Villain raises \$1150 to \$2000 and is all-in





Mismatched Levels of Thinking

Flop: (\$575) 7♣ T♣ 3♣ (2 players)

Villain bets \$200, Hero raises \$400 to \$600, Villain raises \$1150 to \$2000 and is all-in

Weak Player Ranges

JJ+

AT

TT, 77, 33

T7, T3, 73

Any two ♣

Strong Player Ranges

A♣X♣

Maybe TT





Levels of Thinking

- One of your first “reads” will be whether a person is a good or bad player
- Any one player may jump around +/- 1 level depending on the hand
 - e.g. some might be good at preflop opponent reading, but will focus on own hand on flop (btw L1 and L2)
 - e.g. some might think a low flush is good, but won't think low pair is good (btw L0 and L1)
- A reasonable assumption is that new players are L1, average tournament players are L2, and cash game players are L3





Example of Level 5 thinking

- For players that are familiar with each other there's a race to a higher level to dominate one-another
- This is more common in cash games, but this example is from a tournament





Example of Level 5 thinking

- CaRmEIO2008. “WSOP 2011 ME: Shaun Deeb AA’s vs. Max Heinzelmann A6.” September 2, 2011. *YouTube*. Accessed March 19, 2015.
<https://www.youtube.com/watch?v=dmIIrvcYDtY>





Strong vs Weak Treadmill

	Actual Hand	Represented Hand
Level 1 <small>(reading)</small>	Strong	Strong
Level 3 <small>(representation)</small>	Strong	Weak
Level 5	Strong	Strong
Level 7	Strong	Weak





Why are we learning about levels of thinking?

- My recommendations for flop, turn, river play assumes or opponents are average players
 - Capable of doing basic opponent reading
- This strategy isn't optimal against very new players
- This strategy is probably losing to pros
- It's at least enough to beat low-stakes games



Flop, Turn, River Play

- Psychology – Levels of Thinking
- Medium Stack Play ($M > 10$)
- Psychology (Tells and Other Concepts)



Flop, Turn, River Play

- The basic idea will be to provide the value of different hands during each stage and to recommend betting aggressively
- Standard bets are $3BB + 1BB$ for each previous caller preflop
- Flop-turn-river bets should be around $2/3$ rd of the pot to discourage draws
- This is only good for $M > 10$
- For $M < 10$, this will be reviews in the “Pre-flop” lecture later
- For $M > 30$, I recommend very conservative play



Pre-flop Play

- Hands are ranked based on the likelihood of flopping a winning hand
- Position impacts the strength of hands materially because many hands will be winners in late position but losers in early position
- The tiers are roughly correlated with Sklansky-Karlson rankings
- The ranking is generally going to come out of Harrington on Hold Em



Pre-flop Play

- You will enter few pots, but will generally be ahead when you play
- You will have easy decisions on the flop, since you will either hit or miss them completely
- You will win medium-size pots, but not huge ones
- Any hand you play should be raised by you to $3xBB + 1$ per caller
 - This will be about 15% of hands
- In general, you'd like to be heads-up by the flop





Pre-flop Play (Opening)

Position	Range
Blind and UTG/UTG+1	TT+ AQs+ AKo+
MP1 MP2 MP3	88+ AJ+ KQ+
LP CO BTN	77+, Axs, high suited connectors



Pre-flop Play (Facing a Raise)

Position	Range
Early or Middle Position	TT+ AQs+ AKo+
LP CO BTN	88+ AJ+ KQ+





Flop Play

- Any hand where you were the aggressor pre-flop should be c-bet on the flop with a $2/3^{\text{rd}}$ pot bet
 - This needs to work about 40% of the time to be profitable
 - We don't vary the size to avoid exploitation
- Any hand that isn't TPGK or better is considered a drawing hand and can be treated that way
 - So you can semi-bluff or call with good pot odds



Flop Play

Tier	Hand
Tier 1	K-high flush, top straight (unpaired board) Top two sets, full house
Tier 2	A-high flush, top straight (paired board) T-high flush, 2 nd straight (unpaired board) Bottom set, any two pair
Tier 3	Overpair, Top-Pair Good-Kicker
Drawing	Top-Pair Bad Kicker Mid or Bottom Pair, Pocket Pair 4-flush, straight draw





Turn/River Play

- By the Turn, the pot will be about 10M
- Use hand ranges to get an idea of your hand value
 - i.e. what hands could fit his action so far and still beat you





Reading hand ranges

- After pre-flop, you should have a reasonable idea of your opponents range
- Each decision lets you eliminate some of those hands to give you a better idea of your position
- A story that “doesn’t make sense” could be a bluff
- But in general, the chance of a “complete bluff” is negligible



Reading hand ranges







CO
\$2000

Hero
\$1960

LEAVE TABLE
VIEW LOBBY

SB
\$1995

22+, JT+

\$40

\$5

\$40

88-JJ
78+, AQ-

Call

UTG
\$2000

LP
\$2000

MP2
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Villain calls 30\$

CO
\$2000

Hero
\$1890

LEAVE TABLE
VIEW LOBBY

SB
\$1995



\$70

\$85

\$140

99-JJ, 79, T9
88-JJ, KJ+,
AQ-

Raise

UTG
\$2000

LP
\$2000

MP2
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Villain raises to 140\$

CO
\$2000

Hero
\$1820

LEAVE TABLE
VIEW LOBBY

SB
\$1995



\$365

99-JJ, 79, T9
88-JJ, KJ+,
AQ-

LP
\$2000

Villain
\$1820

MP2
\$2000

UTG
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Dealing Turn



Reading hand ranges





CO
\$2000

Hero
\$1960

LEAVE TABLE
VIEW LOBBY

SB
\$1995

22+, JT+

\$40

\$5

\$40

Call

88-JJ
78+, AQ-

UTG
\$2000

LP
\$2000

MP2
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Villain calls 30\$

CO
\$2000

Hero
\$1890

LEAVE TABLE
VIEW LOBBY

SB
\$1995

22+, JT+

\$70



\$85

\$70

T5, 55, TT, AT
Low flush
~~88 JJ, KJ+, AQ~~

Call

UTG
\$2000

LP
\$2000

MP2
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Villain calls 70\$

CO
\$2000

Hero
\$1890

LEAVE TABLE
VIEW LOBBY

SB
\$1995

22+, JT+



\$225

T5, 55, TT, AT
Low flush
~~88 JJ, KJ+, AQ~~

Villain
\$1890

LP
\$2000

MP2
\$2000

UTG
\$2000

MP1
\$2000

UTG+1
\$2000

Chat Notes Stats Info

Empty chat window

Last Action
Dealing Turn



Zeebo's Theorem

- “No player is capable of folding a full house on any betting round, regardless of the size of the bet.”



CO
\$2000

Villain
\$1890

LEAVE TABLE
VIEW LOBBY

SB
\$1995



\$235

LP
\$2000

BB
\$1990

MP2
\$2000

UTG
\$2000

Hero
\$1890

UTG+1
\$2000

Chat Notes Stats Info

[Empty chat box]

Last Action
Dealing River

CO
\$2000

Villain
\$0

LEAVE TABLE
VIEW LOBBY

SB
\$1995



LP
\$2000

BB
\$1990

MP2
\$2000

UTG
\$2000

Hero
\$0

UTG+1
\$2000

Chat Notes Stats Info

Hero: wins 4015 from the main pot with Four of a kind, kings

Last Action
Villain shows [Qs;Ts]


Flop, Turn, River Play

- Psychology – Levels of Thinking
- Medium Stack Play ($M > 10$)
- Psychology (Tells and Other Concepts)



Mike Caro

- Mike Caro
 - One of the first poker theorists
 - Author *Caro's Book of Poker Tells*
 - Advocate for 4-color decks
 - Developed early poker AI, Orac

 Caro, M. *Caro's Book of Poker Tells: The Psychology and Body Language of Poker*. Cardoza, 2003.



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Psychological Concepts

- Fundamental Concepts
 - Goal is to make +EV decisions
 - Results of individual session or hand doesn't matter
- Image
 - Organization and makeup of chip stack suggests play style
 - Advertisement – opponent remember shown hands
 - Preferred LAG when blinds are small, TAG when blinds are high
- Manipulation
 - Opponents want to call or want to fold, depending on the person
 - Don't be afraid to loosen up the table





Long run concepts

- What you've already invested doesn't matter
- Cards won't breakeven in long run
- Threshold of Misery – players often lose the most money immediately after losing more than they planned
- Don't try to prove you are the best; this isn't basketball



Fears and tilt

- Showing down bad hands
- Losing money
- Playing short sessions while ahead and long sessions while behind



Techniques for stabilizing

- Mark your bankroll to market
- Don't forget poker's most important secret. The secret is simply, "Play your best game all the time."
- Don't think about streaks, think about breakeven periods
- Have a short memory for hands - this is easier online





Bubble Play

- Bubble
 - Generally 10% or so of the field away from the money
 - Average amateur players are way too tight
 - Arguably your performance here determines how deep you finish
 - Use ICM in marginal spots
- Two types of metagame
 - Traditionally bubble is very passive
 - More recently bubble is too aggressive





Independent Chip Model (ICM)

- The ICM is used to convert cEV to \$EV in tournaments
- It's based on likelihood of ending up in certain payout spots
- As of now, it can only be solved algorithmically
- Just intuitively,
 - When winner-takes-all, cEV is close to \$EV
 - When payouts are flat, cEV is far from \$EV
 - With big changes in cEV, \$EV moves are not symmetrical
 - Losing hurts more than winning





ICM Example

Player	Chips	Finish	Payout
Adam	2500	1st	\$1000
Bob	2500	2 nd	\$600
Charlie	2500	3 rd	\$400
David	2500	4th	\$0





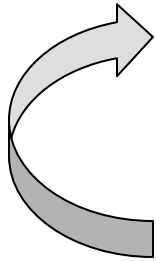
ICM Example

Player	Chips	Equity
Adam	2500	\$500
Bob	2500	\$500
Charlie	2500	\$500
David	2500	\$500

Finish	Payout
1st	\$1000
2 nd	\$600
3 rd	\$400
4th	\$0



ICM Example



Player	Chips
Adam	5000
Bob	2500
Charlie	2500
David	0

Finish	Payout
1st	\$1000
2nd	\$600
3rd	\$400
4th	\$0





ICM Example

Player	Chips	Equity
Adam	5000	\$766
Bob	2500	\$616
Charlie	2500	\$616
David	0	\$0

Finish	Payout
1st	\$1000
2 nd	\$600
3 rd	\$400
4th	\$0



ICM Example

Player	Chips	Equity
Adam	5000	\$766
Bob	2500	\$616
Charlie	2500	\$616
David	0	\$0

Finish	Payout	Delta
1st	\$1000	+\$400
2 nd	\$600	+\$200
3 rd	\$400	
4th	\$0	

The Winner (Who has all the chips in the end) “gives up” equity to those knocked out before him



ICM Example

Player	Chips	Equity
Adam	5000	\$1000
Bob	2500	\$500
Charlie	2500	\$500
David	0	\$0

Finish	Payout	Delta
1st	\$2000	+\$2000
2 nd	\$0	
3 rd	\$0	
4th	\$0	

The Winner (Who has all the chips in the end) “gives up” equity to those knocked out before him



ICM Example (WSOP Satellite)

Player	Chips	Equity
Adam	2500	\$9000
Bob	2500	\$9000
Charlie	2500	\$9000
David	2500	\$9000
Elaine	2500	\$9000
Fred	2500	\$9000
George	2500	\$9000
Hannah	2500	\$9000
Irene	2500	\$9000
Jessica	2500	\$9000

Finish	Payout
1 st - 9 th	\$10000
10 th	\$0





ICM Example (WSOP Satellite)

Player	Chips	Equity	Finish	Payout
Irene	2500	\$9000	1 st - 9 th	\$10000
Jessica (Hero)	2500	\$9000	10 th	\$0

Blinds 200/400

Irene raises 2100 to 2500

Jessica dealt K♦K♥

Jessica...





ICM Example (WSOP Satellite)

Player	Chips	Equity	Finish	Payout
Irene	2500	\$9000	1 st - 9 th	\$10000
Jessica (Hero)	2500	\$9000	10 th	\$0

Blinds 200/400

Irene raises 2100 to 2500

Jessica dealt $K\spadesuit K\heartsuit$

Jessica...

KK vs ATC = 82%

cEquity = 82% * 5000 + 18% * 0 = 4100 cEV = 1600

\$Equity = 82% * \$10000 + 18% * 0 = \$8200 \$EV = -\$800



Tournament Life Cycle

The most important tournament concept is tempo.

- Early Game
- Bubble and Early Cashes
- Late Game/Final Table





Late Game

- Don't be overwhelmed by stakes, play it like a single-table tournament
- Continue to steal/re-steal as appropriate
- Be conscious of ICM
 - Know the marginal payouts of positions
- Exploit players who are under bankrolled



Tournaments

- Tournament Life Cycle
 - Flop Turn River Play
 - Psychology
- Bankroll Management
- PokerStars Prize League Results



Bankroll Management

- What is a bankroll?
 - Generally “the amount of money you devote to poker investments”
 - More specifically, it’s the amount of money that you would deem “irrecoverable” if lost and would force you to stop playing poker
 - This only matters for winning players
 - Some examples:
 - For new players: “A large amount of money”
 - For amateurs: Expendable cash available, not in investments
 - For pros: Expendable cash and capacity to borrow





Bankroll Management Rules

- Rules of Thumb
 - based off a 2% chance of going broke (Risk of Ruin)
 - uses average stakes/buy ins
 - does not assume natural increase/decrease in stakes
 - Assumes Solid Winning Play and Typical Variance
 - Bankroll recommended for each game
 - Cash Games
 - NL – 20 Max Buy-ins
 - Limit – 300 Big Bets
 - Tournaments
 - Single Table Tournaments – 30 Entries
 - Multi-Table Tournaments – 50 - 100 Entries
-





Bankroll Management Theory

- Kelly Criterion
 - If your utility curve is logarithmic
 - Maximize utility by betting with regard to edge
 - For example, in a biased coin game, if you are 60% to win, you should risk 20% of your bankroll (60%-40%) on that bet
 - This is the fundamental basis of bet-sizing in BlackJack



Bankroll Management in WSOP

- WSOP has one of the biggest tournament fields with 6000+ entries
 - The buy-in is large at \$10,000, even among MTT pros
 - The appropriate bankroll for this would be over \$1,000,000
 - Compared to equivalent \$1,000,000 investments, playing one hundred WSOP main events has terrible risk-adjusted returns
-
- WSOP has the softest field of any \$10,000 tournament
 - Placing deep in the WSOP has publicity upsides in addition to winnings



Risk Management

- Staking and Investment
 - Using the WSOP as an example, a good winning player might have a \$EV of +\$5000 (+50% roi), with a huge variance
 - Investors with appropriate risk preferences can eat the variance in return for a portion of the winnings
 - Common deal is 50% of upside + 100% of losses
 - This is an equity investment
- Selling Shares and Trading Percentages
 - Almost universally, pros will trade percentages of their play in big events with other pros
 - In addition, players might sell single-tournament shares to individuals to split their play into 10 smaller chunks at 10% markup



Other Considerations

- Counterparty Risk
- Lifestyle
- Current Poker Environment
- Game Selection



Tournaments

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MIT Poker Theory and Analytics



Club Manager: (Desmond_MIT)

Established: November, 2011

Members: 457

Club ID: 557832

Club Home

Schedule

Results

Standings

Options

Manage Games

Manage Club

Club Standings

Real Money

Play Money

Season 4 (2015)

Rename...

Rank	Player	Games	Points	Average	KO
1	McSmith_MIT	64	94.79	1.48	94.5
2	JZhao_MIT	63	89.39	1.42	138.5
3	Rao_MIT	66	84.99	1.29	69.5
4	ArjunN_MIT	72	83.5	1.16	38.5
5	Amereno_MIT	51	77.56	1.52	90.5
6	mwymmer_MIT	54	70.33	1.3	54.5
7	Shields_MIT	47	67.48	1.44	36
8	ChenGu_MIT	70	62.49	0.89	35
9	Subashki_MIT	55	57.8	1.05	62
10	Harris_MIT	46	56.46	1.23	49
11	Hilton_MIT	52	55.17	1.06	100
12	wtareid_MIT	55	53.7	0.98	66
13	Mannes_MIT	36	53.02	1.47	54
14	YKato_MIT	30	52.81	1.76	55
15	AMoran_MIT	62	52.27	0.84	82
16	Wang_MIT	46	52.17	1.13	43.5
17	Liu_MIT	61	51.97	0.85	38
18	JKramer_MIT	42	51.94	1.24	23.5
19	DMa_MIT	54	50.95	0.94	40

* Points are only awarded in tournaments with four or more players.



McSmith_MIT



 Member since:
January, 2015


Season Statistics (Play Money)

Total Points: **94.79** (1.48 PPG)
 Games Played: **64**, 6 win(s)
 Finishes: **Best Place: 1 of 30**
Worst Place: 38 of 40
 In The Money: **14 out of 64 (22%)**
[Gold] x 6
[Silver] x 3
[Bronze] x 4
 Knockouts: **94.5**

* Tournaments with less than four players do not count towards player statistics.

Final Standings

	Prize Order	Player	Points	PPG
	1	YKato_MIT	52.81	1.76
	2	Amereno_MIT	77.56	1.52
	3	McSmith_MIT	94.79	1.48
	4	Mannes_MIT	53.02	1.47
	5	Shields_MIT	67.48	1.44
	6	JZhao_MIT	89.39	1.42
	7	mwymmer_MIT	70.33	1.3
	8	Rao_MIT	84.99	1.29
	9	JKramer_MIT	51.94	1.24

Final Standings (continued)

Prize Order	Player	Points	PPG
10	Harris_MIT	56.46	1.23
11	ArjunN_MIT	83.5	1.16
12	Wang_MIT	52.17	1.13
13	Hilton_MIT	55.17	1.06
14	Subashki_MIT	57.8	1.05
15	wtareid_MIT	53.7	0.98
16	DMa_MIT	50.95	0.94
17	ChenGu_MIT	62.49	0.89
18	Liu_MIT	51.97	0.85
19	AMoran_MIT	52.27	0.84

Prizes

- An iPad Mini from Jane Street
- A GoPro from Citadel
- Private coaching from Will Ma
- Kindle Paperwhite and \$100 Amazon Gift Card from Prismata
- A customized poker chip set from SIG
- Lots of books

An iPad Mini from Jane Street



iPad mini Wi-Fi 16GB Silver
“Best of Skill!”

Courtesy of Wind.com.my on
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Quant trading firm, based in NYC
Major player in the HFT market

A GoPro from Citadel



GoPro Hero3 - White Edition

Image courtesy of [Intel Free Press](#) on
Wikimedia Commons. License CC-BY.



Multi-Strategy Hedge Fund, based in NYC
\$25 Billion AUM

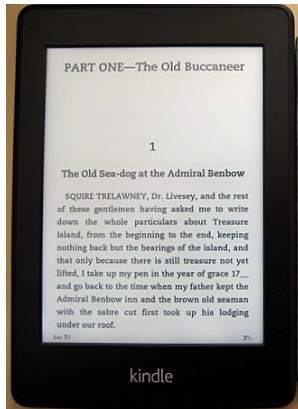
Private Coaching from Will Ma

Photo of [Will Ma](#) removed due to copyright restrictions.

- One Hour Coaching Donated
- Will is a CardRunners.com Professional Poker Coach
- \$1 Million+ in Career Tournament Winnings



Kindle Paperwhite from Prismata



Kindle Paperwhite WiFi
+\$100 Amazon Gift Card

Kindle [Paperwhite](#) image courtesy of Explain That Stuff on Flickr. License: CC BY-NC-SA.

prismata™

Turn-based strategy card game

Developed by Will Ma + Lunarch Studios



Massachusetts Institute of Technology

A poker chip set from SIG



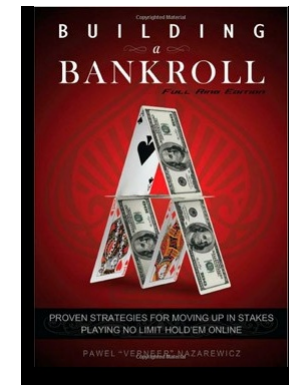
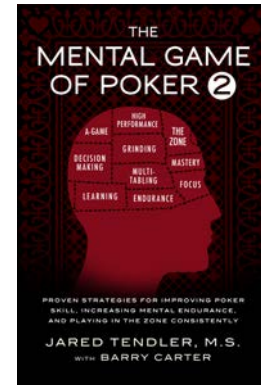
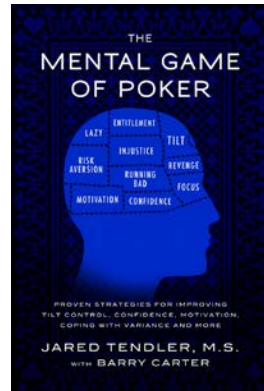
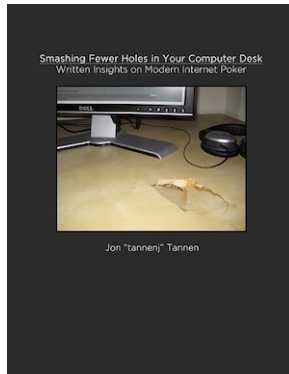
300-piece Diamond Suited 12.5g Chips
Metal Case and Chips Engraved with SIG

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Trading Firm, based in Philadelphia
Founded by Poker Players

Books



Tannen, Jon. *Smashing Fewer Holes in Your Computer Desk: Written Insights on Modern Internet Poker*.

Tendler, J. and B. Carter:

[Buy at Amazon](#) *The Mental Game of Poker*. Jared Tendler, LLC., 2001.

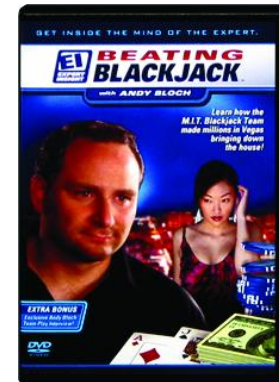
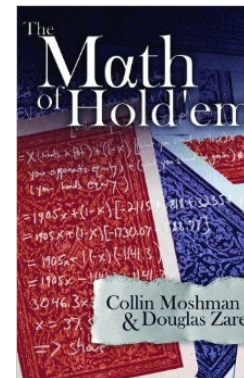
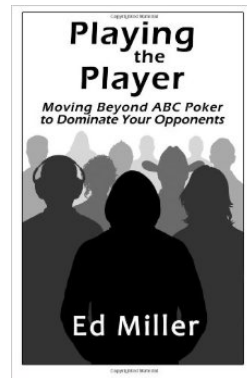
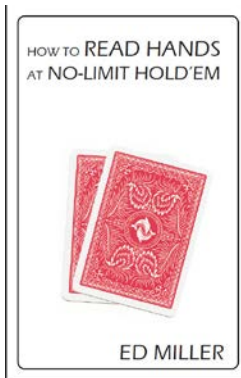
[Buy at Amazon](#) *The Mental Game of Poker 2*. Jared Tendler, LLC., 2013.

[Buy at Amazon](#) *Building a Bankroll*. Jared Tendler, LLC., 2012.



Books

- [Buy at Amazon](#) Miller, Ed. *How to Read hands at No-Limit Hold'em*. CreateSpace, 2011.
- [Buy at Amazon](#) Miller, Ed. *Playing the Player*. CreateSpace, 2012.
- [Buy at Amazon](#) Miller, Ed. *Poker's 1%*. CreateSpace, 2014.
- [Buy at Amazon](#) Moshman, C. and D. Zane. *The Math of Hold'em*. Dimat Enterprises, 2011.
- [Buy at Amazon](#) *Beating Blackjack with Andy Bloch*. Directed by Keller, Michael. Color / 60 min. 2007.



Closing Remarks

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15.S50 Poker Theory and Analytics

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