

**Case 3**

**Issued:** Friday, January 23, 2015

**Due:** Friday, January 30, 2015

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Notes: This case contains twelve (12) questions and are labeled as (1.1) through (2.5). Please answer all questions concisely and show all work. State any assumptions you are making. This case is graded pass/fail where a passing grade is 7/12 points. Partial credit will be awarded for incorrect answers with appropriate work shown. Using approximations is acceptable. These questions rely on PokerTracker's ICM Calculator, or an equivalent ICM calculator.

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Scenario: It is Thursday, July 3, 2014 and you are playing in a \$550 Mega Satellite to the WSOP Event #68: \$10,000 NLHE Main Event. The structure of this tournament is that 1 in 20 players wins a \$10,000 ticket to the main tournament. There were 140 entries and the top 7 players will win tickets. There are 60 players remaining in the tournament.

The table is 9-handed as follows. Blinds are 1000/2000 with 300 ante.

Seat	Name	Chip Count
1	Hero	40,000
2	UTG	160,000
3	UTG+1	140,000
4	MP1	114,000
5	MP2	154,000
6	LP	76,000
7	CO	168,000
8	BTN	182,000
9	SB	160,000

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Question 1:

**Prior to this hand, you have developed an image of being very tight, and as a result you are facing a raise every time you are in the BB. As a short stack, losing this BB every round is painful are you are looking to defend your blind. Assume each steal attempt is a raise of 3BB and the Villains are stealing with any two cards.**

What is your M? (1.1)

$$40,000 / (1,000 + 2,000 + 300*9) = 7.1$$

If you decide to re-raise to 6BB, what odds does the Villain have to call if he is the BTN? (1.2)

**Villain is facing a call of 6,000 (3BB) into a pot of  $(1,000 + 2,000 + 300*9 + 6,000*3 - 2,000) = 21,700$ . So he would need his equity to be  $6,000/21,700 \approx 22\%$  to call.**

Given that he has a range of ATC, what would your range have to be to make this a bad call for him? (1.3)

**Exact: Threshold at top 2% (QQ+, AKs+) vs ATC is 80%/20%**

**Model: Threshold at 22% =  $50\% + 0.085*\ln(C\%) - 0.085*\ln(1)$  at  $C\% \approx 3.7\%$**

If the Villain re-raises all-in, what odds would you have to call? (1.4)

**Effective stacks are 40,000. After this raise, stack would be  $40,000 - 12,300 = 27,700$ . The pot would be  $15,700 + 12,000 = 27,700$  before the raise. So you would be facing a bet of 27,700 to win a pot of  $3*27,700$  for 33% equity**

If you raise the maximum instead of 3BB, what odds does the Villain have to call? (1.5)

**Effective stack is  $40,000 - 6,300 = 33,700$ . We would raise this amount into a pot of 21,700, giving the Villain  $33,700 / (21,700 + 33,700*2) \approx 38\%$  to call**

If you have QTo and re-raise all-in, do you prefer a call or a fold? Assume Villain will call with any two cards. (1.6)

**QTo is 57% vs ATC. If the Villain folds, our EV is  $100\% * 15,700 = 15,700$ . If the Villain calls, our EV is  $57\% * (15,700 + 33,700) - 43\% * 33,700 = 13,667$ , so we prefer a fold**

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Question 2:

**You reached the final table of the satellite and there are 8 players remaining to win seven \$10,000 tickets. Everyone values the tickets at \$10,000 (they are indifferent to playing the Main Event if they win the satellite). You view yourself as an approximately average player compared to the remainder of the table. The chip stacks are as follows:**

Blinds are 8000/16000 with 2000 ante.

Seat	Name	Chip Count
1	Hero	66,000
2	UTG	13,000
3	UTG+1	80,000
4	MP1	30,000
5	MP2	31,000
6	LP	73,000
7	BTN	49,000
8	SB	78,000

Per PokerTracker, what is our \$EV in this tournament? If a chop (prize split) is offered and each player will get \$9,000, should you take it? (2.1)

**Our ICM equity is \$9,668. We shouldn't take a deal for \$9,000 unless we are very risk averse**

You have A♥ A♣ and SB open pushes all-in with ATC. What is your chip EV from calling? (2.2)

**AA vs ATC is 85%. So our cEV is  $(48,000+8,000*2+16,000+2,000*8) * .85 - 48,000 * .15 = 74,400$**

What is your \$EV from calling? Should you call? (2.3)

**If we call and lose, we have 0 \$EV. If we call and win, then the stacks are as follows**

Seat	Name	Chip Count
1	Hero	144,000
2	UTG	11,000
3	UTG+1	78,000
4	MP1	28,000
5	MP2	29,000
6	LP	71,000
7	BTN	47,000
8	SB	12,000

**giving us a \$EV of \$9990. Our \$EV from the call is then  $.85 * \$9990 + .15 * 0 = \$8492$ . If we fold, our stack is 48,000, giving us a \$EV of \$9445, which is higher than \$8,492. So fold.**

What is the \$EV loss from doing the wrong action? (2.4)

**Difference between calling \$EV and folding \$EV is  $\$9445 - \$8,492 = \$953$  loss**

The following hand, it is folded to you in the SB and the BB (seat 2) is forced all-in. What range should you call? Assume you folded the previous hand. (2.5)

**BB's range is ATC. If we fold, we have 38,000 chips, giving us a \$EV of \$8,452. If we call and lose, our stack is 37,000, giving us a \$EV of \$8,384. If we call and win our \$EV is \$10,000. So we can profitably call if our chance to win is x, where x solves  $\$10,000*x + \$8,384*(1-x) > \$8,452$ , or  $x > 4\%$ . So call with ATC.**

What is the \$EV of calling optimally? (2.5)

**We should call any time our equity is more than 4% (i.e. always). This gives us an equity of 50% vs ATC, meaning our \$EV from calling is  $50\% * \$10,000 + 50\% * \$8,384 = \$9,192$**

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