

# MIT 15.S50 Lecture 3

January 15<sup>th</sup>, 2016

# Tournaments vs. Cash Games



Tournaments	Cash Games
Fixed buy-in for a certain amount of chips	Start with any amount of money you want; reload anytime
Play until you lose all your chips	Start and stop anytime
Blinds keep increasing, so eventually you lose all your chips	Fixed blind amount (say \$1 / \$2)
No control over your table	You choose your table
Goal is to survive	Goal is to kill
Frequent but fixed losses accompanied by the occasional big win	Big wins, small wins, small losses, big losses can all happen
More variance	Less variance
Fun?	Work?
Wider range of situations (# of players at table, stack sizes, antes, bubbles)	Fixed situations <b>tournaments.</b>
Low house rake (premium)	High house rake (premium)

# Why we chose tournaments

- ▶ Less metagaming
  - ▶ More exciting
  - ▶ Wider range of scenarios
  - ▶ More applicable?
- 

# Our club has both

**MIT 15.S50**

Club Manager: Wei Ma (CutiePI314)    Established: November, 2011    Members: 403    Club ID: 557832

Club Home    **Schedule**    Results    Standings    Options    Manage Games    Manage Club

**Club Tables**

Table	Game	Limit	Stakes	Plrs
Fun Aludra	Hold'em	NL	5/10	
Fun Bolzano	Hold'em	NL	25/50	
Fun Otero	Hold'em	NL	10/20	

Go to Table...  
Share Table  
Seat Me...

**Club Tournaments**

Date	Tournament	Game	Limit	Buy-In	State	Enrolled
Jan 14 18:00	5 Daily 6-h...	Hold'em	NL	1.10	Completed	21
Jan 14 19:00	Daily Mai...	Hold'em	NL	1.10	Completed	21
Jan 14 20:00	Daily Tur...	Hold'em	NL	1.10	Completed	20
Jan 14 21:00	Daily Dee...	Hold'em	NL	1.10	Completed	18
Jan 14 22:00	Daily Sho...	Hold'em	NL	1.10	Running	23
Jan 14 23:00	Daily Hyp...	Hold'em	NL	1.10	Running	22
Jan 15 18:00	6 Daily 6-h...	Hold'em	NL	1.10	Registering	2
Jan 15 19:00	Daily Mai...	Hold'em	NL	1.10	Registering	1
Jan 15 20:00	Daily Tur...	Hold'em	NL	1.10	Registering	2
Jan 15 21:00	Daily Dee...	Hold'em	NL	1.10	Registering	2

Tourney Lobby...  
Share Tournament  
Register...  
Unregister...  
 Show registering/upcoming only

# But only tournaments count for standings

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Club Home    Schedule    Results    **Standings**    Options    Manage Games    Manage Club

Club Standings    **Real Money**    **Play Money**

Season7 ( January, 2016 )    Remove...

Rank	Player	Games	Points	Average	KO
1	5k8er				
1	abd94				
1	ABoros_MIT				
1	achen6				
1	ACollins_MIT				
1	AdamT_MIT				
1	ADeNucci_MIT				
1	AdrianG_MIT				
1	Adrian_MIT				
1	AHawkins_MIT				
1	ahchang_MIT				
1	ahessMIT				
1	AiryDhey				
1	ajlynch402				
1	AKaplan_MIT				
1	akmartin_MIT				
1	ALabelli_MIT				
1	AlbertM MIT				

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

**5k8er**  
sant'egidio a. vi.  
Member since: September, 2013

Season Statistics ( Real Money )

Total Points: 0 ( 0 PPG )  
Games Played: 0, 0 win(s)  
Finishes: Best Place: 0 of 0  
Worst Place: 0 of 0  
In The Money: 0 out of 0 ( 0% )  
[Gold] x 0  
[Silver] x 0  
[Bronze] x 0  
Knockouts: 0

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

**MUST CLICK HERE**

# Preflop Percentages



# Some preflop numbers to memorize

- ▶ **Bigger pair vs. smaller pair: 80/20**
  - AA vs KK: 81.9%
  - AA vs 88: 80.5%
  - 33 vs 22: 80.4%
- ▶ **A pair vs. zero overcards: 80/20**
  - AA vs AKo: 93.2%
  - AA vs 65s: 77.5%
  - JJ vs T9s: 81.7%
  - QQ vs 74o: 84.8%
  - KK vs K2o: 94.6%
  - KK vs K2s: 89.2%

# Some preflop numbers to memorize

- ▶ A pair vs. one overcard: **70/30**
  - QQ vs AJo: 71.7%
  - QQ vs AJs: 68%
  - QQ vs AQs: 65.7%
  - 88 vs A2o: 70.2%
  - 33 vs A2o: 68.8%
- ▶ “Dominating” the other person: **70/30**
  - AKo vs AQs: 70.1%
  - AKs vs AQo: 75.4%
  - AKo vs AQo: 74.4%
  - AKo vs KQo: 74.8%
  - AJo vs A2o: 72.6%
  - A8o vs A2o: 65.7%
  - A5o vs A2o: 56.2%

# Some preflop numbers to memorize

- ▶ Two overcards vs. a pair: 50/50
  - AKs vs 22: 49.9%
  - AKo vs 22: 47.4%
  - AKo vs QQ: 43%
  - T9s vs 22: 54%

# A > B > C > D

- ▶ **AB vs CD: 60/40**
  - AKs vs 76s: 61.1%
  - AKo vs Q7o: 67.7%
- ▶ **AC vs BD: 60/40**
  - AQo vs K9s: 60.1%
  - K7o vs J3o: 63.7%
- ▶ **AD vs BC: 60/40**
  - A2o vs K3o: 61.4%
  - A2o vs T9s: 51.6%
  - AJs vs KQs: 59%

# The importance of suitedness

- ▶ Remember some numbers:
  - AKo vs AQs: 70.1%
  - AKs vs AQo: 75.4%
  - AKo vs AQo: 74.4%
- ▶ Suitedness changes your equity so much when you're behind! Whereas it changes your equity much less when you're ahead.
- ▶ When you're the one going all-in, you will usually be behind when called. Thus, suitedness matters so a lot, because it gives you additional ways to pull ahead.
- ▶ When you're the one calling, you'll usually already be ahead, so suitedness matters less.
- ▶ (Suitedness also matters a lot for postflop play.)

# Preflop All-ins



# Preflop Study

- ▶ These are not highlight-reel plays and could be considered “boring”
- ▶ But it’s the routine boring decisions that determine your win-rate, not the occasional brilliant insight

# Don't be afraid to go all-in preflop

- ▶ Late in tournaments, with the addition of antes and declining stack sizes, winning the blinds and antes is so valuable.
  - ▶ What you gain is so large relative to what you lose.
  - ▶ Remember Lesson 1: “Any 2 cards have a chance against any 2 other cards preflop”!
  - ▶ Of course. don't take this too far
- 

# Remember the rule

- ▶ Always just go all-in if you're gonna play the hand at all, when:
  - Effective stack size  $\leq 12\text{BB}$ , with antes
  - Effective stack size  $\leq 10\text{BB}$ , without antes

# Small Blind All-in Percentage

- ▶ Recall that we said your BTN opening range should be similar to your SB opening range.
  - ▶ However, for all-ins, your SB opening range can be a lot wider, since position doesn't matter.
  - ▶ Also, I would go all-in with up to 15BB with antes, 12BB without antes.
- 

# Review of Theory: Do you go all-in or fold? (Suppose we are reasoning exploitatively.)



# Exploitative Reasoning

- ▶ Is the BB a gambly player? Is it likely that he or she will call with a wide range of hands?
  - ▶ How have I been playing? Do I look like a crazy all-in monkey, or will my all-in get the credibility of a very good hand?
  - ▶ (Suppose it is far from the pay bubble.)
- 

# Analysis

- ▶ Let's suppose the BB calls a "reasonable" range:

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
A2o	K2o	Q2o	J2o	T2o	92o	82o	72o	62o	52o	42o	32o	22

25.2%

- ▶ Your equity against this range:

Player 1	R/D	22+,A2s+,K8s+,QTs+,A2o+,KTo+	63.545%
Player 2	R/D	T8o	36.455%

# Do the math

- ▶ 75% of the time, he folds, and we win 2.5BB's
- ▶ 25% of the time, he calls,
  - 36% of the time, we win the all-in and win 16.5BB's
  - 64% of the time, we lose the all-in and lose 14.5BB's
- ▶  $0.75(+2.5) + 0.25(0.36(+16.5) + 0.64(-14.5))$
- ▶  $=0.75(+2.5) + 0.25(-3.34)$
- ▶ Clearly positive.
- ▶  $=1.04\text{BB}$
- ▶ You're making an entire big blind by shoving instead of folding! We really are maximizing our expected # of chips by shoving!

# If we had the worst hand possible...



# Do the math again

- ▶ Now we have 28% equity, instead of 36% equity, against his calling range
- ▶ Expectation when he calls:
  - $0.28(+16.5) + 0.72(-14.5) = -5.82$
- ▶ Overall expectation:
  - $0.75(+2.5) + 0.25(-5.82)$
- ▶ Still positive! This shove is an EXCELLENT play that earns you 0.42BB's, not a "crazy bad" play. We are still earning positive chips/money!

# The point?

- ▶ If you're only calling this 25% from the Big Blind in this situation, then you're allowing the Small Blind to shove any 2 cards profitably.
  - ▶ Let's suppose we consider adding QJo to our calling range. We need to call 14BB to win a total pot of 31BB, so we need 45% equity.
  - ▶ Nonetheless, since most Small Blinds don't shove enough, we might not actually have this!
- 

# More math

- ▶ Let's assume that the Small Blind only shoves the top 25% of hands (instead of 100%, which includes 32o).

- ▶ Your equity with QJo:

Player 1	R D	66+,A2s+,K6s+,Q8s+,J8s+,T8s+,A7o+	57.774%
Player 2	R D	QJo	42.226%

- ▶ You only have 42% equity. Not enough to call the all-in!

# Iterative Best Response

- ▶ BB calls only 25% of hands
  - ▶ To exploit this, SB shoves with 100% of hands
  - ▶ To exploit this, BB calls with a very wide range (say 67%)
  - ▶ To exploit this, SB shoves 40%
  - ▶ BB calls 30% (too low)
  - ▶ SB shoves 80% (too high)
  - ▶ BB calls 50% (too high)
  - ▶ SB shoves 50% (too low)
  - ▶ Etc.
- 

# Let's take a look at the Nash ranges

- ▶ SB 66.8%, 22 + Kx + Q2s + Q5o + J2s + J7o + T2s + T7o + 93s + 96o + 84s + 86o + 73s + 76o 63s + 65o 53s + 43s
- ▶ BB 38.5%, 22 + Ax + K2s + K5o + Q6s + Q8o + J8s + JTo T9s

# When to use/not use this

- ▶ This is a potential formula to follow, when figuring out which hands to go all-in with from the SB, and which hands to call with from the BB.
  - ▶ However, if the BB is calling way fewer than 38.5% of hands, then as SB you can go all-in with a lot more than 66.8% of hands.
  - ▶ If the SB is going all-in with way fewer than 66.8% of hands, then as BB it is a huge mistake to call with as much as 38.5% of hands.
- 

# But it's an equilibrium...

- ▶ If the SB is going all-in with 66.8% of hands, then the optimal strategy for the BB is go call with 38.5% of hands.
  - ▶ If the BB would call an all-in with 38.5% of hands, then the optimal strategy for the SB is to go all-in with 66.8% of hands.
- 

# Learning the Ranges



# How to learn the ranges?

- ▶ Memorization
  - ▶ Understanding theory
  - ▶ Extrapolation
- 

# A few more nash ranges

## ▶ BTN, 10BB

- 43.9%, 22 + Ax + K2s + K6o + Q5s + Q9o + J7s + J9o + T6s + T9o 96s + 98o 85s + 75s + 65s 54s

## ▶ CO, 7BB

- 38.8%, 22 + Ax + K2s + K9o + Q5s + QTo + J7s + J9o + T7s + T9o 96s + 86s + 75s + 65s 54s

## ▶ LJ, 10BB

- 23.4%, 22 + A2s + A8o + K7s + KJo + Q8s + QJo J8s + JTo T8s + 98s

## ▶ UTG (9 handed), 3BB

- 24.1%, 33 + A2s + A8o + K6s + KTo + Q8s + QTo + J9s + JTo T9s

# UTG All-Ins (approximated for pedagogical reasons)

▶ 15BB: 6.2%

10BB: 13.4%

5BB: 33.3%

AA	AKs	AQs	AJs	ATs	A9s	A8s
AKo	KK	KQs	KJs	KTs	K9s	K8s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s
AJo	KJo	QJo	JJ	JTs	J9s	J8s
ATo	KTo	QTo	JTo	TT	T9s	T8s
A9o	K9o	Q9o	J9o	T9o	99	98s
A8o	K8o	Q8o	J8o	T8o	98o	88

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
A2o	K2o	Q2o	J2o	T2o	92o	82o	72o	62o	52o	42o	32o	22

# Another example of extrapolation: HJ

▶ 15BB: 23.4%

10BB: 28%

5BB: 50.4%

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
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AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
A2o	K2o	Q2o	J2o	T2o	92o	82o	72o	62o	52o	42o	32o	22



# Big all-ins with small pairs

- ▶ Small pairs, while having good implied odds when very deep (“set mining”), have terrible implied odds when 15–20BB deep
  - ▶ Therefore it is encouraged to go all-in with them even with more than 12BB
- 





# Ax suited

- ▶ Ax suited is a lot better of a hand than it looks for going all-in preflop
- ▶ The Ace removal is also relevant



# Ax offsuit

- ▶ Ax offsuit also has terrible implied odds, so going all-in for more than 12BB is okay
- ▶ It also protects your small-pair shoves a bit



# Small cards

- ▶ 76s is similar to a small pair in that it has great implied odds when very deep, but mediocre implied odds when 15–20BB deep
- ▶ Once again, just going all-in is acceptable

# Not a good all-in



# Pay attention to other stack sizes in tournaments!

- ▶ The Big Blind only has 3BB and is guaranteed to call
- ▶ Even if they call with a “worse” hand, you’re much better off having a chance of winning the blinds for free

# Curves for Extrapolation/Interpolation



# Caveat

- ▶ The next 2 slides both contain “ambitious, exploitative” ranges that are more applicable to situations with lots of beginners where everyone folds too much.
  - ▶ They are more aggressive than Nash and can be exploited.
- 





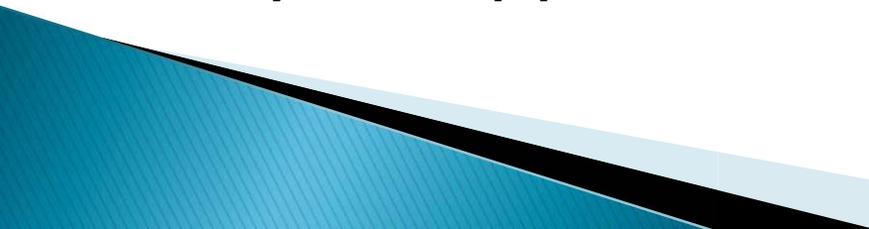
# Note the difference in the curve!

- ▶ With A4o, the maximum # of BB's I could risk declined drastically with each position, because when you get called, you are usually so far behind.
  - ▶ With 76s, the maximum # of BB's I could risk declined slower with each position, since it does relatively better against the monster hands.
- 

Getting it in when really  
short



# Don't fold with ridiculously good odds preflop!

- ▶ “Any two cards have a chance against any two other cards preflop”
  - ▶ It is difficult to have less than 30% equity preflop no matter what cards you have, unless your opponent is raising from early position
  - ▶ It is difficult to have less than 30% equity preflop if you have an Ace in your hand, even if your opponent's range is really strong
- 

# Raise 98s from HJ







# Analysis

- ▶ Any hand we would raise from here in the first place, we have enough equity to call.

# We have 4BB's in the Big Blind







# Analysis

- ▶ If we go all-in for 4BB's we know we will get called
  - ▶ But still, we would be risking 3BB's to win a total pot of 9.5BB's, so we need just under 33% equity
  - ▶ Assuming he raises the top 20% of hands (which is a pretty tight player), we are still 34% against his range
- 

# Re-raising Preflop



# Too much of this...



# And this...



# Not enough of this...



# And this...



# Why is THIS so bad



# But THIS okay?



# When you get caught in the first case, there is no escape anyway



# Analysis

- ▶ Need to call  $\sim 8\text{BB}$  to win a total pot of  $\sim 22.5\text{BB}$  ( $10+10+1+0.5+1$ )
- ▶ Only need 36% equity
- ▶ You definitely have this with  $\text{ATcc}$ , so you're basically committed
- ▶ Your equity against  $66+$ ,  $\text{AJ+}$ ,  $\text{KQ}$  is 39% (Pokerstove)

# The point?

- ▶ Recall the “Sweet Spot” Theory:
  - The reason for raising small is to ESCAPE when you have a bad hand. ATs is definitely a “bad hand” in your range: in fact, it’s the worst hand in your range of 77+,ATs+,AJo+,KQ.
  - The reason for raising big is to disallow the Blinds to have such good odds to call and defend against you stealing.
- ▶ But we just proved that you CANNOT ESCAPE anyway!
- ▶ So you might as well raise AS BIG AS POSSIBLE ie. all-in.
- ▶ Sure, you can raise to 4BB (out of your 10BB) to deny your opponent good odds, but this is still worse than just going all-in (although mostly equivalent).

# The second case...



# Analysis

- ▶ Need to call  $\sim 17\text{BB}$  to win a total pot of  $\sim 40.5\text{BB}$  ( $19+19+1+0.5+1$ )
- ▶ Need 42% equity
- ▶ You definitely don't have this, so you can "escape" and fold

# Call or Re-raise?

- ▶ In the first class, we only covered how to “open” preflop, ie. raise if no one has yet entered the pot.
- ▶ What happens if someone has already raised (or didn't follow my rules and called aka. “limped”)?

# Re-raise Sizing

- ▶ Same principles apply:
  - Advantage of re-raising to a small size: risk less when you intend to fold your hand to a re-re-raise.
  - Advantage of re-raising to a large size: deny your opponent the odds to call profitably.
  - If your re-raise size would cause you to commit over a “critical portion” of your stack such that you cannot escape, then just re-raise all-in instead.





# Changes in “critical portion”

- ▶ This “critical portion” gets smaller as ranges get stronger:
  - I told you to go all-in when you have 15BB or less. Essentially what I’m saying is, “committing 2BB of your 15BB in a min-raise is already a critical portion” (13%).
  - If you are re-raising pre-flop, I’d say you need to commit 25% before it’s critical.
  - So in the previous hand, if you had 20000 chips or less, I’d just go all-in instead.



# Why is calling a preflop raise okay?

- ▶ Recall that I said you should never just call preflop, if the pot hasn't been raised yet.
  - ▶ But, if the pot HAS been raised, like in the previous example, then just calling is okay.
  - ▶ Why is this?
  - ▶ The big blind can put in another raise preflop when he has a good hand, even if you limp.
  - ▶ The first preflop raiser does NOT get to put in another raise preflop if you don't re-raise him.
  - ▶ While limping has NO advantages, calling a preflop raise has SOME advantages. So it is sometimes a viable option.
- 

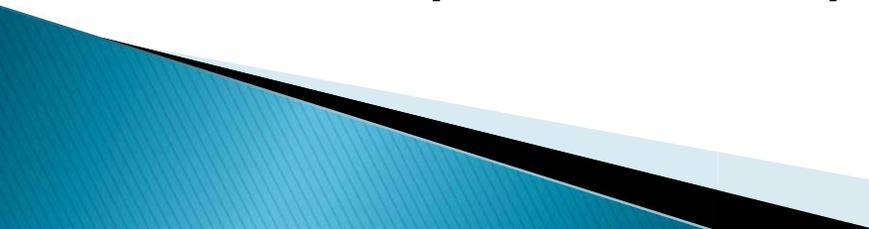
# In position with a hand that plays well in a multiway pot...it's all good



# Disaster!



# How to deal with callers?

- ▶ Even though I've explained why you should never be just calling when the pot has not been raised, people will inevitably still make this mistake.
  - ▶ We call such people “limpers”, usually a derogatory term.
  - ▶ Either way, you need to be prepared to punish such people and raise their limps.
  - ▶ But, you need to be aware that you should change your raise size.
  - ▶ Be wary of the limp-raise.
- 

If you follow the “raise to 3BB” rule, you’re giving the limpers too good a price to call!



# Not just 3BB...3BB+1 BB for each limper = 6BB



# Keeping it Simple





# Let's put ourselves in BB's shoes...

- ▶ If we go all-in, BU will need to call 6 to win a pot of 17.5, so he will call so long as he thinks he has at least 34% equity against our range.
  - So he will pretty much always call. (“When given 2-to-1 to call a pre-flop all-in, you can pretty much always call unless you are guaranteed to be a 70-30 or worse.”)
- ▶ When we go all-in, assuming BU calls, we risked 7 to win a pot of 17.5, so we need 40% equity for this to be profitable.

# Analysis as the BB

- ▶ If our hand has 40% equity vs. BU's range, then going all-in is +EV.
- ▶ If our hand doesn't have 40% equity vs. BU's range, calling could still be +EV, since we are given 4.5-to-1 to see the flop.
- ▶ Even if our hand has 40% equity vs. BU's range, calling could be more +EV than going all-in.

# Strategy for BB

- ▶ If our hand has more than 50% equity vs. BU's range, then it is most likely in our interest to get all-in instead of just calling, since it is in our favor to put money in 1-to-1.
- ▶ If our hand has less than 50% equity vs. BU's range, then it is most likely in our interest to just call, even though we have Reverse Implied Odds postflop from being out of position.
- ▶ Even if our hand has less than 40% equity vs. BU's range, as long as it has more than ~30% equity, it is probably +EV to call given 4.5-to-1 odds to see the flop.

# Big Lesson

- ▶ None of these opportunities for the BB would've arisen had the BU just went all-in in the first place!
  - ▶ The BB would've just had to call the hands with 40% equity, and fold the rest.
  - ▶ But now, we're allowing the BB to still get the money in when he has 50%+ equity, play any hand with ~30% equity, etc.
- 

# What about raising to 4x?



# Analysis

- ▶ If the BB were to fold, then raising 4x is equivalent to going all-in.
- ▶ If the BB were to re-raise all-in himself, then raising 4x is equivalent to going all-in (since we are going to call his re-raise).
- ▶ Are there situations where the BB is better off calling, and folding some flops? Probably not, since the pot will be 1880 on the flop where each player has 800 left. So the BB calling is equivalent to the BB re-raising all-in, since no player is ever folding postflop.

# Sucker Raise

- ▶ However, the analysis for the last bullet is hard. Maybe there are some opportunities for the BB to squeeze extra EV with a few of the hands in his range, but just calling preflop.
- ▶ Going all-in gives the BB strictly fewer options, so it is the “right” play.
- ▶ For raising to 2x or 3x or 4x to be a better play than going all-in, the BB has to be **SO STUPID** that having more options will somehow cause him to make a worse decision. This is the same concept as what Bill Chen called a “sucker bet” in his lecture.



# All-in.



# Don't be afraid to defend against late position (BTN, CO, HJ) steals!





Again, don't do anything funny, especially when your opponents are already given such good odds to call





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