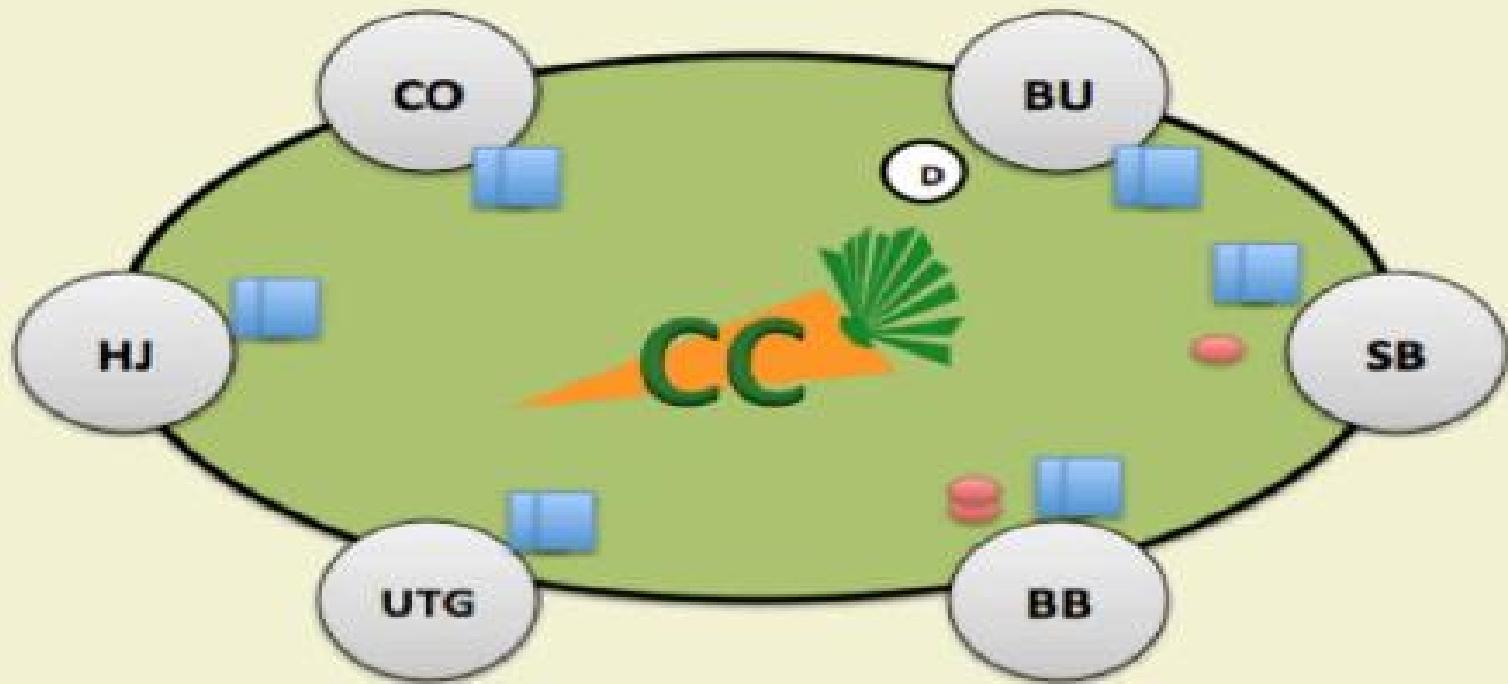


Peter Clarke

THE GRINDER'S MANUAL



A Complete Course in Online No Limit Holdem 6-Max Cash Games

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1. Introduction

1.1 About The Manual

Welcome to The Grinder's Manual. This book is a comprehensive mega-course in No Limit Holdem cash games with specific focus on the online 6-max variation. It spans 532 pages and contains 152 hand examples and 80 instructive figures. This book is for the beginning player, the aspiring novice, the intermediate player, and the seasoned player who wants to improve his or her core understanding of the game. All but perhaps the very strongest players in the world will learn something from reading this book. This is a serious textbook that treats poker like an academic subject.

Though online 6-max cash games are the book's focus, the material covered will be very useful for building a better understanding of the game in general for anyone with an interest in some form of No Limit Holdem. Players who are more interested in full ring cash games or tournament poker will still benefit greatly from working their way through the manual. Naturally, however, the aspiring 6-max cash player will benefit most.

I have created what is, in my opinion, the first poker text ever to include all and only those technical poker topics mandatory for a complete game strong enough for the reader to crush his way through the microstakes, establish himself as a winning player at 100NL (50c/\$1 blinds) and set up a solid basis for going further. After reading this book and appropriately applying the material, the reader will be strategically equipped to succeed at these stakes as the games are on the toughest sites on the internet as I write this in early 2016. This condensing process was by far the biggest challenge I encountered in writing the manual. My mission was for the aspiring online poker player to finally be dealt a complete syllabus that is both sufficient in detail and simple enough to digest without getting lost in the sea of 'too much information'. I know that I never came across anything close when I was learning the game. And so, finally, here it all is in one place!

That said, if you were to quickly read this book only once cover to cover, picking up where you left off each sitting, the sea of too much information is exactly where you'd end up. Each chapter within the manual demands detailed study. The reader should try to read when fully alert, participating in the exercises with motivation to learn. Chapters are presented in a logical order. I take care to introduce new ideas as and when they become relevant. The reader's understanding of the necessary core technical skills is built gradually one step at a time. It is therefore advised that the reader avoids jumping between chapters, and follows this procession of complexity. If, for example, he were to leap straight from the 2nd chapter to the 11th, he'd quickly find himself confused by an array of material that was first introduced somewhere in between. The starting level of the manual is aimed at fairly new, but not completely clueless players. I assume that the reader has played poker before, is completely aware of the rules of the game and doesn't need to be told that a flush beats a straight. However, this book is written in such a way that more experienced players will also begin learning from the very start. I expect that even the simpler topics have mostly taught in a worse way before in other places and so I aim to clarify how to correctly think about basic areas of the game from the beginning. Even the more elementary topics, like opening the pot, are covered in an extremely high level of detail, building mathematical and logical foundations for what's to come.

Perhaps the most important thing I've learned from years of coaching the game is that there is a very large gap in between theoretical understanding of concepts and the application of said concepts at the tables. In order to bridge the gap between concepts understood theoretically and concepts actually applicable in-game, it is strongly advised that the reader tries as fully as possible to solve hand examples and other exercises on his own before reading on. The manual is laid out in such a way as to put the reader in the driver's seat.

I use the terms: 'Hero' and 'Villain' throughout this text.

'Hero' will always refer to the active player whose shoes we are in as we face each hypothetical poker situation. We shall assess every spot through the eyes of Hero.

'Villain' will always stand for his opponent.

Essentially, we're the goody and he's the baddy.

I shall be using the terms 'Hero' and 'we' interchangeably throughout the book to describe how the reader should play and think. I shall always use the male pronoun simply as a matter of consistency.

The number of hand examples may at times seem excessive. As poker is such a complicated field, I actually consider the 152 hands covered here a bare minimum. I should also add that simply reading one book (even this one) should be far from the full scope of the aspiring player's study time. The reader is also advised to review his own sessions, regularly tagging hands in his database to match the topics covered here. It is possible to greatly solidify your understanding of the material in a practical way by reviewing real life examples that actually occurred in a session in which the reader's own money was at stake. Community is also highly important for learning in this game and I recommend that the reader discusses the themes and examples of this book with his poker peers.

I deal with the mathematics of poker in this manual to exactly the extent that I think is appropriate for the aims of the book. The manual does not scrimp on any necessary math, but avoids overly complicated in depth mathematical material that has very restricted practical application. The rule for poker math is exactly the same as that for the rest of the book: lots of detail, but not a drop more than is necessary to become a very strong player.

Poker is a massive subject containing an overwhelming amount of terminology. For the newer player or anyone not versed in speaking the lingo of poker, this can be daunting. Consequently, every new chunk of poker jargon you'll meet throughout this book is defined clearly and fully the first time it's introduced. Should you forget the exact meaning of a term somewhere along the way and want instant clarification, you can also consult the [Jargon Handbook](#) at the end of the manual for a quicker definition, where all of these terms are listed alphabetically.

Before we jump into the real meat of the manual and get acquainted with the first technical topic, there are three short but necessary sections to read in

this chapter.

- First we'll meet the concept of EV - a fundamental poker notion
- Secondly, I'll briefly describe the teaching strategy used throughout the book and why I've chosen it.
- Thirdly, while this book is almost exclusively a technical manual focusing on strategy and not psychological improvement, I would like to quickly outline what else needs to be done concerning the mental game of poker and the reader's professional approach to the game.

1.2 EV - The Currency of Poker

Contrary to what you might think, the currency of poker decision-making is not money, at least not as we know it. In the real world, money is a stable currency that reliably represents the worth of what we buy and sell. If I sell my car for \$5000, I'll get \$5000 for the car. I make a transaction for X dollars and so I gain or lose exactly X dollars. In poker, things don't work like this, not in the short-term. You might make a raise that on average earns you \$15, but end up losing \$100 because of bad luck on that one occasion. You lost \$100 in money, but you gained \$15 in EV. So what exactly is EV?

'EV' stands for 'expected value' and is the real currency of poker decision-making. As we cannot control the monetary result of our poker transactions in the individual instances in which we make them, we need a stable currency that does not fluctuate with short-term luck. EV is simply the amount of money we gain or lose on average in the long-term due to our poker actions. Some plays are described as '+EV' meaning that they make us money in the long run, while others we call '-EV' because they'll costs us money over a large sample.

EV is what we're trying to maximise each and every time we have a choice to make in a hand. For this reason, every range of hands I recommend playing in a certain way, every adjustment I advise against each type of opponent in every situation, and basically every piece of advice in the whole manual is geared only towards maximising our overall EV.

So luck is entirely irrelevant. I don't care whether you gain or lose money over one hand, or 10,000 hands for that matter, just that you gain EV over that sample. The upshot is that in 100,000 hands of playing in a +EV way, there's a very good chance you'll have gained money. This is what beating poker is - a long term grind, churning out EV knowing that sooner or later it will become real money.

Now look at [Figure 1](#):

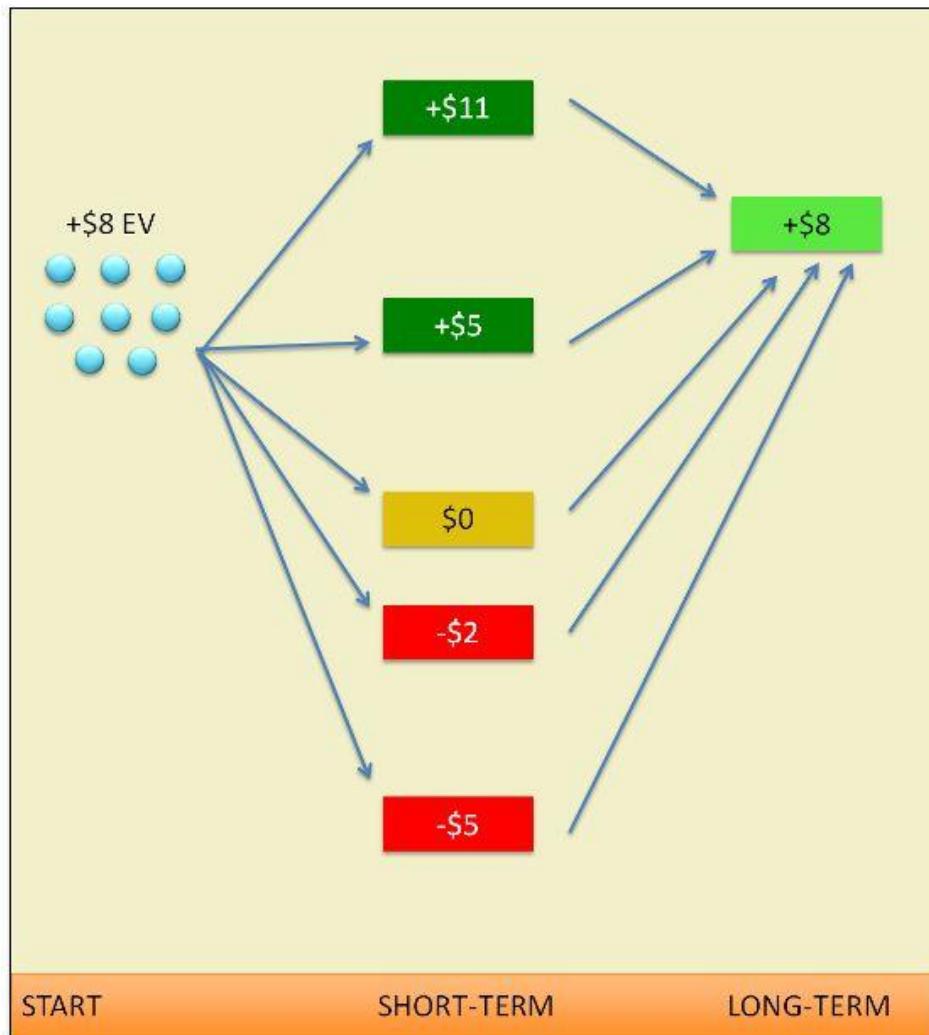


Figure 1 - The EV Cycle

Let's imagine that I played a 500 hand microstakes poker session one afternoon where the sum of every choice that I made earned me +\$8 in EV. In the short-term, there exists a myriad of possible monetary outcomes for that session. In fact, this figure grossly underrepresents just how many different possibilities there are. Some days I'll win more than \$8; other days I'll win less than \$8. On more rare occasions, where the natural variance in poker has been against me over this small sample, I'll even lose money. My EV is still +\$8, the actual results are just down to luck.

Fortunately for us poker players, over an infinite sample of hands, we know this EV will translate exactly into money won and we'll get our \$8 and not a penny more or less. Over large but not infinite samples, like a million hands, we can expect to come somewhere very near to making the same amount in

money as we have in EV. It might be a little less or a little more, but the chances are it won't differ hugely like it does in the short term.

So EV is king. From now on, make those little turquoise beads of EV your goal. Money is not important in poker over small samples, but EV is. As someone once told me when I was first learning the poker ropes:

"EVs are not monies yet, they are baby monies that will grow up one day."

With that clarified, the rest of this book is fully devoted to equipping you to fill your poker pockets with as much EV as you're humanly capable of. When that EV grows up into money, you'll have paid off the cost of this manual and much more.

Unfortunately, that process can take time and a frustratingly long time when we're running bad. There's a point in every winning poker player's life where he wishes real world vendors accepted EV as a form of payment; when it seems like he just can't catch a break from relentless bad variance (luck). I can't teach you how to win money over a thousand, ten thousand or even one hundred thousand hands. Variance decides that (to a lesser and lesser extent as the sample gets larger). What I can teach you to do is to be positive EV over that sample.

Before we move on, I'll quickly alert the reader to one common misconception in terminology. **EV** is not the same as **All in EV**. The former is what you're expected to gain or lose from any decision you ever make in poker whether the hand goes to showdown or not. The latter refers only to your expected earnings when a hand goes to showdown and is a measure of your EV from that type of situation alone. All in EV is often compared to monetary earnings as a measure of how lucky or unlucky a player has been. What we must remember is that it only paints a picture about variance in one kind of situation. It does not account for the player's luck in the many spots that do not go to showdown and is therefore far from the full picture of how well a player is running and I'd advise you not to get too fixated on this stat.

1.3 The Bottom Up Learning Model

We're almost ready to launch into the heart of poker's technical game where we'll learn how to assess the many situations the game can throw at us.

Before we get our teeth into the first chapter of rigorous poker study, I'd like to explain the teaching method I'll be using throughout the book and why I've settled on it after five years of coaching poker.

As I mentioned before, the motivation behind creating this manual was to put an end to 95% of aspiring poker players getting hopelessly lost along their journey. Bottom up learning is all about starting with the most basic individual concepts and working your way up; identifying the critical elements that make each of the situations ahead unique and knowing which factors to consider in each one. My aim is to turn the reader's brain into a poker computer that efficiently considers only those factors most relevant to the EV of his decision. As we just saw, EV is the thing that really matters in this game. Many aspiring players go wrong because their thought process is jumbled in a way that actually neglects EV - in making their decisions, they tend to consider things that don't matter and ignore things that do.

See the model below for an illustration of how we'll be learning to make logical and profitable decisions in the various poker situations we'll encounter.

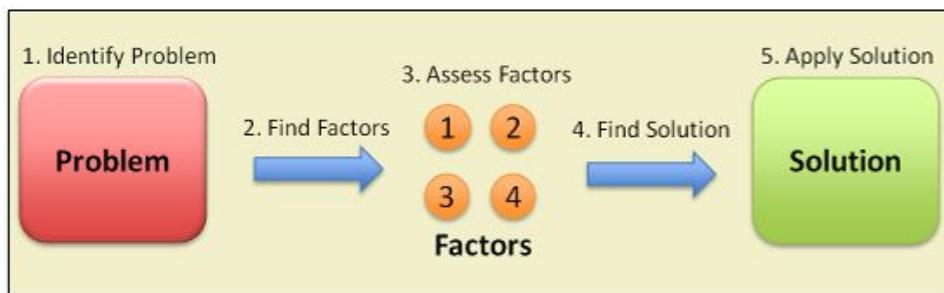


Figure 2 - A Bottom Up Decision Model

This approach is a foundational one in that knowledge is built up from a solid base that grows stronger and stronger with each chapter. Learning starts

by considering some of the most common poker situations and considering what's relevant. Factors that are introduced in the early chapters, crop up time and time again later and so the reader solidifies his grasp of them as he goes. By the time he is able to solve the examples for every chapter, he'll possess the computational poker thinking power necessary to succeed in the aim of this book. This will stand him in good stead to become a successful player, especially if he can piece it together with the other two aspects of poker success which I touch on in the next section.

1.4 The Other Two Aspects of Poker Success

Undoubtedly, the largest component to success in poker is having a superior technical grasp of the game than your opponents. The following chapters of this book are all geared towards assisting the reader in this pursuit. This is a manual about what I call the 'technical game' of poker - how to actually play the cards in relation to the strategic needs of each poker situation. That said, there are two other areas in which the aspiring player needs to develop competency: I refer to these as the 'mental game' and the 'practical game'. The mental game of poker concerns having the mental constitution to succeed even through the more difficult times when variance is against us. The practical game concerns the player's poker habits outside of the playing of the cards. Practical game topics cover session length, game selection, bankroll management and much more. I'll briefly touch on the importance of these two aspects before we go any further. I don't want the reader to imagine for a second that just reading this technical manual is enough to succeed in poker.

The Mental Game

Poker is tough. Most of the students I take on have severe mental game problems that have massively impaired their ability to make money so far in their poker careers. In a nutshell, they allow bad short-term results to affect their composure. This leads to worse decisions which harm the amount of EV they make, which in turn leads to a dwindling bankroll over time. In poker speak this effect is known as 'tilt'.

Tilt is any deviation from an optimal logical thought process caused by emotional interference leading to lower EV plays being made.

Tilt is entirely natural. It's a normal human response to negative variance, which can feel unfair and at times, brutal. Do, however, take your mental game very seriously. Work hard at it and spend separate study time learning how to control tilt and reduce its impact on your winrate. A good place to start is reading Jared Tendler's *The Mental Game Of Poker*. This book is, in my opinion, the leading work for aiding the aspiring player in gradually strengthening his mental game over time.

The Practical Game

To set out on the path of being a professional golfer with no idea how often to practice, who to get coached by, which competitions to enter, and which clubs to purchase would be ludicrous. Nevertheless, new students who come to me for poker coaching often arrive on my doorstep with some very bad practical game habits. Some are as unprepared that, in golfing terms, they're hitting a lemon around a car park with rake for practice.

A healthy practical game involves healthy study habits. The reader should look to do plenty of hand history analysis, have dedicated focused study time, consider the worth of coaching and explore many forms of active poker learning to find out what works best (all students are different.) At the same time, he must also investigate which games on the internet best fulfill his current poker goals. Is he trying to improve his game and wishes to play on a tougher site with nicer software, or is it more prudent to play on a softer site to build a bankroll as fast as possible. Moreover, within his chosen site, Hero should attempt to table select properly, avoiding games full of competent Regulars and favouring tables with weaker players.

The practical game of poker also demands that Hero puts in enough hands to make some progress over a meaningful timeframe, while at the same time not neglecting his study time. Getting this study:play ratio right is very important and for the beginner I recommend around 50% study, 50% play.

A whole book could be written on the practical game of poker. It's not impossible that I'll take up the challenge some time in the future and make a sequel to this manual with a practical game focus. Until then, coaching, training sites, forums, peers and many other places on the internet can help in this respect.

The reader should not neglect either the mental or practical game, lest all of his hard technical work amounts to no monetary reward. It sounds extreme, but I can tell you from years of working with aspiring poker players that it's entirely true for at least 95% of students.

2. Opening The Pot

Let's start at the beginning and look at building some default ranges to open with in each position on the table.

Hero's **X Range** is the selection of hands that he does X action with. Hence, his opening range from some position on the table is the group of starting hands that he chooses to open the pot with from that position.

In this chapter, we'll be introducing each position on the table individually and talking about what changes as we move from first to act (UTG) through to the small blind (SB) in a 6 handed game.

The opening ranges that I recommend can and should be modified frequently due to the player types ahead and their effective stack sizes and tendencies. Selecting opening ranges in any given spot is a dynamic process. We need to both know the starting point and be aware of certain criteria that cause us to make modifications to our default settings. As we go through each position, I'll be listing some factors that make Hero inclined to deviate from his usual approach to opening the pot.

Before we get stuck into some range building, it's essential that we're totally clear about what we mean by 'opening the pot'.

To Open is to raise before the flop before any other player has called or raised.

Spots where someone else has called the one big blind before Hero acts will be dealt with in the next chapter. Spots where another player has raised before Hero acts will be covered in detail later on in the manual. For now, we are only concerned with choosing the hands we think are +EV to raise with as the first player not to fold.

For newer players more accustomed to thinking about hands in isolation, thinking in terms of ranges is going to be a new challenge and one that is totally essential to embrace from this chapter onwards. Why consider each hand in isolation time after time when you can solve the whole situation by first knowing what range of hands you should be opening? Getting familiar with default ranges is the way to learn this topic. Only once we're comfortable with our rough strategy will we start to look at whether or not to open two specific hole cards.

The hand range diagrams in this chapter may be useful to recreate and have on screen as you learn them, even during your poker playing sessions. Printing them out onto flash cards and having them on hand is a great way to first ingrain the default ranges in your mind. Having this starting point is essential and is the basis for developing an appropriate opening strategy for all of the dynamic situations we'll face. It's easier to navigate pre-flop opening ranges when Hero knows what he'd 'normally do' and then as he improves, can begin to appreciate how to vary this to adapt to the real poker situation in front of him. Although some of the most common and important standard adjustments from the default ranges are covered here, there will no doubt arise new types we haven't covered. Thinking for yourself is the most important habit of the aspiring poker player.

Finally, the more skilled a player is pre-flop and post-flop relative to his opponents, the higher the EV of opening certain hands. This can result in borderline hands being +EV opens for stronger players but not for weaker ones. The ranges I recommend here are fairly conservative in this respect. They should equate to +EV opens in standard low and micro-stakes games for all but the newest and weakest of players who will be losers in the games any way. If you think that this could be you, don't worry! Read this manual, work hard and embrace the fact that you'll be losing a little bit of money at the smallest stakes as you learn the ropes - it's like a tuition fee and a very reasonable one at that. After working through this manual, skill to open these ranges will definitely not be an issue if the student applies himself.

2.1 The 6 Handed Table

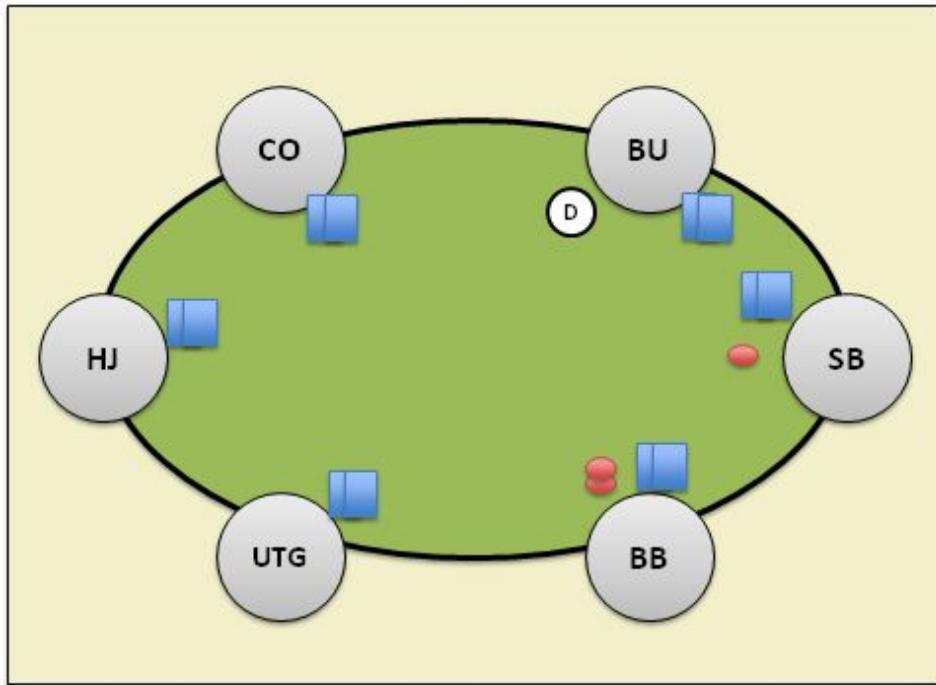


Figure 3 - The 6-Max Table

The 6-Max Table

UTG – Under The Gun: Three seats before the button. First to act in 6 handed game. "I was under the gun."

HJ – The Hi-Jack: Two seats before the button. "I was in the hi-jack."

CO – The Cut-Off: The seat before the button. "I was in the cut-off"

BU – The Button: The seat before the blinds. Always acts last post-flop "I was on the button."

SB – The Small Blind: The seat after the BU "I was in the small blind."

BB – The Big Blind: Two seats after the BU "I was in the big blind"

Like I said before, poker has a language of its own. I've clarified the expression above that goes with each of these terms. If you want to sound like a Fish in a live game though for deceptive purposes, feel free to say: "I was in under the gun!"

These names are pretty much universal for 6-max formats. You'll sometimes hear the HJ called 'MP' (Middle Position) Other than that though, there aren't really any variations.

One common mistake the novice player can make on occasion is to refer to his position as UTG in a less than 6-handed game and then play as if he were in a 6-handed game. Always think about these positions in relation to the button and you won't go wrong. If you're playing at a 4-handed table, you're never UTG. The first seat to act is the CO due to being before the BU and so on.

It's much easier to standardise the positions in this way in order to eliminate any confusion if the table drops below 6 players. When Hero is playing at a shorthanded table, he simply looks at his seat in relation to the BU and plays accordingly. Heads-up play (where there are just two players) is the lone exception to this rule.

From this point onwards, when I refer to a position, it will always be in this short hand form. Each position name will always refer to the same point relative to the BU.

2.2 Rating Starting Hands

Before we lay out the foundations of our opening strategy by position, it's a good idea to run through the different types of starting hands that can be dealt in No Limit Holdem and see what general reasons we might have for opening each.

I recommend that Hero always tops up his stack to the typical cash game table maximum of 100BB in order to maximise his edge over his competition and so this is the stack-size that his default strategies will be catered to. In every hand example in this book we'll assume Hero is 100BB deep with all players unless stated otherwise. Examples where stack sizes are non-standard are covered in depth in [Chapter 14](#).

There are three primary attributes that entice us to open a hand in NLHE cash games at 100BB stack depth. The better the hand scores in the three areas below, the earlier the position on the table we can open it from.

Good Pair Potential: Hands that score high in this attribute are able to frequently make good pairs post-flop that will be the best hand far more often than not. Good pairs are top pairs with strong kickers or overpairs and are likely to beat most if not all one pair hands.

Versatility: Versatile hands can connect with flops in a number of different ways. Being able to flop either a flush draw, straight draw or a decent pair promises more potential favourable boards post-flop.

Nut Potential: Hands that score high in this attribute have the ability to flop stronger hands than good pairs (EG. A set) with meaningful frequency. These hands figure to be best an overwhelming majority of the time.

These characteristics are listed in order of importance.

Good Pair Potential (GPP) is the most important attribute because strong one pair hands are the only hands that both occur significantly frequently and win a large percentage of the time. As stacks become deeper (larger), it becomes slightly less important as stronger hands are needed to win huge pots. As stacks become shallower (smaller), it becomes a totally dominating factor since good pairs are then often more than a sufficient requirement for getting the money in.

Versatility (V) is important at any stack depth but matters more with deeper stacks.

Nut Potential (NP) is a very useful quality, but we have to accept that we just don't flop hands of this strength frequently with any starting hand, though ones that score better in NP do so more often than others. This attribute catapults into greater significance the deeper the stacks become and matters less with short stacks as hand strength requirements for getting all the money are relaxed.

We'll now score some groups of starting hands using these attributes as a warm up to building some actual opening ranges. It's important to know why a hand is a profitable open in terms of EV instead of blindly following charts as so many inexperienced players end up doing.

The fourth score in the table below is a general measure of how suitable the hand is to open. It is not identical to the mean score of the hand as some factors are more important than others.

Hand	GPP	V	NP	Overall
QQ-AA	10	6	10	10
AKs	9	7	7	10
AKo	9	6	5	9.5
TT-JJ	7	5	10	9
AJs-AQs KQs	8	7	7	9
99	6	4	10	8
AJo-AQo KQo	8	6	5	7.5
ATs KJs QJs	7	7	7	7.5
77-88	4	3	10	7.5
JTs T9s	6	7	7	7.5
ATo KJo QJo	7	6	4	6.5
A2s-A9s	5	6	7	6
22-66	2	2	10	6
J9s T8s 98s 87s	5	7	7	6

Figure 4 - Hand Ratings for Top 20% of Hands

This table is merely the best 20% of hands Hero can be dealt in NLHE cash with 100BB stacks. The list could go on all the way down to 72o and a suitability score of 0. It's not my purpose here to provide an exhaustive ranking of hands, but the general picture should now be clear. These are the qualities we value in a starting hand. As the hand scores less in these fields,

it becomes a less desirable open and requires more favourable position and table conditions.

We'll now focus on the six positions on the 6-max table and discuss what ranges we should open under different circumstances from each. When learning the proposed ranges, I suggest you connect each choice with these three attributes and remember what makes the hand good to open in the first place.

2.3 UTG

The term 'UTG' in full-ring poker (9 or 10 handed) carries with it some ideas about being incredibly tight indeed and not having very much fun at all. Fortunately, UTG in 6-max is not such a bleak land of endless folding. That said, it certainly is the position on the 6-max table from which we need to enter the pot with the tightest range of hands. There are five opponents to act after us so at the risk of stating the obvious: someone has a strong hand more often than when we open from the later spots on the table.

Reasons to Open UTG

UTG is not typically a 'steal' spot, meaning that getting EV from other players folding is not our primary purpose. Here are the main reasons that Hero opens hands from UTG.

1. For value: To build a pot with a strong hand which figures to do well vs the ranges our opponents are calling with. We mainly favour hands with a lot of the good pair flopping quality for this purpose as these hands can be flopped regularly.

2. To thin the field: Most of the hands Hero plays UTG are strong enough that their primary aim post-flop is to win a sizeable pot with hands such as top pair and over-pairs. Hero is not opening **KK** or **AQ** to try to flop a set or straight, but to use the brute force power of the pairs these hands flop most often to make money.

A slightly less primary aim is to take down the pot with a continuation bet in favourable situations should Hero not flop a hand he can value bet.

Both of these aims require that we aren't commonly going four or five way to the flop. Top pair with a good kicker (TPGK) is a lot weaker vs three

opponents than it is vs one, and taking down the pot with two bare overcards is less achievable against multiple opponents.

Raising before the flop cuts down on the average number of players seeing the flop and helps us achieve these aims.

3. To *sometimes* win the blinds: Just because Hero's raise from this seat doesn't take down the pot as often as a button raise might, doesn't mean he never succeeds to this end. There will be times when everyone folds.

Let's have our first taste of poker math to calculate how often we expect to win the blinds pre-flop on a tight table where each opponent plays 12% of all possible hands against our UTG open. 12% is a tight range, but not unrealistic for the average novice but serious player at the lower stakes.

The following mathematical technique is not too daunting and will come in handy time and time again throughout your poker journey.

Combined Probability

Technique: This procedure is used to calculate the probability of multiple events occurring.

To find the combined probability of both x and y occurring $P(x + y)$ we multiply the individual probability of x occurring (P_x) by the individual probability of y occurring (P_y).

$$P(x + y) = (P_x) \times (P_y)$$

Where there are three or more events to calculate we simply add more individual probabilities to the equation.

$$P(x + y + z) = (P_x) \times (P_y) \times (P_z)$$

Example: In our 6 handed table there are 5 opponents who can react to our UTG open. We want to know the probability of all 5 folding. We know that each plays 12% of hands and so each folds 88% of the time which we'll put into decimal form as 0.88.

$$P(\text{all fold}) = 0.88 \times 0.88 \times 0.88 \times 0.88 \times 0.88$$

$$P(\text{all fold}) = 0.527$$

$$P(\text{all fold}) = 52.7\%$$

This is reasonable, but not a huge percentage and so Hero must avoid the temptation to get too out of line from this seat.

4. To target weaker players: Sometimes Hero will expand his UTG opening range to target weaker players, particularly ones in the blinds who he'll have position on post-flop, who are playing too many hands pre-flop.

Hero is **In Position To / Has Position On** an opponent when he gets to act after that opponent on every street post-flop. This gives him a constant advantage in the hand by enabling him to gain information before making a decision. There are many ways in which position increases EV and we'll come to all of these in due course.

When Hero's competition is weaker he expects to profit by getting into more post-flop scenarios than usual. Hands that struggled to turn a profit at an

ordinary table from UTG can quickly become lucrative opens when there are bad players to exploit.

So now that we know why we're opening from this seat, let's go ahead and look at our default opening range from UTG.

The following range assumes that there are no very aggressive Regulars attacking our opens from this spot by frequently re-raising and no Fish that we're targeting in the blinds. Every default range in this chapter is intended for an average low/microstakes game without conditions of this sort. As mentioned earlier, these ranges are beginner friendly and more competent players can get away with opening wider than advised here.

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



Fold



Open

Figure 5 - UTG Default Opening

This range equates to a conservative 11% of all the hands we can be dealt.

There is some difference between this 11% and what your poker program might advise you are the 'top' 11% of hands theoretically. This is due to the fact that with 100BB stacks, it becomes more important to have hands that can both flop good draws frequently and make the nuts a reasonable amount of the time. In a tournament with 15BB stacks this is much less important than just being able to flop a good pair.

EG. When matched against each other before the flop, **ATo** is a 67% favorite over **T9s**, but the latter will make a more profitable open from this position due to its much higher nut potential and versatility.

Moreover, when we do get called after opening UTG, the pairs that we flop with **ATo** are more frequently in bad shape against hands like **JJ**, **AJ** and **AQ** than those that **T9s** flops which will tend to be more unique pairs.

The opening ranges in this book will always be constructed by picking every hand that will normally be +EV to open with 100 big blind stacks, and not by which hands would perform best if they were all in pre-flop.

Sizing (3x)

Raising to **3x** means to raise to 3 times the big blind or current bet. If Hero raises to 3x and the big blind is \$1, he makes it \$3 to go.

Recall that one of our fundamental purposes behind opening UTG was to prevent too many players from seeing the flop. Remember that if too many players come along, our strong range struggles more to:

- Have the best hand with good pairs. With multiple opponents it's much more likely someone has flopped a better hand.
- Pick up the pot with a continuation bet when we miss the flop.

A **Continuation Bet (C-Bet)** is a bet made by the pre-flop raiser on the flop. It is sometimes made with a strong hand with the aim of getting called by weaker hands (**Value C-Bet**), but is often made without a strong hand as a continued display of strength with the aim of picking up the pot (**Light C-Bet**).

Thus, we need a default open-size big enough to thin the field. At standard tables (again with no big Fish) **3x** is appropriate for this aim.

'**Fish**' is the standard poker term used to describe a considerably weaker than average player, usually one who does not seriously study the strategy of the game.

The opposite player type is known as a '**Reg**' and generally takes the strategy of the game much more seriously and is consequently more competent.

Going into the realms of **4x** and even **5x** is very justifiable in loose/passive games where there are one or more Fish calling more than they should pre-flop. A larger size makes the pot bigger and punishes Fish for this common mistake by making it costlier for these players to either see flops and play fit-or-fold or refuse to fold post-flop with marginal hands. I therefore recommend deviating to **4x** on Fishy tables and **5x** on highly Fishy tables where multiway pots are very common.

At rarer very aggressive tables where Regs are actively 3-betting against UTG opens it might be prudent to open **2.5x** from UTG as an adjustment, making it less costly to fold to 3-bets and hurting the risk/reward ratio of the light 3-bettors somewhat.

To **3-bet** pre-flop is to re-raise a pre-flop raise.

To **3-bet light** pre-flop is to do so with a wider range of hands than would be for value.

I do not recommend using different sizes with different parts of the opening range. This *can* work well if you're facing one terrible player who will never fold pre-flop, however, as you'll normally be opening into at least a

couple of aware Regs, you'll essentially make yourself extremely exploitable in an obvious way by 3xing every time you have **AJ0** and 4xing with **KK**.

Dynamic Adjustments

Choosing an opening range is one of the simplest decisions we make as NLHE cash players. That said, it's still an extremely dynamic area. Different player types and tendencies can greatly affect the opening range Hero wishes to deploy. As online players, our primary tool for quickly figuring out who's who is the HUD.

HUD stands for **Heads-Up Display**. A **HUD** is an on-screen collection of numbers that track the frequency with which opponents take certain actions. As I write this in early 2016, **HUDs** are very common among serious players. To not use one is to accept an enormous disadvantage and so throughout this book Hero will very frequently have some sort of **HUD** data available.

New **HUD** stats will be introduced throughout the manual and the reader will be shown how to interpret them and use them to form his strategies.

Throughout this book I will be providing the Poker Tracker 4 (PT4) wording of each stat, as this is in my opinion the most powerful and user-friendly program for tracking online poker.

Depending on who is at the table, Hero may well want to add or subtract hands from his default opening range. It's time to introduce the most essential HUD stats in NLHE that allow us to understand what kinds of players we're up against: **VPIP** and **PFR**. These stand for 'Voluntarily Put Money in Pot %' and 'Pre-flop Raise %' respectively. Let's have a look at what they mean.

VPIP/PFR

Definition: VPIP/PFR show the % of the time a player voluntarily puts money into the pot and raises pre-flop respectively. This ratio is key to typing players from an early stage and getting a feel for how wide their ranges are. They're the most essential HUD stats there are.

Reliability (No. of Hands)

10 = Poor: Certainly not useless. A 60/0 player over 10 hands is very likely to be a Fish where as a 25/25 is very likely to be a Reg.

50 = Okay: Gives a very reliable rough idea of player type but not much more.
100 = Decent: By now the stats are converging to something on average fairly close to the truth. It's still normal to have stats out by 5-10% or so due to variance of being dealt less or more good hands than normal.

200 = Good: Reliability is now going to be within a few % more often than not.

500 = Excellent: A much more accurate picture.

Interpretation (Big Gap)

Players with large disparity such as 45/11 or 36/4 are always weaker players and of the passive sort. They call more than they raise.

20/4 = Tight Passive Fish: This player is timid and likes to play a tight range meekly.

40/12 = Loose Passive Fish: This player limps a lot, calls a lot and doesn't usually get aggressive without what they consider a good hand.

70/14 = Passive Whale: This player plays far too many hands and rarely raises.

Interpretation (Small Gap)

Players with stats like 24/18 and 18/16 are more likely to be Regulars as these stats become too high they go back into the realms of Fish.

16/11 = Nit: This player folds far too much and bets and raises mainly for value.

19/16 = Tight Reg: This player folds too much but by a lesser margin. He is more competent than the nit.

23/19 = Standard Reg: Solid stats, this player is on average stronger than the previous two.

27/22 = Loose Reg: This player is usually aggressive but not always good.

41/36 = Aggro Fish: This player raises too many hands and has poorly controlled often ill timed aggression

76/52 = Aggro Whale: This player is just tossing money around, be patient and take it.

Fish Hunting

Hero is UTG. The table consists of some tight Regs who aren't getting out of line vs earlier position opens, but in the BB there is a very weak player running a VPIP/PFR of 56/12, who has trouble finding the fold button.

Here, Hero has incentive to think that many hands that would be negative EV opens at tighter tables are now profitable due to the high frequency with which he gets to play a pot heads-up (just two players involved) with the Fish, in position. So Hero adds some extra hands with both good pair potential and nut potential to his 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		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



Fold



Open



Dynamic Open

Figure 6 - UTG Fish Hunting

In Figure 6 above, the light blue hands represent these new additions that are only +EV opens due to the presence of this target Fish.

The additions of **ATo** and **KJo** are due to the fact that the Fish will defend many hands from the big blind (BB) that actually flop worse pairs than these hands do. Hero can extract far more value with mediocre top pair hands vs the Fish than he would be able to vs stronger competition.

22-66 have been added because should Hero flop a set, the Fish is likely to pay him off far more often and to a greater extent than the average opponent will. In other words these hands have bolstered implied odds.

Implied Odds are the ratio of Hero's investment to see the next street and what he stands to win on average if he makes a strong hand. The smaller the investment and the more he stands to win, the better the implied odds.

98s and **87s** possess a mixture of these two strengths. They have both good implied odds and can frequently flop pairs that Hero can actually value bet against the Fish's weak calling range post-flop.

A2s-A9s fall into the same category as above and can make nut flushes, which is always nice for extra nut potential.

2.4 HJ

From the HJ life gets a little more flexible. There are now just 4 opponents left to act, which means that Hero's success rate for taking down the blinds unopposed increases. It's worth stressing at this point that stealing blinds without resistance is one of the surest and most stable ways to print EV in NLHE cash. In the HJ then, we can drop our standards a little due to this extra profit. We're still too far away from the button (BU) to adopt an immensely wide stealing range though.

Jumping back to our 12% average calling range model ($0.88 \times 0.88 \times 0.88 \times 0.88 = 59.9\%$). That's a lot more folds than we were expecting when we opened from UTG. On tight tables then, we can start to add some hands that fall more into the category of semi-steals than value raises. These are hands that we open partially due one of the most central concepts in successful poker: fold equity (often shortened to FE.)

Hero wins the pot some % of the time due to all remaining opponents folding. This % is known as his **Fold Equity**.

There are a few subtle differences between this spot and UTG. Don't fall into the trap of lumping the first two positions on a 6-max table together as I've seen some poker coaches do in years gone by. There's a considerable difference.

Let's begin with some reasons to open from the HJ.

Reasons to Open HJ

- 1. For Value:** Same as from UTG. We don't stop getting dealt AA just because we're a bit closer to the BU.

2. To thin the field: Same as from UTG. There are still four players to get through and our range, though wider, still prefers that we do not see lots of three and four-way flops.

3. As a Semi-Steal: Now that our open gets through the whole field more often, we can introduce some hands that, while they aren't playing horribly when called, are far from in great shape and do need this added fold equity to be profitable opens. The tighter the table, the more we can relax our requirements as to how wide we can semi-steal.

Now let's look at a default opening 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



Fold



Open

Figure 7 - HJ Default Opening

The new additions here from the UTG default range can be classed as semi-steals. We have just enough playability + fold equity to expect to gain EV by playing them on an average table. We have moved up to a 15.5% range, which is still on the conservative side for this position.

Sizing (3x)

From the HJ, our incentives for opening don't change dramatically enough for altering our sizing to be necessary. We're still concerned with reducing the number of players involved and building a pot with a fairly strong range. I recommend starting out with **3x** sizing in this seat. Again, the usual adjustments of **4xing** are suitable for loose/passive tables or for when Fish suffering from foldaphobia lurk in the blinds.

Dynamic Adjustments

There are two important reasons for opening up this HJ range and including the next most suitable batches of starting hands. There is also one good reason for tightening this model a little.

Let's start with the reasons for loosening up:

1. Fish Hunting/Nit Hunting

A **Nit** is a player who folds too much in general, especially pre-flop.

For two entirely opposite reasons, the presence of either a Fish or a Nit in the blinds should cause Hero to widen his HJ range provided there aren't too many aware aggressive Regs who might notice this tactic and strike in position by 3-betting Hero lightly.

Against the Fish in the blinds, Hero's implied odds shoot up with many weaker hands than advised by the default model. He also gets heads-up with the Fish here a bit more frequently than he does opening from UTG, which translates to even more hands becoming +EV.

Against the Nit in the blinds, (in particular the BB) Hero bags himself a higher degree of fold equity, which more than compensates for the lower strength of some of the dynamic additions to his opening range. As long as the rest of the table is fairly straightforward with regards to its 3-bet tendencies, Hero should open up a bit more.

The upshot is the same in both of these cases. We add more hands against nitty players as our fold equity justifies the adjustment. We add more hands on Fishy tables as our implied odds and heightened ability to get value post-flop justify it. The exact hands we add are shown in the figure below.

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



Fold



Open



Dynamic Open

Figure 8 - Hunting from the HJ

2. Facing Light 3-Bettors

Unfortunately, as well as times when we get to loosen up and enjoy the fruits of playing a wider range in a +EV way, there are times when the tendencies of the players behind us actually render the weakest parts of our default range -EV to open.

The most prevalent example that you'll encounter these days, even from the lowest stakes, is of light 3-bettors especially in position. If one or more of these more aggressive Regs is causing us to fold pre-flop having invested 3BBs on a Regular basis, then a strategy of opening wide is just not going to be feasible.

We'll be exploring these spots fully later on in the manual and will delve deeper into the theory of constructing ranges to better deal with facing 3-betting.

For now though, I'll say in more general terms that the less hands we open in the first place, the easier it is to defend and prevent these player types from exploiting us when we're out of position.

If opening and then folding to 3-bets is -EV, let's not do it so much when we're expecting to get 3-bet often. There are of course other options available for adjusting to avid 3-bettors including getting up and finding a better table to play on, but for now we're concerned with how we should adapt our opening range in light of this problem.

See the model below for a more conservative 12.5% HJ range that will be able to stand more heat and bleed less money vs frequent 3-betting.

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	OJs	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



Fold



Open



Dynamic Fold

Figure 9 - A Defensive HJ Range

There will undoubtedly arise situations where there are both Nits and Fish in the blinds and aggressive Regs in position to us. In these spots, we need to find some compromise between the two dynamic ranges as we have both an extra incentive and a deterrent to opening a wide range. Reverting to our default range here might not be a bad choice, but as always in poker we need to assess the entire situation and the magnitude of the positive and negative factors in play.

2.5 CO

The CO is where Hero starts to have some serious fun. It's also the second most profitable position on the table in the long-term. With three tight players behind us, we get the luxury of picking up the blinds uncontested $0.88 \times 0.88 \times 0.88 = 68\%$ of the time. Although many tables will not be folding anywhere near this often, especially as most players adjust by 3-betting and flatting wider vs CO opens than vs earlier position raises; but even if the competition now defends an average of 15%, this still yields us a **61%** success rate on a steal.

The CO is the first of the official 'steal spots' as opening ranges generally widen considerably, and quite rightly too.

For now, let's stick to our organised range construction routine and first consider the purpose of a CO open.

Reasons to Open CO

1. For Value: From the CO, clear value opens are a smaller part of Hero's range than before, but they still exist. Hero can in fact open extra hands for this reason than he could UTG as he is now more likely to be called by weaker hands, but these value hands are now dwarfed by the weaker hands that Hero opens for the purpose of fold equity.

2. As a Semi-Steal: The additions made in the HJ range of course remain. These hands are to recap, ones that play pretty well but do require some fold equity pre-flop or post-flop to be profitable opens.

3. As a Steal: Opening as a steal does not necessarily justify opening hands as bad as **72o** or **J4o** despite the fact that the primary purpose of the open is to grab fold equity. We don't want to become maniacs who very obviously

open any two cards from the CO as such a strategy would soon get us killed in the long run even if it were profitable the first couple of times we used it.

Steals are just weaker additions to our range than semi-steals were. In the CO we still have the BU to act in position to us as well as the two blinds and so we must keep some semblance of strength to our stealing hands.

See [Figure 10](#) for a recommended default opening 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



Fold



Open

Figure 10 - CO Default Opening

Clearly hands like **A9o** and **97s** are not going to frequently flop the world, but due to our increased fold equity, this is fine.

Sizing (2.5x)

The CO is the first position where I'll be recommending a change in sizing from what we've been using so far. Given that our purpose has shifted away from field-thinning and pure value and into the realms of grabbing fold equity, a smaller open-size of **2.5x** is going to be more appropriate on standard tables where we're not doing any Fish hunting.

This might sound strange at face value. You might wonder: why if our primary aim is for the opposition to fold, do we give them a better price to do the opposite? Well, in making it less to go pre-flop, we're also giving ourselves a better price on a steal.

There is a certain minimum success rate that each 'steal' hand in our range needs in order to open profitably. The more money we invest on this steal attempt, the higher that number gets. If I invest 25BB to win the 1.5BB in the middle, I need a very high success rate indeed (94% to be precise, assuming Villains either shove or fold, and that when they shove, we fold.) Opening to 25BB then, is mathematically awful.

Our assumption is that although people may play a few more hands vs a 2.5x open than vs a 3x, we will gain more EV from our steal being smaller due to this lower required success rate outweighing the slight drop in fold equity we'll experience. We might not be jumping so high but we've lowered the bar by an even greater margin.

There are two main cases where we're going to make dynamic adjustments to our sizing as well as to our range. I'll kill two birds with one stone here and deal with these sizing adjustments as I introduce the situations and ranges that accompany them.

Dynamic Adjustments

1. Fish/Nit Hunting

This theme should be extremely familiar by now. We open up our range from every spot when we are expecting an increase in either value or fold equity depending on which type of players wait ahead. Again, having the Fish in the blinds is far more precious than on the BU as having position on this weaker player post-flop is what really entitles us to go a bit wild against him pre-flop.

Again we widen our range vs. either player, it's only our motivation to do so that differs.

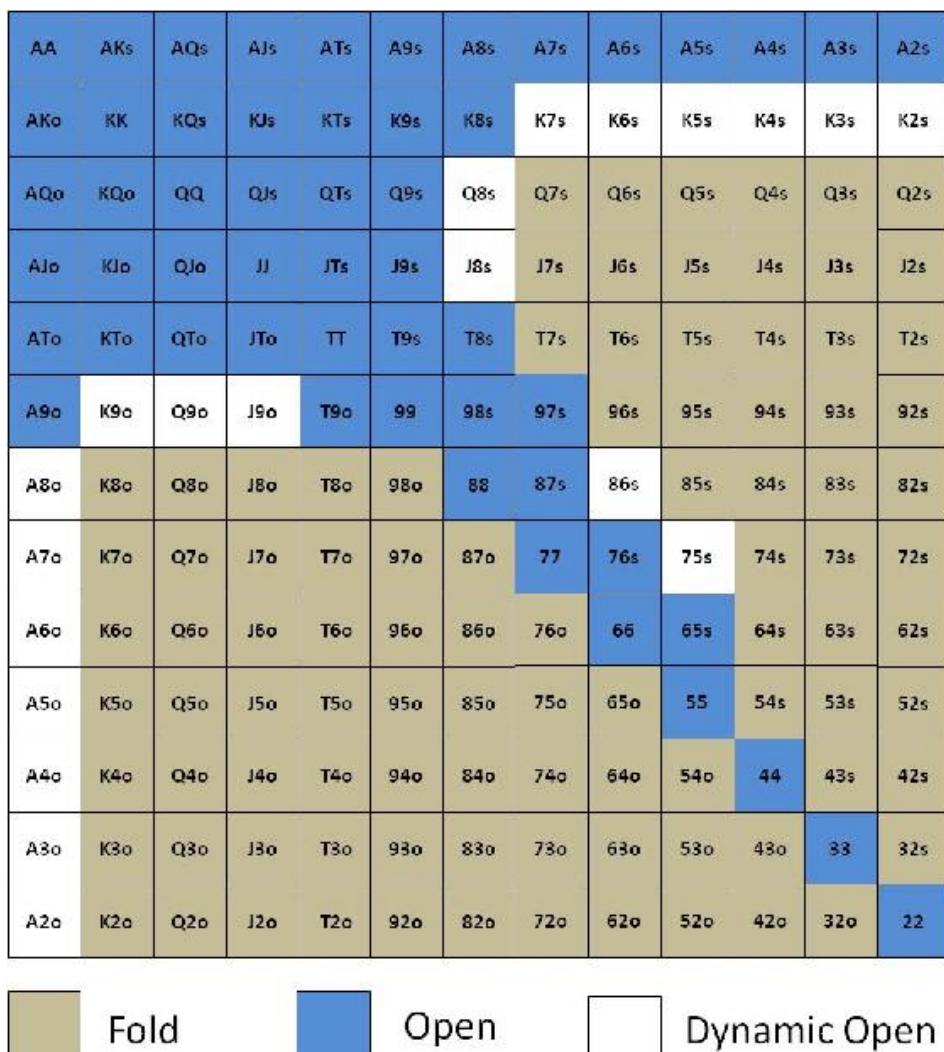


Figure 11 - Hunting in the CO

Dynamic Sizing

Nits 2.5x: On the tight table, Hero's main aim is still to seize all the fold equity he can. Therefore, giving himself a better price on his steal and leaving his sizing at **2.5x** is recommended.

Fish 3x: The great thing about Fish is that they call too much pre-flop to do either one of two things post-flop. They will normally either play fit-or-fold and allow Hero to print money with his continuation bets or they'll put far too much money into the pot with marginal holdings and give Hero a license to value bet to his heart's content.

For both of these purposes having a bigger pot is ideal. I recommend going back up to **3x** when a fish is your prey.

2. When the BU is a Nit

So far, we've mainly been hunting the players in the blinds and adapting our hunting style for each type. Having a Nit on the BU is probably one of my favorite dynamic adjustments concerning opening ranges.

As we'll soon see, on the BU, Hero gets the opportunity to steal extremely wide. When Hero is in the CO, he usually has to show some restraint and doesn't come anywhere near the range he'd open from the BU precisely because the BU is an extra player behind and one who has position on him. However, if the BU is very tight and is 3-betting and flatting very rarely, then Hero has been granted a license to treat the CO like a pseudo BU. Hero then goes wild given he effectively has the BU 90% of the time. He shouldn't really be allowed this luxury, but thanks to the Nit to his left, he's getting to play 1.9 BUs per orbit instead of 1!

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	OJs	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



Fold



Open



Dynamic Open

Figure 12 - When the BU's a Nit

For this dynamic adjustment we are going to revert to exactly the same sizing strategy we'll be using on the BU itself. As explained in the next section, we'll be opening for **2x** where the blinds are Regs or Nits and for **3x** when there's a Fish in the SB or BB. Where there is a mixture of these conditions in place, or if the degree of Fishiness is less, we'll settle on a **2.5x** open. [See this section for a full explanation.](#)

With 3-Bettors Ahead

Just as in the HJ, we're forced to tighten up here and reduce the amount of steals in our range when faced with this threat. The situation is more severe when the light 3-bettor is on the BU as defending out of position is generally

pretty difficult to do with any kind of wide range in a +EV manner - even with a reasonable skill edge post-flop.

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

 Fold  Open  Dynamic Fold

Figure 13 - A Defensive CO Range

2.6 BU

Now we reach the position from which Hero should be generating by far the most EV. Over a large sample, your profits from the BU should go way above and beyond those from other spots.

Given the pattern in the chapter thus far, the reader should have a very good idea about why we open from the BU. This time we're not going to start with a list of reasons to open this seat, but instead focus on the factors that make playing a wide range extremely profitable. One of the biggest leaks I find myself plugging in new students is their not opening wide enough (stealing enough) in this spot. I want to stress from the beginning that this can be an enormous mistake that actually turns potential winning players into losers. Here's are some reasons as to why it's so crucial to steal rampantly on the BU.

- With just two players to act, fold equity is now huge. This means that sizing can be reduced to 2x to enhance the steal price further, especially vs Villain's who aren't flatting very much out of the blinds. Hero will have an easy time reaching his required folds target with many hands on many tables, for this enhanced price. To fold these hands is to toss away free EV.
- Hero is always in position post-flop, which immediately increases EV in many subtle ways, as we'll see in the next chapter.
- At the lower stakes, Regulars in general tend to be overly tight and fold too much from the blinds. Some adopt strategies of rarely flatting out of position even vs minimum open sizing, which, as we'll learn, is happily punished by a wide stealing strategy.
- On the BU, ranges are wider and so it takes less strength to flop a strong hand relative to the average opponent's range. Hands like **KJs**, which flopped dangerous marginal pairs when they opened from UTG are now frequently flopping hands capable of getting two or even three streets of value post-flop. Although Hero's range is weaker on the whole, and contains many steals, the part of that can be considered 'value' widens.

There are, therefore, more straight up value hands available for opening.

I'll recommend one default BU hand chart for use only when Hero has no information at all. The BU is such a dynamic spot that it will be more useful to learn how to evaluate whether a hand will be a profitable steal and how wide of a range to use based on key factors rather than rigid memorisation of a set range.

In these next two sections, you'll find a detailed explanation of how to assess the EV of making a steal both from the BU and from the SB. It's time to start moving away from pre-constructed ranges and to start thinking for ourselves.

Risk and Reward

It's time to introduce our next mathematical concept, but don't worry: it's an easy one and one that I've been subtly touching on throughout the chapter so far.

Recall that how often we need our steal to work depends on what price we give ourselves on that steal; that's to say, how much we're risking compared to our potential gain should the steal be a success.

Risk and Reward

We call the mathematical required success rate of a steal '**RFE**', which means **Required Fold Equity**. In reality, things are not quite so simple and there are other factors in play, but **RFE** is a good initial indication of how often Hero needs everyone to fold to *break even* on his steal.

The amount of money we're risking to try to take down the pot is **R** for Risk.

The amount of money we stand to gain should our opponent's fold is **PG** for Potential Gain.

Now we've defined our variables we can state the following mathematical rule. Let this become your best friend in getting an initial feel for whether a steal should be +EV.

$$\frac{R}{R + PG}$$

RFE  **R**  **PG**

Example: Hero opens the BU to 4BB, which we already know is typically a poor choice of sizing, but let's see exactly why. What is Hero's **RFE**?

R = 4. Hero risks 4BB to try to win the pot

PG = 1.5. Hero stands to gain 1.5BB if he is successful (SB + BB)

$$RFE = R / (R + PG)$$

$$RFE = 4 / (4 + 1.5)$$

$$RFE = 72.7\%$$

This is very high and undesirable. Hero should consider opening to a smaller size.

See... I said the math would be easy in this manual. We'll soon look at some examples relating to stealing wide from the BU, but first a word on sensible sizing.

I'm going to recommend that vs Regs, Nits, semi-Nits, and anyone in between, Hero uses a **2x** opening strategy unless he gains the read that one of

the Regs in the blinds flats a lot (Nits won't do this by definition).

Against Fish in the blinds or the more flat-happy type of Reg, Hero can revert to **2.5x**, **3x** or even more, depending on the severity of the caller and their post-flop tendencies.

I won't be providing exact rules to blindly follow in this manual. I'm teaching how to play poker, not how to follow instructions. By now you should be skilled enough to make a good estimation as to when to up your sizing and by how much depending on the situation. There are plenty of hand examples in later chapters that also happen to provide models for assessing pre-flop sizing. Use these to solidify your skill in this respect as we move forward.

Let's take our first example spot and have a go at applying our newly learned math skills. One more thing before we do though: there is an important HUD stat that can give Hero a lot of information about how often the opposition fold to steals.

The third (green) number on the HUD in [Hand 1](#) below stands for the stat: **Fold vs BTN Open** in Poker Tracker 4.

Fold vs BTN Open

Definition: Fold vs BTN Open refers to the % of the time the player folds when someone opens the BU. By looking at the stats of the SB and BB and then multiplying them together we can estimate how often our steal should work on average and then whether or not it's likely to be +EV

Reliability (No. of Hands)

50 = Bad: this equates to only around 17 hands played from the blinds and less than half of those will be vs BU opens.

200 = Decent: this gives a rough flavour.

500 = Good

1000 = Excellent

Interpretation

0-30 = Extremely Low

30-50 = Very Low

50-60 = Low

60-70 = Average

70-80 = High

80+ = Very High

Hero should have an idea of how these stats can be more specifically interpreted by considering risk/reward and combined probability.

A quick note on these stat definition boxes as we'll be meeting many of them throughout this book:

It might seem logically contradictory to include a range of 0-30 and then 30-50 as the number 30 is included twice for two different definitions. The reader should use some common sense here. Stat values are a gradual sliding scale. The ranges given under 'interpretation' are not intended to be taken completely literally. It is obviously **not** the case that this stat is low at 59 and suddenly average at 60. I have intentionally created these stat ranges so that the highest number of a lower group is always repeated as the lowest number of the next group to show that these ranges are just a rough guide. There is of course no sudden 1% increase that causes a dramatic shift in how wide a player's range is for the given action.

A good option over larger samples, especially for those of you who prefer 100% statistical accuracy is to filter in your tracking software for this stat distinctly by either 'SB' or 'BB' and use a separate version of this stat for each position. The idea is to multiply the SB's **Fold vs BTN Open** in the SB by the BB's **Fold vs BTN Open** in the BB. I'll assume in the following examples that Hero has a large sample of hands on his opponents and that this stat refers to the specific blind in which the player is situated for higher accuracy.

Hand 1

BU – Hero
 SB – Tight Reg (19/17/**76**)
 BB – Semi-Nit (17/15/**83**)

Dealt to Hero:



Hero?

Let's start by finding RFE assuming that we min-open to **2x**.

$$\text{RFE} = R / (R + PG)$$

R = **2** - the amount of BBs we are putting into the pot from this point of decision.

PG = 1.5 - the sum of the dead money we are trying to win, in this case the SB + the BB.

$$\text{RFE} = 2 / (2 + 1.5)$$

$$\text{RFE} = \mathbf{57\%}$$

Now we've found our required fold equity to break even on this steal attempt we should calculate whether or not we have this much fold equity in reality.

The combined FE here is found by multiplying the two Fold vs BTN Open stats together: $0.76 \times 0.83 = 63\%$ (combined probability again.)

So Hero has more fold equity than he needs and a very clearly +EV open vs these two players.

Hero raises to 2BB.

Math Meets Reality

Wouldn't it be lovely if it were really this simple to work out whether or not we should open a hand? I'm afraid there's a little more to this procedure than I've let on so far, as many of you may have realised.

RFE would only be the true required fold equity to open if Hero was planning to fold every single flop when called, regardless of his hand strength or fold equity post-flop; or if Villain was going to 3-bet, not call, every time he defended his blind and Hero was going to fold to that 3-bet. In a nutshell, RFE ignores all of the post-flop eventualities that affect the profitability of a steal attempt.

Thankfully, in reality, Hero is in a far better position than the math tells us. He'll never require more fold equity than RFE suggests and will usually need at least a little less.

In reality, Villains will usually be calling a significant amount of the time they defend their blinds and Hero will have the option, with any hand, to: flop equity, make a strong hand, value bet, continuation-bet with good selectivity, bluff profitably on later streets, take free cards, take advantage of Villain's mistakes, and much more. The list of all the things that can happen post-flop is endless and not something we can calculate mathematically (trying to do so would be a headache we really don't need at this point)

Instead, let's suffice to say that Hero needs less fold equity to open a steal hand than the % our RFE number tells us. How much less depends on the strength of the hand and various other factors listed below. [Figure 14](#) below shows the positive and negative steal factors that we should consider. The more positive the factors, the further we can be below RFE and still want to open. The more negative the factors, the less we can move away from it. In most cases, we'll be able to reduce RFE a little bit, even when we have **72o**.

Good Factors	Bad Factors
Hand Has More of the 3 Attributes	Hand Has Less of the 3 Attributes
Tight 3-Bettors Ahead	Light 3-Bettors Ahead
Post-Flop FE	No Post-Flop FE
Villains are Unaware	Villains are Aware
Villains are Unskilled	Villains are Skilled

Figure 14 - Good and Bad Steal Factors

Factor 1: Refers to the Starting Hand Attributes we considered at the start of this chapter. See [Figure 4](#) for a reminder. The better the hand performs post-flop the less FE it needs to steal pre-flop.

Factor 2: Light 3-bettors are much worse for us than Villains who just call. We might know how often the blinds fold, but we need to consider what form their non-folding normally takes. If they 3-bet us, the bottom of our range goes straight into the muck and we realise no EV from trying to connect with the flop or being able to c-bet selectively.

Factor 3: If Villains play fit-or-fold post-flop, we need less fold equity and can open wider. This is due to our continuation bets working more and not needing to hit the flop as often as a result.

Factor 4: Aware Villains are ones who are prone to adjust well to our strategy in the long term. It may be that for now we can get away with opening **72o**, but if we open 100% of hands continuously against these players then we can expect them to stop folding enough for those weaker steals to remain profitable. Thus, when Villains are aware, we'll need to make sure our stealing range doesn't get too out of line as a solid long-term strategy.

When we look at the EV of a play in one hand in isolation we are considering **Vacuum EV**.

When we look at the EV of a play as part of a recurring strategy over many hands we are considering **Long-Term EV**.

Vacuum EV is a more blinkered view that neglects the possible ebb and flow of the game based on what players observe about each other's strategies. Long Term EV acknowledges this and takes into account predicted EV in future hands as a result of the changes players make to their game in order to adjust to their opponents.

Factor 5: As I mentioned at the very start of this chapter, the EV of opening is intrinsically linked to the relative skill levels of the players at the table. If there are players in the blinds who make severe and frequent mistakes, then Hero will again need far less fold equity due to the profit he can make by exploiting these mistakes post-flop.

NB. It can be a big mistake to open too tightly against bad players simply because they don't fold a lot. A skill edge, positional advantage and initiative advantage can go a long way to creating EV.

Now you may be thinking: "okay I understand the factors but how do we combine this with the RFE math stuff?"

Here's a rule that is merely a starting point. You will have to assess the above table to know when to veer off in one direction or the other.

When factors are neutral Hero needs **5-10% less fold equity than RFE**.

Of course when Hero has a hand as good as say **AJs**, he'll need no fold equity at all as factor one in the above table is so far in his favour. When he has **86s** and the blinds are both horrible players, again fold equity won't be a requirement. With **75o** against more competent opposition, higher fold equity will be a requirement.

The real skill here comes mainly with experience and rests in knowing when, and how far, to lessen or tighten the requirements of how much fold equity is needed to open the BU. Getting familiar with the factors in [Figure 14](#) is the best way to get started. As always though, HH review in your own time from your own sessions is strongly encouraged. I'm showing you what to think about, it's your job to become skilled at it.

Some Examples

Before we move on to a default BU range, strictly for when information is limited, let's do a couple of examples and try to decide if some dynamic spots are opens or not from the BU.

The fourth (red) number in [Hand 2](#) refers to the Villain's **3Bet Preflop** stat. As we've just learnt, this frequency becomes important when we're deciding how wide to steal.

3Bet Preflop

Definition: **3Bet Preflop** describes the number of times a player has 3-bet out of the number of possible opportunities he's had to do so. This stat is a mandatory addition to any reasonable HUD set up.

Reliability (No of Hands)

50 = Bad: Likely to only be over 15-20 opportunities.

100 = Poor: Though it becomes unlikely that tight 3-bettors will have a high number.

300 = Decent

500 = Good

1000 = Excellent

Interpretation

1-3 = Very Low: This player only uses a tight value range and doesn't bluff.

3-6 = Low: This player may 3-bet light sometimes but not enough.

6-9 = Average: This player has a light 3-betting range as well as a value range.

9-12 = High: This player 3-bets very lightly.

12-15 = Very High: This player is strongly unbalanced towards 3-bet bluffs.

16+ = Crazy: This player is 3-betting far too wide and weak of a range.

Hand 2

BU – Hero
 SB – Nit (17/14/**80/4**)
 BB – Reg (24/21/**64/5**)

Dealt to Hero:



Hero?

First thing first: Hero's RFE for a min open = **57%** as in [Hand 1](#).

The blinds are folding an average of $0.80 \times 0.64 = \mathbf{51.2\%}$.

So on paper, Hero lacks the required fold equity to open and automatically make EV, if that is, his strategy is to fold every flop when called. Hero's true strategy will be much better than this hopeless one. Recall that our rule that states that as long as we're less than a 5-10% margin away from RFE, then an open is likely to be +EV. We're 6% short here so we should look to assess our steal factors. It won't take much at all for this to become a +EV open.

What other information do we have available here? Crucially, neither player is 3-betting very much. This means that Hero will very often realise his equity by seeing the flop when at least one of the blinds elects not to fold. Add this to the fact that we're only working with a 6% deficit in RFE and we can confirm that this spot is a profitable open.

Hero raises to 2BB.

Hand 3

BU – Hero
 SB – Reg (20/16/**82/6**)
 BB – Passive Fish (53/17/**32/3**)

Dealt to Hero:



Hero?

In this example, both blinds are folding a mere $0.82 \times 0.32 = 26\%$

Clearly we are nowhere near RFE, thus, if pre-flop fold equity is the be all and end all, then we should definitely pass this spot. Fortunately for Hero, the weak player in the BB is going to be very easy to outplay post-flop and will be calling and then most likely making mistakes with a very weak range of his own.

Consequently, even with minimal fold equity pre-flop, Hero will have an easy open. Thus hand illustrates that if the other factors are good enough, we may need very little to no pre-flop fold equity at all! It's only with neutral factors that we're bound to our 5-10% margin.

The more this Fish folds to c-bets, the better for us, but we don't need this number to be high in order to open a hand this playable. The combination of position, a hand with some flexibility and nut potential, and a large skill edge make this open not just profitable, but mandatory. I warned you you'd have to get used to playing a wide range from the BU!

Now concerning sizing, our usual adjustment vs Fish is to make our open bigger. Again, this is to capitalize on our opponent's two most likely leaks, making big mistakes with marginal hands post-flop and playing fit-or-fold vs

continuation-bets. Of course opening bigger hurts our RFE, but since pre-flop fold equity isn't really our main aim here, we don't mind that RFE goes up when we make it 3x instead of 2x. We're opening to realise our post-flop skill advantage in position and utilising the reasonable playability of our hand vs. the Fish's likely calling range.

Hero raises to 3BB.

Hand 4

BU – Hero
SB – Reg (26/21/**77/12**)
BB – Reg (23/19/**70/8**)

Dealt to Hero:



Hero?

In this hand we can expect to get two folds $0.77 \times 0.7 = 53\%$ of the time so we aren't far from RFE. In fact, we comfortably meet our criteria for opening under neutral conditions since we're only 4% off the RFE for a 2x open.

The problem is, however, that these are far from neutral conditions. These players have a very high combined 3-bet percentage and so we should err on the side of being stricter with how close to RFE we need to be. Moreover, both of these players are likely to give us a much tougher time post-flop than the Fish in [Hand 3](#). This means that our c-bets might not have so much fold equity and our hand doesn't really connect with flops well enough to compensate for this.

This spot is marginal and it's very close to being an open. I'd say that for newer players with lower skill levels post-flop, this should be a fold. For

players with sound post-flop strategies who are more comfortable playing vs Regs where ranges are wide, a 2x open might be the higher EV play.

Many situations in poker are very close and this is one where it probably doesn't matter too much to our EV whether we open or not.

Hero raises to 2BB or folds depending on his post-flop ability.

The fifth (purple) number on the HUD in [Hand 5](#) below is the stat: Fold to F C-bet (fold to flop c-bet) Let's see how to use this stat.

Fold to F Cbet

Definition: Fold to F Cbet means fold to c-bet and describes the % of the time a player has folded to a c-bet given he had the opportunity to do so. If players are straightforward post-flop, then we're happy to steal a wider range against them pre-flop.

Reliability (No. of Hands)

50 = Bad: Likely to only be over a few opportunities.

300 = Poor: Being a post-flop stat, this one takes longer to converge than the pre-flop stats we've met so far.

600 = Decent

1000 = Good

3000 = Excellent

Interpretation

0-30 = Very Low: This player refuses to fold very bad holdings vs c-bets.

30-45 = Low: This player is very call and raise happy.

45-55 = Average

55-60 = High: This player is a little too fit or fold.

60-70 = Very High: This player is extremely straightforward.

70-100 = Extreme: This actually equates to Regularly folding strong hands on the flop.

Now look at [Hand 5](#).

Hand 5

BU – Hero

SB – Nit (15/12/**92/2/34**)

BB – Fish (36/0/**54/2/65**)

Dealt to Hero:



Hero?

Hopefully, you recognized this example as another where fold equity pre-flop is not our primary concern. It's true that our success rate here is estimated at a meager **50%**, but there are two important reasons why this is a mandatory open.

- The Fish in the BB folds to a large number of c-bets meaning that Hero doesn't need much in the way of hand strength or pre-flop fold equity. BB is also likely to be a weaker player meaning that if Hero does connect well, Villain will often make mistakes with marginal hands, increasing Hero's value betting prospects those times when Villain has flopped a second best hand.
- The Nit in the SB is rarely getting in Hero's way. He gets to play in position vs the Fish, or else win the blinds, a huge majority of the time.

Again, sizing needs to shoot up to take advantage of the Fish folding a lot post-flop. The bigger the pot you build, the bigger the pot you win, but of course you still want the Villain in the BB to call pre-flop if he's going to play so meekly post-flop.

Hero opens to 3BB.

Hand 6

BU – Hero
 SB – Reg (22/16/**77**/**7**/45)
 BB – Reg (20/17/**74**/**7**/47)

Dealt to Hero:

Hero?

Just to recap, the RFE of a 2x open is **57%**. Here we face two Regs in the blinds with a combined fold % of exactly **57%** (well, 56.98 if you want to be precise.)

Using our 5-10% rule, the blinds are tight enough that this is going to be a profitable steal in a vacuum. Even a hand as bad as 82o is going to make up the 0.02% deficit in RFE by flopping enough Trips, Quads, two pair or by c-betting in good situations.

Nevertheless, this spot is a relatively easy fold.

The reason for this is the fourth factor in [Figure 14](#). Our opponents seem good enough to be aware of what's happening around them. They're 3-betting light, fighting back reasonably often post-flop vs c-bets, and in general, seem like thinking players. The upshot is that if we open **82o** we're opening pretty much 100% of hands. This is a blindingly obvious strategy to counter even for the dimmest of aware Regs. We should expect that if we continue this strategy in the long-term, we're likely to lose future fold equity as they make the proper adjustments of calling and 3-betting more against us. By opening this hand, we're actually making future opens with better hands -EV by causing our opponents to adapt well to our play.

We can easily pass up vacuum +EV spots in favor of long-term EV gains, particularly where those spots are only marginally +EV in a vacuum in the first place.

Hero folds.

A Default BU Range

As we've just seen, there are many things to consider and almost any piece of information can cause us to deviate from a default BU opening strategy.

Nevertheless, I suspect that the reader might still desire a hand chart for the BU to add to his collection and so, finally, here it is.

The reason that I waited until now to provide this is that I wanted the reader to fully appreciate how dynamic the BU is as a steal position and how important it is to understand when and why we make adjustments to our default opening range.

We need to see BU spots as, firstly, factor based decision-making exercises and only if we draw a blank due to a complete lack of information on the blinds should we resort to the range below. Take a quick look and print it out for reference, then read the above six examples again; they're much more important!

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



Fold



Open

Figure 15 - Default BU Opening

2.7 SB

The SB is different from the BU in two fundamental ways.

- On the plus side there is now only one opponent that Hero's steal needs to work against.
- But unfortunately, that opponent has position on Hero and can in theory 3-bet and call very wide, making Hero's life miserable pre-flop and post-flop should he choose to open too wide of a range.

This is the basic crux of the SB. Against people who aren't going to punish us for opening lots, we should steal very wide indeed. Since there is only one opponent to get through, a steal will have a very high success rate where the BB is too tight. However, vs an active opponent, we'll need to tighten up considerably and ensure that our range is able to both defend frequently enough to 3-bets and hold its own out of position post-flop when our open gets called.

Again I'll be recommending a default range for cases where information is extremely limited. Just like in the last section though, opening from the SB is a situation that is incredibly dynamic and our requirements for opening a hand are very opponent dependent. Hero's HUD and his judgment are his two best friends here.

RFE from the SB

As always, RFE will depend on the size of our open and I'm going to recommend a default opening size of **2.5x** for use against most Regs, Semi-Nits, Nits and anything in-between. By now you won't need me to tell you that vs Fish we'll be increasing our open to **3x** or possibly even larger depending on how much they fold post-flop.

To recap, $\text{RFE} = \text{R} / (\text{R} + \text{PG})$. When we raise to **2.5x** we see that:

R = 2 - the amount we risk from our point of decision. Our dead SB of 0.5 is already part of the pot before our decision and so is not part of our risk.

PG = 1.5 - we stand to win our dead SB + the BB.

$$\text{RFE} = 2 / (2 + 1.5) = \mathbf{57\%}$$

Isn't that handy? Our RFE using a different default steal size from the SB is exactly the same as it was from the BU. Numerically, nothing has changed. It's just that now the dead SB has come from our stack and not a second opponent's.

In the previous section we used our HUD to estimate our fold equity. This is also the case here when we have a large enough sample to work with; we just need to use a different stat. In PT4, it's known as **BB vs SB Open - Fold**. With only one opponent, there's no multiplication necessary, this is on average how often Villain will fold as long as the stat has an accurate sample.

BB vs SB Open - Fold

Definition: BB vs SB Open - Fold tracks the % of the time the player folds his BB to an open from the SB.

Reliability (No. of Hands)

50 = Awful: This equates to only around 8 hands played from the BB and, of these, only a couple at most are likely to be against a SB open.

200 = Poor: This will grant a vague and sometimes inaccurate idea over maybe 6-10 spots.

600 = Decent: Now we're into the realms of something more accurate.

1000 = Good

3000 = Excellent

Interpretation

0-20 = Extremely Low

20-35 = Very Low

35-45 = Low

45-55 = Average

55-65 = High

65+ = Very High

Note that because it is more profitable to defend in position, Villains will normally have a lower stat here than with Fold to BTN Open.

The third (green) number on the HUD will represent this stat throughout the examples to come.

Given that we are now out of position, we should err on the stricter side and look to be a little closer to RFE in order to open a hand than we were on the BU. I'm recommend shrinking the margin that we can be out by and replacing the 5-10% with a guideline of **3-7%**, depending on the other factors.

Beyond RFE

Once again, the math is a guide and far from the full story. Hero must again make use of [Figure 14](#) in order to determine if factors are positive or negative and therefore whether to open a hand or not. If there's any doubt as to what any of those factors are, please go back and review them.

We'll now take a look at a few examples. Only after we've developed a feel for the dynamism of this spot will I be providing the final default opening range to complete our set.

Hand 7

BU – Unknown
SB – Hero
BB – Reg (21/17/52/8/49)

Dealt to Hero:



BU folds, **Hero?**

Hero is 5% short of RFE here and there are some noticeably bad factors in play. The BB seems to be active, aware and is 3-betting fairly frequently; Hero doesn't have heaps of post-flop fold equity as Villain seems to continue relatively often vs continuation bets, and Hero is out of position.

The saving grace here is that Hero's hand simply has enough brute strength to compensate for these negatives and push us into opening territory. Given that Villain's flatting range is fairly wide, having a hand that can flop good pairs quite often is even more useful than normal. Recall that we'd fold such a hand UTG through fear of being crushed on too many flops where we hit a pair.

Against the BB's wide flatting range, we can expect to be ahead very frequently with top pair and even extract a fair bit of value. This hand has enough fold equity + good pair potential to open despite the less than ideal situation. What we can learn here though is that with weaker hand strength, we'd have to be very careful about opening given these conditions. **KTo** is not too far from the bottom of our opening range in this spot.

Hero raises to 2.5BB.

Hand 8

BU – Unknown

SB – Hero

BB – Nit (15/12/**76/3**/56)

Dealt to Hero:



BU folds, **Hero?**

Here we're way over RFE, but as we saw in [Hand 6](#), that doesn't automatically guarantee that we should open. It does mean that opening is likely to be clearly +EV in a vacuum, but recall in [Hand 6](#) that our opponents were aware Regs who we anticipated would soon adjust to any outrageously wide opening strategy by folding less and punishing a hyper active stealing game. Sometimes we have to consider future fold equity too. If we're too out of line with marginally +EV vacuum opens, we could lose a lot of EV from future fold equity being diminished.

Fortunately, in this hand, we can classify Villain as the opposite of aware. A Nit playing this tight and folding such a huge amount in BB vs SB situations is not likely to adjust very well, if at all. The idea is that if Villain were capable of adapting and punishing light stealing, then his stats would not be so tight in the first place. Furthermore, this open is far from marginally +EV since Hero has nearly 20% more FE than RFE suggests he needs. This open will simply print EV even in the long term.

In situations where Villain is clearly folding too much and is unlikely to change his ways (even vs the most extreme strategies), long term EV and vacuum EV merge together. In this type of situation, whatever is most +EV in a vacuum is also going to be most +EV in the long run.

Hero opens to 2.5BB.

You may wonder here if a **2x** open is actually more profitable since it reduces RFE even further. This could well be the case. There do exist Nits that can't even bring themselves to defend wider in position getting such a phenomenal price. I've found, however, that many very tight players take the min open SB vs BB as an insult too far and start to call, or even 3-bet a good bit more. Against the tightest of the tight however, a **2x** open could well be better.

Hand 9

BU – Unknown

SB – Hero

BB – Fish (59/24/**25**/5/31)

Dealt to Hero:



BU folds, **Hero?**

In general, we want to play lots of pots against Fish, especially in position and when they fold too much post-flop. Sadly in this hand, the opposite is true. Here we encounter the kind of Fish that grants us very little fold equity both pre-flop and post-flop. This is fine as it means that with a stronger range we'll be able to extract lots of value and generate our EV that way. It does mean, however, that we'll struggle to turn hands that connect poorly post-flop into +EV opens. This hand has poor top pair potential, little versatility and even less nut potential. The less fold equity we have, the more of these attributes we'll need. Factors are very negative here and we can't come close to compensating for being 22% away from RFE with a hand this bad.

Hero folds.

A Default Range

We've finally reached the end of the first theory chapter in the manual. By now you should have a good feel for default pre-flop opening ranges and why we've chosen them, open sizing, and how and when to deviate from the norm.

In the next chapter, we'll be delving into isolation decisions where someone has limped before we get the chance to open. For now, I'll leave you with our final default range (SB vs BB). This range is the most subject to dynamic alteration thus far, so again, please make sure that the factors and example hands in this chapter are clear. Assess your own steal spots in a similar way and see how you fare without the analysis of this book. Sometimes it's easy to follow what you're reading, but there's a big leap between that and being able to apply it independently. Practice helps a lot and so a lot of homework is required to solidify the concepts taught in this chapter as well as the many more to come.

Like in the earlier positions, if your standard games are especially tight or passive, you should consider opening wider than this range as a default approach. If instead, your population is very aggressive and fond of 3-betting then tightening up will be in order.

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



Fold



Open

Figure 16 - Default SB Range

3. When Someone Limps

One thing that we almost never do, but that some of our weaker opponents might commonly do, is limp as the first player to enter the pot. One thing that we will consider on some occasions is limping after someone else has limped.

To **Open Limp** is to call 1BB pre-flop as the first player to voluntarily enter the pot.

To **Limp Behind** is to call 1BB after one or more players have already done so.

At first sight this distinction could seem arbitrary, but as we'll see throughout this chapter, there are very good reasons for it. In order to understand how we should react to players who open limp, let's first investigate why it's an inferior strategy to the more aggressive raise or fold strategy we learned in the last chapter.

What's Wrong With Open Limping?

- Open limping gives up any possibility of pre-flop fold equity, which as we know, constitutes one of our most stable and essential flows of EV in 6-max cash games.
- Open limping seizes no initiative and allows players behind us to raise and gain the initiative instead. This puts them in a situation where they can c-bet post-flop and apply pressure to win more than their fair share of pots should we both miss the flop. We'd rather be the ones achieving this.
- Open limping fails to thin the field and invites multiway pots, devaluing our post-flop holdings and making it more difficult to take down pots.

- Open limping fails to build a pot for value when we have a strong hand or favorable situation of some sort.

Exploiting Open Limping

Now that we know what's wrong with this common Fish strategy we can look at how to take advantage of it.

The bulk of this chapter will feature a decision-making model for how to best exploit these deficiencies in our weaker opponents' strategies. First though, here are some initial guidelines:

- Where Hero has pre-flop or post-flop fold equity (or both) he should look to raise a wide range and c-bet frequently post-flop to pick up this extra dead money.
- Hero should look to raise quite a wide range in order to isolate the weaker player(s) who limped and ensure he is the beneficiary of any mistakes made post-flop.
- Hero should occasionally look to limp behind with hands that want to realise implied odds and see a cheap flop where fold equity is limited. Hero wants to play in a fit-or-fold manner in these cases.

With these general ideas in mind it's time for me to introduce my pet invention used to help decide whether to raise, limp behind, or fold facing one or more limps.

3.1 The ISO Triangle

Over the last few years of coaching new and improving players, one of the concepts I've found myself having to explain most frequently is how wide to raise versus limpers. I've found there to be three key factors that pretty much exhaustively govern whether or not to raise. Consequently, I created [Figure 17](#) on the next page to serve as a quick comprehensive guide. With the help of this model, the problem of playing against limpers has been simplified dramatically and I urge the reader, as I do all of my private students, to rely on it fully when making a decision in these very profitable pre-flop spots.

Before we take a look at the ISO Triangle, you may be wondering what 'ISO' actually means.

ISO is short for isolation. Hero **ISOs** when he raises after one or more players limp, usually with the intention of thinning the field to create post-flop fold equity and to play a pot heads-up with a weaker player.

There are no hand range charts in this chapter because these spots are extremely dynamic and depend on three very important factors, each containing its own bunch of sub-factors.

Let's meet the triangle:

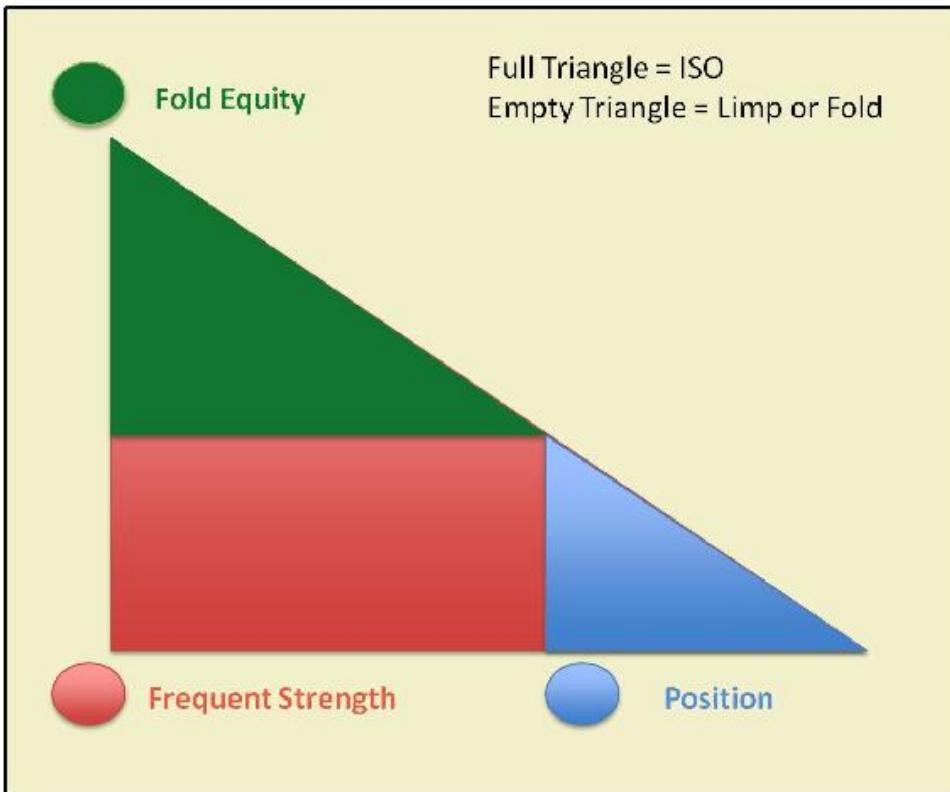


Figure 17 - The ISO Triangle

As you can see, there are three points to consider in these spots just as there are three points in a triangle. The larger the area surrounding each point, the more influence that point has over our decision of whether or not to ISO. Moreover, the three points are inversely proportionate to each other in that the more of one Hero has, the less of the others he'll need. In this metaphor, for ISOing to be better than not ISOing, the triangle should be more full than empty. Let's go through the three points one by one and find out what each entails.

3.2 Frequent Strength

The most foundational factor in determining whether or not to ISO a limper is how often our hand flops well. The frequent strength of a hand can be divided into two potential qualities: ability to flop good pairs and ability to flop good draws. The former is more important as Hero can expect to flop considerably more good pairs than good draws mathematically, and, in general, pairs are preferable hands to flop in these situations. To put it another way, Hero should prefer to isolate with hands that score reasonably well in Good Pair Potential (GPP) and Versatility (V) from chapter two.

The idea is that provided Hero's hole cards regularly give him strong holdings on the flop, fold equity and good position are less crucial, where as, if Hero's hole cards usually flop poor hands then, for his ISO to be +EV, he'll need the fold equity to frequently win the pot unimproved and will have more need for the benefits of being in position.

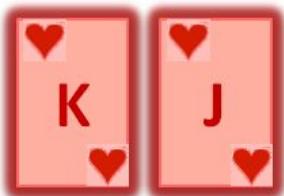
Excellent frequent strength is an *absolute factor* that can justify an ISO without any help from the others at all and this is represented in the triangle by it being the only rectangular shape. The other two factors might make the situation even better, but they do not need to be scrutinised where Hero has very good frequent strength.

AA has the most frequent strength possible as it will flop, at the minimum, an overpair on every texture. This hand is so good that it will simply never require any help from the other points of the triangle. In this case, we can consider the triangle automatically full, solely of red frequent strength.

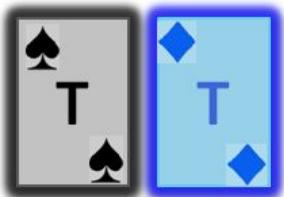
Let's compare the frequent strength of some less obviously amazing pre-flop holdings.



This hand has excellent frequent strength and will rarely need any help from the other factors to make an ISO the best play. Even where pre-flop and post-flop fold equity is limited and Hero is out of position, this hand's brute force ability to flop dominating top pair hands will render it a fine ISO. We want to build a pot and get the hand HU where possible where its top pair great kicker hands will be even stronger.



Another fine candidate for ISOing. Even with poor position and limited fold equity, Hero can consider his triangle more full than empty due to frequent strength alone. This hand has two high cards that flop high caliber pair hands (otherwise known as TPGK - top pair good kicker) and can make very strong draws like powerful flush and straight draws.



This is another hand that will very rarely need any help from the other factors. This hand flops either overpairs or a frequently best underpair a lot, and thus can make it to showdown as the best hand quite often. It also has the latent potential to flop a set approximately 1/9 times when a third T comes down.



This hand is considerably weaker. While it frequently makes decent top pair hands, the kickers are more easily dominated and it lacks any good draw flopping potential. This hand is nevertheless a clear ISO in favorable situations but will require the other factors not to be too negative.

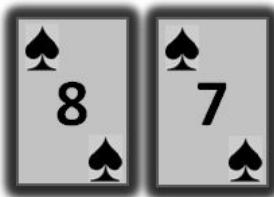


A hand of similar frequent strength to the last. While it lacks the second big card to boost its top pair flopping ability, it makes up for this deficit in its ability to flop draws to the nuts. Also note that any hand containing an ace grants more showdown value when it misses the board and provides an overcard to any non A top pair that Villain can flop.

The **Showdown Value** of a hand (**SDV**) is the measure of how likely that hand is to win at showdown unimproved.



This hand has similar frequent strength to the two above. It can, on occasion, flop an over-pair or a decent pair depending on the texture, and has the latent set flopping potential of any pocket pair. There are, however, many flops where it flops poorly and it therefore requires some help from the other points of the triangle to be a good ISO.



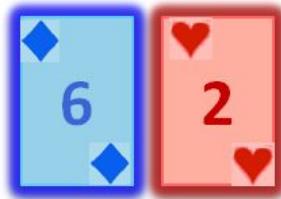
This hand makes up for its lack of high card value with its ability to flop equity in the form of draws. In fact, it's not even horrible at making top pair with two medium cards. It has decent frequent strength, but like the hands above will need a favorable situation in order to ISO.



Now we're into the realms of fairly poor frequent strength. These hands will require a substantially more favorable situation in terms of fold equity and position to qualify as +EV ISOs.



And now our frequent strength fills so little of the triangle that the vast majority of the work will need to come from the other two points.



And finally we reach the bottom of the pile. Frequent strength is the only factor of the three that can render a hand ISOable on its own. This means that a hand like this one is almost never going to be good enough to isolate with either poor fold equity or bad position, but could qualify if both of these other factors are exceptional. For example, Hero has a +EV ISO with this holding where he is in position against one limper who has a propensity to limp and then fold to raises pre-flop or play very fit-or-fold post-flop and where there are no other active or aware players left to act behind.

3.3 Fold Equity

The more fold equity we have pre-flop and post-flop, the more inclined we should be to ISO provided that our other two factors aren't both horrible. Fold equity in these situations depends on the sub-factors listed below:

1. Amount of Limpers

Facing just one limper, Hero should fancy his chances of being able to isolate this weaker player, ensuring that he will be the one to gain EV from any mistakes his opponent makes post-flop. Moreover, playing in a heads-up pot will increase the success rate of Hero's c-bets post-flop with just one player to fold out.

If three players limp, Hero can expect to endure a multiway pot post-flop which will make it more difficult to win the pot on the flop if he ISOs and so should tighten his criteria for how much frequent strength + position he requires.

The less limpers there are, the more fold equity Hero has. The more limpers there are, the less fold equity Hero has.

2. Loose Players Behind.

The number of players liable to call or 3-bet a wide range behind us should we ISO also affects the likelihood that we get a multiway pot. If there are two loose Fish still to act in the blinds, Hero can expect to have relatively little fold equity post-flop due to the amount of three or even four handed flops that will ensue in this situation.

Similarly, if there is a crazily aggressive 3-bettor lurking in the blinds, Hero will have to tighten his ISO range and favor hands with more frequent strength since he doesn't want to fold too often to the rampant 3-betting. If Hero opens a stronger range in the first place, it's naturally easier to defend more of that range to a 3-bet.

3. Types of Fish

There are four broad types of Fish that Hero will encounter on his poker journey. There are, of course, sub-types of each of these and every individual player has some subtle differences from the next, but with the limited information available to us at the virtual felt, it's necessary to group these weaker opponents into four main categories. Our fold equity greatly depends upon which type of Fish has limped or is left to act behind us in these situations and this categorisation should come in handy throughout the rest of the manual in a variety of other situations.

Type A - The Fit-or-fold Fish: This is the bread and butter target of our ISO raises.

Identification: This type of Villain will play anything from a medium to wide range of hands pre-flop usually entering the pot by limping. Sometimes he'll limp and fold to an ISO pre-flop or other times limp/call and then fold frequently to a flop c-bet. Type A Fish have VPIP/PFR ratios like 40/6 and 34/11 - generally there is a large gap between the two stats. These stats don't take very long to tell the true story and so Hero can identify this player quickly. This player will also have a fairly high fold to c-bet stat of somewhere between 55% and 75%.

Exploitation: Hero can print money vs this player's limps by raising a wide range of hands, especially in position, and then c-betting most flops expecting to have a lot of fold equity. The mantra when playing against this type of player is simple: build it up, take it down! Hero inflates the pot to then pick it up when his opponent plays too wide of a range pre-flop and subsequently gives up the pot when he doesn't flop well, which will be most of the time.

Type B - The Station Fish: 'Station' is short for 'calling station', a common expression to describe players who generally hate hitting the fold button. This is another loose passive player, but one against whom Hero can't expect to generate too much fold equity. He calls much more than the fit-or-fold Fish on all streets.

Identification: Pre-flop, the station Fish is relatively similar to the fit-or-fold Fish. Both players will limp anything from a medium to a wide range, though the station Fish is more likely to have ridiculous stats such as 90/15 or 65/3. While the fit-or-fold Fish will sometimes limp/fold before the flop, the station Fish will almost never do this. Instead he'll call ISOs with close to his whole limping range and then become very attached to any remote piece of the board he hits post-flop. Station Fish will have much lower fold to c-bet stats, usually of 45% or less.

Exploitation: Hero no longer has the luxury of ISOing an extremely wide range. As his primary aim has shifted from getting post-flop fold equity to simply value betting against a player who doesn't want to fold. Hero should therefore adapt his pre-flop ISO range accordingly and seek to isolate this player with higher frequent strength. As fold equity decreases, required frequent strength increases; this relationship is the heart of the ISO triangle. Hero's plan is to isolate a stronger range and then value bet like crazy when he connects well with the flop.

Type C - The Aggro Fish: 'Aggro' is online poker player slang for 'aggressive'. Thankfully for Hero, the aggression is normally ill selected, over the top and easy to deal with, especially where Hero has position.

Identification: This type of opponent opens the pot far more frequently than the previous two do. His stats will normally converge at something like 57/38 or 44/23. When this player limps, his range will normally be extra-weak as he would raise with many of the hands the last two Fish types limped. He will basically never limp/fold and may even have the play of limp/raising in his arsenal. Post-flop this player will have a very low fold to c-bet and will very often take lines like min-raising against c-bets and frequently bluffing with zero to little equity post-flop.

Exploitation: Hero is even less able to realise fold equity against this player than he is against the Station Fish as this player will call with just as many hands and also raise complete air when he feels like it. As a result, Hero again needs to make sure that he has enough frequent strength in his ISO range to carry out his plan of getting value post-flop from Villain's inability to fold any piece of the board. Hero requires more regular showdown value to punish this type of Fish for his ill-timed bluffs.

Type D - The Whale: A Whale is more of a magnitude of Fish than a type, but one against whom Hero's plan shifts somewhat.

Identification: In the animal kingdom, a whale is mammal, not a giant Fish; but for our poker purposes, a giant fish is exactly what this player is. A whale tends to play an absurd amount of hands pre-flop and make frequent serious errors. He might do things that appear financially suicidal like shove for 100BB pre-flop with **ATo** or call down with king-high for three streets. His stats will usually be miles out of line, for example, 95/80 or 71/4. He will fold very rarely and refuse to fold in spots where anything else is ridiculous. Other players will share the hands they've played against him with each other purely for amusement purposes. In reality, a Whale is just a player with a very poor understanding of the game, who plays purely for fun and tends not to think very much if at all about how to play well.

Exploitation: Now we reach an exception to our usual ISO strategy. Normally, we tighten our range in the face of low fold equity as per the teachings of the ISO triangle. This player however, is so abysmal and makes such gargantuan errors, that Hero needs to simply take every opportunity to isolate him where his frequent strength is anywhere close to reasonable. The value of being the player at the table to capitalise on these huge errors first is so immense, that having to bloat a few pots to miss and give up post-flop is a small price for Hero to pay. Against whales, Hero should look to ISO a very wide range indeed, especially in position, and have a very straightforward value orientated game post-flop. The money will then cascade in his direction.

3.4 Position

Position is a concept that Hero will encounter time and time again in his poker journey and throughout this manual. Being the last player to act post-flop carries with it several large advantages. Let's look at what these are specifically in the realm of ISOing. Although position is the least influential of our three factors to the decision of whether or not to ISO, it can frequently be a deal breaker. But why should being in position make an ISO +EV that would be -EV out of position? There are three very good reasons:

- Being in position adds fold equity to c-bets post-flop. It's harder for our opponents to continue when they have to act first on every subsequent street. They'll have more difficulty getting to showdown and so many Villains, even some weaker ones, will instinctively fold more out of position on the flop.
- Being in position gives Hero more control over the pot size. He can ensure that a bet either does or doesn't go in on any street where he's checked to depending on what suits him better in the situation.
- Hero picks up more information by seeing what his opponent does on each street before he has to act himself. This allows him to put Villain on a range of hands with more accuracy and make higher EV decisions as a result.

So when we consider our position when assessing the ISO triangle, we're not just concerned with our pre-flop position, rather we know that being in position will grant us an advantage which spans for the entire duration of the hand, rendering each future street higher EV. This is the sense in which good or bad position can swing our choice in one direction or another.

Let's have a look at an example where this is indeed the case.

The third stat on our HUD in the following examples is the most important one for determining how much fold equity we have. It's also one that Hero should be familiar with from Chapter 2: **Fold to F Cbet**. See [here](#) for a recap.

Hand 10

CO – Passive Fish (37/9/64)

BU – Hero

SB – Reg (22/18/51)

BB – Nit (14/11/44)

Dealt to Hero:



CO calls 1BB, Hero?

Let's assess the ISO triangle. First of all our frequent strength is not great here, but the hand is far from useless. Two medium sized connected cards will allow us to flop top pair and some decent draws a fair from negligible amount of the time.

Our fold equity should be rated as very good indeed. Not only does this Passive Fish seem fairly straightforward folding to 64% of c-bets, but also the Nit in the BB will very rarely be interfering with our plan.

Our position is the icing on the cake. This hand is a clear ISO.

Hero raises to 4BBs.

You might notice that this sizing is much larger than any size we might choose when opening from the BU. The reasons for this are covered in [Section 3.5](#) on sizing an ISO. The important point for now is that good position here paired with good fold equity has made even this fairly poor hand an easily +EV ISO.

Hand 11

CO – Passive Fish (37/9/64)

BU – Nit 14/11/44)

SB – Hero

BB – Reg (22/18/51)

Dealt to Hero:



CO calls 1BB, BU folds, **Hero?**

This situation is a different story altogether and demonstrates the importance of position. While we still have favorable fold equity here against the original limper, and the same frequent strength, there is now a Reg who has position on us lurking in the BB. This will make it harder to get heads-up with the Fish as this player can look to call our ISO or even 3-bet us fairly often here with his positional advantage. Furthermore, when Hero does manage to get the Fish to himself post-flop, he'll have to deal with being first to act on every street and forgo the advantages described earlier that he had in [Hand 10](#).

Consequently, our triangle is more empty than full here due to no factor being all that great.

Hero calls 0.5BBs.

So wait, it's okay for Hero to limp in the SB here? Absolutely! Limping should easily be higher EV than folding. Let's see why.

3.5 Limping Behind

I started this chapter off by warning you about the dangers of open limping. I then discriminated this from limping behind. The call you see Hero make in [Hand 11](#) above is a type of limping behind that can only be done from the SB. This call is called a 'complete.' Note that Hero should generally only complete the SB where there have been one or more limpers in earlier position. Where the action folds to Hero in the SB, he should follow the opening strategy covered in [Section 2.7](#).

To Complete is to call the remaining half big blind from the SB and is generally only a desirable option where there have been one or more limpers.

In [Hand 11](#) we concluded that Hero's poor position tipped the scales away from ISOing. It's unlikely to be profitable to raise such a mediocre hand out of position where fold equity was compromised by the Reg in the BB. This didn't mean, however that Hero was forced to fold.

When we've decided that ISOing is out of the question Hero is left with another choice: whether to limp behind or to fold.

The answer to this question depends on three main factors:

1. Pot Odds

Pot Odds are the ratio of the pot as it currently stands to Hero's investment to see the next card.

The better the price Hero is getting to call in relation to the pot, the more inclined he should be to come along.

2. Implied Odds

Recall that implied odds are the ratio of Hero's investment compared with what he wins on average on future streets from his opponents' stacks. Good implied odds will require a hand capable of flopping something powerful that can extract a lot of value and that there are players in the pot who can pay Hero off should he flop that strong hand.

3. Post-flop Steal Potential

Hero should look to limp behind or complete the SB where his opponents are particularly fit-or-fold and where there will commonly be opportunities to take down the pot with a bet on suitable flops, namely, ones that miss the majority of Villains' ranges.

Let's assess these factors in the context of [Hand 11](#).

1. Pot Odds: Hero's pot odds are very favourable as he has to call just 0.5BBs into a pot that's already 2.5BBs. He's getting odds of 5:1.

2. Implied Odds: Hero's implied odds are okay given that his hand can flop two pair, straights, Trips and decent draws on occasion. There is one Fish in the pot who may fail to fold when he flops a good pair so Hero can expect to get paid sometimes too.

3. Post-flop Steal Potential: There will be times vs a fit-or-fold Fish and a Reg where both players miss the flop and Hero has the opportunity to take down the pot with a bet either unimproved or with minimal equity. In particular, spots where Hero flops minimal equity like a gutshot straight draw or two over cards on a dry board will yield him a +EV steal opportunity in three-way limped pots. We'll learn more about how different types of flops affect fold equity in the next chapter on c-betting.

We can conclude that overall, Hero has an easy complete in this situation.

Throughout the chapter so far, we've introduced a complete decision making process for spots where someone limps before Hero is to act. We can now summarise our procedure using the following flowchart.

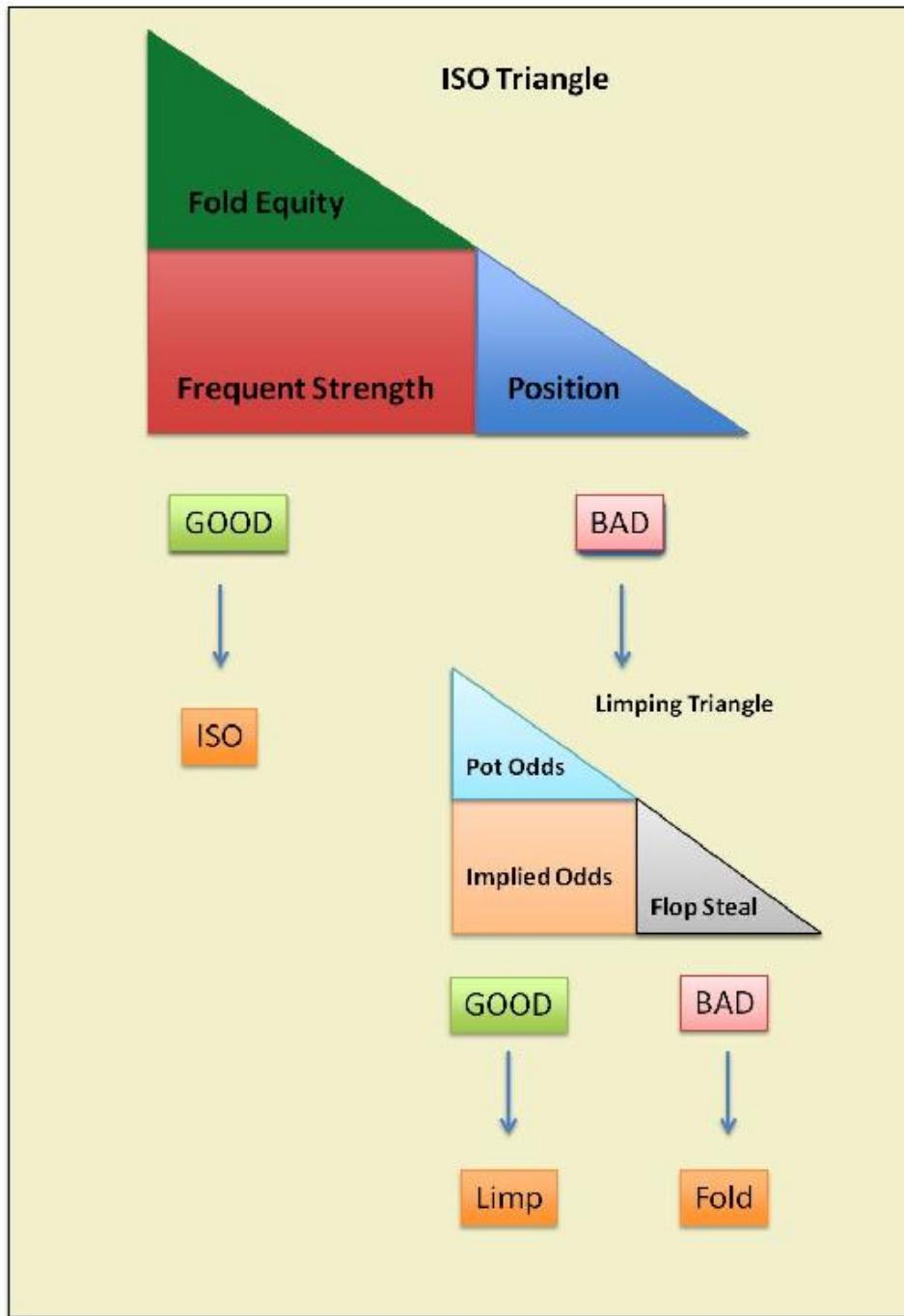


Figure 18 - When Someone's Limped (Flowchart)

This chart might appear daunting at first sight, but it's really just a summary of what we've learned in this chapter. Very few poker decisions are simple, but with a bit of practice, using this method will make your decisions much easier in situations where someone has limped.

3.6 Sizing An ISO

Why Go Bigger?

ISO sizing is generally bigger than open sizing. There are a couple of good reasons for this:

- The presence of the extra big blind from the limper inflates the pot giving the limper as well as other player better pot odds to call a raise. Hero compensates for this by sizing bigger to avoid multiway pots or at least making it more unprofitable for players to call.
- As we know, in order to ISO, Hero will need a satisfactory combined total of frequent strength, fold equity and position. Since a spot where ISO raising is good will be a favorable situation, Hero will benefit even more from the pot being larger. His good hands will get more value in a bigger pot, his c-bets will take down more dead money, and his positional advantage will be magnified with more money at stake.

The Rule of Sizing ISOs

Sizing in ISO spots can be dynamic and against very bad players you may want to increase the size of the pot further, but in general the following rule will be helpful.

ISO Sizing Rule: Hero should raise to **3BB + 1** additional BB for each limper and 1 extra BB where Hero is out of position.

Following this rule will usually ensure that we grant ourselves enough fold equity to fulfill the aims of the ISO, but there are exceptions.

At Fishy Tables

At tables where players are very inclined to call en masse, it may be preferable to go even larger than the rule dictates. On tables where the players behind are very likely to call, Hero should count more limpers than there actually are as a predictive measure. Let's take an example.

Hand 12

UTG – Passive Fish 56/17/43)
HJ – Hero
CO – Passive Fish (37/9/64)
BU – Reg (19/15/57)
SB – Aggro Fish (46/21/34)
BB – Reg (23/16/47)

Dealt to Hero:



UTG calls 1BB, Hero?

First off, this hand is a clear ISO. Frequent strength is very good, fold equity is less great given that there are a few loose players at the table, but Hero is in position to the limper and his hand is strong enough to go ahead and ISO even though he expects to not achieve a heads up pot all that often.

In this hand there is just one limper and so if Hero were to follow the ISO sizing rule, he'd raise to 4BB (3BB + 1BB) for the limper and no extra BB for being OOP as he is in position vs the player who limped. However, given that there are two players behind who are inclined to call with wide ranges, Hero should up his sizing in order to discourage multiway pots, and maximise his post-flop fold equity.

Hero raises to 5BB.

With 3-bettors Behind

As well as times when it's good to increase the size of our ISOs, as we move up in stakes and play in more aggressive games, we'll encounter times when we want to ISO smaller than our rule advises. If there are Regs behind who like to 3-bet wide ranges then Hero can easily get punished for rampantly ISOing to 4BB.

Just as we lowered our open size on the BU against avid 3-bettors, we should be inclined to lower our ISO size when they are left to act after us.

Here's an example. The third (red) number on the HUD now is now **3Bet Preflop** and the fourth (purple) one **Fold to F Cbet**.

Hand 13

UTG – Passive Fish (45/6/**2**/62)
HJ – Reg (18/16/**4**/50)
CO – Hero
BU – Reg (26/21/**11**/44)
SB – Reg (19/14/**5**/48)
BB – Reg (23/19/**7**/52)

Dealt to Hero:



UTG calls 1BB, HJ folds, **Hero?**

As much as Hero would love to make it 4x here and exploit the fact that this UTG limper is very fit-or-fold post-flop, there is a very 3-bet happy Reg on the BU and another Reg not afraid to 3-bet lightly in the BB. As a result, Hero should make his standard ISO size 3x here, making a -1BB adjustment to the ISO sizing rule. This sizing will protect Hero's range from getting abused by the Reg on the BU or any of the others. Repeatedly finding these

spots to make some small changes to your sizing is something that separates great players from good ones.

3.7 Example Hands

It's time to solidify what we've learned in this chapter and put Hero's ISO skills to the test.

It will be most beneficial to first assess these hands on your own and decide upon what you think is the correct course of action. Only then should you look at the answer that follows. Learning how your initial impressions differ from the correct answer is invaluable. You want to train your mind to use the thought processes described in this chapter in a hands-on way so avoid the temptation to form vague ideas of how to play the spot and then skipping straight to the answer. Think about whether or not Hero should ISO, if so what his sizing should be, and if not, whether he should limp along or fold.

Hand 14

UTG – Unknown
HJ – Passive Fish (31/10/**3/55**)
CO – Reg (22/18/**6/51**)
BU – Hero
SB – Reg (20/14/**5/48**)
BB – Reg (23/19/**4/44**)

Dealt to Hero:



UTG folds, HJ calls 1BB, CO folds, **Hero?**

Frequent strength is not amazing here, but it's far from terrible with a suited medium gapper hand. Fold equity is very good since there are no highly active players to act behind and the limper folds a healthy 55% of the time to c-bets when he doesn't fold pre-flop. Finally, being on the BU grants the best position possible and Hero will always be last to act post-flop even if other players call.

Overall, this hand is a clear ISO and there is no reason to deviate from our normal sizing rule.

Hero raises to 4BB.

Hand 15

UTG – Passive Fish (45/6/2/62)

HJ – Aggro Fish (56/25/11/25)

CO – Hero

BU – Reg (24/21/10/49)

SB – Passive Fish (38/14/1/40)

BB – Reg (23/19/7/52)

Dealt to Hero:



UTG calls 1BB, HJ calls 1BB, Hero?

Frequent strength is similar to [Hand 14](#), only a little weaker due to the hand's lesser ability to flop top pair. On the downside, fold equity is almost non-existent here. There are two limpers already, one of whom seems to have a strong dislike of folding post-flop. Moreover, there's another Fish in the blinds making a three or four way pot post-flop exceptionally likely should Hero raise, not to mention a Reg in position to Hero who is 3-betting 10%. Lastly, position is okay, but this is not enough on its own to make ISOing best.

This brings us to the second question: can we call or do we have to resort to folding? With the absence of fold equity comes the promise of implied odds. These two concepts are actually inversely proportionate as where players are reluctant to fold, Hero is getting paid with his strong hands. Pot odds are also very good given that it's just 1BB to call into a pot that's already 3.5BBs and could be even larger when the SB completes or the BU limps along too. This is a great spot to limp behind.

Hero calls 1BB.

Hand 16

UTG – Passive Fish (45/6/**2/62**)

HJ – Whale (75/29/**5/12**)

CO – Nit (16/10/**3/44**)

BU – Reg (22/17/**5/56**)

SB – Passive Fish (38/14/**1/40**)

BB – Hero

Dealt to Hero:



UTG folds, HJ calls **1BB**, CO folds, BU folds, **SB calls 0.5BB**, **Hero?**

With great frequent strength Hero can expect to do very well here vs. the Whale post-flop. In fact, flopping top pair/good kicker (TPGK) against this player is essentially to flop the nuts as long as the flop isn't too dangerous. Hero should be looking at playing for stacks even with just top pair against such a player.

Fold equity is clearly non-existent but that's okay; it's not our purpose for raising such a strong hand. Our position isn't great either but remember that frequent strength is an absolute factor. This means that it alone can constitute a clear ISO. Against a whale it goes up even further and so it's all we need here to ISO happily.

Our sizing rule dictates that we raise to 3BB+ 2BB for the two limpers and then an extra 1 BB for being out of position to the limper. This will build the pot nicely to complement our large hand-strength advantage and skill edge vs. both players and increase the chances of getting heads-up with the whale - our preferred outcome.

Hero raises to 6BB.

Hand 17

UTG – Passive Fish (45/6/**2/62**)

HJ – Aggro Fish (56/25/**11/25**)

CO – Nit (17/9/**3/45**)

BU – Reg (24/21/**10/49**)

SB – Hero

BB – Reg (23/19/**7/52**)

Dealt to Hero:



UTG calls 1BB, HJ folds, CO folds, BU folds, **Hero?**

This is a spot where fold equity is reasonable due to UTG being very fit-or-fold, but there is a Reg behind us who is not as tight as we'd like with respect to his 3-bet frequency. We have the worst position possible and a hand with fairly bad frequent strength. Remember that we judge frequent strength on a hand's ability to make good pairs not just any old pair and this hand frequently flops terrible pairs. The mighty sets it can make unfortunately just don't come around often enough to justify bloating the pot out of position.

So can we call? We only have to call half a BB to see the flop the vast majority of the time. **55** has good implied odds due to set potential and it's okay to go mining for a set when pot odds are so good. Moreover, we may even be able to win at showdown sometimes given the passive Fish won't usually be betting at the pot without a good hand. This is an easy complete.

Hero calls 0.5BB.

Hand 18

UTG – Passive Fish (57/11/**2**/65)

HJ – Aggro Fish (56/25/**11**/25)

CO – Reg (30/23/**9**/41)

BU – Reg (24/21/**10**/49)

SB – Hero

BB – Reg (23/19/**7**/52)

Dealt to Hero:



UTG calls 1BB, HJ folds, CO folds, BU folds, **Hero?**

This spot is similar to [Hand 17](#) with one big fundamental difference to our most important factor in the ISO triangle: our frequent strength is far better. This hand is therefore strong enough to ISO. It will flop something often enough to balance the positional disadvantage and the Fish being so fit-or-fold will help us the times we don't connect.

Sizing should be 3BB + 1BB for the limper and another 1BB for being out of position.

Hero raises to 5BB.

Final Thoughts on ISO Spots

It's well worth becoming proficient in these situations. At the lower stakes online, and in live cash-games almost everywhere even at higher stakes, limping is very common, especially if Hero table-selects well. Being able to determine when to ISO, how much to raise and when to limp behind instead is a valuable skill to develop early on in your No Limit Holdem career. It will propel you far.

4. C-Betting

If opening the pot is the first port of call in pre-flop learning, then c-betting is the first stop post-flop. In fact, we've already run into the concept of c-betting multiple times in the manual so far and this has been totally unavoidable due to how common c-bet situations are and how closely they're linked to the EV of our pre-flop choices. The expected success of a c-bet is a driving factor in how wide Hero should open pre-flop or isolate limpers.

Making +EV c-bets wherever that is the best line and avoiding them where it is not is an integral part of a winning game in any format of poker, but especially in 6-max NLHE cash where we'll be playing the majority of the post-flop spots we get into as the aggressor.

Sometimes it's not the size of the pot, but the sheer frequency with which the situation occurs that separates the really important situations from the lesser ones. Because of this, c-betting is something worth studying at great length from a very early point in your poker career.

Our Focus: The Light C-Bet

A **Continuation Bet (C-Bet)** is a bet made by the pre-flop raiser on the flop. It is sometimes made with a strong hand with the aim of getting called by weaker hands (**Value C-Bet**), but is often made without a strong hand as a continued display of strength with the aim of picking up the pot (**Light C-Bet**).

Before we get stuck into the meat of this chapter, it's worth making an important distinction. There are times where Hero will flop a strong made-hand capable of extracting value from Villain's calling range vs. a bet and other times when Hero flops something weaker than this. In [Chapter 5](#) on value betting we'll be covering the former, but for now our focus is whether

or not to make a light c-bet which is a far more common option in NLHE due to one simple truth: **most hands miss most flops**.

This means that Hero will very often find himself on the flop as the pre-flop raiser without a strong pair or better that he can start betting for value. In these cases he'll need to dig into his c-bet understanding and decide whether it's going to be best to fire out a bet to try to win the pot, or if he's better off checking. The primary factor is how much fold equity Hero is likely to have, but this is complicated and should be broken down into a series of sub-factors. There are also a few considerations other than pure fold equity to think about.

4.1 Light C-Bet Factors

The following table illustrates what Hero should consider when deciding whether or not to make a light c-bet.

Good Factors	Bad Factors
Texture Dry	Texture Wet
Good Equity (if called)	Poor Equity (if called)
Villain Folds	Villain Doesn't Fold
Vulnerable/No SDV	Invulnerable SDV
Heads-Up Pot	Multi-way Pot
Turn/River Prospects	No Turn/River Prospects
In Position	Out of Position

Figure 19 - Light C-Bet Factors

1. Board Texture

Board Texture refers to the nature of the flop in terms of how it connects with potential hole cards. **Dry** flops offer fewer ways to connect, **Wet** flops more.

In general, the more ways the flop can connect with an opponent's range, the less likely he is to fold and the less +EV a light c-bet is going to be. Let's assess a few textures just to be clear on this.

Type 1 - Bone Dry



These flops are extremely dry indeed as it is very hard to connect with them. With the first flop, the disconnected shape and lack of draws make it difficult to frequently flop anything better than one pair. Two pair combinations are unlikely due to the average player not wanting to see flops with hands like **K7**, **K2** and **72**.

The second flop offers the possibility of trips, but hands containing a **7** are not normally the first choice type of hand for calling call raises pre-flop. These are the kind of flops players will simply have air on very often. This ramps up fold equity rendering these flops very good to c-bet light.

Type 2 - Dry



These flops are slightly wetter than the last ones as they offer some extra two pair and straight possibilities. They are, however, still dry enough to miss the majority of hands our opponents are likely to play and so will make good c-bets particularly where the other factors are reasonable.

Type 3 - Semi-Wet



The first of these flops offers more straight draws as well as the addition of flush possibilities to many pre-flop ranges. The second flop offers more ways to make strong pairs as well as some broadway gutshots and a possible flush draw.

These flops will require more of the other factors to be favourable than the dry boards did.

Type 4 - Wet



It's very easy to connect in some way with these flops and very possible to connect in a big way. The pattern should be clear by now: we need a lot more favourability in the other factors in order to c-bet light on these textures.

Type 5 - Soaking



These are dangerous flops on which our opponents probably won't get too out of line when they miss. The trouble is that they actually miss them quite rarely. These flops connect in a big way with a lot of hands players like to see flops with and grant reasonable equity to even more. Hero is going to need to be very selective about c-betting lightly on flops this wet. In fact, where he flops little to no equity on these textures, passing on the light c-bet starts to becomes mandatory even where other factors are reasonable.

Overall, board texture is a very influential factor, which often makes a large difference to the EV of a light c-bet. While the Type 1 textures can usually be c-bet profitably with even the worst equity, even against players who don't like folding any piece of the flop, the Type 5 flops should almost never be c-bet without some good equity to compensate for the expected lack of fold equity. Board texture isn't the be all and end all, but it has a huge role to play in the expected EV of a light c-bet and is the first thing we should consider.

We'll have more practice at assessing board texture when we look at some example hands in the final part of this chapter.

2. Equity

The second thing we should consider is equity.

Equity, sometimes called 'pot equity' is Hero's share of the pot based on how often his hand will be best by the river.

When the cards are face up, Hero can calculate his exact equity against his opponent's hand. Since this is never the case in c-bet situations, Hero must estimate how good his equity is likely to be against his opponent's calling range to the c-bet.

Equity can at times be an even more crucial factor than board texture. Just as some boards can render a light c bet +EV without any equity at all; having sufficient equity can make a c-bet good on any texture at all. In fact, equity can be an absolute factor in that if Hero has enough of it, then betting can

automatically become correct under almost any circumstances. Having equity in the form of a straight or flush draw, or sometimes even just two overcards to the flop or a gutshot can help immensely in the following two ways:

- As Hero's equity increases, his required fold equity to make a light c-bet decreases. This is because even when Villain continues to the c-bet, Hero will win some percentage of the time by improving his hand.
- Hero has at least some implied odds where he has equity in the hand. It is not just the current pot he stands to win after improving, but also future bets. This added incentive makes required fold equity even lower in c-bet situations.

Important: Equity in c-bet spots should always be assessed against Villain's calling range, not the full range that Villain sees the flop with. Hero's equity in the hand only matters if Villain continues to the c-bet. Hero has no need to hit any of his outs if he's already won the pot!

Outs are the cards left in the deck that Hero can hit on future streets when currently behind to make a hand better than his opponent's likely holdings.

Humans, unlike computers, aren't suited to calculating their exact equity in every hand. In-game then, we should assess equity by familiarising ourselves with how many outs our hand has vs the bulk of Villain's calling range to the c-bet and then the rough percentage of equity those outs translate to.

First thing first though, what is the normally the bulk of Villain's calling range when he calls the flop? What are we assessing our outs against? Let's look at the following example for clarification:

Hand 19

UTG – Reg (18/16/**5**/60)
HJ – Reg (25/19/**5**/54)
CO – Nit (16/10/**3**/44)
BU – Hero
SB – Passive Fish (29/11/**1**/40)
BB – Reg (19/15/**3**/55)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero bets 4BB**, BB calls 4BB.

What should we assume we're up against when we count our outs here? Well instead of trying to work out the exact range that BB calls the flop bet with, Hero should find some way of simplifying the problem so that he can act in the limited amount of time available in-game. Against top pair, Hero will usually have at least eight outs, (four 9s and four As for the straight) but can also have three Ks when Villain does not have KQ or KT.

Hero can simplify and say that he has eleven outs on average vs. Villain's likely calling range. Things can be worse than this where Villain calls the flop bet with a set or QT and can be better where he's calling with just a gutshot or second pair, but this is a reasonable in-game estimate for representing the situation on average.

The best way to translate outs into equity in-game is not to perform a calculation, as this is a waste of valuable thinking time, but to memorise [Figure 20](#) which we'll get to shortly. That said, I'll take this opportunity to demonstrate how this calculation is performed as it illustrates a technique that will come in very handy as we get more involved with poker mathematics. While I do recommend that Hero reads and masters the technique in the box overleaf at some stage, he should feel free to skip it for now if he prefers to jump straight to the equity table and what this means for c-betting in the hand above.

Combined Negative Probability

Technique: In order to calculate the probability of **(X or Y)**, we calculate the probability of **(Not X)** multiplied by that of **(Not Y)** and subtract from **1**.

The probability of at least one of two possible events *occurring* is the same as that of both of their negatives *not occurring*.

Recall from Chapter 2 that to calculate the probability of both of two events occurring we multiply their individual probabilities together.

In our example in Hand 18, we are trying to find the probability (P) of Hero hitting one of his outs on either the turn ($P: X$) or the river ($P: Y$)

Our equation then becomes:

$$P: (X \text{ or } Y) = 1 - (P: \text{not } X) \times (P: \text{not } Y)$$

Let's find our variables:

(P: not X) is the chance that Hero misses all of his outs on the turn. This number is the amount of unknown cards that do not complete his hand divided by the number of total unknown cards. 11 cards make his hand out of $(52 - 5) = 47$ cards. So $36/47$ cards do not complete his hand. $(P: \text{not } X) = 36/47 = 0.766$

(P: not Y) is the chance that Hero then misses his hand on the river having missed it on the turn. As the turn card is now known to be a non-out, there are only 46 cards left and 11 of them still make Hero's hand. $(P: \text{not } Y) = 35/46 = 0.760$

Let's solve the equation:

$$\begin{aligned} P: (X \text{ or } Y) &= 1 - (P: \text{not } X) \times (P: \text{not } Y) \\ P: (X \text{ or } Y) &= 1 - (0.766 \times 0.760) \\ P: (X \text{ or } Y) &= 1 - 0.582 \\ P: (X \text{ or } Y) &= 0.418 \\ P: (X \text{ or } Y) &= 41.8\% \end{aligned}$$

So Hero will make his hand 41.8% of the time on either the turn or the river. This technique can be applied in many poker situations to find out how often at least one of a set of possible outcomes occurs.

Now for a clear-cut guide that we can memorise to instantly have a feel for our equity and how good that makes our light c-bets.

Outs	Equity
1	4%
2	8%
3	12%
4	16%
5	20%
6	24%
7	28%
8	31%
9	35%
10	38%
11	42%
12	45%
13	48%
14	51%
15	54%
16	57%
17	60%

Figure 20 - Outs to Equity

I've rounded the percentages in the equity column above to the nearest percentile for ease of memorisation. A handy shortcut here is that Hero's equity is normally four times his outs, although this trick becomes slightly less accurate as outs increase.

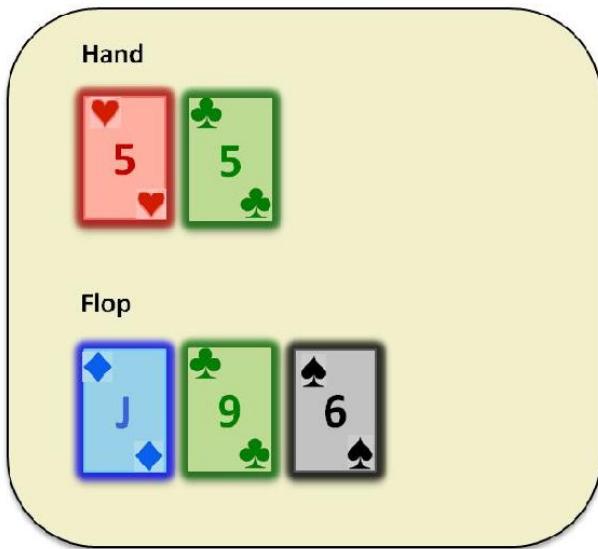
The next and final step in understanding equity is to get a feel for what these quantities of equity really mean.

Let's start at the eleven outs and 42% equity that we have in [Hand 19](#) with our **KJ**. This is an absolutely enormous chunk of equity for a non-value hand and it will certainly render our c-bet +EV. Moreover, given the implied odds and fold equity we'll have when we bet here, c-betting will certainly be the most +EV line to take. Remember our goal is always to do what's most +EV not just to do something that is +EV per se.

When we hit one of our straight outs, we stand a good chance of winning a very sizeable pot indeed. Betting with this much equity does not just assist our fold equity a little, it allows us to build the pot and win more money when we make our hand, which we will quite often.

Let's take a look at some more examples of hands on different flops and assess our equity. I'll start with two spots, one of which is enormously better to c-bet light in than the other.

Spot 1 - The Dreaded Underpair

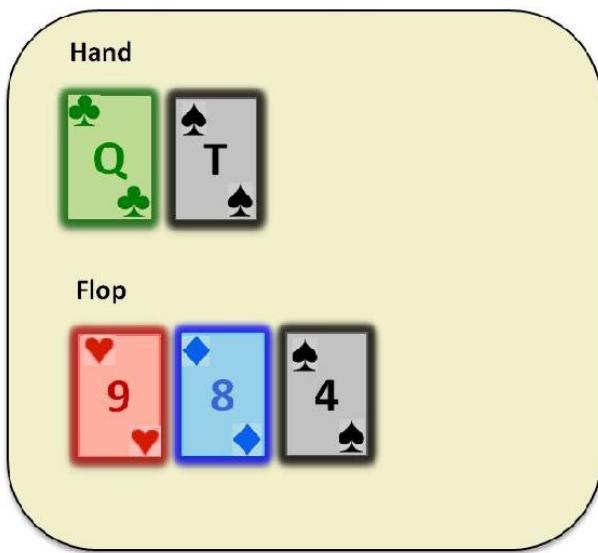


Remember, what we're looking at here when deciding whether or not to c-bet is our equity when called. Since the majority of Villain's calling range will contain some pair, we will frequently have just two outs to improve against

it. Moreover, hitting those two outs occasionally makes us the worst hand when Villain has flopped a set or called our open pre-flop with **87s**. Two slightly tainted outs give us an equity estimation of less than 8% on the table above.

We will need a lot of fold equity to c-bet this flop with this hand.

Spot 2 - Two Overs with a Gutshot



This spot is much more favourable than the previous example. In fact, this is a great example of when 'c-bet!' should be Hero's first thought provided he isn't in a mass-multiway pot. The equity-based reasons for this are twofold:

- First, Hero has ten outs vs a hand like top pair.
- Secondly, he has four outs to the nuts. His equity is now somewhere around 38% when called.

These two spots illustrate how absolute hand rankings can differ massively from equity when called. An underpair like in the first spot is actually a favourite against a hand that is Q-high but has ten outs to improve. However, the Q-high hand is far more alive when called and is therefore a much better c-bet candidate.

Simply having two overcards for six outs is also enormously better than holding an underpair or even worse, two under cards without any flush or straight draws. Never underestimate how great a difference having five or six extra outs can have on your RFE on the flop, and therefore, the profitability of your light c-bet.

3. Player Type

We already covered how the various types of Fish affect the expected fold equity of c-bets back in [Section 3.3](#). General Fish type and fold to c-bet stat are two very useful guidelines. Another factor that will help Hero assess his fold equity is how the player's pre-flop range is likely to interact with the flop and this too depends on the type of opponent in question.

We know that most flops miss most hands, but where someone's pre-flop range was very wide to begin with, most flops miss even more of the hands in that range. Thus, a weaker player who plays too many hands will actually have air or some very bad pair or draw more frequently than someone who plays a stronger range pre-flop. The stronger range will tend to hit more top pair and better due to having a higher concentration of bigger cards as well as pocket pairs.

Weak ranges have to fold more post-flop than strong ones do. It is therefore, all else being equal, better to c-bet against a wide range than a tight one.

Look at [Hand 20](#) below and pay attention to the board texture. How would you expect this kind of Villain to connect with it?

Hand 20

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Passive Fish (60/11/1/59)

BB – Reg (19/15/3/55)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB calls 2.5BB, BB folds.

Flop (7BB, 2 players)



SB checks, **Hero?**

Let's bust one of the most prevalent fallacies I see in new students. I call it the '**fish flop fallacy**'.

The **Fish Flop Fallacy** is the belief that an opponent who plays a very wide range of hands pre-flop frequently connects well with low flops because their pre-flop range contains a lot of low cards that other players would never play.

On closer inspection we can see this belief to be false. If the Fish in the hand above has lots of low holdings within the 60% of hands that he likes to play (possibly more when he's in one of the blinds), then we can conclude with certainty that he also has even more cards higher than these. This player is not playing 100% of hands so if there are hands he folds to our open, they are

going to be the very lowest cards weighting his range towards missing this flop a lot.

Just because this Villain can have hands like **64s 54s 63s** etc. where other players usually do not, does not mean that he hits this flop often; all it means is that there are rare occasions where he flops a straight in a situation where a tighter player would not. Relative to Villain's overall range, however, these hands are a tiny part. They're diluted by all of the higher cards he prefers to play.

When assessing this spot we must therefore bear the following in mind:

- It's harder to flop something than nothing, especially with a wide range. Put another way, there are far more ways that a player can make Q-high on the flop than make two pair or a straight.
- Even Fishy ranges are normally going to connect poorly on the lowest boards.
- Fish have a lesser concentration of pocket pairs in their pre-flop calling ranges due to all the unpaired junk that dilutes their range massively.
- Hero has two overcards, giving him six outs against a pair and a healthy 24% average equity when called.
- Villain folds to the majority of the c-bets he faces. On this flop he should fold even more due to reasons 1-3 above.

So in conclusion, this hand is a clear c-bet for Hero. Player type is a large factor in how ranges connect with flops, but in this case it's actually a positive one for Hero.

Hero bets 3.5BB.

Aggro Fish and the Perils of Impatience

There can be nothing more frustrating than being card dead vs an Aggro Fish.

Card Dead refers to a finite period of time where Hero is not dealt many good hands and doesn't flop well.

Such a period can be frustrating, but as we'll see in the next chapter, playing against players who mindlessly refuse to fold is all about winning big pots with value hands, not picking up small ones with bad equity.

Hero will have to accept that many situations that would be profitable light c-bets against more straightforward players are going to be -EV against the Aggro Fish who is likely to call and raise recklessly. This is great for us when we have a hand, but fighting fire with fire where we do not is typically not the best approach. It's not uncommon for my students to send me a hand where they bluff re-raised a flop raise from such an Aggro Fish only to find that he called them down with bottom pair.

The motto here is: don't fight insane aggression with terrible equity! Instead, wait for the inevitable spots when you flop a reasonable hand to take this guy's stack. Would you rather enter a fight to the death with a pencil or get punched a few times and then be given a shotgun? These fights are often to the death. Aggro Fish very rarely back down and this is why they lose more money than almost every other player type.

Let's look at an example. We now meet an important stat that I advise all of my students to have on their HUD. In the next hand example, the fifth (pink) number represents the stat: **Raise F Cbet**.

Raise F CBet

Raise F CBet shows the % of the time a player raises a c-bet where he had the opportunity to do so.

Reliability (No. of Hands)

100 = Poor: But enough to tell if Villain is crazily aggressive or not.

500 = Decent

1000 = Good

5000 = Excellent

Interpretation

1-10 = Low: This player probably raises flops mainly for value.

10-15 = Average: This player raises lightly sometimes but is not super aggressive.

15-20 = High: This player is apt to often raise flops lightly.

20+ = Very High: This player is severely unbalanced to raising very lightly.

Hand 21

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Aggro Fish (57/32/12/35/26)

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB calls 2.5BB, BB folds.

Flop (7BB, 2 players)



SB checks, **Hero?**

This is a spot where we simply cannot expect a c-bet to be +EV. What Hero needs against this player is a hand that can win frequently at showdown such as a decent pair or a better draws than this bad gutshot.

SB's **Raise F CBet** stat is through the roof. Not only will SB be refusing to fold any piece of this flop and be raising his one pair hands a lot, he may well also be raising bluffs, and so even when Villain misses the flop, Hero is not guaranteed much fold equity. If Hero's equity was better, it would be worth c-betting and building a pot here. As it is though, this is a spot where Hero must be patient, check back this flop to see a free turn card, and hopefully turn a **J**. Hero must not justify the Aggro Fish's strategy by spewing money at him with bad equity and then being forced to fold when Villain refuses to.

Hero checks.

Where Ranges Are Strong

Wide ranges are weak on more flops than standard ranges are. Tight ranges flop something strong more frequently due to containing a higher concentration of pocket pairs for low boards and better broadway hands to sometimes connect strongly with higher boards.

Look at the following example:

Hand 22

UTG – Unknown
HJ – Hero
CO – Unknown
BU – Nit (11/7/2/38/7)
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU calls 3BB, SB folds, BB folds

Flop (7.5BB, 2 players)



Hero?

This is a situation where Villain's range will frequently be strong. What kind of hands does an 11/7 Nit call with here on the BU? We can estimate that his range is full of medium pocket pairs, maybe something like [77-QQ] then the

best off-suit broadway hands like **AKo** and **AQo** and some good suited broadway hands like [**AQs AJs KQs QJs**].

This range interacts very well with this board. The bottom of it is **AK** and then there are a lot of combinations of good pair + gut shot, top pair, and sets.

If Hero c-bets here he should expect fold equity to be pretty poor. Needless to say, Hero's pot equity is also pretty bad. The six outs he appears to have when called are likely to complete some two pair combinations for Villain and kill Hero's action if they do make him the best hand, cutting the implied odds of improving this hand.

Hero check/folds.

To **Check/Fold** is to check with the intention of folding to a bet.

Not all flops are no-go c-bets against Nits. On dry **Axx** and **Kxx** boards, Hero should still expect a good amount of fold equity from that high concentration of pocket pairs in Villain's range. The real skill is combining the various c-bet factors together to assess the entire situation. Let's move on and learn how to assess the next one in our table.

4. Showdown Value (SDV)

When we use this term, we're not usually talking about the nuts. We're talking about a hand that is ahead of a good part of Villain's range but probably can't extract too much value by betting or raising.

The figure below explains the spectrum of made-hand strength ranging from air to the nuts. Note that the draws we looked at earlier have a different type of merit: they have equity, but not showdown value. Their equity is called '**non-made-hand**' equity and although this equity is often very useful, the hands aren't winning at showdown as things currently stand and so they fall into the left hand side of the model below.

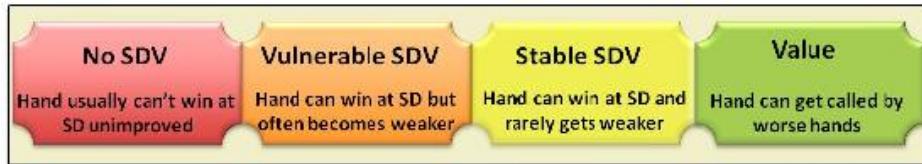
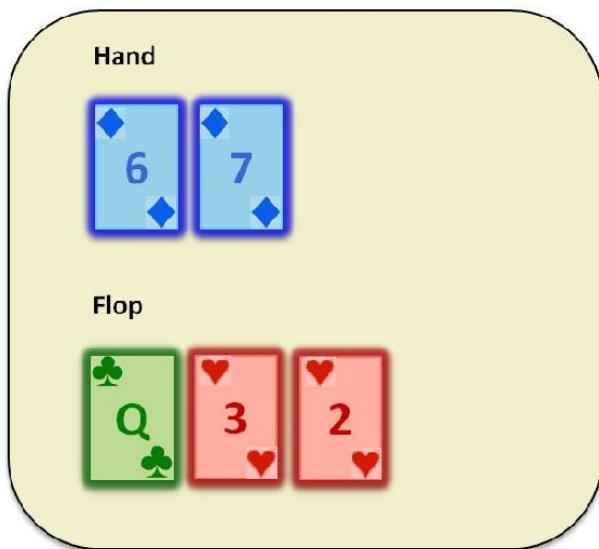


Figure 21 - The SDV Spectrum

The factors up until this point have all been positive factors in that the more we have of the thing in question, the better for c-betting. With SDV, it's actually the opposite, at least until we get into the green value zone and our c-bet ceases to be a light one.

So let's start at the top: why is it less good to bet with SDV? Well, what SDV does is grant us opportunities to win the pot at showdown i.e without making our opponent fold. The thought is that if we're only making villain fold hands worse than ours, then what's the point of betting and losing extra money to the better ones? As we'll see, this is a great line of reasoning where we have stable SDV value, but where SDV is vulnerable there are arguments for c-betting anyway. Let's take a look at some examples of each part of this spectrum.

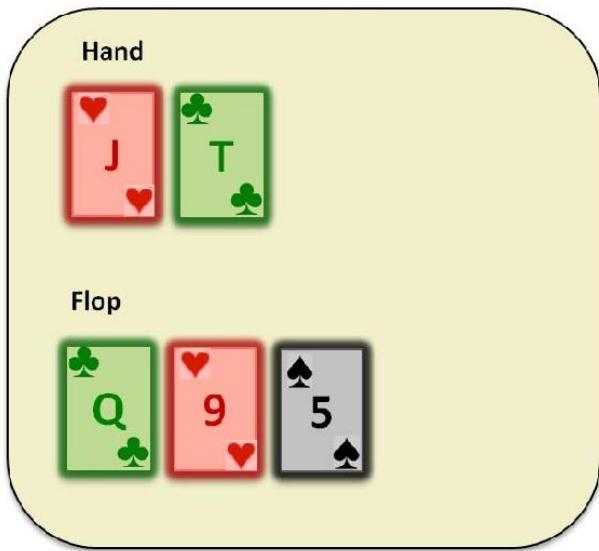
No SDV 1



This hand has absolutely no SDV at all. Its chances to win at showdown unimproved are pretty much zero. It also has nothing in the way of equity, but

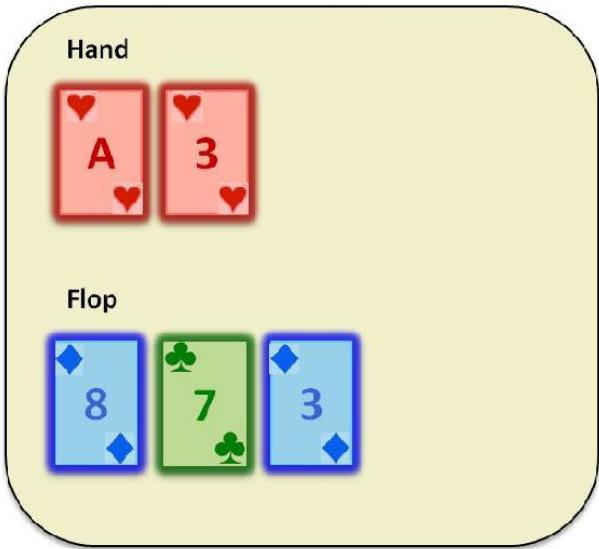
with sufficient fold equity, Hero should strongly consider a c-bet.

No SDV 2



This spot is exactly the same case when it comes to SDV: there is none. The difference is that this hand has good equity against the average calling range should Hero c-bet this flop. Unimproved however, he will struggle to win the pot. SDV is purely a measure of how often the hand wins assuming it does not improve on a later street. Again, Hero should usually c-bet here.

Vulnerable SDV



Notice that while Hero's hand is hardly monstrous, he does have a pair. As we know in NLHE, most hands miss most flops and this semi-wet one is no great exception. This means that Hero will have the best hand a good amount at showdown even if the turn and river bring no more help. So Hero has SDV, but there's a problem: almost any turn card is going to make Hero's hand weaker. Third pair will become fourth pair; another diamond can improve our opponent's equity by giving him a flush draw if not a flush. This hand has vulnerable showdown value.

A hand has **Vulnerable SDV** if and only if:

1. It can often win at showdown unimproved.
2. Turn and river cards can make it even weaker and harder to call bets with.
3. Villain can have a significant amount of hands that can easily outdraw it.

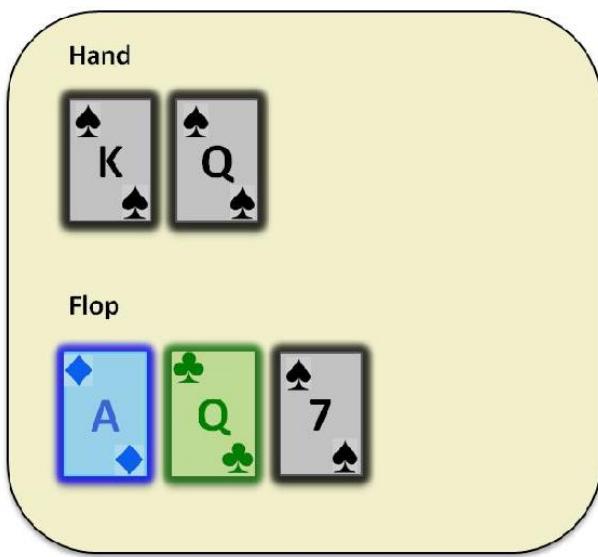
C-betting this board with sufficient fold equity is usually a good idea, provided Hero has reason to believe his hand is often best. There are two advantages to such a bet:

- Hero protects his hand from being outdrawn by hands that are folding.
- If called and behind Hero usually has five outs to improve to two pair or Trips.

It is worth stressing that betting *for protection* is only desirable where there is a significant quantity of hands in Villain's range that have reasonable equity against Hero's hand. Moreover, the bet is only for protection where these hands are actually folding. If Villain wants to call us with low equity hands like two overcards and then just go to showdown, then Hero's bet is more of a value bet. In our flop example above, there are usually going to be an array of hands that are just two overcards to this flop and folding.

So the more vulnerable the SDV, the more inclined we should be to bet it for protection. The less vulnerable the SDV, the more inclined we should be to check/call or check behind depending on whether we are out of position or in position.

Stable SDV



This is pretty much the epitome of stable SDV. Hero is firmly in the yellow band of [Figure 21](#) as he can frequently win unimproved, but can't exactly go building a huge pot for value. Most importantly, this SDV is stable because the opposite of the two criteria from the previous hand are now fulfilled:

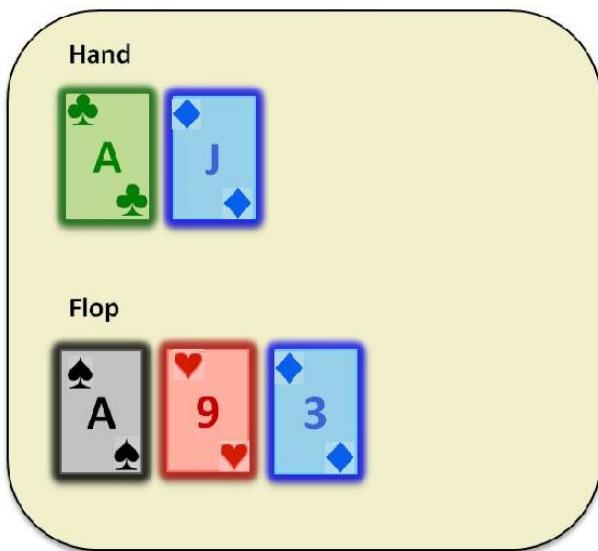
- Hero doesn't mind any turn cards. His hand is not getting any weaker any time soon.
- Villain isn't folding any hands with much equity against Hero's hand. If Villain holds two undercards or an under-pair he has at most two outs

and so protection is not much of an issue.

Hero should be inclined to frequently check this flop instead of c-betting. This grants a few advantages:

- Hero can still look to value bet later streets if need be, but has the luxury of controlling the size of the pot to something more fitting to his hand strength without worrying about being outdrawn by any hand that's folding to a c-bet.
- Villain could decide to bluff some very low equity hands on the turn or river and so Hero can often gladly call these bets depending on who his opponent is.

Value



This hand, like the last is very stable. There are no turn cards that Hero has to worry about and Villain won't be folding any reasonable equity. There is, however, a very good reason to bet this spot in many situations: value!

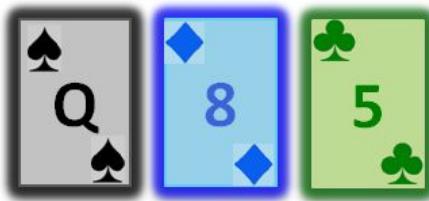
It's essential to start building the pot here, especially against a fishier player or someone who might look to fight back lighter against c-bets. Checking here is not an option as long there is a good chance of getting three streets of value from worse hands. Alternatively, a bet is also mandatory where Hero is against an aware aggressive player and wants to bet enough good hands to

compensate for all the air he'll be c-betting on this lovely dry board. We are no longer in the realms of SDV, but have drifted into the green value zone.

Multiwayness

My computer puts a big red line under that word, but it's one of my favourite poker terms so it'll just have to deal with it. Multiwayness is by far the simplest and easiest factor to assess. The more opponents that are in the hand, the more likely one of them has flopped something they don't want to part with, and the less fold equity we have.

Let's use some more combined probability math to demonstrate. Imagine that we raise pre-flop, get called by one straightforward opponent and see a flop of:



Without going into the specifics of any exact situation, let's assume that, on average, on this dry flop our c-bet yields a fold 60% of the time vs. this player. In this case, we'd be very happy c-betting even with minimal equity hands as we'll win the pot often enough and it's doubtful that this opponent is going to punish us for c-betting a wide range (he's straightforward remember.)

Now let's add two more equally straightforward players to the mix and see what this does to our fold equity. Let's assume that because we're now four-handed the other players recognise that they need to be even tighter with their continuing ranges to a c-bet. Let's say now that each folds 70% of the time. Recall that to find the probability of X, Y and Z all occurring we multiply the three individual probabilities together.

$$0.7 \times 0.7 \times 0.7 = 34.3\%$$

Our fold equity has been almost halved. Adverse multiwayness is a serious problem for c-betting and it raises the bar for how much equity we need even on the driest of textures.

If this spot was three handed instead of four and we assume that three-handed each Villain folds 65% of the time, we still only get two folds:

$$0.65 \times 0.65 = 42.5\% \text{ of the time.}$$

Four way is worse than three way, but three way is still not great especially on wetter boards where villains' fold percentages will drop further as they connect more often. This illustrates the importance of isolating pre-flop and open-raising rather than open-limping. You win more pots by thinning the field. It's all coming together!

5. Turn and River Prospects

Poker is played over four streets of action, but the decisions we make on each are partially dependent on our assessment of the streets to come. As we've already seen, the more equity and fold equity we expect to have on the flop, the wider we want to open or ISO pre-flop. It should come as no surprise then that the more we can improve these two things on the turn and river, the more we want to c-bet the flop.

When thinking about improving our equity here, we'll be talking about turning draws, not turning made-hands that we can value bet. We've already covered that kind of direct improvement to the best hand in the [equity section](#).

We can gain non-made-hand equity on the turn when we have ways of turning flush and straight draws. That is to say we have a **backdoor draw** on the flop.

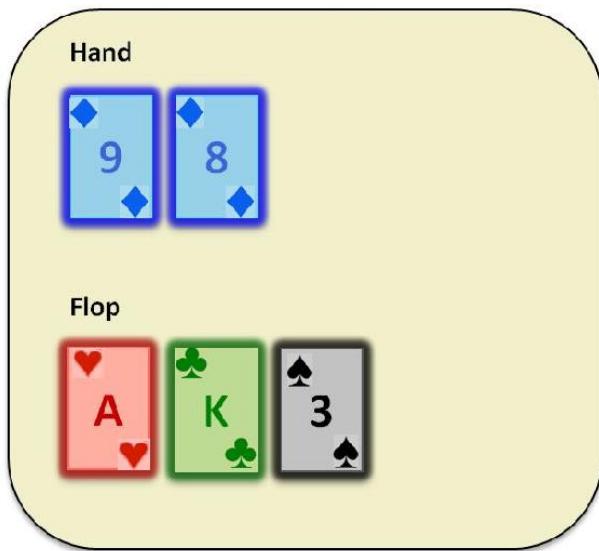
A **Backdoor Draw** is one that will need both of the next two cards to complete.
EG. three cards to a flush or straight.

We can gain fold equity on the turn or the river where the board texture is likely to worsen for our opponent's calling range. That is to say where **scare cards** are likely to come down.

A **Scare Card** is one that is perceived to improve a player's range making his opponent more inclined to fold.

As if you didn't have enough already, these are two more things to think about when deciding whether or not to make a light c-bet. As this factor is less important than the others that we've covered so far, I'd recommend reserving its use for spots that seem relatively close, especially when you're just getting used to applying the thought processes in the manual. Let's look at a couple of examples.

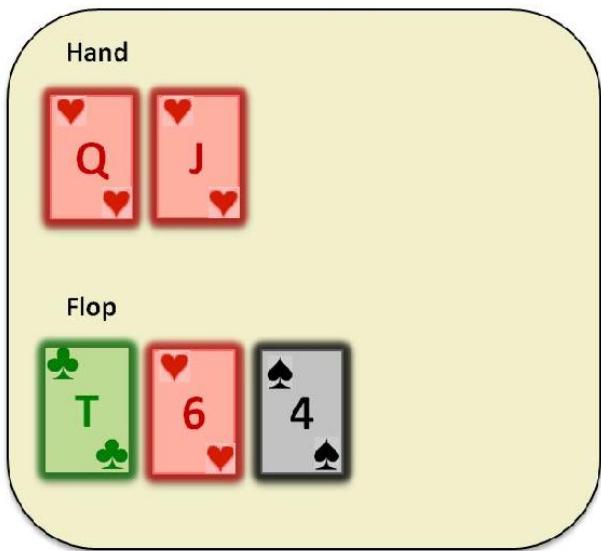
Poor Future Street Prospects



This spot might be a fine c-bet in some situations, but it's certainly not due to future street prospects being half decent. This hand fails on both accounts to give hope for later streets. First, it never turns any more equity to aid the firing of future bluffs and secondly, when Villain calls this flop, he likely holds an A or a K quite frequently. Villain's SDV would therefore be stable. There just aren't many turns that are perceived to improve our range. That's not to say that no one will ever fold on the turn here, just that it's less likely

especially when we're up against Fish. We shouldn't be bluffing Fish on multiple streets anyway unless we know something specific about their game that leads us to believe that it's a good idea.

Good Future Street Prospects



This spot, on the other hand, is an example of excellent future street prospects. First, Hero turns equity on any heart, 9, K or A as well a Q or J just making him a strong made-hand. That's nearly half of all possible turn cards that improve his hand in some way. Moreover, anything over a T should also add fold equity by weakening the medium pairs in Villain's calling range and strengthening much of the air that Hero c-bets with on the flop. Fold equity would need to be very low indeed for Hero to skip a c-bet here.

Position

Being in position when c-betting is a very positive factor. There are two main reasons for this.

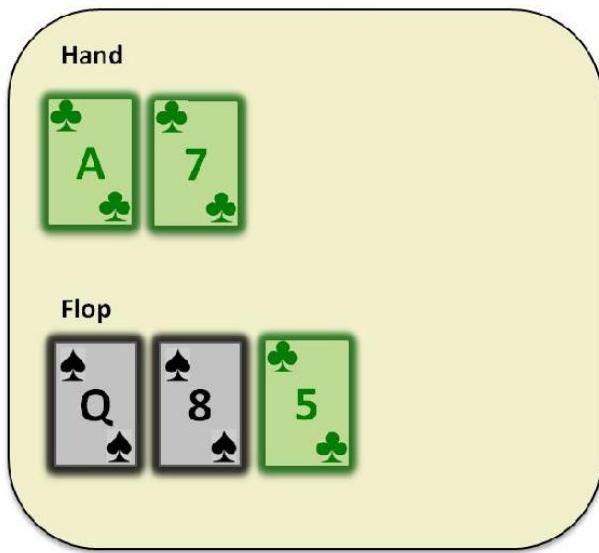
- When Hero's c-bet gets called, he usually has the option of seeing a free river card instead of having to check/fold the turn in spots where

continuing to bluff is undesirable. He will also gain information from Villain's river line and will be better placed to decide whether or not to bluff unimproved.

- Flop fold equity increases as it will be less profitable for Villain to call lightly out of position.

Position is a meaningful factor and it can make all the difference where the decision is not obvious. I can think of a lot of situations where we might have an easy c-bet in position but a check/fold out of position. Here's one such example:

Imagine that we've raised pre-flop in two different situations against a Reg who is quite combative and only folding to only 40% of c-bets on average. Here is our hand and the flop:



Situation 1 - As BU vs BB: We're in position and our backdoor flush draw, backdoor gutshot and overcard should make a c-bet just about okay.

Situation 2 - As SB vs BB: We're going to get called a good deal lighter due to being out of position having to check/fold turn cards that we elect not to bluff. This spot is probably not +EV to c-bet against this particular Villain.

4.2 C-Bet Sizing

Sizing c-bets incorrectly can be a serious leak. The difference in size between a good c-bet and a bad one can often be as little as two or three BBs. It's not the magnitude of one such mistake in isolation that renders these errors severe, but the frequency with which the situation occurs. New and improving players will commonly ask for help with enormous pots where their opponent took a very unusual line, which confused them. This is fine to look at out of interest, but if in the process the common situations are being neglected, then it's not a good way to spend review time.

C-bet sizing is one such common situation that should never be neglected. Mistakes will rack up and ruin Hero's win-rate before he's had a chance to play another huge pot facing that same unusual line.

Balanced Sizing Vs Regs

To have **Balanced Sizing** in a situation is to pick a bet-size to use with your whole range in that situation so that you do not give away information as to the strength of your hand. It is a fairly mandatory strategy in most situations vs aware players, including c-betting.

One of the main differences between Regs and Fish is that the former are usually more apt to notice what's going on around them and then make the correct adjustments to take advantage of it. When we c-bet the flop against a Reg, we'll want to be balanced with respect to our sizing. This is a good first step, but what size should we employ? The answer, which you should already be anticipating by now, is of course: it depends on a whole lot of factors!

It's very often good to c-bet on the smaller side in NLHE. The explanation as to why hinges on our old friend RFE. Like pre-flop RFE, post-flop RFE is

also calculated by risk/(risk + potential gain). The smaller Hero sizes his c-bet, the less he risks and the less often that c-bet needs to succeed in winning the pot. Let's look at a standard example where it makes sense to size on the smaller side.

Hand 23

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Unknown

BB – Reg (21/17/7/52/9)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB calls 1BB**

Flop (4.5BB, 2 players)



BB checks, **Hero?**

Pre-flop: Let's recap some of the things we've learned so far. Hero opens 2BB as his standard BU sizing when there are no known Fish in the blinds. This hand is clearly strong enough for a steal using a size that doesn't need to be successful very often at all, especially given the reasonable post-flop playability of this hand. BB calls.

Flop: Hero flops bottom pair with a backdoor flush draw. Time to assess our c-bet factors:

- This board is very dry.
- Hero has some decent equity to improve when called.
- Villain folds relatively often to c-bets (probably even more so on this dry flop).
- SDV is of the vulnerable sort and so should be protected.
- Future street prospects are okay since Hero can turn some flush and straight draws.
- Hero is in position.

Phew...that's how we put everything we've just learnt into practice! Overall, c-betting is by far the best play.

So what size should Hero choose? There are two things to evaluate here:

1. For Large Sizing: Wetter is Better

The reason for using larger c-bet sizing on wetter boards is threefold:

- As we'll see in the next chapter, Hero desires to get value sooner rather than later when he actually has a value hand on a wet board. As scary turn and river cards can roll off killing his action or else giving Villain more equity than we'd like, it's good for Hero to get more money in the pot while his equity when called is still very good.
- Hero is more likely to check on wetter flops especially with poor equity hands and air. On these textures he generally has less air, more value hands, and higher equity hands when he c-bets. Building a bigger pot is therefore in the interests of his range.
- On wet boards, there are more draws that Villain can be calling with and so Hero can extract more value from these hands by betting bigger and making Villain's calls with these hands less profitable.

2. C-Bet Range Width: Wide Ranges Demand Lower RFE

On drier flops, Hero will normally be c-betting a lot of air and so will want to bet that air for a price that keeps his RFE low. Since most hands miss most flops, there will frequently be times when both players have poor equity. In these spots, risking the minimum to win the pot is preferable.

When using balanced sizing, it's always sensible to think about what size best suits the majority of your c-bet range.

Back to [Hand 23](#). Hero is opening a very wide range indeed and the flop is very dry. His c-bet then should definitely be on the small side, but how small is small?

Look at [Figure 22](#) below for a rough guide:

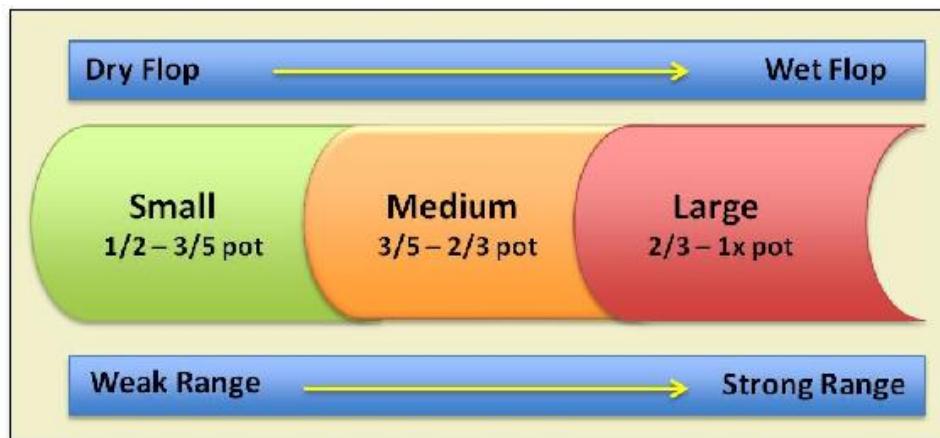


Figure 22 - C-Bet Sizing Guide

As the flop in [Hand 23](#) is about as dry as flops can be and Hero's range very weak since he's opened from the BU, and given Hero is c-betting pretty much everything in his range here, he should opt for a size comfortably within the small zone. Half pot will do nicely.

Hero bets 2.25BBs.

Important: Remember that as Villain is an aware player in this hand, Hero will want to use balanced sizing. This means that he will also use this bet-size with top pair, a set and with total air.

Let's have a look at an example that's not so clear:

Hand 24

UTG – Hero

HJ – Unknown

CO – Unknown

BU – Reg (21/17/7/52/9)

SB – Unknown

BB – Unknown

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO folds, BU calls 3BB, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero?

Pre-flop: Our 3BB open is very standard from UTG with a hand that's always going to be in our opening range. We get a call from the same Reg on the BU as in the previous hand.

Flop: This flop is semi-wet, but Hero has decent equity with an overcard and gutshot. Moreover, Villain should be calling pre-flop with a decent number of pocket pairs, which have flopped poorly here. Hero is out of position, but his potential to fire multiple streets and get Villain to fold by the river is very good and the ability to turn a flush draw helps further with this. Being the UTG opener gives Hero a higher concentration of strong hands on this flop, which allows him to bluff a bit more liberally on the turn and river. Future street prospects are fine here if we do get called. This spot is definitely a c-bet.

Look again at our sizing guide ([Figure 22](#)). This flop is wetter than the one in [Hand 23](#), but far from soaking. Hero's range is strong here given the position he opened from and how well he connects with the K and J on this flop. Hands such as [AA KK JJ 66 AK KQ KJs KTs] are a strong and sizeable part. As a result, Hero can c-bet larger here. Somewhere between the medium and large zones looks good to me.

Hero bets 5BB.

Unbalanced Sizing Vs Fish

As we said, a Reg is typically an aware player. If we c-bet small with all of our air and large with our good hands, he's soon going to see a pattern and start playing very effectively against us. Weaker players notice these patterns far less easily and may often give absolutely no thought to Hero's sizing patterns at all. As a result, where Hero has identified a player as a fit-or-fold Fish, he should feel at full liberty to build a bigger pot with his stronger hands while still sizing small with bluffs giving his light c-bets a lower RFE.

This is an extreme move away from a balanced strategy. Knowing when to make such a move is a topic we'll be coming back to time and time again throughout the manual. When devising our strategy, we'll often be considering whether it's more important to remain balanced ourselves or to go on the offensive to exploit weaknesses in our opponent's game. In this case, against the non-thinking Fish, we should favour the latter path and unbalance our approach in order to increase our EV.

Here are two examples of where Hero should consider using different sizing on the same texture due to his holding against a weaker player. As always, try to pick a size yourself before reading my analysis:

Hand 25

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Unknown

SB – Unknown

BB – Passive Fish (48/6/2/65/0)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero?**

For the first time in the chapter we have a genuine value hand capable of extracting a lot of money from worse hands. The importance of playing this spot correctly will be covered at great length in the next chapter, but for now you should have the instinct that against this passive opponent, Hero needs to start betting to build the pot as quickly as possible. Since this player is fit-or-fold we should expect him to call most sizes of bet when he's connected and fold to most sizes when he hasn't. Therefore, bigger is better for value and Hero chooses a large c-bet size here with his value hand.

Hero bets 6.5BB.

Hand 26

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Unknown

SB – Unknown

BB – Passive Fish (48/6/2/65/0)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero?**

The only difference between this hand and the last are Hero's hole cards. Now that he holds a light c-betting hand, his priorities have changed. Rather than building a big pot for value, Hero now wants to improve his RFE and lose the minimum those rare times that Villain has connected.

Hero bets 3BB.

4.3 More C-Bet Spots

When studying poker, you can never have enough examples so here are a few more to cement what we've just learned. It will also be really beneficial to review as many c-bet spots as possible from your own database. Again, frequency of occurrence makes c-betting one of the most important things to devote study time to, especially at the beginning of your poker career.

Hand 27

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Aggro Fish (59/23/**12/32/15**)

SB – Unknown

BB – Passive Fish (36/16/**5/51/8**)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU calls 3BB, SB folds, BB calls 2BB.

Flop (9.5BB, 3 players)



BB checks, **Hero?**

There are three discouraging factors here:

- We are multiway.

- One of our opponents is of the Aggro Fish variety.
- This is a wet texture.

Overall, things aren't shaping up too nicely for c-betting, but does our bit of equity redeem the situation?

No, not enough as we only have four outs against top pair, one of which isn't even to the nuts as the **Js** also completes a flush. Future fold equity is also limited since if one of these Fish calls a c-bet on this board, then it's very unlikely that he'll be folding any time soon. Running a multi-street bluff here would be suicidal for Hero.

When fold equity is so low, we're far better off checking and realising the small amount of equity we have for free. There is a time and a place for us too to play fit-or-fold. If BU bets the flop, folding will be in order since our crumb of equity is nowhere near sufficient to call a normal sized bet - we'd need a very good price indeed for this.

Hero checks.

Hand 28

UTG – Unknown

HJ – Passive Fish (62/11/3/63/5)

CO – Hero

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, **HJ calls 1BB**, **Hero raises to 4BB**, BU folds, SB folds, BB folds,
HJ calls 3BB.

Flop (9.5 BB, 2 players)



Hero?

There are a lot of positives for c-betting here, but one factor is very poor. Can you spot it?

The good factors are:

- Hero is in position against a very fit-or-fold looking passive player who's unlikely to get out of line without a good hand.
- The board texture is bone dry and should yield a lot of fold equity.

The bad factor is Hero's equity when called; he usually has two outs. It's also worth noting that future fold equity is not likely to be much better and though Hero can sometimes turn a gutshot, that isn't going to make much of a difference.

So is a c-bet +EV?

Well to find that out we'll need to know how often it needs to work to be profitable (RFE), and to know that, what kind of sizing we'll be using.

With the board being so dry and Villain so likely to fold when he misses, and with Hero holding such a low equity hand, a small size is imperative. If we bet half pot, we risk 4.75 to win 9.5.

RFE = Risk/(Risk + Potential Gain)

$$\text{RFE} = 4.75 / (9.5 + 4.75)$$

RFE = 33.33%

Since Hero has his humble two outs when behind, he'll need slightly less fold equity than this in reality. Hero should certainly expect to generate more than 33.33% fold equity by betting against such an opponent on this dry of a flop.

Of course c-betting being +EV is not a sufficient reason to c-bet; it needs to be higher EV than the alternative line of checking. We have good reason to assume that this is the case. By betting Hero protects a vulnerable hand when he is best and avoids the potentially costly spot where villain bets the turn and picks up the pot with a hand that would have folded to a c-bet. Checking back this flop to make bluff catching calls on the turn is not a good idea against such a passive player, but that doesn't mean that Villain will never bluff and that Hero will never fold the best hand later on if he checks behind here.

Hero bets 4.75BB.

So that analysis we just did with risk and reward is a type of out of game analysis.

Out of Game Analysis is work that can be done off the tables but not very easily in the limited time available in-game.

How then does Hero work out how often he needs folds in-game? By memorising certain milestones for the RFE of different bet-sizes.

Remember that RFE does not take into account pot equity and so Hero will need to roughly reduce the raw RFE percentage for any pot equity that he has. There is no exact simple way to do this, but the more outs and implied odds Hero has, the more he can reduce RFE. With nine outs for example, betting is going to be very +EV without any fold equity at all as long as Hero can get paid off a reasonable amount of the time when he makes his hand.

The following table shows RFE for different bet sizes ignoring pot equity.

Bet Size	RFE
2x Pot	66%
1.5x Pot	60%
Pot	50%
$\frac{2}{3}$ Pot	40%
$\frac{1}{2}$ Pot	33%
$\frac{1}{3}$ Pot	25%
$\frac{1}{4}$ Pot	20%

Figure 23 - RFE Table

I advise memorising this table in full, or failing that, at least the RFE for pot and half pot sized bets. Let's put our new table into practice. Look at the following hand:

Hand 29

UTG – Hero

HJ – Aggro Fish (67/45/7/39/17)

CO – Unknown

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



Hero raises to 3BB, HJ calls 3BB, CO folds, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero?

If we were to bet around half pot requiring 33% folds, then, even vs this more active player, we should expect to reach our target quite easily on a flop this dry. Villain will simply have a lot of air since he calls such a crazily wide range pre-flop. However, we must stay conscious of one simple truth. We're not interested in finding just any old +EV line, our goal is to find the most +EV line. While c-betting is a profitable option here, it's not the best line.

Aggro Fish will typically bet wider than they will call; the opposite pattern to most other Fish types. This means that though Hero can win the pot often enough with a bet, by check/calling he can actually get Villain to put money in with a much weaker range, or in other words, induce Villain to bluff. This could lead us into murky territory if our SDV was vulnerable, but fortunately this SDV is very stable. Only a K makes our hand considerably worse. A

spade isn't a great turn, but it's not a disaster either given how few flushes Villain will have relative to everything else in his wide range.

This hand should be played for a check/call against this Villain type. If he's highly aggressive, then Hero could even plan to check/call all three streets and should also adopt this same plan with some of the weaker aces in his range that extract the most value this way. In fact, Hero should consider checking everything he can call a bet with and letting his out of line opponent do the betting here. There'll be more examples of when to take passive lines to extract value in the next chapter on value betting.

Hero checks.

5. Value Betting

Our goal in becoming proficient online poker players is not just to beat the other players. It's to beat the other players so badly that we're still earning money after the poker site has deducted the rake. While we strive to be better than the other Regs in our games, we must accept that the majority of the money we earn does not come from them. While we may break even against decent Regs post-rake due to our edge or even glean a small profit from them, most of our earnings come from the types of assorted Fish we met here in [Chapter 3](#).

If most of our money comes from Fish, then we need to make sure we're playing very well against these weaker players in order to make sure that we realise the full extent of this profit. Though some Fish bluff too much, open too many hands, fold to c-bets too much and more, the most mainstream Fish leak is calling too much. They put too much money in the pot with marginal hands and struggle to find the fold button when they should.

Hero's job against players who don't fold is clearly not to bluff them, but to extract value when he has a better hand. In this chapter we'll be learning:

- What constitutes a value bet.
- When we have a sufficiently strong hand to value bet.
- When there's a need to build the pot.
- And where there might be better ways to obtain value than by betting.

Though the primary use of good value betting is to maximise all that money from Fish, ensuring that we maximise value with good hands against Regs is also a crucial part of our win-rate in NLHE.

Value betting is a core enough skill to need coverage from this early point in the manual.

5.1 Introducing the Value Bet

Before we look at some value betting scenarios, let's be clear about what we're talking about.

A **Value Bet** is a bet made where Hero expects to have +50% equity vs. Villain's continuing range to that bet.

Hero shouldn't necessarily bet just because he's ahead of Villains whole range on any one street. In order to bet *for value*, he must be ahead of the sub-range that Villain does not fold vs that bet. In other words, just because we often have the best hand does not entail that we often have the best hand when called.

Deciding Whether to Value Bet

Some value bets are clear as we have the best hand very often when called; some are less clear as we have the best hand somewhere closer to 50% when called. Sometimes there's a strong need to get the pot growing as quickly as possible by injecting money into it; other times the pot is already sufficiently big and we can afford to check a street. Sometimes our opponents are passive and so we'll need to be the ones doing the betting and other times they are maniacal and will pour money into the pot for us. In such situations it can be lucrative to check and give these players the rope with which to hang themselves.

The flowchart below should become Hero's decision-making guide in spots where he's weighing up a potential value bet. The blue rectangular boxes represent the questions used to determine which of the aforementioned types of situation we're in. Our yes or no answers to those questions direct us in the right direction from there. Study the chart for now and have a think about

what the questions mean. We're about to go through them one by one in detail. We'll then wrap up the chapter by thinking about our sizing.

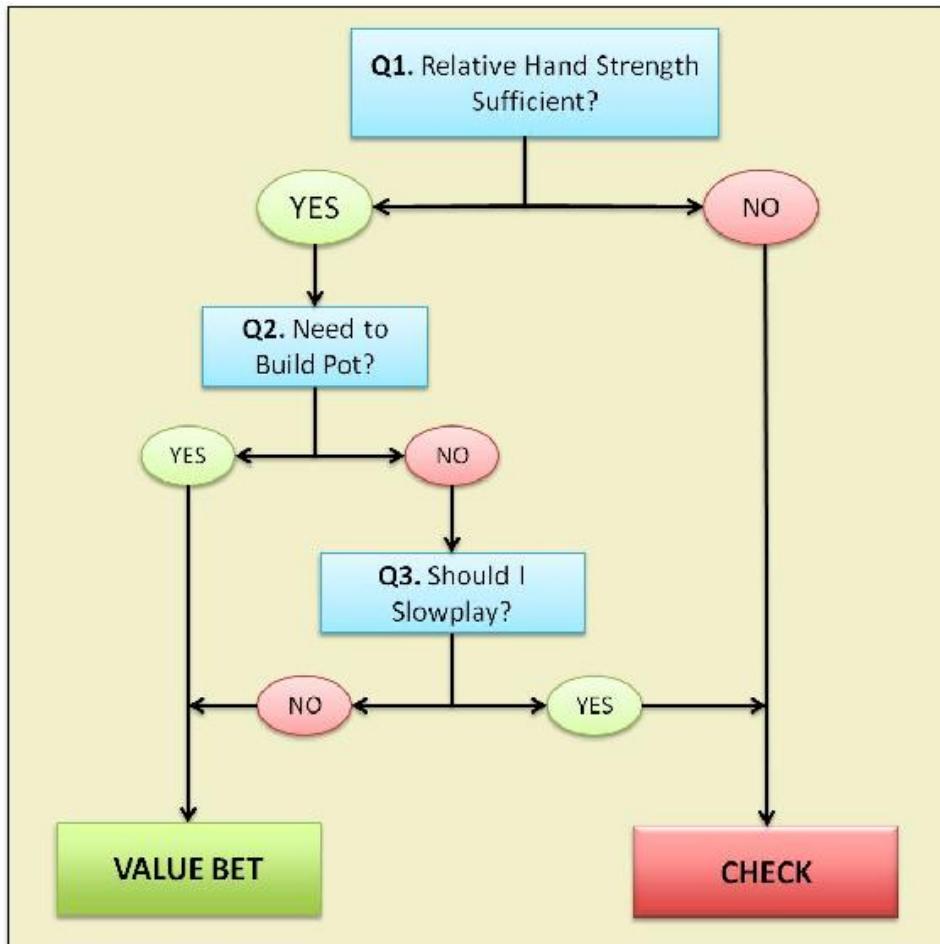


Figure 24 - Value Bet Flowchart

This flowchart might at first sight seem overly complex and even a little alien. Don't worry! It's just a formalisation of the kind of thought process strong players use day in day out when deciding whether to value bet. Moreover, your thought process will not always have the form of a clunky mechanical chart. Eventually, that chart will become engrained in your subconscious competence and will be going on behind the scenes. This frees up valuable processing power for noticing and utilising the finer details of the situation at hand.

There is one very important exception as to when this chart should be applied. Sometimes Hero will be making what I'm going to call a **procedural check**.

A **Procedural Check** is one made by the non-aggressor of the previous street to the aggressor of the previous street before that player has had a chance to act on the current street.

It is generally done with a player's whole range and skews that range in no way towards either strength or weakness.

Example

Pre-flop: BU opens to 3BB. SB folds. Hero (BB) calls 2BB.

Flop: Hero checks to the raiser on the BU. This is a **Procedural Check**. Hero is not assessing whether or not to value bet here. Villain bets and Hero calls.

Turn: Hero checks to the flop bettor – again a **Procedural Check**. Again Hero is not weighing up whether he can bet for value. Villain checks behind.

River: Hero checks again. This is **NOT** a **Procedural Check** as Villain is not the aggressor from the previous street. He did not bet the turn. Hero has weighed up a value bet and decided against it.

So in all of the value betting discussion to come we are never going to be considering value betting in a procedural check spot. There are sometimes reasons to violate the norm of the procedural check and lead out on a street into the aggressor of the last street, especially in multiway situations, but these will be dealt with later on in the manual. Almost always in procedural check spots, Hero should bypass [Figure 24](#) altogether and check. The reasons for this will become clearer as the manual progresses.

5.2 Relative Hand Strength (Question 1)

The first thing we need to develop a feel for concerning value betting is **relative hand strength** and how that differs from **absolute hand strength**.

Let's first define the difference:

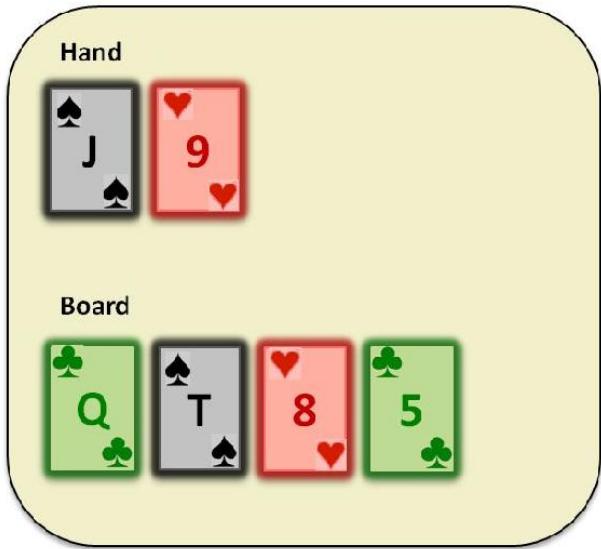
Absolute Hand Strength is simply the rank of your hand (eg. 8 high straight, nut-flush, etc.)

Relative Hand Strength refers to how good that hand is relative to factors such as: board texture, Villain's actions, Villain type and stack depth. This is the hand strength that really matters to our decision.

Sometimes a flush is an incredible hand worthy of three streets of value. Other times it's nothing but a pitiful bluff catcher and should be folded instantly. The biggest mistake that complete beginners make is to grossly over or under value their hand due to over or underestimating their **relative hand strength**.

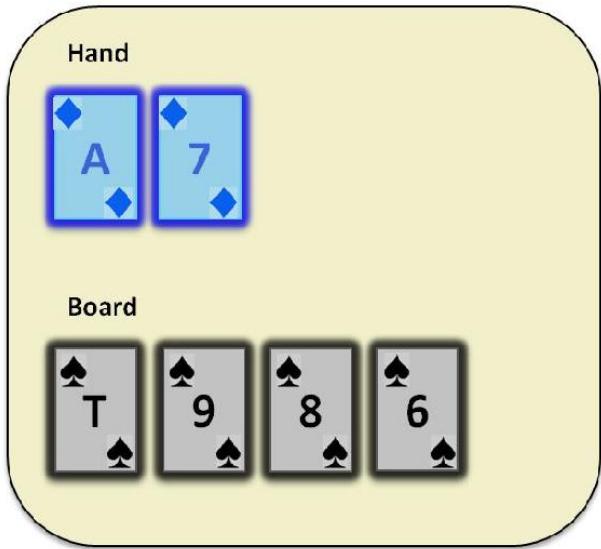
This chapter is laid out in a way that constantly refers back to the value betting flowchart ([Figure 24](#)). We'll be looking at each example with reference to how we answer the questions in that chart. Let's start with a very black and white example to illustrate the difference between relative and absolute hand strength.

Yes to Question 1 (Good Relative Hand Strength) = Move to Question 2



Here our absolute hand strength is very good. A straight is a fairly difficult hand to make and one that wins more often than not, but we don't care about that. How's our relative hand strength? It's incredible! This hand is the nuts since nothing can beat it. The question is: how is our hand's equity relative to our opponent's continuing range should we bet? The answer: it's immense! We have answered yes to the first question on our flow chart with ease and can proceed to the second question for which we'd need a more complete context.

No to Q1 (Poor Relative Hand Strength) = Check



In absolute terms, we still have a straight, so we still have a hand that wins more often than not, on average, if you take all of the straights that can be made on all the different kinds of possible boards. However, relative to this board in particular, our hand is horribly weak. Since any **spade** at all makes a flush and, less importantly, **QJ** and **J7** already have better straights, our hand is very often worse. To frame this in a value-betting context, we are going to struggle to get called by any single worse hand and so our hand strength relative to Villain's continuing range should we bet is pathetic. We answer no to the first question on the chart, we simply cannot value bet this spot.

Let's consider a less extreme example of assessing our likely equity when called.

Hand 30

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Unknown

SB – Passive Fish (60/14/4/34)

BB – Reg (23/17/7/50)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, **SB calls 2.5BB**, **BB calls 2BB**.

Flop (9BB, 3 players)



SB checks, BB checks, **Hero bets 6BB**, SB calls 6BB, BB folds.

Turn (21BB, 2 players)



SB checks, **Hero?**

Pre-flop: This hand is comfortably within our HJ opening range.

Flop: Hero flops an overpair - a strong hand here especially given there's a Fish in the pot, who will call bets with weak pairs and draws (note low **Fold to F Cbet** stat). It's worth distinguishing the value c-bet Hero makes from the light variety of c-bet examined in the chapter before. The value c-bet is subject to the rules of value betting and the flow chart introduced in this chapter, not the table of light c-betting factors from the chapter before. Hero has a made-hand and is happy for Villain to call his bet. He's not trying to decide if he can take the pot down often enough to bet.

Let's address our first question in the flowchart: is relative hand strength sufficient to bet for value? Hero can comfortably expect to be ahead when called here by a whole host of draws and lesser pairs. The sets that these players can have are much harder to make and will only appear a tiny fraction of the time. Moreover, the Reg should have no straights here and the Fish only very occasionally when he's called **46s** pre-flop. So Hero has ticked the first box in the value-betting chart. We'll soon be learning about the next two questions in that chart but for now let's suffice to say that Hero does need to build a pot vs the weaker player and should therefore bet.

Turn: A card rolls off which changes the board texture and thus Hero's relative hand strength. A flush is now possible, but luckily the remaining player is the Fish, who we know was calling the flop with a weak and wide range. This means that even though some of Villain's draws have now made a flush, and flushes have 100% equity, there are still many weak pairs in Villain's range and possibly even random overcards with a diamond that will now call again should we bet. Hero can expect to have over 50% equity here when called a second time, but only because this player has trouble folding a weak and wide range of hands.

Relative hand strength is still good when called even on this bad turn card. This is an example of favourable Villain type outweighing unfavourable board texture.

Hero bets 15BB.

But what if it had been the Reg who had called on the flop instead? Now Hero would be very hard pushed to consider his relative hand strength good enough when called for two reasons.

- The Reg should be calling a c-bet on the flop quite tightly given we are three-way and Hero has bet into a Fish who rarely folds. This makes Villain's initial range stronger on the turn as he gets there with a higher proportion of flush draws than the Fish does. He also doesn't have so many random weak one pair hands as he doesn't play 60% of hands pre-flop like SB will be inclined to.
- The Reg should be folding more of the one pair hands on this turn when Hero shows even more strength by betting again on a flush completing

card. Hero will therefore struggle to be ahead when called on the turn.

Against the Fish, this hand is a fine value bet on the turn. Against the Reg, I think it's a fairly clear check. This illustrates what I said at the start of the chapter. More money is typically made from Fish because they make much larger mistakes like not folding **Ac5c** and the like on this turn card.

5.3 Building the Pot (Question 2)

The bigger the pot, the bigger you can bet and still offer opponents a non-ridiculous price to call. The bigger you can bet, the more money you can win. Building the pot is absolutely essential in many situations, but particularly for value and especially against weaker players who call down too wide.

When we see a player for the first time and tag him as a passive Fish, we can immediately form some generally reliable ideas about his game. For instance, we can conclude that it's likely he'll take too many hands to showdown and prefer checking and calling to betting, raising and folding. It's time we introduced a new stat, which over a larger sample gives an even better indication of just how much a player goes to showdown.

WTSD

Definition: WTSD stands for **went to showdown** and shows the % of the time a player gets to showdown. The higher the number the more reluctant the player is to fold, the less we should bluff him and the more we should value bet. This stat requires a larger sample than those we've looked at so far and is very subject to variance.

Reliability (No. of Hands)

100 = Awful: largely dependent on variance.

300 = Poor: Reliable for a very general indication only, big calling stations will stand out.

500 = Decent: Good general idea with high numbers, lower numbers still unreliable.

1000 = Good: A roughly accurate indication with low numbers. High numbers very telling.

5000 = Accurate: Normally within 1-2%.

Interpretation

1-20 = Very Low: An extreme nit, this player folds far too much.

20-24 = Low: This player is conservative about showing down weaker hands.

24-27 = Average: This is the norm for 6-max cash within the Regular population.

27-30 = High: This player calls down too much.

30-35 = Very High: This player is a great target for lighter value betting, avoid bluffing.

35+ = Huge: Expect this player to be a major calling station.

The more they go to showdown, the weaker the hands we can value bet against them and the larger sizing we can use and still expect to get called.

Fish have high WTSD stats and so it's usually crucial to build the pot vs. the multitude of weak hands with which they'll pay off bets. Some rare players can be counted upon to build the pot for you, thus dissolving the requirement to bet to this end; the Aggro Fish who just can't take his cursor off the bet button is a prime example.

Yes to Q1 and Q2 (Need to Build the Pot) = Value Bet

For the most part, when Hero risks leaving the pot stagnant for a street, he commits a pretty grave EV crime on himself. As long as the effective stack is fairly deep, there is very often a need to get that pot growing. Have a look at the following two hands played against the same opponent with the same cards by two different Heroes. In [Hand 31](#) Hero is a seasoned player. In [Hand 32](#) Hero is a beginner. Spot the difference.

The sixth (light blue) number on our HUD represents WTSD as described above.

Hand 31

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Passive Fish (52/11/0/31/0/36)

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, **SB calls 2.5BB**, BB folds.

Flop (7BB, 2 players)



SB checks, **Hero bets 5BB**, SB calls 5BB.

Turn (17BB, 2 players)



SB checks, **Hero bets 14BB**, SB calls 14BB.

River (45BB, 2 players)



SB checks, **Hero bets 38BB**, SB calls 38BB.

SB shows: JsTc. Hero wins pot (121BB) (net: +61BB)

A solid hand from Hero. Against this Station Fish, Hero is advised to build the pot as quickly as possible. On the flop he sets to work with exactly this task and his efforts are rewarded on the river when he's created a massive

pot into which he fires a whopping 38BB bet, fully expecting Villain never to fold top pair. Hero can't trust this Villain to build the pot for him due to his passivity, and so, since he is way ahead of Villain's calling range by some margin on every street, he has the responsibility to build the pot himself.

We answer the first two questions on the flow chart with a resounding yes. This spot is value through and through - bread and butter EV printing. Nice hand.

Hand 32

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Passive Fish (52/11/0/31/0/36)

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, **SB calls 2.5BB**, BB folds.

Flop (7BB, 2 players)



SB checks, **Hero checks**.

Turn (7BB, 2 players)



SB checks, **Hero bets 4BB**, SB calls 4BB.

River (15BB, 2 players)



SB checks, **Hero bets 9BB**, SB calls 9BB.

SB shows: JsTc. Hero wins pot (33BB) (net: +17BB)

Oh dear. Hero has messed this hand up badly. One thing we always want to avoid in our poker analysis is **results orientation**. I'll rarely include the

results of a hand history and I almost always advise my students to omit them from theirs.

Results Orientation is the tendency to judge a play or stretch of play based on the results of an insufficient sample of hands rather than the logical factors that make that play objectively good or bad.

Hero winning less money in this hand than in the hand before is not enough on its own to conclude that he played worse in this hand. I've included the monetary result as an exception on this occasion and, ok I admit it, purely for shock factor. While I am trying to show the massive discrepancy in final winnings that can arise from not building a pot early enough, it's important to see the bigger picture so let's forget about the results and look at that.

The flop check is a mistake because Hero will win far less on average with this line. In other words, the EV of this line is much lower than that of Hero's line in Hand 31. We know this not due to the monetary result of this one hand, but due to our understanding of value betting and the importance of building pots vs passive players who are not going to oblige and do it for us.

In this hand, Hero commits something I call the **Exponential Mistake**.

The **Exponential Mistake** occurs when Hero either sizes too small on earlier streets or misses a bet altogether that is essential in building the pot and allowing Hero to win more with a strong hand on future streets. An undersized or missed flop bet costs more than just the value of that bet as the pot grows exponentially all the way from pre-flop to the river.

I drum this error into my students as something to avoid. Hero's failure to build the pot on the flop in [Hand 32](#) meant that his turn bet could only be a fraction of what it should have been. His smaller turn bet made the river pot three times smaller than it was in [Hand 31](#), meaning that his final bet could only be around a third of the size.

If Villain is truly horrific, Hero could even consider betting more than the pot on the river to compensate for his earlier failure, but this is a less reliable

and silly way to get value. We should expect even stationary Fish to fold more to such an overbet, as their price will be substantially worse. The gradual pot building route using large but not enormous bets on each street is by far the best way to maximise EV in these situations. [Hand 31](#) should serve as a stellar example of how to value bet strong hands against weak players.

5.4 Slowplaying (Question 3)

1. Yes to Q1, No to Q2, No to Q3 (Slowplaying is Bad) = Value Bet

To **Slowplay** is to play a very strong hand in a passive way by either:

1. Checking instead of betting.

Or

2. Calling instead of raising.

with the aim of extracting more value in the hand overall than would have been possible by playing it more aggressively from the beginning.

Except

In spots where Hero is making a procedural check to the aggressor of the previous street before they have had a chance to act. This is completely standard and does not constitute a slowplay.

The answer to our second flow chart question: 'do I need to build a pot' will be yes far more often than not due to the large stacks and small pots that are typical of the earlier streets in cash games. Even where this answer is no, however, value betting can still be the best play if no higher EV line exists. Let's take an example where the pot does not strictly need to be built right now, but where slowplaying our hand would actually be a serious mistake.

In this next hand, I have altered the stack sizes away from 100BB. The effective stack is therefore different.

The **Effective Stack** is the smallest stack in play in the hand. It represents the maximum amount that each player can put into the main pot. In multi-way situations the effective stack may be one size for the short stack and another for the larger two stacks. In this situation a side pot is created for the bigger stacks if required.

Having less money behind relative to the pot is by far the most common reason for answering no to Question 2. If there are only one or two bets left relative to the pot then it's not imperative that the pot grows at the first possible opportunity.

Hand 33

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero [100BB]

SB – Unknown

BB – Fish (29/13/2/52/5/29) [15BB]

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB calls 1BB**.

Flop (4.5BB, 2 players)



BB checks, **Hero?**

Note that the effective stack is 15BB, not 100BB, due to the Fish having less money behind than Hero does. If there were another player in the hand with

80BB, the effective stack would be 15BB for the Fish and 80BB for Hero and the other player.

So on the flop Hero has a decision to make. Let's consult the flowchart:

Q1: Is relative hand strength sufficient? Hero is comfortably ahead of the Fish's calling range vs a bet so that's a firm yes. Any flushes that the Fish has flopped will constitute a tiny part of his range and there are countless flush draws and one pair hands, which Hero is well ahead of.

Q2: Do we need to build the pot? Strictly no. This pot is already big enough relative to the tiny effective stacks for Hero to need just two more bets to get the rest of the money in.

Q3: Should I slowplay? Absolutely not! Checking is very undesirable in this spot. For starters, it's unlikely that we induce this passive player to put any more money in on the turn than he would facing a flop bet. With passive players we should remember one very common truth: **their calling range is usually wider than their betting range**. This means that betting will result in Hero committing money to the pot in better shape compared to if he had checked behind and then called a bet on the turn. Most importantly here though, this board is super wet. Giving a free card will often result in one of three terrible things happening:

- Hero actually loses a street of value from a naked flush draw that might call flop and turn but not river when it misses.
- Villain makes the best hand on the turn with a hand he might have folded to a flop bet like **3c3h** (protection).
- Hero loses the ability to value bet vs. weaker pairs when the turn is a club. Such a turn card would worsen the texture so much that villain would be folding most of his worse hands, but if Hero had bet the flop then he'd be able to simply head to showdown when ahead having already got his value when the texture was safer.

This is a spot where Hero needs to value bet right from the flop because flop and turn are the most favourable streets for the two remaining bets to go in. The lack of a need to build the pot only deters us from value betting when we have a superior alternative. Here this is not the case.

Hero bets 4BB and will shove safe turns for value.

Yes to Q1, No to Q2, Yes to Q3 (Slowplaying Makes Sense) = Check

Okay you get the picture by now. With good relative hand strength we bet and bet and then bet some more until we've won all our opponent's money - easy game, right? Well, not always. There are times when even though we can bet for value, we shouldn't. Let's see what happens when we don't need to do the pot building straight away and there's a better line available to betting. As per the flowchart, these spots will only occur when we have answered yes to question one, no to question two, and yes to question three.

'Slowplay' is a taboo word that beginning players are told to avoid like it's the devil, sometimes causing them to even miss good slowplaying opportunities. The dangers of slowplaying in the wrong situations do need to be emphasised, however doing it too much is one of the most disastrous mistakes a player can make, especially against the passive variety of opponent who loves to call but not to bet.

Nevertheless, the novice player often starts off with a deep impulse to deceive his opponents as much as possible, constantly misleading them as to the strength of his hand at the expense of all else. His technical understanding of the game is so poor that when he checks two streets with the nuts only to win one bet on the river, he thinks his line a success due to its brilliant deceptive prowess. He of course overlooks the fact that by not building the pot at all, he won about seven times less than he should on average. It's for this reason that I stress the importance of betting value hands first off and will only now demonstrate some rarer situations where slowplaying is actually viable.

There's one more thing to specify before we look at some good slowplaying spots. In this chapter we're dealing with slowplaying in the form of checking instead of betting, and not calling instead of raising. Facing bets as the pre-flop caller is a different topic dealt with in [Chapter 8](#) and slowplaying will

come up again there where it's usually much more commonly acceptable than it is here facing a check.

Slowplay Spot 1 - Out of Position vs Aggro Villain

Recall [Hand 32](#) where checking behind on the flop resulted in losing an entire street of pot growing. This would be disastrous against any player where the pot is so small. Even if Villain were aggressive, this check would still have been awful as the pot would have sat dormant until the next card came down. At the risk of stating the obvious, if you're checked to and are last to act on a street, the pot will never grow on that street if you check back!

There will, however, be occasions when we are out of position where it is very likely that Villain will bet if checked to and we can therefore ensure the growth of the pot with the added bonus of Villain putting money into the pot with air as well as with the hands he might call with had we bet. In this spot, a check serves the purpose of widening our opponent's range for losing money to us and if this comes at little risk of the pot remaining small then slowplaying is very viable.

It's time to introduce a stat that will come in handy when deciding whether to check a strong hand on the flop as the pre-flop raiser.

In this next hand, the seventh orange number on our HUD is Float Flop.

Float Flop

Definition: **Float Flop** refers to the % of the time that a player bets the flop in position after he's been checked to by the pre-flop raiser. It's a valuable tool for determining how good checking the flop as a slowplay is likely to be. The more likely Villain is to bet, the better checking a strong hand becomes. This stat takes a while to converge as these spots are quite rare. It should be noted though that the more hands Villain plays pre-flop, the more of these spots he'll see in a shorter space of time.

Reliability (No. of Hands)

100 = Awful
500 = Poor
1000 = Decent
5000 = Accurate

Interpretation

1-30 = Very Low
30-40 = Low
40-45 = Quite Low
45-55 = Average
55-65 = High
65+ = Very High

Hand 34

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Aggro Fish (64/51/16/44/11/38/86)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB,**
BB calls 2BB.

Flop (6BB, 2 players)



Hero?

Q1: We clearly have enough relative hand strength vs Villain's calling range to start firing away for value.

Q2: However, we simply don't need to bet in order to build the pot because this player is almost certainly going to bet for us if we check.

Q3: Slowplaying is a fine idea. Though the BB is wildly aggressive, he does fold to c-bets nearly half of the time. On a board that he's likely to miss as much this one, Hero shouldn't expect a c-bet to get called too frequently, especially when Hero holds a Q himself. Checking allows villain to put money into the pot with a lot of his range. Slowplaying makes sense here.

Since Hero is checking this spot, is it better to check/call or to check/raise? This all depends on how maniacal Villain is and how likely he is to continue bluffing on later streets. From what we know, we can conclude this is very likely and so check/calling and waiting until the turn or river to raise for value is going to be a good choice as long as Villain bets a reasonable enough size to build the pot on the flop.

Hero check/calls.

Slowplay 2 - Short Effective Stack and Dry Board

As the effective stack decreases, the ease with which we can get all the money into the middle increases. It is, of course, not the absolute monetary size of the effective stack we care about, but its size in relation to the pot.

As we know, after identifying that he holds a strong enough hand to value bet, Hero's next job is to assess whether he needs to build the pot. The most common reason we might check a street as the pre-flop raiser with a value hand is that the effective stack is already small enough that we need one street less than usual to get all the money in. In other words, we have a pot-building street spare. Bear in mind though that this in and of itself is no reason to check, we also need to think checking is higher EV than betting and be answering yes to Q3.

Hand 35

UTG – Unknown

HJ – Unknown

CO – Fish (44/21/**6**/41/**14**/30/**64**) [35BB]

BU – Hero [100BB]

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, Hero raises to 8BB, SB folds, BB folds, CO calls 5BB.

Flop (17.5BB, 2 players)



CO checks, Hero? [27BB]

This is the first 3-bet pot we've encountered and there will be a lot more to come in later chapters. One thing that sets 3-bet pots aside from normal raised pots is that the effective stack is smaller. This makes it much easier to get the money in post-flop and is one of the reasons that we want to 3-bet good hands for value pre-flop. Note that in this hand the effective stack is even smaller still due to CO starting the hand with only 35BB. On the flop there are 17.5BBs in the pot and only 27BB left in the effective stack.

Hero could bet for value on the flop here and it would clearly be +EV, after all, his relative hand strength is close to supreme. However, he answers Q2 with a no since he only needs to bet two streets here to get the money in. A bit of forward thinking math is useful in this situation and I recommend that whenever Hero finds himself in a spot with a smaller irregular effective stack, that he takes a moment to be clear on how many streets he'd need to bet

to get all in. If he bets half pot on the flop here, the pot would be around 30BB on the turn with just 18BB or so remaining so it's clear that betting two streets is sufficient - the turn can be shoved for less than pot, which is what we're aiming for. There are therefore other options than betting here.

So now we know that we have this extra street of leeway - a one street ticket not to build unless we have to. We can now assess Q3. is slowplaying better? The answer here is certainly yes. By checking, Hero allows this active looking Villain to do one of two very beneficial things:

- Bet the turn with some or all of his air that he'd fold if Hero had bet himself.
- Sometimes catch a pair on the turn with a hand that he will then stack off with, but that he would have folded to a flop bet.

Moreover, there are few turn cards that will cause this player not to stack off with a hand that he would have called the flop bet with. Even if he holds something like **99**, it's quite unlikely that a **J** turn will deter him too much when he already has so much invested relative to the effective stack.

If Villain checks again on the turn then Hero's slowplay ends there - slowplay space has run out. It's vital that Hero then bets to ensure he can shove the river if Villain calls.

Hero checks.

Slowplay 3 - Crushing the Deck

To **Crush The Deck** is to have a very strong hand on a board where Hero's hole cards make it much less likely that Villain has flopped anything decent.

This situation is somewhat of an exception to Q2 on our flowchart. There are some rare times when Hero technically does need to build the pot, but where he should still check. The following hand is an example of such a time.

Hand 36

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Reg (25/16/8/57/8/25/72)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU folds, SB folds, **BB calls 1.5BB**.

Flop (5.5BB, 2 players)



BB checks, **Hero?**

Unless Villain is particularly aggressive facing c-bets it's very likely that a c-bet will have an immense amount of fold equity. The reason for this is two fold:

- Villain already folds to a large amount of c-bets according to our HUD.
- The most common hand he'd call a bet with (top pair) is now far less likely due to Hero holding two of the remaining three queens. Checking here and inducing Villain to take a stab with his air heavy range while giving him the chance to improve his hand in order to extract value later on is a sensible option.

Note that if Villain does have an **8** or a **Q**, he will in all likelihood bet the turn and Hero's position ensures that he will be able to raise and build a

large pot any way. Being in position is always nice for ensuring that money goes in on a later street one way or another.

Hero Checks.

5.4 Thick and Thin Value

Our flow chart has been very useful thus far in determining whether Hero should value bet. I'd like to jump back to question one in the chart now and look at some scenarios where it's less concrete whether we have enough equity relative to Villain's calling range to fire a value bet, particularly on the river. I'll start with a spot in position and compare the EV of checking to betting. Then we'll have a look at being out of position and see how that can change things.

Thin Value occurs when Hero's relative hand strength is fairly weak, but still good enough to get called by a range it has +50% equity against.

Thick Value occurs when Hero's hand is comfortably ahead when called – it's not close.

The value betting scenarios we've been looking at so far have been mostly thick value bets. Most of the value bets Hero makes in his poker journey will be of this sort where betting for value is concrete and clearly +EV. There will come times, however, where finding a value bet that is less obvious can make Hero a bunch of extra EV that many players would miss. Being able to find these thinner value bets is another skill that separates really successful players from merely decent ones.

Thin Value in Position

Being checked to in position offers a nice choice on the river. We have the option of firing a value bet (or a bluff for that matter) or just checking behind. Not having to fold is always healthy for EV and ensures that we do win the pot all those times our hand is best. This is known as realising the full equity of our hand.

For now we'll focus on spots where the choice is between a thin looking value bet and a check. Once again, Villain type and board texture will be two of the biggest relevant factors in making this choice.

- The more likely Villain is to call us down light, the thinner we can value bet.
- The safer the board texture, the thinner we can value bet as in general Villain should be less happy to fold.

We should also be concerned with what Villain's range looks like. One essential matter when considering a thin value bet is how capped or uncapped that range is.

A **Capped Range** is one which does not contain the strongest possible hands. Villain has a capped range when he's taken a line which makes it unlikely he has hands above a certain strength.

An **Uncapped Range** has not been limited in this way by Villain's actions and can contain the strongest hands possible.

Hand 37

UTG – Hero

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Unknown

BB – Reg (26/20/**9**/40/**11**/**27**/**67**)

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO folds, BU folds, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero checks**.

Turn (6.5BB, 2 players)



BB checks, **Hero bets 4BB**, BB calls 4BB.

River (14.5BB, 2 players)



BB checks, **Hero?**

Flop: Time for some revision first. Why does Hero elect not to c-bet this flop? The answer lies in Hero's hand strength. On the spectrum of air to value he has relatively stable showdown value. There are not too many horrible turn cards for his hand. Only an **A** or **K** is likely to harm his ability to extract

value on the turn. Villain almost never has more than one overcard to Hero's pair so protection is not such an issue.

It's therefore a good idea to check the flop in order to control the size of the pot, get value later in the hand, and induce this aggressive looking Villain to bluff on the turn with some hands that would simply fold to a flop c-bet. Note that Hero's hand is not strong enough to bet three times for value so building a huge pot from the flop is not of interest to him.

Hero's check is a range capping action. He would of course bet anything worthy of three streets of value due to the necessity to get that pot growing.

Turn: Villain checks a second time and now value betting becomes a much more enticing option. Hero takes this opportunity to make a bet, which can get called by plenty of lower pocket pairs. He now discounts the prospect of Villain holding a **Q** due to Villain's second check.

While Villain's flop check is procedural and tells us nothing about his range, the turn check is much more likely to limit Villain's range strength since it is genuine. It's a spot where if Villain wants two streets of value with a very strong hand, he will usually go about this by betting the turn and building the pot himself. This means any hands that beat Hero are now less likely in Villain's range especially when Villain just check/calls the turn instead of check/raising. This turn action caps Villain's range. We now have a battle of two capped ranges.

River: Villain's check on the river is procedural since Hero regained the betting lead on the turn. As we've said, that range is likely to be capped and weighted much more towards hands like **TT, 99, 88, 87s** etc. than **AQ, KQ, QJs** etc. Given that Hero has the best hand a lot and it's very possible that Villain can call with these lesser hands, this river is fine for a thin value bet. Hero can't have very strong hands and if Villain knows that his own range is perceived to be capped he may well feel obliged to call the best parts of it on the river.

Capped ranges make thin value betting more feasible.

Hero bets 10BB.

Hand 38

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Reg (21/15/5/54/8/24/46)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero bets 4BB**, BB calls 4BB.

Turn (14.5BB, 2 players)



BB checks, **Hero bets 9BB**, BB calls 9BB.

River (32.5BB, 2 players)



BB checks, **Hero?**

Flop: Hero has an easy value bet. His hand will frequently be best when called and he can consider going for three streets of value when the board runs out safely. This is also flop that Hero will be c-betting lightly with the

weaker parts of his range so Villain should be apt to defend some **K9s**, **KT**, pocket pairs, **8x** and flush draws. Hero starts building the pot.

Turn: Not much has changed, **98s**, **99** and **K9s** have improved so it's not the greatest turn ever, but it's far from the worst. Hero can decide whether to value bet two streets or three, but he knows that if he is betting only two then betting turn is preferable to river. This is because Villain's draws can call again on the turn, but won't on the river unless he improves to the best hand. When betting less than three streets Hero should think about which are the best ones to bet.

River: Contrast both players' ranges here to what they looked like on the river in [Hand 37](#). Hero has raised and bet twice doing absolutely nothing to cap his range. Villain has check/called twice and he could perceivably play a set this way as well as a flush draw, which has now improved to the nuts or close to it. Both ranges are totally uncapped. On this river, the relative hand strength of Hero's top pair has decreased. Villain knows that both he and Hero can have a flush and so he shouldn't feel the need to call with much worse than **KJ**. Moreover, the parts of Villain's turn calling range that Hero was ahead of (**KT** and **TT**) have now improved to better hands. As we know, Hero would need over 50% equity vs Villain's calling range to bet again for value. It's likely that he has nowhere near.

Uncapped ranges make thin value betting worse.

Hero checks.

Out of Position - The Three Candidate Lines

Out of position on the river, things get a little more complicated. We no longer have the assurance of realising all of our equity at showdown if we check because we may face a bet that we can't call. One of the perils of being out of position is that our opponent can bet after we've limited our range strength by checking and it becomes very possible that we might fold the best hand. We can of course start checking strong hands to counter this, but that can result in lost value and won't always be a good idea. In spots where we

reach the river with a hand that was at one point a value hand, but is now in murkier waters, we face a choice between three lines. We can elect to either: bet/fold, check/call or check/fold. Let's examine the merits of each.

1. Bet/Fold

Bet/folding a marginal hand usually entails making a thin value bet. It's a sensible choice in spots where we think that:

- Villain's calling range vs our bet is weaker than his betting range should we check.
- We have the best hand at least somewhat often when called.

Bet/folding is a magical recipe to EV against the more passive variety of Fish. This player will call bets with a very weak range, but only raise bets with a very strong one. Passive Regs and even Aggro Fish can often fall into this category on the river.

2. Check/Call

Check/calling is a line intended to catch bluffs. We're inclined to favour check/calling when:

- Villain's betting range vs a check is weaker than his calling range if we were to bet ourselves.
- We think we have the required equity (RE) to call a bet if checked to.

Check/calling can be good where draws have missed leaving an aggressive player with a lot of air by the river or when our opponent is just liable to bet out wildly irrespective of his showdown value and other factors.

3. Check/Fold

Check/folding these spots is to resign ourselves to the fact that we cannot value bet and cannot call a bet from Villain if we check because in either case, the sub-range that we're facing is too strong relative to our hand.

Just because we adopt the plan to check/fold does not entail that we will always lose the hand. In fact a good example of a check/fold spot on the river is when we expect Villain to have little air and a lot of hands worse than ours with SDV in his range, but we think he won't be calling a bet with those worse hands. We also don't expect Villain to turn his SDV into a bluff and so when we check and he bets we expect to lose very often.

Let's look at an example of when we might choose each line. As you work your way through the following three hands, try to decide what line from the three above suits the river situation best before reading the answer for each hand.

Hand 39

UTG – Unknown

HJ – Hero

CO – Passive Fish (45/12/4/46/0/33/34)

BU – Unknown

SB – Unknown

BB – Reg (21/15/5/54/8/24/49)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, SB folds, BB calls 2BB.

Flop (9.5BB, 3 players)



BB checks, **Hero bets 6.5BB**, CO calls 6.5BB, BB folds.

Turn (22.5BB, 2 players)



Hero bets 15BB, CO calls 15BB.

River (52.5BB, 2 players)



Hero? [75BB]

Let's look at Villain's range. He probably gets to the river with a mix of pocket pairs, 5x, Jx and flush draws, which then improve to flushes. Given that Villain is a weaker player, we can certainly expect him to call a reasonably sized bet with any weaker J and probably some weaker hands

like pocket pairs too some of the time. Betting for value should still be possible even on this river as long as Hero doesn't size too big. Villain's flushes are not a huge part of his range.

A common mistake some of my newer students might make here is to automatically check the river due to the flush completing. This makes very little sense.

We certainly don't want to check/call as Villain's betting range will be a lot stronger than his calling range due to his passivity. While he will almost certainly bet any flush or full house on the river, he's likely to check behind with all of his weaker hands. Check/calling is a huge mistake.

We also don't want to check/fold with a hand this strong when it's very possible that Villain could bet worse **Jx** if we check.

If Villain does shove over our value bet, we can probably narrow his range to mostly flushes and better and hit that fold button. That doesn't make our value bet bad as it's the weaker hands that won't shove that we're targeting with it. As long as these are more abundant than his flushes and boats then our bet is fine.

Hero bet/folds 20BB.

Hand 40

UTG – Unknown

HJ – Hero

CO – Aggro Fish (45/33/**14**/32/**14**/36/**90**)

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero bets 5BB, CO calls 5BB, BB folds.

Turn (17.5BB, 2 players)



Hero bets 11BB, CO calls 11BB.

River (39.5BB, 2 players)



Hero? [81BB]

Having value bet flop and turn, Hero finds himself in another marginal river situation, but here we have the opposite type of opponent and river card to [Hand 39](#). Villain is of the aggro variety of Fish and the river is a blank leaving missed draws in Villain's range. This kind of player will bluff a lot

when checked to, and moreover, has a fair bit of air in his range here as any **5x** or **7x** straight draw has now missed as well as all of the flush draws that haven't made pairs. In addition, Aggro Fish are often capable of betting out randomly even with SDV in the form of **6x**, **4x** or **3x**, which Hero beats. All of this suggests that Hero should expect to do well bluff catching vs. Villain's betting range. A value bet from Hero would be very thin indeed. Hero should therefore elect to check/call vs all the worse hands he expects Villain to bet.

Hero check/calls.

Hand 41

UTG – Unknown

HJ – Hero

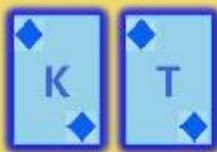
CO – Reg (23/20/8/45/12/27/75)

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero bets 4.5BB, CO calls 4.5BB.

Turn (16.5BB, 2 players)



Hero bets 12BB, CO calls 12BB.

River (40.5BB, 2 players)



Hero? [81.5BB]

Flop and turn were clear value bets. Hero could of course consider going for three streets here, but without some kind of read that Villain likes to bluff catch with a wide range or history where Hero appears aggressive it's probably too thin.

Note that this board texture allows for very little air to remain in Villain's range by the river. There just aren't any draws for him to get to the river with (he probably doesn't even call Hero's pre-flop raise with **54s**.) When Villain bets the river after Hero checks, he's likely to have a set, **JTs**, **AT** or perhaps some **QJ-AJ** type hand that called the c-bet lightly on the flop. Hero will not be good often enough to check/call. His reasoning is that most players will not turn their SDV hands like **77**, **88** and **99** into bluffs here.

So this is a spot where bet/folding for value is too thin and check/calling makes little sense. Hero resigns himself to the only remaining alternative, but still expects to win here a good amount when the river checks through.

Hero check/folds.

5.6 Sizing and Elasticity

Bet sizing is an absolutely massive issue in NLHE cash. It's something I've devoted a lot of time to in my poker career and an area of the game that is often neglected by my students. Throughout the manual, I'll be covering the topic time and time again in a variety of situations. For now though, we'll stick with the spirit of the chapter and discuss how to go about sizing our value bets.

Value C-Bets

Let's quickly refresh our memory as to our light c-bet sizing strategy. We're inclined to have balanced sizing against Regs (to use the same size with our whole range) and to vary this size based on hand strength to exploit Fish who are less prone to take advantage of such an imbalance.

This means that vs Regs, we can follow the same sizing guidelines set out [here](#) in the previous chapter on c-betting. Against Fish however, we should be looking to go larger for value especially where the pot needs to be built, expecting their calling ranges not to vary so much facing different bet sizes. After all, Fish are largely keen to call c-bets with any piece of the board and fold when they've missed the flop entirely. Hero thus saves more money when c-betting light and builds the pot more effectively with his value hands. This strategy is crude and caveman-like, but effective!

As we know, with smaller and irregular effective stacks Hero should give extra thought to his bet sizing and calculate how many streets he would need to get the money in. This ensures he can set up the pot sizes he desires and not leave awkwardly large or small bets for future streets.

Elasticity and Pot Building

We saw back in [Hand 32](#) how a failure to bet earlier streets can exponentially affect the value extracted on the next streets. By the same token, a failure to size big enough has the same effect. Hero needs to make sure his value bets are building the pot sufficiently (unless committed to smaller sizing for balance reasons against Regs.) Against Fish, a very common mistake my students make before I've beaten it out of them is to undersize their value betting and fail to build as big of a pot as they could have.

"But I don't want to blow him out of the pot"

They often protest and to this I respond by introducing the notion of elasticity.

Elasticity is the scale of how likely Villain's calling range is to grow or shrink as Hero increases or decreases his bet size.

Elastic Ranges are sensitive to the bet-sizing they face.
Inelastic Ranges are not.

There are many factors that can render a calling range elastic or inelastic, but we'll start by looking at Fish in general. Like I said, Fish like pieces of the board. They especially love top pair, draws to good hands, and even second pair on the earlier streets and are not much more likely to fold these hands facing a moderate increase in bet size. Therefore, when my students worry about blowing Fish out of the pot and 'losing action' I reassure them with this notion.

Let's look at the next figure to clarify the concept further:

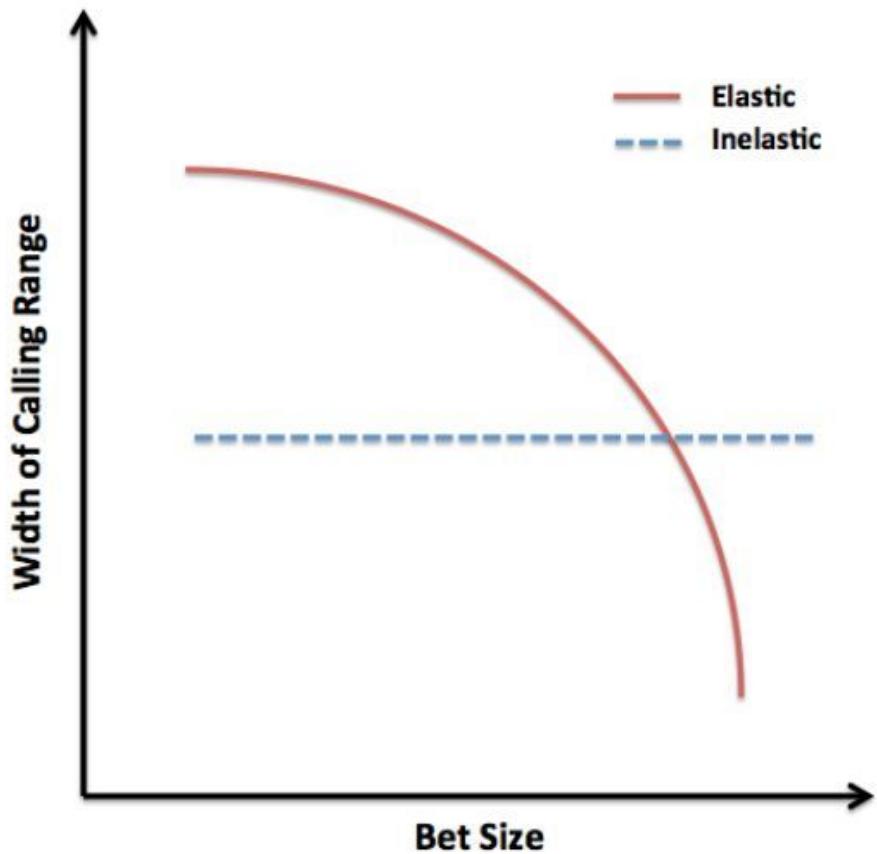


Figure 25 - Elasticity

The Elastic Range contracts considerably as bet size increases. Hero will want to increase his bet size when he desires fold equity and keep it more moderate when value betting unless it's more important to keep sizing balanced.

The Inelastic Range responds in the same way to large and small sizing alike. Hero will want to increase his value sizing to maximise profit and decrease his bluff sizing to reduce his RFE, expecting just as much fold equity.

Of course this graph shows the two absolute extremities on the elasticity scale. In reality most calling ranges will be somewhere in-between, but Fish ranges will often fall closer to the inelastic side.

This illuminates why failure to build a big pot with a strong hand vs. weaker players can be so devastating to our EV: they're apt to call any way whether we add a few extra BBs to that turn bet or not. Avoid the **exponential mistake**. If they fold this one time, it's okay! We're going to print more money in the long run by building that big pot vs. their inelastic wide ranges. You can't stop people from refusing to put money into the pot with awful hands.

Hand 42

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Passive Fish (54/14/5/42/0/33/40)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB, BB calls 2BB.**

Flop (6BB, 2 players)



Hero bets 6BB, BB calls 6BB.

Turn (18BB, 2 players)



Hero bets 16BB, BB calls 16BB.

River (50BB, 2 players)



Hero? [75bb]

Hero has opened AA against a loose Fish and starts building the pot for value immediately, not counting on this player to bet often enough if checked to. Hero sizes very large on the flop and the turn because Villain's most likely calling hands are top pair and draws and these hands are unlikely to start

folding to bigger sizing. Villain's range is likely to be inelastic as is so often the case with Fish and so Hero makes sure not to lose out on any pot building value.

On the river, these two groups of hands in Villain's range have now gone in very different directions. The top pair portion has become a very strong Full House that this player is unlikely to ever consider folding. Meanwhile, the draws have missed entirely leaving Villain with zero SDV and an easy fold when he has this part of his range to any sizing.

There could also be a little bit of **6x** in Villain's range, but these hands should be considerably outweighed by the other groups given the higher concentration of suited cards and high cards that Villain will prefer to play pre-flop. Moreover, **6x** is now a full house and Fish with high WTSD stats tend to be quite bad at recognising their relative hand strength from their absolute hand strength.

"You can't fold a full house!"

Villain could of course also have **5x** for quads, but this is so relatively unlikely that it's not a problem. When it happens Hero grits his teeth and moves on to the next hand knowing there wasn't much he could do about it.

The upshot of this analysis is that Villain has an extremely inelastic range on the river. The vast majority of the time it's calling any size of bet or folding to any size of bet barring something absurdly small.

As Hero has a value hand, he seeks to maximise his value vs. the chunk of Villain's range that will hardly ever be folding, ignoring the missed draws that don't call anyway.

Hero shoves for 75BB.

A nice line for Hero if he'd somehow got to this river with air himself would be to bluff a small size, just big enough to fold out the missed draw part of Villain's range while reducing his RFE and losing the minimum when Villain has the **Kx** portion.

Hand 43

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Reg (20/16/**5**/56/**0**/26/**72**)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB**, BB calls 2BB.

Flop (6BB, 2 players)



Hero bets 4BB, BB calls 4BB.

Turn (14BB, 2 players)



Hero bets 11BB, BB calls 11BB.

River (36BB, 2 players)



Hero? [82BB]

Another B vs B spot, but this time against a much more solid player. Hero bets flop and turn as clear value bets expecting to be easily ahead of a range of mostly one pair and draws when called.

The river should strike you as a thin value spot where Hero's relative hand strength has decreased and he's contemplating whether or not to fire a value bet. We know already that to check/call a spot like this where both ranges have just improved doesn't make sense as Villain will be well placed in position to check behind most of his weaker hands and bet all of his better hands for value.

Although this river card is far from ideal, ranges remain wide due to the blind vs blind, Reg vs Reg nature of the spot. Villain will have some **JT** and **QJ** that make worse top pair on this river and still has hands in his range like **A9**, **K9**, **Q9**, **A8** and **86s** that called flop and turn.

A value bet here is likely to be marginal but probably an improvement on check/folding as long as the dynamic between the two Regs is sufficiently aggressive. Hero is trying to get called by an array of fairly weak hands that could easily find folds if he bets too big. What we need to avoid here is creating a situation where only better hands continue to our river bet. Also important here is that Hero has very few bluffs himself since the **Jh** helps most of his semi-bluffing range in one way or another. Villain's range is elastic so Hero needs to size smaller in order to prevent Villain from happily folding all of his worse hands.

Hero bets 16BB.

The EV of Value Sizing

As we know, the EV of a play determines if it's good or not. Our goal is to find the most +EV line in each spot and that entails finding the most +EV sizing when we bet for value.

Newer students often start off with a tendency fatal to EV that I call **milking syndrome**.

Milking Syndrome occurs when Hero is so terrified that his opponent might fold that he chooses a bet-size small enough to get called at all costs. In the process he uses a size that earns less money in the longterm i.e. is lower EV.

Let's take an example of this poker illness in action.

Hand 44

UTG – Unknown

HJ – Unknown

CO – Unknown

BU - Hero

SB – Unknown

BB – Nit (14/10/3/44/0/25/65)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB calls 1BB**.

Flop (4.5BB, 2 players)



BB checks, **Hero bets 3BB**, BB calls 3BB.

Turn (10.5BB, 2 players)



BB checks, **Hero bets 7BB**, BB calls 7BB.

River (24.5BB, 2 players)



BB checks, **Hero bets 7BB**.

This river bet-size is horrible. Hero's fear is that if he bets too big, his tight opponent will simply fold. Well let's grant Hero this judgment and say that BB does in fact have an elastic range and that he folds more often to a bigger bet size. This could very well be true since Villain has a spectrum of

different sized pocket pairs from **22** to perhaps **JJ**. In fact, BB's range consists pretty much exclusively of pairs that now form some kind of full house. A nitty player like this one is rarely if ever calling flop and turn without one. Let's assume that BB calls Hero's 7BB river bet with 100% of this range and folds 60% of his range it to a larger bet of 20BB.

How do we calculate which bet size is better? Let's learn the mathematical technique. Once you have this down, performing reviews on different bet sizes and estimating their EV becomes a handy training drill.

The EV Gain of a Value Bet

Technique: This procedure is used to calculate the overall EV gain of making a value bet of a certain size i.e how much better that value bet is than checking.

Step 1: Estimate **Equity**: we need to first know our **Equity** vs Villain's calling range.

Step 2: Our **Equity** – our **Win Frequency** when called. Our **Loss Frequency** = $(1 - \text{our Equity})$

Step 3: We then multiply each of those frequencies by our **bet** to find the **EV of Winning** and the **EV of Losing**.

Step 4: We then subtract the **EV of Losing** from the **EV of Winning** to find **EV Gain When Called**.

Step 5: We are then ready to multiply **EV Gain When Called** by the **Expected Call Frequency** of Villain. This tells us our **Overall EV Gain** since we don't always get called. This is what we win *on top of* the pot as it already stands.

Let's try this process with the example of hand 44. First with the bet size of 7BB getting called 100% of the time. This might seem trivial but it's good practice.

1. **Equity** is 100% (1) when called. We have the best possible hand.
2. **Win Frequency** = 1. **Loss Frequency** = $1 - 1 = 0$
3. **EV of Winning** = $1 \times 7 = 7$. **EV of Losing** = $0 \times 7 = 0$
4. **EV Gain When Called** = $7 - 0 = 7$
5. **Overall EV Gain** = $7 \times 100\% = +7\text{BB}$

Now we'll compare the EV of a 20BB bet getting called only 40% of the time.

1. **Equity** is still 100% (1) when called.
2. **Win Frequency** = 1. **Loss Frequency** = $1 - 1 = 0$
3. **EV of Winning** = $1 \times 20 = 20$. **EV of Losing** = $0 \times 20 = 0$
4. **EV Gain When Called** = $20 - 0 = 20$
5. **Overall EV Gain** = $20 \times 40\% = +8\text{BB}$

Conclusion: Even if Villain folds 60% of the time to the larger bet, the larger bet still gains more EV. Note that this calculation was simple as we had 100% equity. Steps 1-3 are necessary as Hero won't always have 100% equity when he's value betting!

We use this process to firmly dispel **milking syndrome** and ensure that we appreciate one important truth: larger bets need to be called less often than

smaller bets to reach the same EV.

Final Thoughts

This has been an important chapter. Get very comfortable with applying the flowchart we introduced at the beginning, especially the skill of estimating your relative hand strength. Becoming versed in making the choice between those three candidate river lines out of position will also add a lot to your win-rate.

Now back to pre-flop we go...

6. Calling Opens

Life is sweet when we're the pre-flop raiser. A firm grasp on how to open, ISO, c-bet and value bet effectively are the most basic tools in the box of the crushing Reg. Unfortunately though, we don't always get to laud our initiative and uncapped pre-flop raiser's range over our opponents. Sometimes we're on the other side of the coin, playing the role of the pre-flop caller.

Calling opens is something that leads beginners into great turmoil and often serves as a drain to their overall EV in the game. This is in part due to a failure to adhere to the strict teachings of an ancient idea called '**the gap concept**.'

The **Gap Concept** is that in most situations, Hero needs a stronger range to play vs. an open than he would to open from that position himself.

This idea is basic and has existed in poker literature for decades from the times when everyone was absolutely horrible at the game (apart from maybe Stu Ungar). **ATo** is part of our default opening range from the CO, but that certainly doesn't mean that we're able to call a pre-flop open when we're in the CO with this hand. Similarly there is a gap between the hands we can play as the opener from the HJ and the hands we can call vs. a HJ open. We might open **ATo** from the HJ but we'd rarely call it vs. a HJ open. There are a few reasons for this:

- We're facing a range that's already narrowed itself by opening only the top X% of hands and **ATo** is not doing so well against the average player's top X% from early position.
- We have no initiative in the hand and will be the ones facing a c-bet rather than making one. This is less favourable as it reduces fold equity and the spot requires more skill to play well.

- Since we 3-bet our strongest hands for value, our calling range will usually be capped and harder to defend to either pre-flop squeezes or post-flop aggression, especially as Villain's range is almost always uncapped.

To Squeeze is to 3-bet after one or more players have called an open.

There are exceptions to the gap concept, but in general it's well worth absorbing if you're a new player. If you're a little more experienced, it's a concept you probably already subconsciously adhere to, but remembering why can reinforce good habits.

6.1 Reasons to Call an Open

We'll begin our pre-flop calling strategy by thinking about some reasons for wanting to put ourselves in this less advantageous position of playing against an opening range without the initiative.

1. Our hand is in good shape vs Villain's likely opening range but not against his likely continuing range vs a 3-bet. We can call but not 3-bet for value.
2. We have sufficient implied odds.
3. We are likely to be in a pot with weaker players.
4. Pot odds make calling better than folding.

In the first part of the chapter we'll be going through these reasons one by one in detail.

Reason 1 - Being in Good Shape

Let's first clarify the latter part of this condition. Why do we need to be ahead of Villain's opening range but not his continuing range vs. a potential 3-bet? The reason for this is that by 3-betting when we are not in good shape when called, we are in fact turning a fine calling hand into a bluff and this usually doesn't make much sense. We'll get to 3-betting later in the manual, but for now, suffice to say that it's sensible not to waste good calling hands on 3-bet bluffs when we can use hands we'd otherwise have to fold for this purpose. Given that our calling hand is in fine shape against Villain's opening range, we want to play it against this range and not the tighter range that will be crushing us should Villain call or re-raise our 3-bet.

Now how do we work out if we're in good shape vs. Villain's opening range? Well, this largely depends on the following factors:

- What position did Villain open from? It will be much easier to be in good shape vs a CO stealing range than an UTG value opening range.
- What kind of player is Villain and how often does he open? Against wider openers, some hands will be callable that wouldn't be against a tighter player.

The Key Question: Given these factors, can our hand frequently flop hands that will be ahead of a sizeable part of Villain's *value range* post-flop?

By Villain's value range, let's assume we're talking about top pair, overpairs, and better - the stuff he'd commonly value bet post-flop. Why is it important not just to beat Villain's weak hands, but some of his stronger hands too?

Well, Hero will be folding the flop a fair percentage of the time when he misses it, therefore, it won't be enough just to beat Villain's weak hands or extract money from bluffs post-flop. Hero wants to be ahead often enough when he flops well that he can extract a good deal of value from worse made-hands and to lose to better made-hands infrequently, thus making up for the times he has to fold unimproved.

Before we look at an example hand, it's time to introduce a new set of stats that I urge Hero to use. We're building up quite the HUD now.

Raise First In (By Position)

Definition: Raised First In (RFI) tracks the % of the time a player has opened pre-flop given that he had the opportunity to do so. It differs from PFR in that PFR simply tracks the overall raise % pre-flop and does not consider whether or not there was an opportunity to open. **Raise First In (By Position)** is separated into five different stats that can be found by applying filters to five instances of the stat so that each one only tracks the position filtered for. The five stats refer to **Raise First In** in the positions: UTG/HJ/CO/BU/SB.

Reliability (No. of Hands)

RFI will track more hands for earlier positions than late ones as players more frequently have the chance to open from early positions. The UTG stat will track every occasion where the player was UTG since no one could have taken away his chance to open.

100 = Poor: This will only track 17 samples for UTG and gradually less and less for the other spots.

300 = Decent

500 = Good

1000 = Excellent

Interpretation

This varies massively by the position in question, but our default ranges from Chapter 2 translate to the following RFI stats. These should be taken as the average starting point.

UTG: 11%

HJ: 16%

CO: 25%

BU: 48%

SB: 42%

The green numbers on the HUD in Hand 45 display RFI by position from UTG through to the SB.

Hand 45

UTG – Reg (22/18/14/17/21/47/42**)**

HJ – Hero

CO – Reg (24/18)

BU – Reg (19/16)

SB – Nit (**14/12**)

BB – Nit (13/9)

Dealt to Hero:



UTG raises to 3BB, Hero?

Wait what? Hero doesn't have any cards just mysterious Xs? These represent that there is no set designation for hole cards in this hand. We are not concerned with what to do with one exact holding; rather we'll be discussing Hero's range: which hands are suitable calls, which are too good to call and which are too bad? This is a common method of analysis within the poker community. I urge the reader in his own personal review time to look at some spots not just in relation to what he had in that one hand, but to ask: 'what's my range here to do X?'

Let's assess our two factors and use them to answer the key question. Hero is facing an open from a relatively loose but not wild UTG opening range. An RFI of 14% is a bit wider than the range we've been using as standard from this position, but not completely out of line. Let's visualise what this range could look like.

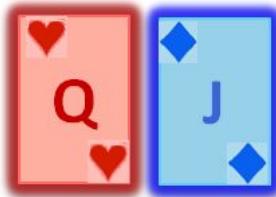
AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	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

Figure 26 - A 14% RFI Range

This is roughly what a 14% RFI looks like, but it can vary depending on how Villain constructs this range.

So we're now ready to consider our **key question**: What hands can Hero call here that he can expect to be frequently ahead of a sizeable part of Villain's value range post-flop, again, taking Villain's value range to mean top pair, overpairs and better.

Let's take some example hole cards and see what kind of shape they'll be in.



This hand is not in good shape against Villain's opening range. It has just 35% equity, but more importantly the pairs it will frequently flop will often be dominated.

A pre-flop hand or range is **Dominated** when it is likely to flop hands that will often be behind Villain's hand or range.

Moreover, there are four other players left to act that could potentially wake up with a big hand.

This hand does not qualify as a call under reason one. Note that while I did mention the hand's equity, assessing how it is actually likely to perform post-flop is more important than this raw percentage. Even on good flops for us, this hand is very uncomfortable due the problem of domination from **[KJ-KQ, AJ-AQ, JJ+]**.

When Hero has this problem of hitting the flop and then still losing a big pot quite often, he suffers from reverse implied odds.

Reverse Implied Odds are the opposite of implied odds and refer to the situation where Hero stands to frequently lose the pot and subsequent bets on the next street when he connects well.

Hero folds.

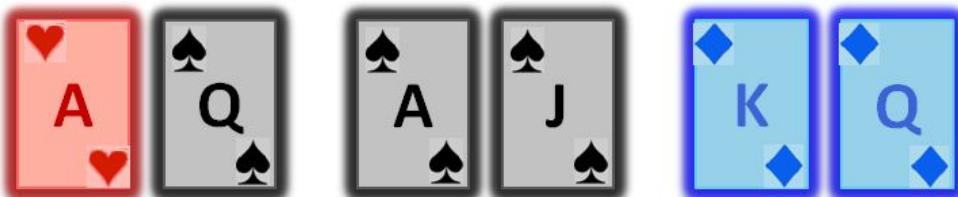


Throughout this chapter I'll be grouping hands together for simplicity. Of course this is not to say that they have exactly the same value, there will often be obvious differences, for example, **QJs** is clearly a bit better than **JTs**. **KQo** and **AJo**, however, are about as good as each other. **AJo** has more SDV unimproved, but **KQo** is more connected and makes more straights and straight draws. Both hands can flop similar strengths of pair.

These hands are a fair improvement over **QJo** coming in at 44% and 48% equity respectively against Villain's opening range and flopping pairs that are good a little more often. Unfortunately though, domination is still an issue and **[AQ+, QQ+]** is still a significant enough part of Villain's UTG opening range that we need a bit more help here.

Calling wouldn't be as horrible as before, but again with four people to act, Hero requires some kind of bonus factor to make a call, for example, if Villain played fit-or-fold post-flop, Hero would win more than his fair share of pots compensating for the reverse implied odds and equity disadvantage. There is also the distinct possibility that a player behind will elect to squeeze and not even being able to see the flop will hurt us massively. We'll cover this idea in detail as the chapter progresses.

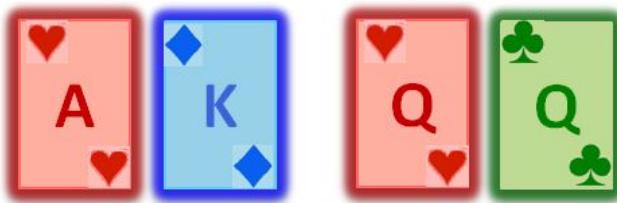
Hero folds



Now we're talking. These hands have 53%, 50% and 46% equity vs. Villain's range, but like I say, equity is far from the full story. **KQs** has 2%

less than **AJo**, but the connectivity and suitedness of the former more than make up for this. Being able to flop strong draws more often will yield an advantage and compensate for some reverse implied odds. These hands can be called here given Villain's range is wide enough for them to be in good shape on a lot of flops. When we flop top pair, Villain can flop some weaker top pairs. If we tightened Villain's range to 6%, they'd quickly become folds again.

Hero calls 3BB.



If the last hands were in good enough shape to call here, then clearly these are too. The question becomes: should Hero 3-bet these for value instead? We'll deal with this fully in [Chapter 10](#) but let's look at this question briefly as a prelude.

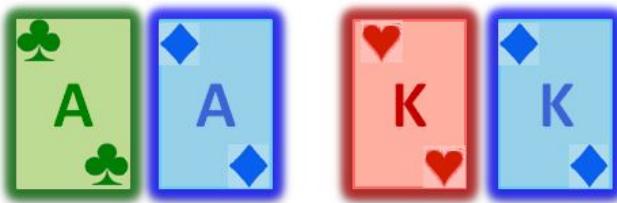
Recall that the important factor here is whether we think Villain is continuing with enough worse hands for our 3-bet to be **for value**. If Villain is calling a wide range to 3-bets out of position then, yes, these hands will do better as value 3-bets. In most cases though, against a solid looking Reg opening from UTG, a 3-bet is likely to fold out too many of his weaker holdings and leave us in a situation where getting 4-bet is very uncomfortable and where our hand won't be doing so well should Villain continue.

If Villain folds an average of 60% of his opening range to a 3-bet here, we will have only 47% equity with **AKo** and 50% with **QQ** when he continues. Against his **opening range**, however, these hands are doing very well with 58% and 67% equity respectively.

The default play here is to call vs an UTG open from the average Reg, but notice that these hands become easy 3-bets as ranges widen in later position.

Calling is good vs the UTG raise as Hero can flop hands that regularly crush a lot of the top pair type hands that Villain can make with his range.

Hero calls 3BB.

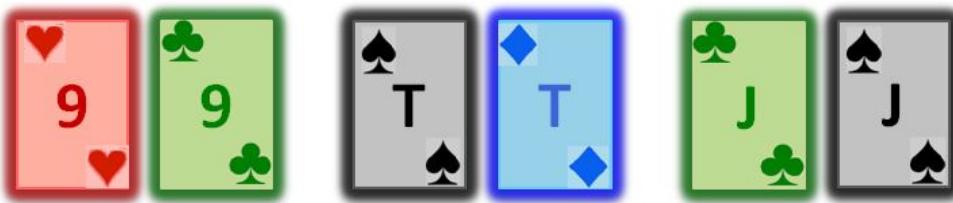


Finally we have a hand good enough to still be in great shape even when Villain continues to our 3-bet. Our 3-bet is now happily for value with 83% and 70% equity when Villain continues.

Hero raises to 8BB.

Reason 2 - Implied Odds

Let's recap. Having good implied odds equates to having a favourable ratio of money invested on one street to potential gain on the next should we make our hand.



Let's remain in the domain of Hand 45 for now. The reason I've chosen to kick off our second reason for calling opens with these hands is that they're somewhat of a hybrid between this reason and the first one. We are able to call these hands in [Hand 45](#) in part due to their ability to often flop well even against hands Villain value bets post-flop like worse overpairs on low

boards, but these hands also carry with them a second bonus: implied odds - they can flop the mighty set!

The more often we can make our super strong hand capable of claiming lots of Villain's stack, the better our implied odds are. Just how often do we flop a set with a pocket pair?

Here's a nice opportunity for a math interlude! If you're up for the challenge go back to Chapter 4 to remind yourself of [combined negative probability](#) and try to manually calculate how often one of the three flop cards will be one of our two set cards, then read my answer below to check your work. Alternatively, if you're lazy, jump straight to the answer, but that's not the attitude of a true grinder! Of course you can just google the answer, but what I'm trying to do here is build up your logical poker mind. Problem solving is the secret to great poker and so I truly recommend you embrace any opportunity to develop your problem solving skills in a poker context.

Now onto the math:

Before the flop, there are fifty unknown cards in the deck as we have seen just two. Of those fifty, two of them are our set cards. We will have three opportunities to hit one of those two cards. To find the probability of one or more of our cards being our set cards, we need to calculate the likelihood of none of them being so and subtract that from 100%. This is the procedure of combined negative probability, which we met earlier in the manual.

- The first card won't be ours $48/50$ or **96%** of the time.
- If the first wasn't ours, the second won't be $47/49$ or **95.96%** of the time.
- If the first two weren't ours then the third won't be $46/48$ or **95.83%** of the time.
- None of the three will be ours $(0.96 \times 0.9596 \times 0.9583) = 88.2\%$
- $100\% - 88.2\% = 11.8\%$
- **We will flop a set or Quads 11.8% of the time.**

Okay, we don't flop a set anywhere near as often as we do an overpair with these holdings, (why not have a bash at that math?) but when we do, we expect to crush the vast majority if not all of Villain's range, even some hands with which he might want to get his whole stack into the pot.

Our hand is so mighty when we make our set that we can justify the fact that we don't flop it very often. Moreover, sets are disguised hands - there doesn't need to be three **clubs** staring Villain in the face for them to be possible. This means that Hero is likely to extract more value from Villain's overpairs, top pairs, and what have you, than he would by flopping a more obvious hand like a flush.

To conclude, implied odds gel beautifully with the frequent strength of [99-JJ] making them powerhouse hybrid calling hands.

Hero calls 3BB.



With these lower medium pocket pairs, Hero has lost most of his ability to frequently flop better value hands than his opponent. If he doesn't flop a set with these holdings, then it will become very difficult to put too much money into the pot on a good number of boards due to what we'll be calling '**the small pocket pair curse.**'

Small Pocket Pair Curse: When a small pocket pair misses the flop and is behind, it only has **two outs** to improve, but when it misses the flop and is ahead, most hands have at least **six outs** against it.

So the situation is fairly bleak when we miss our set. The old saying: 'no set no bet' actually does have some truth to it, though the situation is far less black and white than that primitive slogan suggests. Nevertheless, we are going to have to fold a huge amount of the time that we don't hit our magic card and so we need our implied odds to be better than they had to be with [99-JJ].

Calling these hands is known as set mining since flopping a set is by and large our only purpose for calling the open.

When we **Set Mine** we call a pre-flop raise with a pocket pair with the primary purpose of making enough money to justify this call the times we flop a set.

What constitutes good implied odds? Let's stick this problem into one of our tables of factors.

Good Factors	Bad Factors
Small Investment	Large Investment
Flop Big Hand Often	Flop Big Hand Rarely
Villain Range Strong	Villain Range Weak
Stacks Deep	Stacks Shallow
Villain Doesn't Fold	Villain Folds
Multi-Way	Heads-Up
Position Good	Position Bad

Figure 27 - Implied Odds Factors

The first two factors compare our price to call with the frequency with which we make our hand. Looking at these will give us the average target amount we'll need to make **when we do flop our set** in order to profit from the pre-flop call.

The next four factors will help us decide how likely we are to achieve that target.

Let's assess the factors with reference to [Hand 45](#) and assume we hold a small to medium pocket pair.

1. Investment Size: Our investment is only 3BB; this is fairly small.

2. Frequency of Big Hand: We flop a set 11.8% of the time or just a little more than 1/9 times.

These factors serve as kind of guide as to how much we should expect to make on average in order to break even on the call. If we lose 3BB when we don't flop a set, and we flop a set 1 in 9 times, then we'll need to make 9x our pre-flop investment, or 27BB to break even on that investment. Working in ninths is a pain, but fortunately we can round this frequency up to 1 in 10 since we don't just want to barely break even or lose money to the rake by set mining, we want to make a profit! Moreover, we do on rare occasions lose a huge pot those times Villain happens to flop a higher set than us and so our math needs to account for this to some extent. We thus arrive at the set mining rule:

Set Mining Rule: Hero needs to make 10x his investment on average when we flops a set for pure set mining to be profitable.

This rule can help with making quick in-game estimates as to whether or not a set mine is likely to be +EV.

We have our target: we need to be winning an average of **30BB** from the combination of the existing pot and future money from Villain's stack when we make our hand to justify the pre-flop call. Now let's decide if we're likely to achieve this aim by assessing the next group of factors from the table.

Warning: The following process is rough. There's no numerical way to calculate this exactly, it simply takes practice in assessing factors 3-7.

3. Villain's Range Strength: Villain's range is strong here as we've already seen due to his UTG open. Against just the top 14% of hands, we can expect to make a good bit of money on average. If Villain's range were weaker, he'd

have a powerful hand less often and we'd run into more air and weak hands less likely to pay us off with our set.

4. Stack Size: Stacks are 100bb deep since it hasn't been stated otherwise. This is a plentiful amount of money left behind relative to the 3BB investment. If Villain had a short stack, set mining would decrease in value massively as the potential pay out would be restricted.

5. Villain's Aptitude to Fold: Villain looks like a solid Reg. He will fold more good hands post-flop than a Fish would. Of course, we'd prefer that he were a Fish opening 14% instead, but this alone isn't enough to render set mining bad.

6. Multiway Potential: There is certainly potential for this pot to go multiway with there being four players left to act behind. This boosts implied odds by making set payouts more likely since the chances go up that someone will often have flopped well those times Hero flops a set.

7. Position: Hero is in position to the pre-flop raiser and this is very beneficial. As we saw in the previous chapter, being in position helps us extract maximum value with good hands by ensuring that the pot grows on every street, while still giving Villain opportunities to bluff. If Hero were out of position, then he might have to make a tricky decision between check/calling and check/raising his sets on many flops. In position, just calling a c-bet on dry boards is usually far better since Hero can still ensure the growth of the pot on the turn should Villain check while still allowing him to bet air throughout the hand.

Overall, the situation is very good for making an average of 30BB. When Hero calls pre-flop, there will already be 7.5BB in the pot even if everyone else folds. This will leave just 22.5BB to be made from Villain's stack. This target seems very achievable against a strong UTG range in position.

Hero calls 3BB.

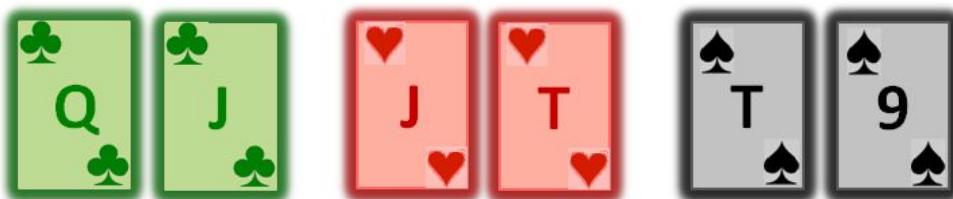


These hands are significantly worse than the ones we just considered. They suffer more from the very rare but deadly set over set scenario and are almost always on the wrong end of it. Also, while the last group of [66-88] was bad at flopping overpairs, this group is virtually incapable.

These hands could become profitable set mines in [Hand 45](#) with some Fish behind or if UTG is especially bad at folding decent hands post-flop, but from the HJ on a standard Reg infested table with four players left to act and potentially raise, I'd be inclined not to set mine with pairs this weak.

It's also worth bearing in mind that while [66-88] are often playable vs. looser opening ranges due to non set mining reasons, [22-55] are usually not. The former can hold their own a little better when they miss the flop. The latter are more often pure set mines, having very little to no playability when they miss.

Hero Folds.



These hands, like [99-JJ], are also hybrids. They can flop very strong hands, or more commonly, draws to very strong hands, but note that they also have some top pair potential. While this potential isn't enough on its own to justify calling an open against a strong range due to the domination problems of those top pair hands, it goes nicely with the implied odds of these hands to give them greater flexibility when they don't flop their flush, straight or good draw.

The implied odds side to these hands is less favourable than that of the pocket pairs:

- 77 will flop a set, as we know, **11.8%** of the time.
- JTs on the other hand, will flop two pair or better just **5.6%** of the time.

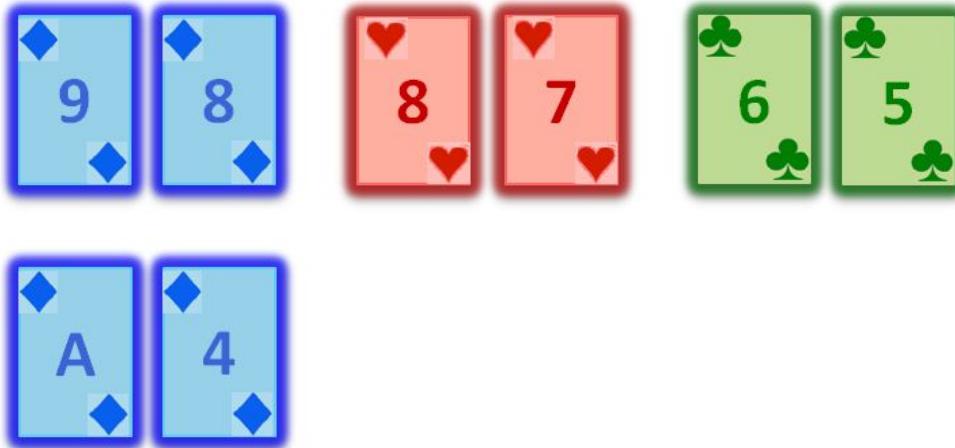
Flopping draws makes up for this and a powerful 12 out or better draw can be expected to come around **6.9%** of the time.

On top of this, Hero can expect to flop a Regular flush draw (9 outs) or open-ended straight draw (8 outs) **13.2%** of the time, but these hands are far less valuable than the above.

Overall that's **25%** of the time that we'll flop either a very strong hand or draw to one, but of course flush draws, Trips and two pair are nowhere near as awesome as sets. Sets are more disguised than these hands as they're further ahead of worse made-hands and likely to make you a whole lot more money on average. For these reasons, we need to be more careful about calling the medium-big suited connectors for implied odds reasons alone.

This group of hands isn't quite callable in this situation. We'd need some more implied odds factors to be in our favour. In particular, we'd like to be anticipating multiway pots with weaker players. As Villain's opening range widens though, these hands begin to hold their own more and more as one pair floppers and quickly become playable. BU vs CO, for example, calling them is usually totally fine.

Hero folds.



As the implied odds type hand becomes weaker, the more favourable the other factors will need to be for us to call. These hands are still hybrids and a lot more flexible than the likes of 33, but their pair flopping power is significantly less. These are not close to callable in Hand 45.

Hero folds.

Reason 3 - Playing with Weaker Players

Poker is a game of skill. Our EV in any given spot where there are future decisions to be made will change based on our skill level relative to that of our opponent(s). The presence of weaker players in a hand can be an incentive to call an open in a situation where Hero is neither in good shape vs the opener's range nor has the requisite implied odds.

Let's look at an example:

Hand 46

UTG – Reg (22/18/**14/17/21/47/42**)

HJ – Unknown

CO – Unknown

BU – Hero

SB – Passive Fish (45/13)

BB – Aggro Fish (67/25)

Dealt to Hero:



UTG raises to 3BB, HJ folds, **Hero?**

In Hand 45, **87s** was an easy fold as the table contained no Fish. Here we have a completely different situation where both blinds are likely to come along for the ride and to play badly when they do. This post-flop situation is far more favourable. Hero's suited connector is not as powerful a mining hand as a pocket pair and hence needs extra implied odds in order to invest 3BB. The two Fish sitting out of position to Hero provide these nicely.

We mentioned before that the top pair hands that a medium suited connector can flop are fairly weak and suffer from a degree of reverse implied odds against the UTG opener's overpairs. This is less of a problem in a multiway pot. Multiway, with Fish involved, UTG will have to play very fit-or-fold and Hero can simply toss away his hand on a flop like **8h4s3s** should UTG c-bet without getting trapped for any bets at all. In fact, being able to make folds like this is an illustration of why a skill advantage translates into higher EV scenarios pot-flop.

If UTG checks, signifying that he very likely does not hold the set or overpair part of his range, then Hero can value bet his top pair and extract value from the Fish. Hero and the opener will tacitly agree to play more straightforwardly against one another than normal. The presence of the Fish assures this, whether they like it or not.

All in all, extra implied odds and the promise of more lucrative post-flop situations create a far superior situation for Hero to call in than he had with this hand in [Hand 45](#).

Hero calls 3BB.

There are a few more sub-factors relevant to this reason to call opens. For example, if the Fish in [Hand 46](#) were short stacked, then implied odds would be worse. If the Fish were in position to Hero, it would be harder to extract as much value post-flop and implied odds would suffer a little. If there were a very active squeezer waiting in the SB, then Hero would have to acknowledge that he'd frequently be burning 3BB by calling the open and having to fold to a 3-bet before getting to flop anything good.

One pitfall in learning this complex game is always to oversimplify and lump different situations together as exactly the same. The examples I provide are good guides, but pay attention for these subtle changes in favourable and unfavourable factors in the real situation that could swing the EV of taking a certain line from positive to negative. Always think for yourself in all of the highly dynamic situations in this beautifully complex game.

Reason 4 - Pot Odds Make Calling Better Than Folding

Recall that pot odds compare the pot as it currently stands to Hero's investment to see the next card. Good pot odds require the number on the left of this ratio (the pot) to be much larger than the number on the right (the amount Hero has to call.) EG. 3:1 is much better than 2:1.

Hero will typically be getting worse pot odds when he's not in the blinds. For example, facing the UTG open in [Hand 46](#), Hero has to call 3BB into a pot that is just $3\text{BB} + 1.5\text{BB} = 4.5\text{BB}$ (UTG's open + the blinds). Therefore, his pot odds are 4.5:3 or **1.5:1**, assuming no other players come along.

If we shift Hero into the big blind, his pot odds increase significantly because he only has to invest 2BB to see the flop. In this case the pot would be still be $3\text{BB} + 1.5\text{BB} = 4.5\text{BB}$ (UTG's open + both blinds). Only now, Hero's investment is 2BB so he is getting 4.5:2 or **2.25:1**.

Note that we do not count the dead BB as part of Hero's investment as he has committed it involuntarily before making a choice as to whether to play his hand. It matters not one bit whether that dead big blind came from Hero's stack or was dropped out of the sky by the pot splashing poker vulture; it's simply a part of the pot now.

Before we get excited and want to call a 3x UTG open with **87s** in a heads-up pot, we need to realise that this advantage in pots odds is totally offset by Hero being out of position to the raiser. Being in the BB instead of the CO then does not legitimise a call with **87s** without Fish in the pot, but the point still remains that Hero's price is much better in the BB.

Hero folds.

So when do better pot odds legitimise calling a hand that does not have great implied odds and is not in good shape vs the opener's range? Here's a common example. The green number in [Hand 47](#) below is Villain's **Raised First In** stat on the BU.

Hand 47

UTG - Unknown

HJ - Unknown

CO - Unknown

BU - Reg (25/21/45)

SB - Unknown

BB - Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2BB**, SB folds, **Hero?**

K4s has just 44% equity vs a likely opening range for BU's 45% RFI stat. Hero will not flop hands that are doing very well against BU's value betting range and nor are his implied odds very good since he won't be getting paid off too successfully against a wide and weak range out of position. It's fair to say that Hero simply isn't doing very well here. So should he fold? No way! Hero should call here happily. Given these amazing pot odds, he doesn't need to be doing well at all for calling to be higher EV than folding. Let me demonstrate with a method called synthetic comparison.

Synthetic Comparison is the technique of imagining an **untrue** poker scenario and finding the EV of that scenario before comparing whether the situation in reality is better or worse than that. This helps us decide if a play is likely to be +EV or not.

Part 1 - A Break Even Scenario

In this case we want to create a situation that makes calling the open 0EV and then see if we can do better or worse than that in reality. We're investing 1BB into a pot that's already $2\text{BB} + 1.5\text{BB} = 3.5\text{BB}$ (BU's open + both blinds).

Our pot odds are **3.5:1**.

We would break even here by winning this pot on the flop once for every 3.5 times we lose it. That's to say we need to win the pot as it would stand on the flop $1 / 4.5 = 22.2\%$ of the time to break even. Our synthetic scenario then is that 77.8% we check the hand down to showdown and lose. The other 22.2% of the time we check the hand down to showdown and win.

This scenario is clearly ridiculous as, in reality, Villain will be c-betting lots, we'll be folding frequently or calling when we connect in some reasonable way and sometimes even be winning big pots when we make our rare flushes, two pair or trips. We can accept that this scenario is absurd and simply ask: is reality better or worse than this?

Part 2 - The Real Situation

So can we do better than this on average? Well, we have 44% equity vs Villain's range (the 45% of hands shown by his BU RFI) and although we won't actually get to showdown and win 44% of the time, this equity should easily translate to a better situation than our miserable 22.2% winning frequency in the dummy scenario.

Let's start with some negative combined probability to work out how often we'll see a K on the flop.

- The first card won't be a K 47/50 times = 94%
- If it's not, the second card won't be a K 46/49 times = 93.88%
- If it's not either, then the third card won't be a K 45/48 times = 93.75%

No king will flop ($0.94 \times 0.9388 \times 0.9375$) = 83% of the time.

We will flop a pair of kings 17% of the time.

When we do there will be some reverse implied odds when we're dominated, but for the most part we'll be winning at least an extra c-bet on top of the pot as it stands the vast majority of the time. On a flop like **Kc6d2h** our equity jumps to 80% vs Villain's likely range!

On top of this, we will sometimes win a bigger pot with two pair and better and we can pick up some pots unimproved if Villain gives up. Moreover we'll sometimes be able to play back profitably against c-bets by calling or raising when we connect in some way worse than a pair of kings, for example when we flop a draw of some kind or a pair of fours.

Finally, there will be times when **K** high actually wins the pot at showdown. Much of our 44% equity comes from just having the best high card hand when both players miss the run out completely.

Overall, we can estimate that reality is comfortably better than our break-even scenario.

This process has been vague, but given how incredibly imperfect and complicated poker situations can be it's our most useful route to understanding why good pot odds allow us to call with playable hands. There's no mathematically exact way to calculate the EV of calling pre-flop - there are far too many factors involved post-flop, many of them unknown.

So in conclusion, [Hand 47](#) is a fine spot to call for this fourth reason of pot odds rendering a normally dubious hand callable. We don't do very well post-flop, but then again, we don't need to in order to reject that fold button. We just have to do better than the toy situation where we only win the pot as it stands just over a fifth of the time and never win more than that.

Hero calls 1BB.

If we reduce our hand to something like **Q4o**, our lack of draws, less chance of top pair and worse equity and showdown value will push us back into folding territory. We can imagine that it's a lot harder to outperform the break even dummy scenario with this hand.

Later in this chapter, I'll be suggesting a calling range for this exact situation along with a few others and approximating where the line between 'okay to call' and 'not okay to call' resides vs. various sizes of open when we're in the BB.

6.2 Cold Calling In Position

While being in position gives us more options post-flop, it carries with it the perils of there being more players left to squeeze behind us and worse pot odds to see the flop than we receive when in the blinds.

Here are a few guiding truths that should assist Hero in determining whether or not he should call an open in position:

- The closer Hero is to the BU the better. His position will be stronger post-flop and there will be fewer players to squeeze behind him.
- Vs. tight ranges (typically earlier position ones), implied odds hands such as **44** go up in value. Vs. looser ranges (typically later position ones), top pair flopping hands like **KQo** go up in value.
- Pot odds help. Smaller opens are more callable than larger ones with both types of hand as the more he has to invest pre-flop, the better he needs to do post-flop.

It's a good idea to develop a feel for what hands are strong enough to flat with vs the typical Reg in your games in common pre-flop situations. This automates many decisions and frees up more brainpower for extra decision-making. Doing this will also give Hero a better idea about his 3-bet ranges because 3-betting and flatting are very interrelated. 3-betting will be examined thoroughly in [Chapter 10](#).

With those points in mind, let's start building some generic flatting ranges.

We roughly laid out earlier what our strategy would look like in the common spot of facing an UTG open vs fairly typical kind of Reg, but that was only considering Hero being in the HJ. What changes as we move towards the BU?

As we build the following ranges, we'll assume that no extra incentives like a horrible whale in the BB or deterrents like an active squeezer in the SB are present. Our approach will need to be modified for those factors as and when

they occur just as we modified our opening ranges way back in [Chapter 2](#) with the presence of dynamic factors.

The following figure outlines the playable hands in an average fairly Reg infested game. 'Playable' here means that they can either be called or 3-bet for value. Where we draw the line and start 3-betting for value will depend on our opponent.

We shall be discussing this matter in depth later, but until then, suffice to say that these hands are all callable from the indicated position and later, but that the best ones may be better to 3-bet for value. Naturally, all hands callable from the HJ will also be callable from the CO and BU and hands callable from the CO will also be callable on the BU.

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



From HJ



From CO



From BU

Figure 28 - Calling vs. UTG In Position

As we can see, the closer we get to the BU the more we can open up our range. Let's see what happens when the opener is in later position.

[Figure 29](#) below shows how things change facing a HJ open.

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



From CO



From BU

Figure 29 - Calling vs. HJ In Position

The opener now has a wider range of hands than he did from UTG so Hero's adjustment is to flat more big cards that are now in good shape vs Villain's range. Our small and medium pair hands are still decent here in position as Villain's range is not yet a steal range and contains a high enough concentration of good hands to ensure implied odds remain reasonable.

Hero is advised not to play the purely implied odds pairs: **22-55** from the CO unless the BU and blinds are the kind of players who are unlikely to interfere by squeezing. These hands are virtually hopeless against a squeeze and so flatting them on aggressive tables equates to Hero folding far too much to squeezes. What good are implied odds if you don't get to realise them by seeing the flop?

Before moving on to facing opens from the blinds, we'll take a look at the very adversarial CO vs BU scenario. How does Hero's strategy change now?

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

From BU

Figure 30 - Calling vs. CO In Position

I called this spot 'adversarial' as wide ranges inspire disbelief and aggression between two positional heavyweights. As the opener's range is

now significantly weaker, Hero is advised, where permitted by the players behind him, to flat a much wider range. This range is not made up of implied odds hands, but of hands that are frequently in decent shape on the flop. Broadway hands will now flop top pairs which can survive well against a CO steal range, suffering less from reverse implied odds than they would against early position opens.

Similarly, large and medium suited connectors make good hybrid calls and play very nicely in position.

[22-55] have been dropped as they'll most often be flopping the dreaded underpair and the sets they do rarely flop are not so likely to get paid off against a wide stealing range from the CO. Moreover, squeezers in the blinds are more likely to target late position opens and so 3-bet percentages should increase in the seats behind Hero.

Note that the above three strategies for dealing with opens are incomplete. We've not yet talked about what hands from this selection we'll be 3-betting for value and what hands we might add as 3-bet bluffs from those that aren't good enough to call. This chapter serves as an understanding as to when it's profitable to call opens and not as a comprehensive guide to playing against opens. Nevertheless, the knowledge of what hands can be flatted is going to be essential to helping Hero build his 3-betting game later in the manual.

6.3 Calling Out of Position

This next section is split into two very distinct parts. I've had new students in the past who have made the gargantuan error of treating the SB and BB as the same spot when facing an open. This quickly leads to huge mistakes being made. Let's see why this is.

Calling an open is massively less desirable from the SB than it is from the BB for two main reasons:

- Pot odds are worse in the SB. Hero has to call an extra half BB in relation to the pot.
- Hero is not closing the pre-flop action in the SB. Squeezes and undesired multiway pots can harm the EV of calling greatly.

The Big Blind

The BB is the spot from which Hero should expect to lose the most money and have a very negative win-rate. Unless you're Phil Ivey playing 2NL online, it's going to be very difficult to negate losses incurred from always having to commit a full BB to the pot with any hand at all, but that's fine; the winning player makes up for this and then some in the other positions.

So our aim is not to profit from the BB overall, but to minimise the amount lost on average from this position. We do this partially by having the correct 3-bet game for the situation, but also by ensuring that we know when and where hands are +EV to call. Note that '+EV to call' does not mean that calling will earn us money overall, just that it will earn us money relative to folding which costs us a full big blind from the point of view of the entire hand. Sometimes calling will cost us even more than this, however, and estimating when to fold your BB is the real skill.

We'll start by looking at spots where Hero is in the BB and faces a 3x open from UTG through to the CO. I'll only then address BB vs. BU by looking at a few different BU open-sizes as this is the position where sizing will differ the most.

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	IJo	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



Vs UTG



Vs HJ



Vs CO

Figure 31 - Calling in the BB vs UTG-CO Opens

The main difference between calling these opens from the BB and doing so in position is that set mining drops in value in the BB. I recommend just folding the small pairs to this sizing as the ability to extract value post-flop, as we know, suffers greatly when Hero is out of position.

As we face a later position opening range, weaker hands become playable, but note that the [Gap Concept](#) is very much in effect here. Hero is opting to

play a much tighter range vs. each position then he'd elect to open from that position himself. This is a healthy approach and ensures that calling hands have enough implied odds (EG. **66**), frequent strength (EG. **KQo**) or both (EG. **JTs**) to outweigh the positional disadvantage.

Opening ranges widen dramatically on the BU and sizing tends to differ more than in the other positions. Some Regs will choose to min-open as we discussed in Chapter 2. Others will make it 2.5x and some will be stuck in the days of 3x opening and won't adjust their sizing even when facing a BB who 3-bets or folds too much and doesn't flat a lot.

Let's see what kind of range we can defend our BB with facing these various open sizes from the BU:

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



Vs 3x



Vs 2.5x



Vs 2x

Figure 32 - Calling in the BB vs. Various Sized BU Opens

Makes sense right? The smaller the open, the better the pot odds we're getting and the more hands that become callable. While we're in 3x territory, most hands are playable for reasons one and two: being in good shape and implied odds, or a combination of both. As we move down to the 2x open size, we begin flatting hands that are rich in neither of these advantages, but are going to flop well enough given the price for calling to be better than folding. As we move towards the smaller open sizes, pot odds come more and more into play and we can rely less and less on the other reasons to call.

Flatting this wide against min-opens is a more recent development in poker theory. Stronger players have begun to realise that in order to reduce their losses in the big blind, they shouldn't avoid calling out of position like it's the plague as was once thought to be the case, but should instead look to flat many more hands given the pot odds being offered. Calling is simply better than folding.

One big mistake that weaker Regs make at the micro and small stakes online is to play far too much of a 3-bet or fold strategy BB vs BU, missing out on all of these profitable calls. As I say, these calls might not make money as far as the entire hand is concerned, but they're higher EV than folding from the point of decision where Hero faces the open. We can say that they make money from point of decision.

When the BU opener reduces his sizing, he's actually laying Hero a better price to flat and a worse risk reward ratio to 3-bet bluff. Consequently the common urge to 3-bet more vs min opens is actually a strategic blunder.

The Small Blind

Contrary to the BB, life in the SB is far less pleasant. Paradoxically, Hero loses less money from this blind and can even come close to breaking even if he plays it very well. This is not because it's more profitable to defend hands in the SB, but because Hero is only surrendering half the amount the times he folds from this position. It is the very fact that he's surrendered less money to

the pot by posting a blind that forces him to defend less. Now be careful here, Hero should have no irrational attachment to any of the dead money that came from his stack at the start of a hand - it's part of the pot and no longer his. The reason he should play tighter from the SB is that the pot odds he's being offered as a result of posting only half of a BB are worse and, therefore, less hands are profitable calls.

As I mentioned earlier, this pot odds problem is only half the struggle in the SB. The other factor that renders calling much lower EV is that Hero is not closing the action by making the call as he is in the BB. Instead, he's often going to be squeezed or end up in three-way pots with the BB to act after him post-flop. His position is hopeless in these situations.

Being squeezed forces Hero to forfeit all of his equity and fold a huge amount of a capped and wide calling range from the SB. The impact this has on the EV of an already marginal calling hand should not be underestimated - it's severe and calling that hand can quickly become -EV where the BB is squeezing regularly. If Hero is barely breaking even on a call when he sees the flop 100% of the time, only seeing the flop 85% of the time will throw him firmly into the red.

I recommend having a calling range from the SB only in the following situations and otherwise adopting a 3-bet or fold strategy to side step the disadvantages of flatting from this seat. Hero may have a flatting range from the SB only if:

- Hero is facing an UTG or HJ open and is therefore less likely to be squeezed when he flats (typical players don't attack earlier position opens so readily). Hero's implied odds are also better against a tighter opening range from early position.
- Hero is facing a CO or BU open, but there is a Fish in the BB with whom Hero really wants to play.
- Hero faces a CO or BU open and there is a tight passive player, a Nit, or a Reg with a very low 3-bet stat in the BB.

I recommend playing 3-bet or fold from the SB against CO and BU opens when there is anyone likely to squeeze or flat and play competently in position to Hero, or when that player in the BB is unknown.

We'll come to building some effective 3-bet or fold ranges for these spots in [Chapter 10](#), but for now let's outline what hands are going to be callable in the three above situations where we do want a calling 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



Vs UTG



Vs HJ

Figure 33 - SB Calling Spot 1: vs. UTG-HJ 3x

I wasn't kidding when I said that we'd have to be tighter from this seat. Many of the hands that we called from the BB are now going to drop considerably in EV due to the aforementioned two pitfalls of the SB. Hero now flats a snug and powerful range that has great implied odds (**88**) or is in very fine shape (**AQo**) or both (**JJ**).

AA	A1s	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



Vs CO 3x



Vs BU 2x

Figure 34 - SB Calling Spot 2: vs CO-BU with Fish in BB

The likely presence of the Fish in the pot grants Hero permission to develop the above flatting range. Hands like QTs can hit the flop often to capitalise on the Fish's inevitable post-flop blunders, while hands like 22 make up for their frequent underpairs by occasionally flopping sets and extracting a good bit of value from the Fish's calling station tendencies.

That said, Hero cannot flat anywhere near as wide of a range vs the BU min-open from the SB as he could from the BB. This is due to worse pot odds and the fact that though the Fish will play a wide range of hands, there will still be times when he folds and Hero is left out of position vs. the BU opener with no weaker player in the pot to compensate for this disadvantage.

Hero must therefore be a bit stricter with his calling hand requirements in this situation. It should also be noted that vs. Aggro Fish, Hero should flat a tighter range as he's more likely to get squeezed by this player type, though close attention should be paid to how the Fish in question plays this type of pre-flop spot.

Looking back to [Figure 33](#), Hero will also have the luxury of expanding his SB calling range vs. an early position open if there's a Fish in the BB, but he'll need to be a bit more aware of reverse implied odds. In Figure 32, Flatting KQo SB vs CO to try to get into a pot with the Fish is only viable because this hand is also in fine shape against the stealer's opening range. When Hero faces an UTG open he'll need something with better implied odds that is less dominated in order to make a Fish-hunting call.

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	KJ o	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



Vs CO 3x



Vs BU 2x

***Figure 35 - SB Calling Spot 3: vs. CO-BU with Non-Squeezer
in BB***

In this situation Hero knows the player behind him to be very unlikely to squeeze, but also not a big Fish. This kind of player will almost always be of the tight passive, Nit, or very tame Reg variety and identifying this over a reasonable sample of hands is mandatory before developing the above calling range. Again, actually getting to see the flop that we're paying 2.5BBs or 1.5BBs to see is of paramount importance to making a call +EV from the SB. Make sure that the prospects of facing a squeeze are slim.

This range is much tighter than the one in our second SB flatting scenario because the implied odds of getting involved with a very bad player are no longer part of the equation. Hero thus picks only the most playable hands to justify playing for these pot odds out of position.

Many of my newer students feel an initial disgust when I advise them not to flat hands like **66** and **55** in the SB vs. BU opens, but this has a lot of justification. These hands perform very poorly when they don't flop a set. Given that they won't flop a set 88% of the time, we need very good compensation those times that they do. We just aren't getting this compensation when we're out of position with lesser pot odds facing a wide range that won't have a strong hand to stack off with all that often. These hands are clearly not callable SB vs steal, even to small opens with tame players behind. Although these players squeeze rarely, it's still a factor. We're not closing the action!

6.4 Calling Blind vs. Blind

Finally, it's time to have a bit more fun. We noted back in [Chapter 2](#) that opening too wide of a range blind vs. blind could be a serious mistake. Recall that this was due to how much liberty the BB has in both 3-betting and flatting a wide range of hands in position in response. Let's flip the scales and be that BB.

How wide we defend our BB very much depends on Villain's **Raised First In** stat in the SB. How wide is he attacking our blind in the B vs B war? We'll take an average RFI of 40% here and work out what hands become callable vs. different sizes of open. Of course as this number rises or falls, Hero will need to think about adjusting his defence range accordingly.

The most common size of open you'll see here is probably still 3x, though trends are slowly shifting as I write this in early 2016 towards 2.5x sizing in this spot. Occasionally, you'll run into someone who min raises SB vs BB and this player should be punished by Hero's fold percentage dropping down to near zero. Being in position with pot odds of 3:1 is just too irresistible and will make calling better than folding with many hands we would never dream of playing out of position.

Let's see which hands are callable against the different sizes of open. Again, some of these hands will be better value 3-bets than calls, but we're not dealing with that quite yet.

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



Vs 3x



Vs 2.5x



Vs 2x

Figure 36 - Calling SB vs. BB

Look how wildly this range has expanded from the out of position approaches. Being in position makes it easier for Hero to both extract value with his good hands post-flop, call c-bets lighter and have extra possibilities of winning the hand unimproved. Hero will find that many SB openers give up too much post-flop in this spot because being out of position makes c-betting less desirable.

There are other factors involved here. Most Villains even up to 50NL and 100NL play poorly out of position having opened and either c-bet far too much or far too little. If Villain tends to give up and play fit-or-fold when called out of position, then Hero should feel free to go even wilder with his flatting range than this model suggests. If Villain plays very well and exerts

balanced pressure over multiple streets, then Hero might want to consider ditching some of the hands that flop the poorest from each range.

Final Thoughts

None of the range charts in this chapter are anything near to a fixed strategy for every situation. Hero should feel inclined to veer off in exploitative directions whenever he becomes aware of some flaw or imbalance in his opponent's game, be that pre-flop or post-flop.

Learning a solid basic strategy is only half the battle. The rest is using your poker brain to adapt that strategy to the situation at hand. That's why I introduced the factors before bombarding you with charts. These charts are not to be memorised and followed blindly, but do work well as a starting point and can help to roughly frame how wide you should call in common pre-flop spots.

We're now half equipped to successfully deal with opens pre-flop. In a few chapters' time we'll be completing the puzzle by looking at 3-betting strategies and how these interact with the calling strategies in this chapter.

In the meantime, it's back into the realms of post-flop. So far we've looked at c-betting and value betting. Let's now take a look at how to deal with spots where we're on the defending end of the post-flop betting. In other words, Hero has followed the advice in this chapter and got to the flop without the initiative. Now what?

7. Facing Bets - End of Action Spots

An **End of Action Spot** is a situation in which Hero faces a bet or a raise and is considering either folding or calling, and if he calls, that will be the last action taken in the hand by any player. Such spots occur when facing an all-in on any street or a bet or raise on the river.

Until now we've been the post-flop aggressor. Let's switch the roles around and see what happens in a very common and excruciatingly annoying spot to be in - when we're facing a bet or raise that will be the last bet or raise of the hand and don't know whether to call or fold.

7.1 The Two-Part Thought Process

Let's jump straight into a hand. The third (green) number on the HUD in [Hand 48](#) below is **Raised First In** from the relevant position - in this case, the HJ.

Hand 48

UTG – Unknown

HJ – Reg (25/20/19)

CO – Unknown

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, Hero calls 3BB, SB folds, BB folds.

Flop (7.5BB, 2 players)



HJ bets 4.5BB, Hero calls 4.5BB.

Turn (16.5BB, 2 players)



HJ bets 12BB, Hero calls 12BB.

River (40.5BB, 2 players)



SB bets 26BB, Hero?

This is the type of spot people post on my student forum more than anything else. It's one of the most uncomfortable spots to face in poker. Hero faces a river bet and his decision will be to either call or fold. It's not that turning his

hand into a bluff by raising is necessarily out of the question, but we'll leave this more advanced kind of play for now.

Assuming that Hero is choosing between calling and folding, this spot is known as an **end of action spot**.

These are some of the most common spots in which improving players continuously make big mistakes in their thought process. Let me give you an example of how not to approach this spot. See if you can spot a few problems in the following mental dialogue concerning the river decision in this hand.

"Well he's bet really big so he might think that I think he's bluffing and trying to get me to call, or is he trying to bluff me off my hand because he thinks I have something like I have? He would probably bet smaller with a value hand actually so I should call because he's trying to push me off the pot."

This thought process is a train wreck of unjustified conclusions. Hero is irrationally trying to soul read the very thoughts of some person across the world somewhere sat in front of a computer screen that he knows almost nothing about other than that the player is a Reg. Hero could leap with equal ease to either conclusion that Villain is more likely or less likely to be bluffing with this sizing using his amateur clairvoyance. The truth is that he simply doesn't know what the sizing means yet, if it means anything at all.

Perhaps the biggest problem with Hero's thought process, however, is that he hasn't even considered how much equity he needs (how often he needs the best hand) to call here. This is the absolute staple of the situation and should be the very first thing on Hero's mind. The rest of his decision-making should go out from there.

Only when Hero has at least roughly gauged this required equity should he go about estimating if he actually has that much equity on average by thinking about how likely Villain is to be bluffing vs. value betting.

The correct thought process can thus be clearly broken into two parts:

Part 1: What is my required equity to call?

Part 2: Do I have that much equity on average?

Part 1: Required Equity

We need to first calculate our equity target before we can decide if we should expect to win that often on average.

Required Equity – End of Action Spots

We call the amount of equity needed to break even on calling a bet in an end of action spot RE (**Required Equity**)

We call the bet size we're facing, but have not yet invested ATC (**Amount To Call**)

We call the total pot size **including Villain's bet** TP (**Total Pot**)

Now we've defined our variables we can state the following mathematical rule. This is the first step to working out whether or not to call a bet in an end of action spot.

$$\text{RE} = \frac{\text{ATC}}{\text{ATC} + \text{TP}}$$

Example: Hero faces a 13BB bet into a pot of 20BB on the river and is deciding whether to call or fold.

ATC = 13. Hero would have to invest 13BB to call.

TP = 33. This is the pot after Villain has bet.

$$\text{RE} = \text{ATC} / (\text{ATC} + \text{TP})$$

$$\text{RE} = 13 / (13 + 33)$$

$$\text{RE} = 28.2\%$$

Pitfall: The most common mathematical mistake made in poker is to divide 13 into 33 instead of into $(13 + 33)$. If we call and win, we get our 13BB back as well as Villain's 13BB and the pot as it was before he bet. We thus need to add our 13BB to the amount we're calling to win. We are not inserting those 13BB into a vending machine to have a chance of winning a separate pot, they will come back to us when we have the best hand.

Let's do this calculation for [Hand 48](#).

Hero is facing a 26BB bet into a pot of 40.5BB

$$ATC = 26$$

TP = 66.5BB (again including Villain's bet, do not forget to add this to the pot)

$$RE = ATC / (ATC + TP)$$

$$RE = 26 / (26 + 66.5)$$

$$\mathbf{RE = 28.1\%}$$

That's step one of our thought process complete, and that's all very well for out of game analysis, but how is Hero supposed to do that calculation so precisely with the limited amount of time available in game?

He's not. Instead he should refer to milestone amounts of required equity corresponding to the rough size of Villain's bet in relation to the pot. If he knows how much equity he needs to call a pot-sized bet, a two thirds pot sized bet, a half pot-sized bet and so on, he can quickly estimate the rough amount of equity he needs by looking at the nearest milestone to the bet-size in question.

Bet Size Faced	Required Equity
Bet into Empty Pot	50%
Pot Sized Bet	33%
$\frac{3}{4}$ Pot	30%
$\frac{2}{3}$ Pot	29%
$\frac{1}{2}$ Pot	25%
$\frac{1}{3}$ Pot	20%
$\frac{1}{4}$ Pot	17%
$\frac{1}{5}$ Pot	14%

Figure 37 - RE Milestones

I strongly recommend that you take the time to ingrain these numbers into your subconscious so that they can effortlessly pop up to the forefront of your thought process when you face a bet in an end of action spot. This way you'll save the rest of your time bank for figuring out part two of the puzzle, and as you might have guessed, that's the tough bit.

In [Hand 48](#), Hero looks at Villain's bet size and sees that it's a bit more than half pot. He reasons that he therefore needs a bit more than 25% equity to call the bet.

Part 2 - Actual Equity

Are we good just over a quarter of the time in [Hand 48](#)?

Sometimes my students ask me how to mathematically calculate their equity in an end of action spot. There is no way to magically conjure up the amount of equity we have in the hand or even the amount we have against our opponent's range. Instead Hero must go into the tank and consider the following factors:

- **Q1. Is it likely that Villain can be value betting many worse hands?**

If YES, we can usually make a quick call.

- **Q2. Does Villain get to the river with any air in his range?**

If NO, we can usually make a quick fold.

- **Q3. Does Villain credibly represent better hands?**

If NO, we can usually make a bluff catching quick call.

- **Q4. What else do my population/player type/Villain reads tell me?**

This is more complicated and something that requires solid analysis.

Question 1: Value Betting Worse

One of the surest indicators that calling must at least be a reasonable option if not a fantastic one is when Hero's hand is so strong that it actually beats some of Villain's value range. In these cases Hero needs Villain to be bluffing far less often in order to call as he can beat hands that Villain isn't even bluffing with.

In Hand 48, it doesn't seem like Villain should be value betting anything worse. To blast three streets with **88** or **99** for value is incredibly optimistic if not delusional and so with Villain being a Reg with some presumed degree of competence, we can rule that out.

Answering no to the first question doesn't in and of itself mean that we should fold; it only means that we don't have an easy call.

Question 2: Can Villain Have Air?

If Villain's range contains no air, then the likelihood that he is bluffing decreases significantly. In some situations in which all of the hands that Villain gets to the river with have either improved or have decent SDV, Hero will be able to find folds more easily. As we saw back in Chapter 5 [Hand 41](#), when Hero c-bets flop and turn and then a draw completes on the river, check/calling the river is a horrible option for Hero to take with a marginal hand. This is because Villain's range is probably airless, meaning he either has showdown that he's likely to check, or a stronger hand like a set or flush to bet for value with if Hero checks.

In [Hand 48](#), Villain could be bluffing three streets with some air hand such as **AK** or **AJ** - these hands picked up equity on the turn and so make some sense. Much of Villain's air, though, mainly that containing a **Q**, has now improved to beat us.

Just because it's possible that Villain can have air in his range does not mean that he'll choose to bluff all of that air on the river and doesn't mean we can just click call. It's just another preliminary factor to look at. If Villain couldn't have air, however, a fold would be an easier choice.

Question 3: Representing Better Hands

Some weaker players bluff in spots where their line just doesn't make sense for value. For example, if an mindlessly aggressive player checks back the turn capping his range to only weak top pairs and worse and then raises a river bet, Hero can feel a lot better about calling that raise lightly, provided that he has a solid enough read that Villain always bets his strong hands on the turn. Being able to detect when a Villain's line doesn't make any sense for value is a skill that comes with practice. A word of caution though, Passive Fish will slowplay big hands very often so one of these players checking flop and turn then shoving his stack in on the river is not the same as the spot vs. the aggressive player with his capped range trying to represent the nuts.

In [Hand 48](#), Villain's range is very uncapped and he credibly represents lots of value hands ranging from **QJ** and **KQ** to overpairs and sets.

This doesn't mean that Hero should fold, but if Villain's line had been dubious for value, which it is not, then calling would very likely have been good.

Question 4: Using Reads

Three questions down and we're no closer to an answer. Nevertheless, those three questions are important to consider as they can sometimes make the process much easier and lead us to a faster answer. Sadly, most of the time that we face an end of action spots on the river, we won't be able to answer questions one to three in a way that solves the problem straight away. Villain's line will normally make sense for value, ruling out air won't normally be possible, and his betting range won't normally contain worse value hands than ours.

In [Hand 48](#) we have the dreaded bluff catcher in a spot where there's no obvious reason to either fold or call.

So let's look at our reads. There are three specificities of read ranging from most useful to least useful from left to right in [Figure 38](#) below. Nevertheless, any read is better than none at all.



Figure 38 - The Three Specificities of Read

Player Reads concern things that Hero has observed either from that specific Villain's past actions, his showdowns or from his HUD stats. Any notes Hero has taken on Villain also fall into this category. This is the most useful type of read and gives the most accurate information to sway Hero's decision.

Player Type Reads concern things that are true of the category of players to which Villain belongs. Regs tend not to slowplay the nuts for no reason for two streets. Fish tend to call with a wider range than they bet. Aggro Fish tend to have a wide array of bluffs in their range and might even turn SDV into bluffs for no good reason. The list goes on...

Population Reads concern things that Hero knows about the general Reg population. Perhaps the population folds too much to c-bets. Maybe it tends to have unbalanced 4-bet ranges towards bluffs. Perhaps we're at 5NL and the population has trouble finding the fold button.

It's Hero's job to decide which level of specificity he'll be using, but he never has the excuse: '***I know nothing.***' At the very least he should have a cache of population reads in his head. I advise you to study the average population in your games and develop a feel for the most reliable population tendencies among the Regs there and think about how to exploit these tendencies.

In this hand we know nothing other than that Villain is a Reg. This is not a useful player type read. If Villain were a crazy Aggro Fish, then we'd have a very useful one indeed. Hero should refer to population reads and ask

himself how often the average Reg in his games fires this board for three streets as a bluff.

The answer in most low stakes games will be 'not very much', or at least 'not enough' and so Hero should struggle, unless he plays in a very aggressive game, to find the requisite 28% equity to call with **TT**. I'd imagine in most low and microstakes games that the Reg population typically has a predominantly value orientated range when they bet three times like this.

One final point is that Hero must remember that he, like Villain, has a range of hands that he gets to the river with and that range contains a good few stronger hands like **AQ** and sets. Folding this one hand doesn't make Villain's play great overall if he *is* bluffing. Hero is not making a mistake if Villain rolls over a bluff after Hero folds in this one instance - Villain can only exploit Hero if Hero folds too often, not if he folds a hand that is at the bottom of his range.

We'll see a lot more about this approach of playing our whole range rather than just our hand as the manual goes on. [Chapter 13](#) will deal with spots from this perspective.

In summary, we used a two-part thought process to come to our decision in [Hand 48](#). We first found our required equity (RE) and only then asked three questions to see if we could solve the spot quickly. When that failed, we assessed our population reads as none of the more specific reads could help us and decided that we'd probably lose here more than 72% of the time on average if we called the bet.

Hero Folds.

Out of game Hero can be more specific than this and input an estimated range of hands for Villain into an equity calculating poker program. This will give him his exact equity if Villain's range was exactly the model Hero used in the calculation. Of course Hero can't soul read Villain's range out of game any more than he can in game, but such a tool can help draw conclusions such as: "If Villain bluffs all of his **AK** and **AJ**, and then the rest of his range is value, then I should call."

In fact vs a range of [AJ, AK] as bluffs and then [AQ KK AA A4s 22 33 55 99 QQ] for value Hero can use such a program to calculate that his equity is 43% and that he can call comfortably. Due to our population reads, however, we decided that Villain probably wasn't bluffing anywhere near this much on average and decided to fold for that reason.

Here is a flowchart to serve as a summary of how we solved this end of action spot.

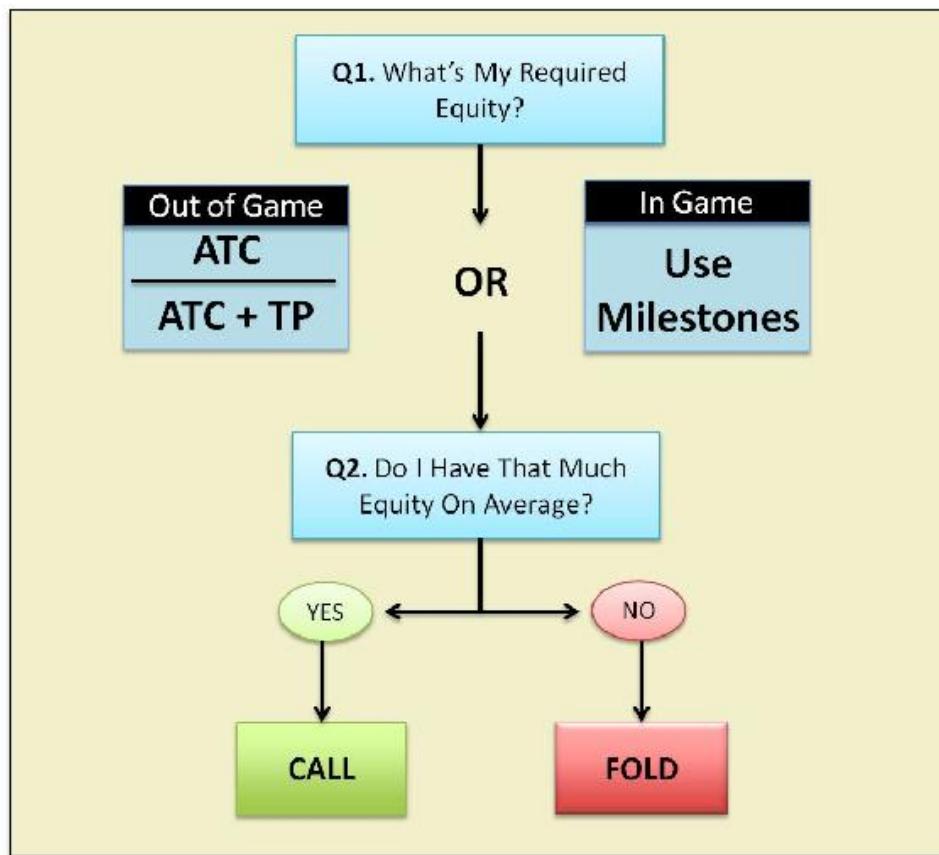


Figure 39 - A Thought Process for End of Action Spots.

7.2 Stats and Examples

Quite often Hero will be much less clueless than he was in [Hand 48](#) and will have useful HUD stats to hand. Let's have a look at some of the best stats for deciphering how aggressive Villains are with the betting lead and deducing whether we should call in an end of action spot.

CBet Flop

Definition: **CBet Flop** shows the percentage of the time that a player bets the flop as the pre-flop aggressor given that he had the opportunity to do so. Higher values show that when Villain bets the flop, he will on average reach the turn with a larger amount of his overall flop range.

Reliability (No. of Hands)

50 = Poor: Likely only over 5-10 opportunities with the average active Reg.

100 = Okay: Gives a rough flavour with players who raise a decent number of hands pre-flop. Players who raise rarely will have had less opportunities to c-bet.

300 = Decent

500 = Good

1000 = Excellent

Interpretation

Caution: This stat does not accurately represent the percentage of the time a player c-bets the flop in the spot at hand, but shows an average c-bet% for all flops. Some students take this stat too literally. Just because a competent Villain c-bets 70% does not mean that he c-bets as much as 70% of his range on a very wet flop five-handed. Similarly, on the driest flop heads up, he probably c-bets more than 70%.

0-50 = Very Low: This player plays very straightforwardly and mainly c-bets for value.

50-60 = Low: This player does make light c-bets but not as much as he should.

60-65 = Average: This player likely selects his light c-bets well.

65-75 = High: This player likely makes some light c-bets that he shouldn't.

76+ = Very High: This player c-bets far too much.

Although the flop will not usually be an end of action spot, using **CBet Flop** is very important for deciding how lightly to call river bets too where Villain is firing three streets at us. The larger the quantity of light c-bets he makes on the flop, the more air he'll take to the turn. This will often translate to him

having more air to bluff with on the river as well, but before making our decision we need to look at how often he fires those later streets.

CBet Turn

Definition: **CBet Turn** shows the percentage of the time a player bets the turn as the pre-flop aggressor given that he c-bet the flop and had the opportunity to do so. Higher values show that Villain will on average reach the river with a wider range after he bets turn.

Reliability (No. of Hands)

Note that players who c-bet the flop a lot will have more opportunities to c-bet the turn.

50 = Awful: Likely only over one or two opportunities.

100 = Poor

500 = Decent

1000 = Good

5000 = Excellent

Interpretation

Caution: Again, this stat cannot be taken literally in all situations. If a competent player c-bets the turn in a multi-way pot on an anonymous card, it's more likely that he has mainly value hands. If he bets the turn heads up on a scare card, it's likely that he has more air.

Interpreting this stat also depends massively on Villain's **CBet Flop** stat. The wider the range he takes to the turn, the more indicative a high value in this stat will be of bluffs. The tighter his flop c-bet range, the more value he'll have on the turn even if this stat shows a high value.

0-35 = Very Low

35-50 = Low

50-60 = Average

60-70 = High

70+ = Very High

But I stress this again, it depends so much on how wide Villain c-bets the flop.

So it's prudent to use the last two stats together when considering turn decisions and not just this one in isolation. The same goes for the river where we are most likely to encounter the end of action spots that examined in this chapter.

CBet River

Definition: **CBet River** shows the percentage of the time a player bets the river as the pre-flop aggressor given that he c-bet the flop and turn and had the opportunity to do so. Higher values show that Villain is more likely to bet the range he reaches the river with.

Reliability (No. of Hands)

Players who c-bet the flop and turn a lot will have more opportunities to c-bet the river. This stat takes even longer to converge than **CBet Turn**.

100 = Awful

500 = Poor

1000 = Decent

5000 = Good

10000 = Excellent

Interpretation

Caution: Again, this stat cannot be taken literally in all situations. Some rivers complete draws and reduce the amount of air a player can have, some river cards will rarely get bluffed while others will more frequently.

Again, the higher the player's **CBet Flop** and **CBet Turn** stats, the more air he'll have to use as a bluff on the river. A player who rarely gets to the river with weak hands will naturally have a high value in this stat; it doesn't make his range bluff-heavy.

0-35 = Very Low

35-50 = Low

50-65 = Average

65-70 = High

70+ = Very High

The ratio of these three stats over a good sample can shed some light on Villain's river bluffing frequencies. It's very important that Hero assesses them in relation to each other and not in isolation.

Before we look at a few hands. There is one more general stat that can be useful over smaller samples to give us an idea of how often Villain wins the pot when he sees the flop and indicates how much he fights for pots overall and tries to generate fold equity with the non-value parts of his range.

WWSF

Definition: WWSF stands for **Won When Saw Flop** and shows the percentage of the time a player won the pot having seen the flop. It is a very good general indicator of aggression and willingness to try to make opponents fold in all post-flop situations.

Reliability (No of Hands)

100 = Poor
500 = Decent
1000 = Good
3000 = Excellent
5000 = Accurate

Interpretation

0-37 = Very Low: This player is extremely weak/tight post-flop and never fights for pots without a strong hand.
37-42 = Low: This player gives up too much post-flop.
42-47 = Average (low): This player is on the straightforward side of average.
47-52 = Average (high): This player fights for more pots than the average Reg.
52-55 = High: This player likely bluffs too much and refuses to give up in spots where he should.
55+ = Very high: This player is very aggressive and likely unbalanced to bluffs in most situations.

Let's move onto some examples now and put these stats and the previously taught thought process into use.

In the following hands the third (green) number on the HUD is **Raised First In** from the relevant position. The fourth (blue) number is **WWSF** and the next three (brown) numbers are **CBet Flop**, **CBet Turn** and **CBet River** respectively.

Hand 49

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Reg (27/22/65/51/74/62/65) (300 hands)

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **SB raises to 3BB, Hero calls 2BB.**

Flop (6BB, 2 players)



SB bets 4BB, Hero calls 4BB.

Turn (14BB, 2 players)



SB bets 9BB, Hero calls 9BB.

River (32BB, 2 players)



SB bets 29BB, Hero?

The first three streets are very standard.

Pre-flop: Hero defends a hand that is in absolutely fine shape vs. a 65% SB RFI in position, closing the action. No problems here.

Flop: Hero calls a c-bet with an extremely strong hand relative to Villain's c-bet range, which as we know from the high 70% stat, includes a lot of worse hands. Hero could exploitatively raise with the right dynamic where Villain is likely to lash out by 3-bet bluffing the flop or perhaps call the raise far too lightly. Without this read, getting 3-bet on the flop is awkward and raising unnecessarily narrows Villain's very wide range. Hero also gets to protect the weaker parts of his range by having hands as strong as this in his flop calling range. This prevents our aggressive opponent from bluffing like crazy and getting enough folds from us overall. We'll look at these kind of decisions more closely in the next chapter.

Turn: The **Kc** is far from the best card but it is one that Villain is very likely to continue betting on with a large part of his range. Hero still has the best hand very often here and so folding is out of the question especially vs. someone who c-bets the turn 62% of the time.

River: And here is the end of action spot. Hero is clearly not raising this river with a hand that is basically a bluff catcher. He's calling or folding and either way his action will be the last one in the hand. Time to initiate the two-part process.

Part 1: Required Equity

Hero needs ATC / (ATC + TP) equity to call the bet. Remember TP includes Villain's bet.

$$29 / (29 + 61) = \mathbf{32\%}$$

If we were in game using our milestones, we'd simply reason that Villain's bet is almost pot sized so Hero needs almost 33% equity to call.

Part 2 - Actual Equity

Do we have enough equity against Villain's range to call? Let's go through questions 1-3 before we examine our reads and see if we have an obvious decision available.

Q1. Is it likely that Villain can be value betting worse hands?

This is unlikely, but possible. Villain could potentially be value betting **Q9** or **J9** for thin value, but his large sizing makes this less likely. Even if he is betting these hands, they aren't a large part of his range by any means. No quick call available for this reason.

Q2. Does Villain get to the river with any air in his range?

Absolutely. Lots of draws have missed and we know this player to be capable of getting to the river with a wide range in this way, especially blind vs. blind where ranges are even wider than usual. No quick fold available here.

Q3. Does Villain credibly represent better hands?

Yes he can have a whole host of **[TT-QQ Kx AA]** and sets. No quick call available for this reason.

Q4. What do my population/player type/player reads tell me?

This player fires post-flop bets frequently on all streets. His **WWSF** is high and he clearly isn't one to play fit-or-fold on the later streets. The **Kc** on the turn is a perceived scare card on which many Villains will bluff a wide range and Hero shouldn't have too much **Kx** in his own range after he calls the flop c-bet. This is a card that is much better for Villain's range than Hero's. All of this makes Villain fairly likely to be bluffing this river with a wide range of hands. Hero is fairly high up in his own range with **A9** and holding an **A** makes some of Villain's value combinations such as **AK** and **AA** less likely.

Moreover, the large river sizing seems to discount some thinner value bets. It seems less likely that Villain will show up with **TT**, **JJ**, **QQ**, or a weak **Kx** with this huge sizing as with these hands he needs to be called by very weak

holdings. This reduces Villain's value range and makes bluffs a larger proportion of his range overall.

In summary, Hero should comfortably reach his 32% equity target vs Villain's range.

Hero calls 29BB.

Hand 50

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Reg (24/20/56/**48**/65/51/53) (2200 hands)

SB – Hero

BB – Passive Fish (56/12/36/**40**/40/25/0) (90 hands)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 3BB**, **Hero calls 2.5BB**, BB folds.

Flop (7BB, 2 players)



Hero checks, **BU bets 5BB**, **Hero calls 5BB**.

Turn (17BB, 2 players)



Hero checks, **BU bets 10BB**, **Hero calls 10BB**.

River (37BB, 2 players)



Hero checks, **BU bets 20BB**, **Hero?**

Let's assess this hand street by street. Even though the earlier streets are not directly relevant to the end of action thought process, the concepts there are both good revision and good warm ups for what's to come in later chapters.

Pre-flop: Hero wouldn't normally have a flatting range out of the SB as we discussed here in [Section 6.3](#). In this spot, however, the Fish in the BB provides an exception to the rule and Hero happily flats **KJs** since the Fish will so often be in the pot making all of his horrible mistakes. **KJs** is of course also in fine shape vs. the opener's wide stealing range from the BU.

Flop: Sadly, the Fish did not oblige and folded pre-flop. Hero now calls a c-bet in a heads-up pot with a flush draw and two overcards. Raising is another +EV option but Hero reasons that his hand is in such good shape and he can call on any turn card, so elects to use his weaker draws as check/raise bluffs, keeping this one in the calling range. He also notes that Villain could continue bluffing when he has air on the perceived scare card turns where Hero in fact makes top pair to go with his draw.

Turn: This is exactly what happens. Hero picks up heaps of SDV to go with his flush draw and happily check/calls the turn, expecting to be miles ahead of Villain's betting range.

River: Part one of our thought process tells us that we need just over 25% equity to call this half pot sized bet. Out of game we can calculate this to an exact 26% using **ATC / (ATC + TP)**.

Hero asks **Q1**. Can Villain value bet worse hands? It seems he can in this spot. Given that the turn is a **K** - a scare card on which Villain can be expected to bet a wide range. Hero could very easily feel obliged to call down with hands like **TT, 98, A9** etc. and should quite rarely have a better hand than these.

We already have an answer. Not only can we beat some value hands, but we only need to be good just over a quarter of the time to make calling better than folding. Villain can also have some air here given Hero's weak range and good perceived fold equity so this makes the call even more obvious.

Hero calls 20BB.

For the first time, our initial three questions have led us straight to an answer without having to scrutinise any reads. This call isn't close.

Hand 51

UTG – Passive Fish (40/14/7/32/55/30/25)

HJ – Unknown

CO – Unknown

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG raises to 2BB, HJ folds, CO folds, **Hero calls 2BB**, SB folds, BB folds.

Flop (5.5BB, 2 players)



UTG bets 3BB, **Hero calls 3BB**.

Turn (11.5BB, 2 players)



UTG checks, **Hero bets 8BB**, UTG calls 8BB.

River (27.5BB, 2 players)



UTG bets 25BB, **Hero?**

Pre-flop: Hero has a pretty easy call here. 3-betting is out of the question vs. such a tight opening range. Hero has no interest in bloating the pot, and merely wants to flop a set or play favourable board textures in position vs a weaker player.

Flop: Villain c-bets on the small side. This doesn't narrow his pre-flop range much, which on this flop is overpairs, some missed overcards and some flush draws with maybe the odd **77** or **88** depending on whether Villain opens these hands from UTG. Hero calls with SDV against this range, his hand not being strong enough to raise for value and turning his hand into a bluff being a horrible option vs. a player who simply won't fold better hands.

Turn: Villain's check doesn't necessarily narrow his range too much. Passive Fish will be irrationally terrified of a flush here and will automatically check overpairs as well as air on this card very often. Hero bets for value against some flush draws and possibly medium pairs and protects his equity vs the overcards Villain is check/folding now. Villain's call indicates that he is unlikely to have naked overcards with no flush draw. Overpairs, underpairs and overcards with a good club are certainly in his range. It's also not out of the question for Villain to be going into slowplay mode with the nuts (AcKc for example) as passive Fish like to do.

River: Hero makes a 9-high flush and Villain suddenly wakes up and blasts a near pot-sized bet. Hero thinks.

Hero knows that he needs very close to 33% equity to call here since Villain has almost potted it.

He goes through his questions:

Q1. Can Villain be value betting worse? Almost certainly not: it is very unlikely that Villain can have lower clubs to begin with given his UTG opening range and even if he does have **7c7x** or **8c8x** the chances of him blasting away with these marginal hands being such a passive player are very low.

Q2. Can Villain have air? Here we get to answer no and reach an easy decision. If Hero has a bluff catcher and Villain is very unlikely to be bluffing, then Hero needs to fold, but why is Villain so unlikely to be bluffing?

Recall that Villain called the turn bet with two main types of hands, those which are overpairs and have SDV, with or without a club and those which

were naked club draws with **AcKx** and the like. The latter bunch are now the nuts and Hero loses to them. The former, when they don't have a flush, are very unlikely to just turn themselves into bluffs given their SDV and how passive Villain is in general. Hero has close to 0% equity vs Villain's range and his decision is now clear.

Hero folds

Hand 52

UTG – Unknown

HJ – Unknown

CO – Aggro Reg (31/25/32/51/82/65/70) (425 hands)

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, Hero calls 3BB, SB folds, BB folds.

Flop (7.5BB, 2 players)



CO bets 7BB, Hero calls 7BB.

Turn (21.5BB, 2 players)



CO checks, Hero checks.

River (21.5BB, 2 players)



CO bets 27BB, Hero?

Pre-flop: Hero faces an open from a very aggressive Reg. He reasons that his implied odds are sufficient here in position vs. an opponent likely to put a lot of money into the pot post-flop. This hand also has the frequent strength to

hold its own with one pair on some boards where it doesn't make the straights, flushes, two pair and trips that we'd rather flop.

Flop: Villain has a flop c-bet stat of 82%. This is massively high and Hero knows that his middle pair is comfortably ahead of Villain's wide range, which is still close to the 32% of hands that Villain opens in the CO.

Turn: Villain checks which probably narrows his range considerably to weaker holdings. Hero has no interest in getting check/raised here and heads for showdown with his middle pair. Sure Hero's hand is frequently best, but he can't exactly bet for value and by checking he can possibly induce some bluffs on some river cards.

River: Villain suddenly overbets the pot. Let's go through our thought process.

Hero faces a bet that is a little more than the pot. This means he'll need proportionately more than 33% equity to call here, but nowhere near 50% since Villain is far from betting into an empty pot. He estimates he needs somewhere in the high 30%s to call here. The true target equity found from doing the maths is **36%**.

Q1. Villain value betting worse hands would be absurd here.

Q2. Villain could very easily have air. He's an aggressive player with an extremely wide range. Making a crazy bluff here would not be out of the realms of possibility for this player type.

Q3. Does Villain's line make sense for value? No, it seems it doesn't. Hero reasons that such an active aggressive player is likely to bet most of his flushes on the turn for value as is normal practice for any Reg. Sure it's possible that Villain goes for a check raise on the turn with a flush, but it seems unlikely. Villain's river bet is so large that it really makes no sense *for value* with anything worse than a flush or perhaps [A3 K3 43s]. Villain shouldn't even have hands like [AJ QQ-AA] here having checked the turn anyway.

Overall, it just seems far too likely that this aggressive player is bluffing some amount much greater than the 36% that Hero needs him to be in order to call. This hand is an example of good hand reading skills put to practice. Hero deduces that though his hand is fairly weak in absolute terms, relative to Villain's range it's actually good very often due to how little sense his line makes for value.

Hero calls 36BB.

This kind of call is sometimes referred to as a 'hero call' as on the surface we're calling a huge bet with a weak hand. When you break down the problem, however, it seems more logical than heroic. I'm not even providing a definition box for this term because it's misleading and implies that there's something extraordinary about this call. In reality, these calls are actually less heroic than a call with a stronger hand that's closer to 0EV. This one isn't close as Villain is likely to be so unbalanced towards bluffs. I call it a 'bog standard call'.

Pre-flop End of Action Spots

End of Action Spots don't just occur on the river. Here's a relatively common pre-flop situation where we need to use a similar approach.

Hand 53

UTG – Aggro Fish (59/24) [37BB]

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Passive Fish

BB – Hero

Dealt to Hero:



UTG raises to 37BB (all in), HJ folds, CO folds, BU folds, SB folds, **Hero?**

This spot occurs from time to time in cash games though far less often than in tournament play. A Fish decides to jam his whole stack pre-flop like he were short stacked in the late stages of a tournament. The two-part process remains the same for Hero. 'How much equity do I need?' he asks and quickly realises that this all in raise size is very close to shoving 36BB into an empty pot. Of course the pot is not technically empty, but the 1.5BB of dead money makes little difference. Hero concludes that he needs ever so slightly less than 50% equity to call.

The true mathematical figure is $36 / (36 + 37.5) = 49\%$.

It's also worth noting that the rake, which I typically ignore in the examples in this book, will eat up some of Hero's profits when he wins and so he can slightly increase this required equity up to 50%.

Now for part two of the thought process: Does Hero have 50% equity or more?

This can be tough to estimate in game unless you're familiar with how much equity hands have against certain ranges. This is why an important part of your active study time should be to play around with a poker calculator and get a rough feel for pre-flop equities, specifically for these all-in situations.

How wide should Villain be expected to shove here? Much will depend on recent history. If he's just lost a big pot and is launching death threats into the chat box, this Fish may be shoving any two cards. If there's no reason to think he's tilted, his range will be a lot tighter.

If Villain is severely tilted, we can conclude that Hero should call assuming Villain's range to be absurdly wide. If he isn't severely tilted, a range around the vicinity of most pairs and the best broadways seems appropriate for this aggressive Fish.

Against [66+ AJo+ KQo+ A9s+ KTs+ QJs+], which is shown in grid format below, Hero has just 43% equity and should fold. This way of describing ranges is a shorthand way of representing the range grids we've been using in the manual so far. We start by stating which pairs are in the range, then we move onto the offsuit hands, going from ace-high hands to king-high hands and so on, and then finally we state the suited hands in the range. See the figure below for a demonstration of how this translates into usual grid format.

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



Villain Doesn't Shove



Villain Shoves

Figure 40 - An Estimated Shoving Range

Hero folds unless Villain is tilted.

Final Thoughts

End of Action Spots can be tricky. Keep a clear head, take your time and logically work your way through the two-part thought process. You will miss things and make errors at first, but learn from those and you'll boost your pattern recognition skills significantly. This is an area of the game where improving the coherence of your thought process and picking up on crucial bits of information you'd once have missed will pay dividends. These spots

also feel particular gross to play and this can hurt the mental game and induce tilt. Having a clear understanding of how to solve these situations will therefore stabilise your mental game to some extent and help keep confidence high.

8. Facing Bets - Open Action Spots

An **Open Action Spot** is one in which Hero faces a bet and if he calls that bet, there will be opportunities for further checks, bets, raises or folds to occur either on the current street or on a future street.

Technically speaking, all of the pre-flop situations we designed strategies for in [Chapter 6](#) were open action spots. Our focus in this chapter, however, will be the post-flop variety of open action spot, which occurs most frequently on the flop and turn.

This type of situation is a very common one indeed. Hero is faced with a decision to either call, raise or fold facing a bet from Villain and knows that if he calls, there will be the possibility of more money going into the pot at a later stage in the hand or of someone winning the pot due to players folding.

As we're about to see, this possibility distorts Hero's decision, turning it into a much more complicated beast from the variety we examined in the last chapter. Analysing end of action spots is a two-part process and the first part of that process where we find our required equity is very straightforward. In this chapter we have no such luck. The factors that go into analysing one of these situations require a skilled assessment of some concepts we've already dealt with in the realms of pre-flop, now applied in a post-flop setting.

- We'll begin by demonstrating why assessing required equity with a made-hand in the same way as [Chapter 7](#) fails miserably and how some aspiring grinders go wrong by not appreciating the differences between open action and end of action spots.
- We'll then look at how to properly assess and combine pot odds and implied odds as well as future fold equity in order to make playing non-made-hands easier.
- In the subsequent three sections we'll take a look at how to apply this knowledge and handle facing bets on the flop both in and out of position

and then finally on the turn.

8.1 Defending the Flop with Made-Hands

'Made-Hand' is a post-flop term for anything from a terrible pair on the flop (involving at least one hole card) to the stone cold nuts. It's 'made' in the sense that it needs no more improvement from future cards to be better than card-high.

In the last chapter we divided our thought process into two parts, the first of which dealt with calculating our required equity to make a call based on the size of our opponent's bet in relation to the pot.

Let's see why this fails so terribly in an open action spot. To some of you the reason may be obvious, but stick with me here as from that reason we can learn a hell of a lot about how to properly handle these situations. In the following hand Hero makes the categorical error of assessing this spot as though it were end of action. Observe how this leads to mistakes.

In the hands to come the third (brown) number on the HUD is **CBet Flop**.

Hand 54

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Aggro Reg (26/20/73) (50 hands)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 2.5BB, SB folds, **Hero calls 1.5BB.**

Flop (5.5BB, 2 players)



Hero checks, BU bets 3BB, Hero calls 3BB.

Hero, having read Chapter 7 of this manual and then fired up a poker session has the required equity procedure down to a tee. He reasons as follows:

"Well Villain has bet just over half pot. My milestone RE for calling a half pot bet is 25% so I must need just over 25%, maybe 27% or so to call here. Villain should be c-betting all of his air here, so it's very likely that I have easily more than 27% equity vs. his range so I call."

This is great reasoning... or at least it would be if villain's 3BB flop bet was all-in. Hero would need just 26% equity to call this c-bet and vs. an opening range of 50% of hands where all of that range c-bets he'd have **48%** equity, again, if Villain were all in on the flop for the amount of this bet, then this would be an end of action spot and Hero's call would be fine.

The problem is that Hero is still very far away from showdown and his prospects on the streets between now and then are very poor for a number of reasons listed below.

1. Much of Hero's equity is not true equity, but ghost equity.

Ghost Equity is equity that Hero has against Villain's betting/raising range in an open action spot on an earlier street that is not going to be fully realisable at showdown due to the necessity to fold sometimes on later streets.

Given that Villain is aggressive, he is likely to be semi-bluffing any hand with some chunk of equity on the turn and also betting all his top pair and better made-hands again for value. This means that Hero will be facing a turn bet a very significant amount of the time and this is usually a bet that he can't call without extremely good reads that Villain bets far too much of his range on the later streets. When Hero is ahead on the flop, or the turn, and this won't be a huge amount of the time anyway, it's going to be very hard to get to showdown in a profitable way.

On the turn, Villain's betting range is likely to contract a bit as he gives up with his worst equity hands. This lowers Hero's equity vs. a betting range and forces him to fold parts that ATC / (ATC + TP) told him to call on the flop. The same thing will then happen again on the river. The upshot is that some portion of the equity that Hero calls the flop with is equity that will never make it to showdown. It will fold even when ahead sometimes when villain bluffs or semi-bluffs the turn. Fortunately, we can foresee this problem and conclude that this equity was not real on the flop as it was never bound for showdown and realisation. This is what makes it ghost equity.

ATC / (ATC + TP) gives us the wrong verdict on this flop as it fails to take later streets into account. The formula assumes that Hero is reaching showdown immediately for no extra cost 100% of the time and this is only true in end of action spots.

2. Hero has few outs when behind.

We just saw that raw equity on the flop is not such a useful guide with future action to come, but this equity is much better when Hero's hand can improve on later streets, allowing him to realise more of his equity throughout the hand. If Hero could turn a flush draw to go with his pair, or perhaps had a few more outs when behind, then less of his flop equity would be of the ghost variety. This is because hands that can make the nuts like good draws can only get stronger as the hand progresses. For this reason we have an easier time calling future bets with them, especially where we have implied odds or fold equity on later streets. Weak underpairs, on the other hand, normally only get weaker and so cannot be called so happily on the next streets.

Important: Hero has similar raw equity vs. Villain's flop betting range with a flush draw here as he does with 77, but the flush draw makes a far higher EV call.

Unfortunately, 77 has just two outs to improve when behind. I call it the dreaded underpair for good reason. This equates to Hero turning a set just **2/47** or **4%** of the time. This does not add many turns on which he's able to call a second bet.

3. Hero's SDV is vulnerable.

Hero's apparent 48% flop equity originates almost solely from SDV - from one pair being good on the flop and holding up through the turn and river. Thus, the situation is much better if Villain has less outs against Hero with his unpaired hole cards.

Sadly, this is not the case. When Hero has the best hand on the flop, Villain often has at least two overcards if not more. A hand like QT with no backdoor flush draw, for example, has **40%** equity against Hero's 77 and all of this is true equity, not ghost equity since Villain has position and the betting lead and is likely to nearly always see the turn and river.

The other frailty of vulnerable SDV is that though overcards to **77** on the turn don't always make Villain a stronger hand, they do always improve the strength of his **range** and make calling bets even more precarious for Hero than on safer turn cards. The Qh turn will miss Villain's range quite often, but it still reduces Hero's equity vs. that range considerably and makes it even more difficult to profitably call a bet than it would have been on the 2d turn, for example.

4. Hero is out of position.

Realisation of equity is the core concept here. Being in position should allow Hero to get to showdown more easily since most Villains will be inclined to bluff turns more in position than out of position. As we've learned throughout this manual, EV is just lower out of position in almost every post-flop situation. Hero does not have the ability to ensure a bet goes in on the turn if villain checks and will have a harder time getting to showdown.

Conclusion

Overall, Hero is not committing 3BB on the flop to go to showdown and win more than 26% of the time. If he wants to take **77** to showdown here, he'll need to pay far more than this on average and deal with much worse pot odds on later streets than seems to be the case on the flop and this will not be profitable. Hero's pot odds on the flop are solely his pot odds to see the next card and that does not entail the realisation of any equity since equity can only be realised at showdown.

The 3BB flop call is -EV despite the fact that Hero would have enough equity to call if this were an end of action spot. The cards are not about to be flipped over and the action is not frozen for the rest of the hand. A massive chunk of this 48% equity is of the ghost variety. When behind, Hero's outs are terrible and when ahead Villain is often drawing very live indeed. Being out of position is just the icing on the -EV cake.

I've almost beaten this topic entirely to death, but only because this is one of the most frequent mistakes made by the aspiring player.

Making mistakes in poker is one of the most unavoidable and useful things the aspiring player will do, day in day out. He can learn from his errors and use them as examples of what not to do in future. Adding new, more sophisticated plays to your poker arsenal is just one small way of improving. The more essential route to progress is to correct the many holes that exist in your game. Let's summarise what we learned from Hero's error about open action spots.

Here are the key factors:

Good Factors	Bad Factors
Good or True Equity	Poor or Ghost Equity
Outs When Behind	No Outs When Behind
Invulnerable SDV	Vulnerable SDV
In Position	Out of Position

Figure 41 - Calling Made-Hands in Open Action Spots

Now consider [Hand 55](#) below:

Hand 55

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Aggro Reg (24/20/65) (100 hands)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 2.5BB, SB folds, Hero calls 1.5BB.

Flop (5.5BB, 2 players)



Hero checks, BU bets 3BB, Hero?

Pre-flop: First a bit of revision. Hero's call is totally fine with a hand which is both in decent shape vs. a likely wide stealing range and can flop a variety of decent non-made-hands to go along with the relatively strong pairs it can make. Of course, if Villain was opening from an earlier position and had a stronger range, this hand would become a fold, even though the pot odds are great and Hero is closing the action.

Flop: Compare this spot to [Hand 54](#). This time Hero has pair on the board instead of an underpair. This is monumentally better as we'll see. I always urge newer students to the game to rank their hand relative to Villain's range on the SDV Spectrum (see [Figure 21](#)). Doing this helps students understand whether the hand can call because the SDV is sufficient, whether it needs to bluff at some point in the hand if Hero is to win the pot (not that he always

should) or is the hand perhaps so strong that it can and should be raised for value?

I'd call this hand semi-vulnerable SDV. There are some bad turn cards for us and Villain can sometimes have decent equity when we're ahead, but the situation is much less bleak than in [Hand 54](#). Villain has less equity when behind as there are less gutshots in his range due to the slightly lower board texture. There is also one less overcard to our pair. Our backdoor flush draw ensures that there will be ten extra turn cards that we can always call again on given the extra equity a flush draw grants us as well as the implied odds. In addition, Hero has 5 outs when behind against top pair, not 2. This is massively better and is the main reason that flopping a mediocre pair that is part of the board is superior to flopping an underpair.

Overall, Hero has much better equity here vs. Villain's betting range than in the previous hand due to the above considerations and more of this equity is true equity as opposed to ghost equity.

From a strategic point of view, folding this flop would be absurd since it would equate to Hero folding an enormous portion of his range and would render his play very obviously exploitable. Villain's c-bets would become monstrously profitable as Hero would be grossly under-defending his range on this flop. Folding this hand would be to wave the white flag and would be to send the long-term message: "please c-bet 100% of your range against me as it will be extremely profitable."

Planning Ahead: Just because Hero elects to call the flop does not mean he needs to call the turn and river under any circumstances. Villain's betting range should contract as the hand progresses so it can be fine for Hero to decide on a later street that things have panned out badly and that folding is now the best choice. Perhaps the board texture is unfavourable and has improved Villain's range too much or maybe we don't think this player (or the population) bluffs on the river very much after betting flop and turn. Of course we'll have to fold sometimes on a later street, but here we have to fold much less often than in [Hand 54](#) and this is the difference between having true equity and having ghost equity.

Finally, note that Hero has many better hands than middle pair in his flop check/calling range, and from a strategic point of view, this protects him from being made to fold too often by the river. When we come to the example hands section of this chapter, I'll be going into more detail about the strategic implications of how Hero constructs his calling and raising ranges in open action spots so as to remain protected against multi-street aggression.

Hand 56

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Tight Reg (19/16/64) (180 hands)
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 3BB**, SB folds, **Hero calls 3BB**.

Flop (6.5BB, 2 players)



Hero checks, BU bets 4BB, Hero?

Pre-flop: This open is bigger than in the previous hand, but Hero holds a much more playable hand given the added connectivity and two fairly large cards for flopping top pair. This is a clear call.

Flop: The first instinct is certainly that this hand cannot be a fold. Though Villain is on the tighter side, his range to open the BU and then c-bet a dry

flop like this one is usually still wide and Hero's equity against that range will be way over 50%.

When ahead Hero is comfortably ahead. There are no hands in Villain's range that have both two overcards and a draw so the worst case scenario for Hero when he's flopped the best hand is Villain drawing to 6 outs with a hand like **KQ/AQ/AK** etc. or more rarely 8 outs with **98/45s** etc. Often, Hero will be further ahead than this.

When Hero is behind, he usually has 5 outs to improve against overpairs and 3 against better **Jx**. This is not as bad as the dreaded underpair was in [Hand 54](#).

Most of Hero's equity is true equity. He will essentially never be folding before the river and turn cards like an **8** and a **9** give him 4 more outs when behind in most cases.

This is clearly not a fold, but it's also not a raise! Why not?

Recall from [Chapter 5](#) on value betting that in order to bet for value Hero must be ahead of Villain's continuing range to his bet. Well, there's little difference in applying this rule here, just change the word 'bet' to 'raise'. I have one student in particular who used to automatically raise in spots like this. When prompted for his reason he'd say:

"Well, because I'm way ahead!"

While this is true, it doesn't legitimise a value raise. Just because we're ahead of Villain's c-betting range does not mean we're ahead when called after we build a huge pot by raising the flop and shoveling lots of money into the middle.

Some very old school 2003 poker logic used to run as follows:

"Hero is ahead here so he should take the pot down now."

This reasoning, or lack thereof I should say, is very bad. The benefit it alludes to securing is that of protection, which as we know can be important

when Hero has the best hand a very large amount of the time and where Villain is folding a good amount of worse hands that have significant equity.

The problem with this logic in the hand above is that Hero doesn't have the best hand an enormous amount of the time as Villain has better Jx, two pair, sets and overpairs in his range. We are ahead quite often here, but we're also behind a significant chunk of the time too. Moreover, as we noted, Villain doesn't really have so many hands with good equity vs. us when we're ahead. The aforementioned hands with 6 or 8 outs at best are not a big part of his range. Protection is not such a good idea here and comes with a great cost.

The cost of raising is that every time Hero is behind he bloats the pot considerably while also making Villain fold many of the hands he is ahead of. He gets much better value here with this frequently best bluff catcher by letting Villain bet worse hands on later streets, not by narrowing his opponent's range to the point where he's only happy if Villain folds. To raise is to say: 'Okay Villain, I'll build the pot more, but only when you have the best hand.'

Raising is an abysmal play. Let's keep the 2003 logic in 2003. Decent players no longer raise here precisely because poker understanding has evolved a lot since then. That said there exist many bad players who still play this way today, just as there exist many remote tribes that still believe that the sun revolves around the earth. It's the existence of these players that keeps poker lucrative and allows people to make a comfortable living playing online poker.

Hero calls 4BB.

Hand 57

UTG – Unknown
HJ – Unknown Reg (20/15/100) (15 hands)
CO – Unknown
BU – Hero
SB – Unknown
BB – Fish (52/11/40) (84 hands)

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, **Hero calls 3BB**, SB folds, BB calls 2BB.

Flop (9.5BB, 3 players)



BB checks, HJ bets 6BB, **Hero?**

Pre-flop: With a hand likely to be in such good shape vs the opener's range and the added incentive of a Fish in the BB, calling this open is by far the best play. As we'll see in Chapter 10, a 3-bet here would not clearly be for value since Hero can't be sure that HJ continues with enough worse hands out of position. 3-betting also narrows the Fish's range considerably and Hero would love for this player to come along with his wide assortment of worse Ax and Qx and likely desire to never fold the weak top pair hands that those commonly flop.

Flop: Another spot where folding is clearly out of the question. Hero's equity is huge and not of the ghost variety at all. He can get to showdown here pretty frequently on most board run outs. Should he raise though?

There are two possible reasons that Hero could raise for here: value and protection, (clearly his raise would never be a bluff as villain is very unlikely to fold better). It turns out that raising for either reason is a severe blunder in EV.

Hero should not raise to protect his hand here as there are almost no hands that either Villain will fold that have decent equity against Hero's hand. Sometimes my students will throw an argument at me like this one:

"But what about all those flush draws, we need to protect against them!"

No we don't, and actually we can't. Raising against flush draws where there are only two of the suit on the board usually protects nothing at all since these hands are nearly always good enough to call a raise having some implied odds and significant equity. We only protect our hand by making our opponents fold their equity and this is not something we readily achieve against the decent draw portion of either player's range. Of course if Villain's range were nothing but flush draws, raising would be great for value and to reduce their implied odds by raising the price, but in the process of achieving this small aim, we lose too much vs. the stronger parts of Villain's range and make too many worse hands fold.

Hero should not raise for value because:

- He is probably not far ahead of HJ's continuing range vs. his raise, if ahead at all. Though he is ahead of flush draws, and these hands will call, these make up a very small part of each player's range and they still have decent equity against Hero's hand making the value raise very thin.
- By raising Hero risks the Fish folding a massive amount of weaker Ax. Even weaker players can often let these hands go in the face of a bet and a raise, but almost never to a bet and a call. Blowing a Fish out of the pot can be one of the worst mistakes Hero can make in an open action spot where he faces a bet from a third player.

Hero calls 6BB.

Hand 58

UTG – Unknown

HJ – Reg (22/18/62) (250 hands)

CO – Unknown

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, **Hero calls 3BB**, SB folds, BB folds.

Flop (7.5BB, 2 players)



HJ bets 5BB, **Hero?**

Pre-flop: A standard call based on the strategy we've already introduced. This hand has decent implied odds in position vs. an earlier position opening range and can hold its own on some boards even where it misses its set.

Flop: Surely now our hand is good enough to raise for value? It certainly is strong enough to be miles ahead when called, but that still doesn't necessarily mean that we should raise. This is a necessary but insufficient condition for raising.

There are a few very good reasons to slowplay this hand against a Reg.

Reason 1: Playing Our Range

Hero wants to protect the weaker hands in his range here. If we zoom out and think about our range as a whole vs Villain's, we'll see that we're actually in pretty bad shape on this board.

While Villain can have all of the strong hands like [AA KK AK KQ KJ 88 22] we can probably only have [KQ KJs 88] as we'll be inclined to fold or 3-bet the rest pre-flop. This means that Villain can, in theory, exert a lot of pressure on this kind of board across multiple streets. Hero has a lot of marginal hands that will really feel this pressure such as [KQ KJs JJ TT 99] and so using his rare sets to protect this range by calling makes a lot of sense. It leaves Hero's range uncapped and makes defending later streets with more of his range an easier task.

As this manual progresses, we will be slowly zooming out more and more often to see the bigger picture and look at the strategic battle that's going on in the long term between our range and those of our opponents. As Hero ascends through the stakes, he'll need to become more and more accustomed to this kind of thinking otherwise his ranges can quickly become obviously skewed and exploitable to the alert Reg.

There are times when we want to deviate from this defensive strategy. For instance, if Villain was likely to stack off wide against a line where we raise flop and bet turn and river until we're all in, yet was unlikely to barrel many bluffs on later streets if we just call the flop, then raising flop with this hand would be a good adjustment for Hero to make. The correct long term strategy would be to maximise value vs Villain's worse made-hands from an early street instead of trying to extract money from his bluffs since the latter are unlikely to continue betting and the former are not finding enough folds. This is why we should be far less inclined to slowplay against passive Fish.

Reason 2: Raising a later street gets us value too.

When Villain has the part of his range that calls a flop raise, say for instance, KQ and better made-hands, and then good draws, he is likely to be betting the turn and usually the river too. This means that any value we can get by raising the flop, we can likely also get by raising the turn or river. One

exception is when the turn brings a third **club**, which might slow our action down a bit and prohibit us from raising for value. This is only going to happen a small portion of the time though and is a small price to pay for the advantages of calling the flop.

Reason 3: By calling we make more from Villain's air.

When we raise the flop we lose value against any air that would be betting later streets as a bluff. This reason is a pretty simple one.

Reason 4: We have position.

Being in position is an advantageous factor for playing our hand more slowly. This is because we can make sure the pot continues to grow even if Villain decides to pot control a weaker hand with SDV like **KJ**, for example, by check/calling the turn.

Overall, raising this flop is no doubt +EV, but in this situation calling should be better without some dynamic reason to think otherwise.

Hand 59

UTG – Unknown

HJ – Unknown

CO – Reg (29/23/56) (700 hands)

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU folds, SB folds, Hero calls 3BB.

Flop (6.5BB, 2 players)



Hero checks, CO bets 5BB, Hero?

Pre-flop: Another standard call. This is not a million miles from being strong enough to 3-bet for value, but unless Villain likes to flat a lot of 3-bets, we'll start off by calling here as the hand plays fine vs. a CO opening range.

Flop: Finally a spot we can raise. The problem with slowplaying here is similar to the one encountered back in [Hand 39](#): there are many turn/river cards that completely kill our action vs. worse hands that often call a flop raise. Examples of such turn cards are any K, Q or 8. Less bad, but far from ideal cards are any heart or 7. That's a huge proportion of the deck we can count on harming our value getting prospects later on in the hand.

Examples of hands in Villain's range that are happy to call a flop raise but become far less happy on many turn cards are [87s JT J9s T9 JJ TT 99 KK]

AA AJ] and so on. When the board is this wet it's imperative to go for value sooner rather than later.

Sizing wise, Hero should look to start building the pot so that he can get the 100BB effective stack in by the river if the board runs out kindly. If he makes it 15BB on the flop, that will be plenty for this purpose. The pot would be 36.5BB on the turn and a 25BB bet there will leave a pot of 86.5BB with remaining stacks of 57BB; a comfortable shoving amount.

It's always worth calculating how to size in order to get the money in whenever playing for stacks becomes a real prospect.

It's not that we always need the board to be wet in order to want to develop a raising range on the flop. There are times when we simply don't care about being unbalanced in the long run as we don't think weaker players are going to exploit us. In these situations, protecting our calling range is not a concern. Against Fish, especially those of the passive variety, it can be sensible to just play big value hands fast from the moment Villain bets at us, even on dry boards.

Passive Fish are more inclined to give up unimproved after their c-bet gets called and so Hero makes fairly little from bluffs on later streets. Moreover, Fish tend not to readily fold after connecting with the flop so Hero is best placed to build a big pot as soon as possible. Take a look at the decision flow chart ([Figure 24](#)) for a reminder on when to bet or raise for value.

Let's have a look at an example of when slowplaying would be wrong even on a drier board.

Hand 60

UTG – Fish (34/12/42) (200 hands)

HJ – Unknown

CO – Reg (20/14/52) (150 hands)

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG raises to 2BB, HJ folds, CO calls 2BB, Hero calls 2BB, SB folds, BB folds.

Flop (7.5BB, 2 players)



UTG bets 4BB, CO folds, Hero?

Pre-flop: By now this should jump out as a very obvious spot to set mine vs. a tight Fish's opening range, in position, getting a phenomenal price to bolster implied odds even more. Enough said really.

Flop: This is a fairly mandatory raise for three reasons:

- The passive Fish can't be trusted to carry on betting on future streets even with a strong hand like an overpair, especially with say **QQ** on unfavourable turns like a **K** or **A**. If the Fish doesn't bet, Hero can't raise and he needs to raise at some point to get this pot growing.
- The c-bet is relatively small leaving a lot of pot building work to be done.
- The Fish's range is just very strong here. He's opened UTG then c-bet three-way. Given his c-bet stat is so low, this indicates an overpair as

opposed to overcards the majority of the time. Hero also doesn't care about calling his sets to protect the weaker hands in his range since this player will simply never be adjusting by applying more pressure on later streets, even if he were aware of Hero's strategy. Slowplaying is unnecessary and not the best line here.

Hero raises to 13BB.

Again Hero chooses a size to make the pot big enough for stacks to go in by the river if Villain calls and then calls his turn bet.

8.2 Defending the Flop with Non-Made-Hands

'Non Made-Hand' is a post-flop term for anything where neither hole card has connected to make a pair or better and covers anything from complete air to a 17 out monster draw. The hand needs improvement from future cards to become better than card-high.

The relevant factors involved in assessing non-made-hands have some differences and some similarities to the previous section.

- We no longer have SDV so we aren't going to be considering how vulnerable our hand is.
- We will still be looking at equity and in many cases, having a chunk of equity with a draw is a lot better than having that same chunk with a weak made-hand due to the implied odds and sheer strength of the draw should it get there. While weak pairs tend to get worse through the turn and river, draws can get much better.
- Since we can't usually win at showdown those times we fail to improve, having fold equity or future fold equity in the hand becomes much more important.
- Implied odds are very relevant since our hand can suddenly become very strong and capable of extracting value even from very good hands. Pot odds become even more important than before.
- Position remains as crucial as ever.

Floating and Chasing

These are two terms you've probably heard before in your poker journey. What's the difference?

To **Float** is to call a bet with a non-made-hand in an open action spot with the intention of realising future fold equity if necessary later in the hand.

To **Chase** is to call a bet with a non-made-hand in an open action spot with the intention of relying solely on having sufficient pot odds and implied odds.

So either way, Hero is electing to call the bet. It's just that the reasons that sway him to make that call are very different. The call is a float wherever fold equity is a crucial factor in making that call +EV and a chase wherever it's the pot odds and implied odds alone that serve this role.

As we observed previously, implied odds and fold equity are inversely proportionate. The more implied odds we have, the more we expect Villain to pay us off on later streets and so the less fold equity we have. The more fold equity we have, the more we expect not to get paid off frequently and so the less our implied odds are. I urge you to get very comfortable with this idea as we make our way through this meaty chapter.

Sometimes you'll hear the term 'chasing' used to refer to times when a player shouldn't have called with a draw due to insufficient odds but did so anyway. This is not what I mean by the term in this manual. I use 'chase' solely to differentiate the motives for calling a bet from floating. Any call I advise Hero to make will be a +EV one so fear not about becoming 'chasers' in the fishy conventional sense of the word.

With that definition clarified, here are the factors that matter the most in deciding whether to call with non-made-hands in open action spots.

Good Factors	Bad Factors
Good Equity	Poor Equity
Good Pot Odds	Bad Pot Odds
Good Implied Odds*	Bad Implied Odds*
Future FE*	No Future FE*
In Position	Out of Position

Figure 42 - Calling with Non-Made-Hands

I don't believe these factors are in need of any more clarification. And we should be familiar with all of these central poker notions by now. If they seem unclear, I advise a recap of what you've read so far in this manual.

You'll notice the coloured asterisks beside four of the terms. This is to show the inversely proportionate relationship between implied odds and fold equity. When implied odds are good, fold equity is bad. When fold equity is good, implied odds are bad.

Now onto a hand where we'll consider whether a float or chase is feasible with a non-made-hand.

Hand 61

UTG – Unknown

HJ – Aggro Fish (67/32/70) [55BB]

CO – Unknown

BU – Passive Reg (24/15/62)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, BU calls 3BB, SB folds, **Hero calls 2BB**.

Flop (9.5BB, 2 players)



Hero checks, HJ bets 7BB, BU folds, Hero?

Pre-flop: Hero has a pretty easy call with a hand that has some implied odds and a little frequent strength given these favourable pot odds. Hero is also closing the action. This is a hand that doesn't mind multiway situations too much due to its ability to flop draws to strong hands. Since the opener is a weaker aggressive player likely to spew off a lot of money should Hero flop very well, implied odds are better than usual here though Hero would certainly prefer that HJ was 100BB deep with him. In any case, calling should be comfortably better than folding.

Flop: Let's assess the relevant factors from the above table to decide if we have enough incentive to call again here.

1. Equity is poor. Hero's gutshot and back door flush draw has 24% equity against a pair higher than 77, but much of this equity is *ghost equity* since

Hero does not usually have the luxury of seeing both of the next cards for this one bet. In considering whether to call this bet, then, we are only permitted to count Hero's chances of improving to a straight on the next card. This will happen just 4/47 or **8.5%** of the time. When Hero fails to improve, he will very often have to fold to a bet or make a barely +EV chasing call or semi-bluff shove when he picks up a flush draw to go with the gutshot. We can say that Hero has just 8.5% equity that is realisable at no extra cost.

2. Pot Odds are bad. Hero will need to call 7BB into a pot of 9.5BB. We can actually use our method for finding required equity in end of action spots (see here in [Chapter 7](#) for a recap) to determine how often Hero needs to get there on the turn in order for calling to be okay based on pot odds alone. Note we cannot calculate how much equity we need in the hand overall as this is an open action spot and calling this bet does not guarantee us both a turn and river card at no extra cost. Also, the pot odds we get to try to hit the next card do not reflect the full story. The other factors may make the situation better than pot odds suggest.

Assuming that Hero had none of these other factors in his favour, i.e he had no implied odds or future fold equity in the hand, he would need to improve $ATC / (ATC + TP) \%$ of the time on the turn to profitably call the flop bet. This makes sense as the situation would in essence be the same as that of an end of action spot when simplified in this way. Hero faces a bet and he will win X% of the time and lose the rest of the time due to whether or not he turns one of his outs. This is of course an open action spot, but for now we're ignoring the prospect of Hero's implied odds and future fold equity in order to focus on pot odds alone. If they justify a call then folding is out of the question before we even get to the next factors.

Amount to call (ATC)= 7

Total Pot (TP) = 16.5

Required Realisable Equity (RRE) = $ATC / (ATC + TP)$

RRE = $7 / (7 + 16.5) = \mathbf{29.7\%}$

With only 8.5% of turns giving Hero the hand he wants, he is very far away from having the direct pot odds to call. However, this doesn't automatically render the spot a fold because this is an open action spot where implied odds, future fold equity and position are also relevant. Do we have enough of one of these or perhaps a combination of all three to make up for the insufficient pot odds?

3. Implied Odds are not great here. It is certainly true that Villain is rarely folding at any point in the hand and this does guarantee us some decent average payout frequency when we turn our straight. The problem is that Villain's stack is not big enough to generate enough of a reward on the rare occasions when we do get there and our price to call is on the expensive side.

As we did when calculating whether we have implied odds to set mine pre-flop, ([See Section 6.1](#)) we estimate what we think our average gain will be from Villain's stack when we do get there and see if this makes up the difference in lacking pot odds. Let's assume that we win the majority of Villain's stack on average when we get there. Of course sometimes we will win the entire thing and sometimes we will win a bit less or even nothing extra at all. We are simply concerned with the average gain.

Villain will have 45BB left when we get to the turn. Let's be generous and assume we make 30BB of this on average from his stack after we hit our magic our **8**. We'll call this extra amount **IOB** (Implied Odds Bonus) and add it to the total pot size (TP) on the flop to see if it justifies a call.

The maths then look like this:

$$RRE = ATC / (ATC + TP + IOB)$$

$$RRE = 7 / (7 + 16.5 + 30) = 13\%$$

This illustrates the problem with chasing poor draws against smaller stacks. Even when the player type virtually guarantees a high average payoff frequency, Hero is still not getting the price he desires to call his gutshot. He needs to get there 13% of the time, but only does so 8.5% of the time.

4. Future Fold Equity. Normally speaking, where there is a lack of implied odds, there will be some fold equity, but here this is not really the case. The unsatisfactory implied odds do not originate from the fact that Villain folds a lot, but from his stack not being large enough to offer a good average payout all those times he doesn't fold.

This player is a Fish who dislikes the fold button in general - we know this much. If he has any kind of reasonable pair, the prospects of Hero eliciting a fold by the river are minuscule. Even after Hero checks the turn and Villain decides to check back a hand like TT, it is incredibly likely that he'll be calling a river bet from Hero. Sure, Villain can give up with air sometimes, but being an aggro Fish, he can also choose to mindlessly bluff with it forcing Hero to fold his unimproved 7-high. Moreover, even though this player is an Aggro Fish, he has just opened and c-bet the flop large in a three-way pot, which might narrow his range somewhat towards stronger hands.

Future fold equity and indeed immediate fold equity if Hero were to raise the flop are insufficient. We are not making up the difference in pot odds + implied odds in this way. Floating the flop then with this rationale of utilising future fold equity is a bad idea and is made an even worse prospect by the final factor also being against us.

5. Position is bad. Like I just alluded to, this makes it harder to generate fold equity on future streets since Villain has the luxury of checking behind marginal one pair hands on the turn and then bluff catching the river with them. Hero should not consider leading the turn unimproved against this player as it's just too likely he doesn't fold enough to this line and may be inclined to fight back even with the weaker parts of his range.

Being out of position is also bad because it's responsible for diminishing Hero's implied odds somewhat. Let's imagine that the turn is the 8s. Checking is probably mandatory here to allow the aggressive Villain to continue bluffing his whole range if he feels like it. This has the downside that Villain can check behind some hands that he would have check/called twice had he been out of position. Hero then earns a whole river sized bet less due to the fact that Villain has this option of pot controlling these hands.

The power of position rears its head time and time again throughout this book.

Overall: This spot is a mandatory fold as just about every factor is against us.

Hero folds

It should be noted that to perform such rigorous analysis in-game is completely impossible even for a very strong player. Consequently, Hero will be best placed to practice estimating these factors more roughly to improve his in-game thought process. We will practice this kind of shortened in-game reasoning more and more as the manual goes on. It's important to understand how to perform this analysis out of game before taking shortcuts to apply the knowledge at the tables.

The analysis of this hand has been dense. Take your time and work through it multiple times to make sure you're prepared for the less clear-cut examples to follow.

Now look at [Hand 62](#) below and try to decide which factors differ from the last hand and whether or not Hero's decision should be different. Always think for yourself about each hand before reading my analysis. If you're reading this section passively on autopilot mode and the words are barely going in, then stop, go back, and actively assess the spot above. The difficulty of the manual is starting to accelerate and being focused and involved is key to proper understanding.

Over the next 50 pages, this chapter is about to jump up a few notches in complexity, but this is a complicated game and if you've been reading thoroughly and actively so far, then I think you're ready for it!

Hand 62

UTG – Unknown

HJ – Passive Fish (34/18/36) (230 hands)

CO – Unknown

BU – Unknown

SB – Hero

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 2BB, CO folds, BU folds, Hero calls 1.5BB, BB folds.

Flop (5BB, 2 players)



Hero checks, HJ bets 5BB, Hero?

Pre-flop: This call is mandatory. It's fine to develop a flatting range from the small blind vs. this weaker player unless we think the BB is going to be squeezing very frequently. This shouldn't be the case when a fairly tight Fish opens from early position as Villain will have limited fold equity and should only want to squeeze with a tight value range.

Hero's hand can be dominated sometimes, but the value of flatting pre-flop lies more in the combination of good pot odds and the suited-connected nature of the hand granting implied odds against a strongish range and player likely to play badly post-flop.

Flop: Back to the factors. This time we'll try to speed things up and move a bit closer to an in-game thought process.

Pot Odds are not great. Hero knows from his milestones that he'd have to improve on the turn 33% of the time or more to call a pot sized bet based on pot odds alone. He has 8 outs now from a total of 47 unknown cards and so gets there **17%** of the time on the next card. Again his overall equity in the hand is not such a factor due to this being an open action spot and the uncertain prospects of Hero seeing the river for free.

Implied Odds are excellent! Okay, it's better to be in position to ensure that more money goes into the pot, but this player clearly has a strong range and is a Fish; he's passive and has opened the HJ then bet pot with a c-bet stat of just 36%.

If Hero were to call the flop the pot would already be 15BB. Hero could plan to check/raise the turns where he makes his hand and then bet the river large. When called down, this would yield Villain's entire stack or an extra 93BB on top of the pot. Let's say Hero succeeds to this end as little as a third of the time and see what this does to our equation. In reality the implied odds are probably much better than this. Implied Odds Bonus (IOB) would be $93/3 = \mathbf{31BB}$

$$\text{Required Realisable Equity} = \text{ATC} / (\text{ATC} + \text{TP} + \text{IOB})$$

$$\text{RRE} = 5 / (10 + 5 + 31)$$

$$\text{RRE} = 10.9\%$$

Hero has at least 17% realisable equity if not more due to the times he gets two free cards. Implied odds have made up the difference and a call is now justified.

Future FE is terrible, but this is only because implied odds are so great. Remember the two are inversely proportionate and so Hero never needs lots of both. This is a chase not a float.

Position is not good, but fortunately implied odds are still so good that Hero needs no assistance from this factor.

This is a spot where chasing with the intention of playing fit-or-fold due to very limited fold equity but heaps of implied odds is correct. Sometimes you'll here awful logic in these spots such as: "Don't chase to just fold - it's Fishy".

'Fishy' is just a word and here it means nothing. We don't need to fear empty adjectives when we've already backed up our decision with logic and maths. Oh how I love those two things.

Hero calls 5BB.

Hand 63

UTG – Unknown
HJ – Unknown
CO – Reg (34/26/73) (2000 hands)
BU – Hero
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 2.5BB, **Hero calls 2.5BB**, SB folds, BB folds.

Flop (6.5BB, 2 players)



CO bets 4BB, Hero?

Pre-flop: In position vs. a likely wide CO opening range, this hand should play just fine. If squeezers lurk in the blinds then Hero should elect to 3-bet his whole non-folding range, but here we have no reason to suspect this is the

case. Hero calls pre-flop knowing that his opponent's range is wide and that fit-or-fold is not going to be his best strategy. The combination of position, a playable hand and some post-flop fold equity vs the weak CO range ensures that a call will be +EV.

Flop: Don't you just love factors?

Equity: This is a spot where Villain is likely to be c-betting close to everything in his range. The board is bone dry and villain's c-bet stat is high. Against a 30% CO range (remember his PFR overall is 26 so from the CO it should be slightly higher than this) we have 31% equity. This is a healthy quantity, and moreover, much of it is realisable. This is due to two things being in Hero's favour. Firstly, Villain is c-betting a lot and so Hero can expect him to check/fold the turn quite often given he has so much air. Secondly, many turns improve Hero's equity and allow him to call again if Villain does bet. Any **K, Q, T, 9, 8** or diamond gives Hero a extra chunk of equity that he can do something with - that's 25 cards from 47; more than half of the deck!

Pot Odds: These aren't horrible but are far from amazing. If Hero were to play fit-or-fold and could never win the pot unimproved, they wouldn't offer an adequate price since there are no turn cards on which he makes anything close to nutted, mostly turning one pair and draw hands. Fortunately, open action spots can offer other reasons to call.

Implied Odds: Although Villain's range is wide, there are definitely some. The times Hero turns a **Q** he can expect Villain to be barreling this perceived scare card with some regularity. Backing into a flush or straight also promises some implied odds due to the disguised nature of the hand, though it does happen rarely. These help somewhat, but are not our main reason to call.

Future Fold Equity: Now we hit the key factor for this hand. Hero expects his position and Villain's weak range to create a situation where Villain simply has to check/fold a decent part of his range on the turn. A very common occurrence here will be that the turn rolls off something insignificant

and Villain gives up. The ability to win the pot unimproved on the turn means that Hero needs less equity to float this flop and he has plenty of that anyway.

Position is good and is in part what makes fold equity so abundant on later streets. Villain will not have the option of ensuring that a bet doesn't go in on the turn and Hero can seize his fold equity immediately denying Villain a free card when Villain checks.

Overall: This is a completely standard flop call, but for entirely opposite reasons to the hand before. Hero no longer has a huge amount of implied odds, but instead benefits from future fold equity, position, and a hand that is very versatile on a good amount of turn cards. While the last hand is a chase based on sufficient pot odds and implied odds alone, this one is a float as future fold equity is an important piece of the puzzle.

Raising Non-Made-Hands

Raising a non-made-hand on the flop is essentially to bluff raise the flop, but bluffing can be divided into two sorts.

To **Bluff** is to bet or raise with little to no equity with the intention of making other players fold better hands.

To **Semi-Bluff** is to bet or raise with reasonable non-made-hand equity with the intention of making other players fold better hands.

As we learned in [Chapter 4](#) on c-betting, non-made-hand equity helps to make a light c-bet more profitable. Light c-bets are just one sort of bluff. Another sort is raising flop bets and equity is no less important for that either. While opportunities to semi-bluff raise are fairly abundant, raising flops as a pure bluff with very little equity is less attractive without a lot of fold equity or an opponent who won't adjust well even to a blatantly aggressive strategy of raising the flop with a very bluff heavy range.

Here are some factors that make us more inclined to raise rather than float/chase the flop with a non-made-hand in an open action spot.

Good Factors	Bad Factors
Fold Equity	No Fold Equity
Out of Position	In Position
No SDV	SDV
Bad Pot Odds	Good Pot Odds
Getting 3-bet is ok	Getting 3-bet is bad

Figure 43 - Raising Non-Made-Hands

Fold Equity: A familiar guest by now. Why would we want to bluff raise if we expected no folds?

Position: Here we see the opposite of what the position factor normally tells us. We're no longer comparing calling to folding, but to raising. Being in position makes floating with fold equity a more preferable choice, whereas, being out of position reduces the EV of a float, increasing the incentive to win the pot immediately with a raise and go after the fold equity more directly. The thought is that future streets are less favourable when they have to be played out of position, so let's try to avoid them.

SDV: Hero might have a non-made-hand like a flush or straight draw that also has some SDV in the form of a tiny pair or ace-high. The more likely the hand is to win at showdown, the less necessity there is to turn it into a bluff and go after fold equity. In fact, one mistake players often make is to over value the prospects of bloating the pot with these hybrid pair + draw hands. Generally they play very well for calls rather than raises, though there are exceptions.

Pot Odds: Again, the opposite of how this factor normally affects matters. Good pot odds make floating and chasing better. Bad pot odds might mean a raise is the superior way of capitalising on fold equity + pot equity.

Getting 3-Bet: Time out! I thought 3-bets happened pre-flop? They do, in the most frequent use of the word, but a 3-bet is just any re-raise of a raise. Pre-flop, the blinds are the 1-bet, the open-raise is the 2-bet and the re-raise the 3-bet. Post-flop there are no blinds so the c-bet is the 1-bet, the raise is the 2-bet and the re-raise the 3-bet and so on. No one ever says 1-bet, by the way; it sounds a little ridiculous to me.

Hero has to weigh up both how likely he is to get 3-bet by Villain after raising a bet post-flop and then how severe a travesty this would be for him if it were to occur.

Generally speaking, if Hero has either fairly little or a massive amount of non-made-hand equity, then he is happy to face a 3-bet. With poor equity he can simply fold to the 3-bet reasoning that he is not surrendering much. With huge equity, Hero is usually happy continuing to the 3-bet in some way.

The trouble lies with hands in between. For example, imagine Hero has flopped an open-end straight draw on a rainbow flop and has 8 outs to the nuts. He may well find himself in a situation where getting 3-bet is horrible as it forces him to either fold a significant chunk of equity or make an unsound call or 4-bet with that equity. These mediocre quantities of equity lend themselves more towards calling than raising, especially where they also have SDV. Save the raising for the times when calling is bad and getting 3-bet is more tolerable.

Do We Want a Raising Range at all?

We're about to properly zoom out and consider overall range strategy in great detail for the first time. Buckle your seatbelts!

It's not always the case that we want to have a raising range in the first place. There are occasions in an open action spot where we prefer to call everything in our non-folding range. I'll explain that in just a minute, but first it's time to introduce an extremely important poker concept for the first time. Expect this to pop up time and time again throughout the rest of the manual.

Balanced vs. Exploitative Strategies

A **Balanced Strategy** is one designed to be solid in which Hero's range is not weighted towards either strong or weak hands.

A **Balanced Strategy** does not exploit Villain's weaknesses, but has no weaknesses of its own.

An **Exploitative Strategy** is one designed to be unbalanced where Hero's range is weighted at least to some extent towards either strong or weak hands in an attempt to take advantage of Villain's imbalances.

An **Exploitative Strategy** can exploit Villain's weaknesses, but has weaknesses of its own.

Ok so what does this have to do with having a raising range in open action spots? When we want to be balanced, it may be better to just call everything we're continuing with or it may be better to balance bluff raises with value raises. Against Regs, we need to ask ourselves if we want a raising range at all since our overall strategy and balancing it are important to us.

When we're going all out exploitative against a Fish, however, we simply don't care about balance and should revert to the table in [Figures 42](#) and [43](#). Against weaker players, it's usually better to consider the hand in a vacuum, not caring about the shape of our range since these players are not likely to be aware or skilled enough to exploit that shape. In fact, it's because these players are normally very unbalanced themselves that we want to be unbalanced in the way that best takes advantage of this.

Against Regs we have much more incentive to make sure our ranges aren't wildly out of sync because we expect these players to be observant and skilled enough to exploit us if they are. As we saw earlier in [Hands 57](#) and [58](#), protecting our calling range and leaving our range uncapped with strong made-hands was a good idea to ensure that our range wasn't skewed too much towards weak hands when we merely called the flop bet.

When we zoom out away from our actual hole cards in one hand and see that, in general, we don't want to be raising a flop at all for value, it follows that we don't really want to be bluff raising the flop either as this would make our raising range obviously weak and to do this would be to adopt a highly unbalanced and exploitable strategy. This is something we want to avoid without good reason to think it's higher EV, for example, with the read that Villain folds too much to flop raises, and even then, we'd probably want some value in our raising range to avoid being so blatantly out of line. It's easy to notice and counter such an unbalanced strategy in such a commonly recurring spot.

So vs. a Reg, we need to first determine if we want a raising range at all before asking: does this hand in front of me fall into it? This is the art of thinking about our long-term strategy instead of being stuck in a one-hand vacuum.

Let's start with a spot against a Reg where being balanced is a concern to us. We'll look at which factors make us want to adopt a strategy with a raising range and which cause us to favour a strategy without one.

Hand 64

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Reg (20/17/66) (30 hands)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2BB**, SB folds, **Hero calls 1BB**.

Flop (4.5BB, 2 players)



Hero checks, BU bets 2.5BB, Hero?

Pre-flop: A very profitable call against a fairly unknown Reg's min-open from the BU. Hero should start off by 3-betting stronger hands for value and weaker hands as bluffs. This hand is bang in the middle. More on this in the next chapter.

Flop: We miss this flop a lot and Villain misses this flop a lot. Thus what we have here is a battle of two very wide and air heavy ranges. Villain seems to have c-bet twice from three opportunities as far as we can tell from our HUD, but this is too small a sample to matter. What's important is that the vast majority of the population will c-bet a very wide range here indeed. Given how often we have air here and how often Villain does, folding a gutshot and over card with some SDV is out of the question. We must defend this part of our range in order to not be folding too much as long term

EV goes and also because it should be +EV in a vacuum. So how do we defend?

Let's start by assessing whether we want a raising range in the first place. Here are the relevant factors.

1. Range Advantage

This is a flop on which our opponent comfortably has what is commonly called 'range advantage.'

A player has **Range Advantage** when his range contains more strong hands than his opponent's does. It is possible to have varying degrees of range advantage depending on how many good hands the player has in his range that his opponent does not have.

A player with **Range Advantage** generally wants to be applying pressure and should be inclined to take the betting lead, whereas his opponent should prefer to keep the pot smaller and play more passively.

Villain's pre-flop range contained big pairs like **JJ+** as well as **AJ** and maybe even **J3s**, **J2s**, and **32s**. Hero's range probably didn't, or at least not the big pair part. This means that the top of Hero's range is significantly narrower than the top of Villain's. Hero can have **22** and **33**, but so can Villain along with all of the hands above. Hero thus has severe range disadvantage.

It is not always horrible to have a raising range with severe range disadvantage. If Hero were playing against a Fish or unaware player, it wouldn't matter very much as the Fish is not likely to be considering what each player's range looks like and then playing accordingly. It would also be possible for Hero to construct a raising range if the range advantage were less severe, for example, if Hero had nearly as many strong hands as the Reg

in this hand. Unfortunately for Hero, the range advantage is massively in Villain's favour here.

The problem with having a raising range when range advantage is so adverse is that Hero just has very few hands he can raise for value. It would be very tough indeed for Hero to successfully balance a tiny value range with a bluffing range. He'd have to bluff almost nothing or else be massively unbalanced towards bluffs. The player with huge range advantage can also represent strong hands much more easily and is at full liberty to float in position and make Hero's life difficult if he does try to have a bluff raising range here.

Having a raising range here is to inflate the pot to such a level that only stronger hands are naturally happy continuing and Villain has far more of these than we do. This renders having a raising range theoretically bad.

2. Urgency of Value

As we saw back in [Hand 59](#), the wet textures lead to a lot of possible action ruining turn cards while in [Hand 58](#), the board was unlikely to deteriorate too quickly for our opponent's range. Wet textures, in general, increase the need to get value and get the pot growing on the earlier streets. When it's the case that value is most easily snatched early on in the hand, Hero is advised to have a raising range in order to ensure his value hands do not fail to earn as much as they should on average. This doesn't mean he shouldn't be balanced against Regs. Hero should choose the most suitable hands to bluff using factors in [Figure 43](#) to balance with the hands he's forced to raise for value.

That said, in the hand in question, there is no reason to suppose our value hands need to inflate the pot quickly. The board is unlikely to run out too badly for Villain, and indeed, Q, K and A turns can even be cards he chooses to bluff on. Urgency of value is very low in this hand.

3. Fish Behind

It is usually undesirable to have a raising range with a Fish left to act behind. Raising value is bad as it can blow weaker made-hands out of the pot that are otherwise never dreaming of folding. Raising bluffs equates to putting money into the pot with bad equity and less fold equity given the fact it's multiway. Raising semi-bluffs is not ideal either as by letting the Fish call behind we gain implied odds, making our draws even more profitable calls than they would be already.

There is no Fish behind in the hand in question, but this is no reason to raise in and of itself. It's just that if there were, we'd have another very strong reason to not have a raising range.

4. The Cost of Being Capped?

The final disadvantage with raising sets and then some bluffs is that it would leave Hero's calling range very capped. **KJ** or possibly **AJ** would be about the best hand in that range. This could be a non-issue if we knew that Villain was passive and unlikely to exploit a capped range with aggression, but since we're in unknown waters, it's prudent for Hero to leave his sets and the best top pair hands firmly in his calling range to help protect his weaker calling hands and allow Hero to fold less of his range to later aggression.

5. Can Hero Represent Good Hands?

On this board Hero can represent very few strong hands at all. He does not have **JJ** and probably has no two pair hands in his range. His only perceived value hands when he raises here are **22** and **33** and so raising as a bluff is undesirable. Since Hero wants to be balanced here, raising for value when he does have a set becomes a bad idea.

Overall

So Hero does not want to raise this flop with anything, but he next needs to choose between calling and folding with his actual two hole cards. Pot odds are very good, future fold equity is a possibility if needed given how weak BU's range is, and ace-high can easily win at showdown to boot. Hero does have some equity when behind with an overcard and gutter and so calling is certainly better than folding.

In fact even if for some reason Hero did want a raising range here, calling this hand would still make sense given the aforementioned SDV, equity and pot odds. He would find a different candidate hand to fill his bluffing range with in that case.

Hero calls 2.5BB

Let's summarise the factor-based approach to deciding if we should employ a raising range in an open action spot where we care about being balanced.

Good Factors	Bad Factors
No Severe Range Disadvantage	Severe Range Disadvantage
Value Urgent	Value not Urgent
No Fish Behind	Fish Behind
Capped Calling Range Is Okay	Capped Calling Range is Bad
Can Represent Good Hands	Can't Represent Good Hands

Figure 44 - Having a Raising Range

Let's look at another couple of hands and use our tables in [Figures 44](#) and [43](#) respectively to determine:

- Does Hero want a raising range here?
- If so, should this hand be part of it?

Ask yourself these questions before we come to the answer.

In this next hand, let's assume that Hero has the player specific read that the Villain on the BU is very tame and folds a lot in the face of aggression as was already likely of his player type.

Hand 65

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Weak Reg (19/13/72) (300 hands)
SB – Unknown
BB – Hero

Dealt to Hero:



Flop (4.5BB, 2 players)



Hero checks, BU bets 3.5BB, Hero?

Pre-flop: Generous pot odds and being against a BU opening range coupled with some degree of frequent strength make this hand too good to fold. Calling is +EV and best.

Flop: Okay so let's tackle the two questions:

Q1. Does Hero want a raising range?

Well, Hero still has quite severe range disadvantage, but this time it doesn't really matter so much. Villain is a tight, weak player and the sort who likes to c-bet a lot. Hero should expect Villain's range to be very wide and weak and should think it likely that Villain will fail to protect that range in the face of a raise. This actually means that Hero can adopt an unbalanced strategy here because he expects Villain to be unbalanced himself in the form of over-folding the flop.

Oops that's a new idea; time out for some more terminology busting. What does 'overfolding' mean?

When describing an unbalanced range we use the term '**over/under X**' to say that a player is doing X too much or too little than would be the balanced amount.

To Overfold is to fold more of your range than is balanced.

*We do this ourselves to exploit people who underbluff.

*We exploit this by overbluffing.

To Overcall is to call more of your range vs a bet or raise than is balanced.

*We do this ourselves to exploit people who overbluff

*We exploit this in others by underbluffing

To Overbluff is to bluff more of your range than is balanced.

*We do this ourselves to exploit people who overfold.

*We exploit this in others by overcalling.

So this Villain overfolds. This is an exploitative strategy, though not one that Villain is adopting for any good reason. Now that we're no longer trapped in the shroud of no information, we're able to launch into a counter-exploitative strategy ourselves that we figure to be better than playing in a balanced way here. Overfolding is punishable by overbluffing and so that's what we'll seek to do.

We could actually do this by flatting a lot out of position and looking to take the pot away on the river, but I prefer a strategy of just raising the flop with a bluff heavy range. It is more profitable for Hero to grab his fold equity now

since, should he float out of position, then Villain can realise his equity on the turn and elect to take a free river too. It is also not impossible that even this weak player knows that firing bluffs on scare card turns should be good for him and so Hero might end up folding a hand that could successfully win the pot by raising the flop. The best way to exploit Villain's overfolding is to go after him immediately with a bluff heavy raising range.

When Villain is making mistake with his range that we think we can and should exploit, the need to consider whether we want a raising range for balance reasons goes right out the window. Many of the factors we just looked at become less applicable since they depend on balance being an important consideration. Let's investigate this further.

1. Range Advantage: We are not bound to respecting our opponent's range advantage on this flop because we believe that he will not make use of it and will fold too much to a raise. We are forgoing balance in the name of exploitative play and taking advantage of this expected error in Villain's strategy.

2. Urgency of Value: We are in no rush to get value, but this is not our reason for wanting to raise the flop; fold equity is what we desire. Again we are not balanced here so should give precedence to what the largest part of our range desires and this part is our bluffs.

3. Fish Behind: There are no Fish behind to make us want to call our whole range to keep them in the pot.

4. How Bad is a Capped Calling Range: Finally, being capped is really a non-issue here. Villain is not going to be exerting much pressure being a weak passive Reg so our weak made-hands like **7x, 6x, AJ** etc. don't need protection from the top of our range. We can raise our sets and two pair to create some balance with all those bluffs and ensure that we are not so unbalanced that Villain will quickly find the obvious and effective counter adjustment of underfolding to our flop raises or underbluffing with his c-bets in the first place. If we thought that Villain was some brain-dead robot, incapable of making any adjustment even in the face of extreme aggression, we could adopt the radical strategy of raising every hand we didn't want to call the c-bet with. This is unadvisable against humans, who are generally a

highly adaptive species. We'll need to choose our bluffs with some selectivity.

5. Representing Good Hands: Hero can represent a few more hands here than in [Hand 63](#). He can have any set as well as **76s**. This is still a very small chunk of his overall range on the flop, but again this doesn't matter so much as Hero is adopting an exploitative plan. We have the read that Villain is likely to overfold the flop and so whether or not we can represent lots of value hand isn't so important vs. this player.

Overall: As we can see, the factors that normally constrain us to not having a raising range quickly lose their clout when Villain is unbalanced and we are playing in an exploitative manner in order to take advantage of this.

Hero definitely wants a raising range due to his exploitative aims here, but against a more solid or unknown opponent, balance would take precedence and Hero should revert to calling his whole non-folding range just like in the hand before.

Q2. Does T9o make a good candidate bluff hand here?

Yes absolutely! Hero has some pot equity in the form of 10 outs when Villain does continue with top pair type hands and still has four outs against strong overpairs and even sets.

Hero also has zero showdown value with this hand and so I'm struggling to find many better candidate hands to be part of our intentionally wide bluffing range.

Hero raises to 8BB.

You might be wondering what's with the small sizing. Well, let's recap our aims here. We're exploitatively overbluffing this flop. Since most of our range is a bluff and simply wants fold equity, again we're catering to the bulk

of it by improving our risk/reward ratio and reducing our old friend RFE (required fold equity).

Using the RFE milestones, we know that this risk of 8BB to win a pot of 8BB only needs to work 50% of the time if we had no equity. Since we do have equity, however, we need even less folds than RFE suggests and can expect an abundance of folds from a wide range and weak player. This sizing is great for us and going bigger wouldn't make sense.

Good, now onto the next hand.

Hand 66

UTG – Unknown
HJ – Unknown
CO – Reg (24/19/65) (500 hands)
BU – Hero
SB – Unknown
BB – Fish (46/12/55) (100 hands)

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, **Hero calls 3BB**, SB folds, BB folds.

Flop (7.5BB, 2 players)



CO bets 4.5BB, Hero?

Pre-flop: Hero could elect to 3-bet this hand for value, but with the presence of the Fish in the BB he wants to flat more of his thinner value hands in order to play pots with this weaker player in position and capitalize on his

mistakes post-flop, but sadly the Fish folds. Even players with 46% VPIPs can be dealt **72o**.

Flop: As we're against a Reg, we care about balance and so Hero's first task is to decide if he wants a raising on this flop in the first place.

Q1. Does Hero want a raising range?

1. Range Advantage: This time Villain's monopoly on the big overpairs doesn't guarantee him clear range advantage like in [Hands 64](#) and [65](#). This is due to the board being much wetter. An overpair like **QQ** isn't such a mighty hand on this texture where two pair, sets and straights are possible in both ranges and where there are many draws and pair + draw hands that have good equity against an overpair. Of the very best hands here, both players can have all of the sets since Hero will be happily flatting [77-99] pre-flop. Both players can also have **JTs** and probably **65s** because the presence of the Fish in the BB entices both pre-flop ranges to open up a little. The only real difference in the two pair and better hands is that Villain probably has **JTo** whereas Hero might not flat this BU vs CO, but again, flatting this hand would not be horrible due to the fish behind. Range advantage is slightly in Villain's favour but by nowhere near the same margin as in the earlier hands. This factor is not too adverse for having a raising range.

2. Urgency of Value: This soaking wet board can deteriorate for both players' ranges, and fast. This means that the urgency of value is high and when Hero has a hand like **JTs** or **99** he'll want to go after his value from overpairs, draws and lesser sets quickly. Any **diamond**, **J**, **T**, **6**, or **5** can make it harder to extract value from weaker hands as well as hurt Hero's equity. This makes a flop raising range very desirable.

3. Fish Behind: There are no Fish behind so this factor is simply neutral.

4. How Bad is a Capped Calling Range: Being capped on the flop and turn is not such an issue since most of our pairs have extra equity in the form of draws to help them call bets and get to the river. We'll be able to realise a lot

of equity here even if Villain does barrel aggressively on the turn. Of course it isn't ideal to cap our range those times Villains blasts three streets at us, but this negative is outweighed by the importance of getting value sooner. It's better to play value hands fast on this texture.

5. Representing Strong Hands: Here we can represent considerably more value hands than in the earlier hands and so having a bluff raising range is a lot more justifiable.

Overall having a raising range here makes a lot of sense. Factor 2 above is the most crucial one.

Q2. Does KdQd make a good candidate semi-bluff?

There is a problem with choosing this specific hand for the job of raising. This draw is not to the nuts and its equity vs. better hands is not sufficient for Hero to want to get a huge amount of money in on the flop. Against a set, this hand has only 26% equity. At the same time, it would also be a travesty to raise this flop, get 3-bet and then have to fold such a great chunk of equity with implied odds vs. strong hands. In addition, any nut flush draw that villain continues vs. the raise will have us crushed. As a result this specific part of Hero's range should be one of the draws that merely calls the c-bet due to its equity when 3-bet being in the danger area of mediocrity where both folding and not folding are ugly options.

This is all assuming Villain isn't 3-bet bluffing this flop all too often given how dangerous it is. If Hero has the read that he is, then raising the flop to shove over a 3-bet and seize fold equity to go with all that pot equity would suddenly become very attractive.

Otherwise, Hero should use some weaker draws with less equity to bluff with here as sacrificing that equity in the light of a 3-bet is tolerable. Open-end straight draws and gutshots with backdoor flush draws could be good raise/fold bluffs. At the same time, with the very strongest and most nutted draws in his range such as AdTd, Hero could consider a raise and then would be happy not to fold to a 3-bet since his equity in the worst case

scenario vs a set would be a healthy 40% and more against Villain's range as a whole.

Hero calls 4.5BB.

This is how you should go about forming your strategy in this type of situation. Pick the best hands for the best job. Our range desires that we raise some bluffs and some value hands. Some hands fit these roles better than others and it's our role to decide which go best where when building our range.

To summarise this hand, Hero's strategy facing the c-bet looks like this looks roughly like this:

Value Raise: Any two pair, set or straight as well as the very high equity draws.

Call: Any decent pair, pair + draw or medium strength draw.

Bluff Raise: Weaker draws.

Fold: Everything worse than the above hands.

Vs. Fish - Forgetting About Our Range

We've looked at spots vs Regs where we had to be aware of our overall strategy and how exploitable it might be. This led us to ask if we wanted a raising range in the first place. We also saw a spot vs. an unbalanced weak Reg where being balanced ourselves was less important. Let's finish off this section by considering a spot against a Fish where our decision to raise a non-made-hand will not come down to whether or not we want a raising range, but will be based simply on whether raising is the most +EV play in a vacuum. As we know, against Fish, vacuum EV and long-term EV converge in many situations and balance ceases to matter.

The more advanced concepts in [Figure 44](#) like range advantage, being capped, representing hands and so on drift into insignificance against the Fish. Hero is in full exploit mode. In this next hand, Hero should ignore [Figure 44](#) and its balance related factors altogether and just look at the vacuum factors in [Figure 43](#) to decide if raising a non-made-hand will be the most +EV choice.

Hand 67

UTG – Passive Fish (46/9/45) (200 hands)
HJ – Unknown
CO – Hero
BU – Unknown
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ folds, Hero calls 3BB, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



(A) UTG bets 2BB, Hero?
(B) UTG bets 6BB, Hero?

Pre-flop: This hand is not an obvious call vs. every Villain, but against someone with a very tight raising range who is also likely to play badly, it's certainly a necessary one.

Flop: This is a flop on which we have significant range disadvantage, but we don't care about that. If it serves our EV in a vacuum to raise this hand as a semi-bluff then that's what we'll do. In one of branches A and B it's good to raise and in the other it's better to just call. Have a look at [Figure 43](#) again and try to decide which is which. Here's a clue: when raising a draw as a semi-bluff, having fold equity is the most crucial condition for that raise to be correct.

Branch (A)

Villain's sizing is extremely small. Not always, but more often than not from a passive player, this is just transparent and should be taken at face value to indicate that Villain's range is quite weak. This means fold equity should be plentiful as Villain is more likely to play parts of his range like [88-KK] and KQ this way than he is [AJ-AK]. Since Hero has no SDV and plenty of equity when Villain does call, he is advised to go after the fold equity right away and raise against this weak sizing. Moreover, raising here and getting 3-bet is not the end of the world. A Passive Fish will typically 3-bet a very strong range on this flop. This and the reasonable amount of money still left behind in stacks will grant Hero enough implied odds to continue comfortably. In sum, getting 3-bet will happen very rarely and won't be much of a problem when it does.

Wait a minute, I thought good pot odds were a factor that made us more inclined to call non-made-hands, not raise? They do, in general, but here Villain's small sizing offers fold equity and that is a trump factor. If we thought fold equity was minimal, these pot odds would make us very happy to call instead.

Hero raises to 9BB

Branch (B)

Now the passive player has near potted it. This should also be taken at face value from such a fit-or-fold player without some reason to suppose that Villain is the type to value bet small and bluff large. Such a player is

normally much more aggressive in general than this guy appears to be so it's very likely that he isn't one. So now that Villain's range is strong, fold equity disappears into close to nothing. Moreover, to get 3-bet after raising this big c-bet is horrible. The pot would then be so large that it would make up a significant portion of the remaining effective stack. Implied odds would be sliced to pieces in this scenario as Hero's investment to mine his draw would be much larger.

On the other hand, Hero's implied odds for just calling the c-bet are massive. His investment is small relative to the effective stack and he is against a strong Fish range likely to pay off bets and raises should Hero get there.

Hero calls 6BB.

Summary

In this section, we've covered a massive amount of material and have had to steepen the learning curve significantly. It's a good thing too because the next chapter on 3-betting is not for the mathematically or logically faint hearted. This manual is progressive and if you move on before having a good grasp of the preceding material, you will most definitely get lost.

Let's look at a neat little flowchart to summarise how to assess our hand on the flop in an open action spot.

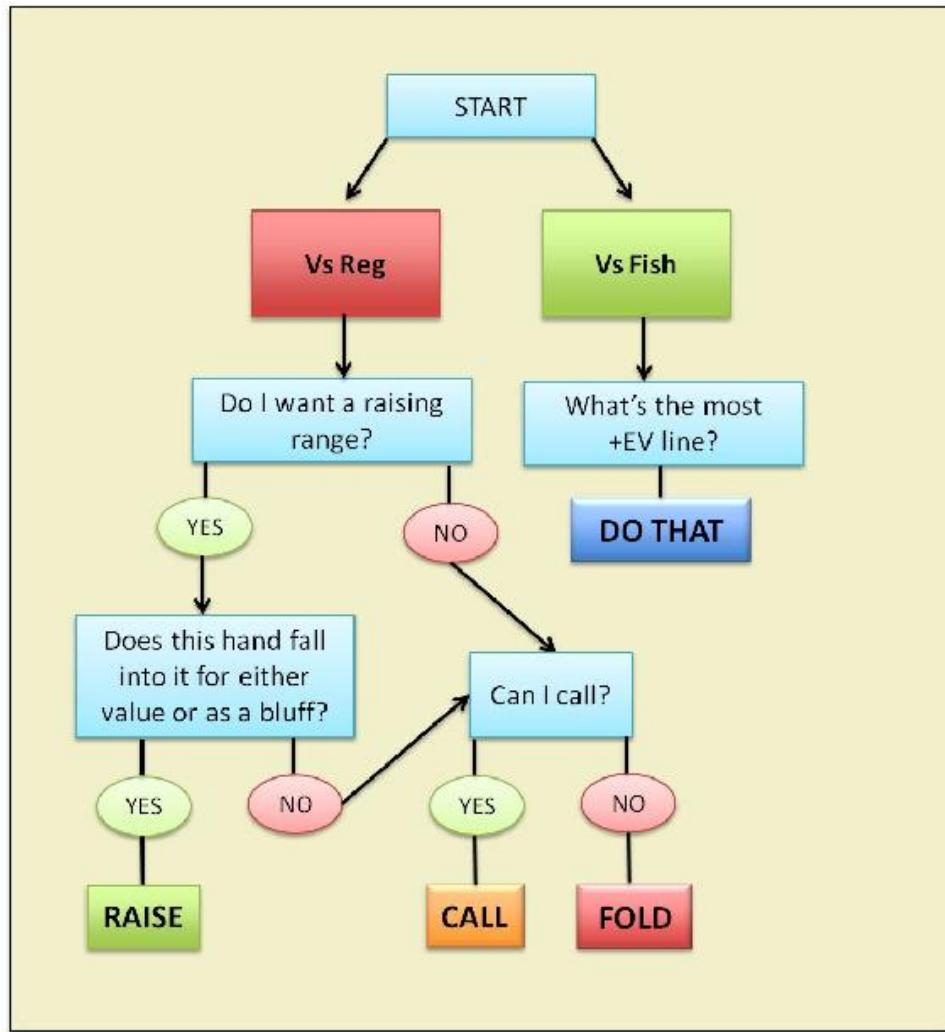


Figure 45 - Summary Flowchart: Open Action Flop Spots

8.3 Defending the Turn

Facing flop bets can be unpleasant to newer players, especially out of position, but hopefully the last few chapters have been somewhat reassuring. There are many situations in which Hero should be playing out of position without the initiative - this is not a spot to be terrified of. One reason that these flop spots can be so tricky is that we need to factor turn prospects into our decision. As we saw, if Hero can't continue on many turns and expects to face a bet very frequently on the turn, then calling the flop with all that ghost equity is not advisable.

We'll now be dealing with some situations where Hero has correctly called a flop c-bet and is facing another barrel on the turn.

A **Barrel** is a further bet made on a later consecutive street by the post-flop aggressor.

To **Barrel** the turn is to bet the turn having bet the flop.

The fourth (brown) number on Hero's HUD in the following hands is **CBet Turn** which we first met [here](#). Remember that this stat needs a much more significant sample of hands in order to be meaningful than CBet Flop does.

Hand 68

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Reg (23/16/68/55) (400 hands)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2BB**, SB folds, **Hero calls 1BB**.

Flop (4.5BB, 2 players)



Hero checks, BU bets 3BB, Hero calls 3BB.

Turn (10.5BB, 2 players)



Hero checks, BU bets 7BB, Hero?

Pre-flop: By now we should have a fair idea that this hand is a comfortable call for these pot odds against a wide range when closing the action in the BB.

Flop and Turn: Here's a spot some of my less experienced students might stress out about. It feels intuitively meek to call this marginal hand on the flop and then just fold it to the next bet on the turn, but it turns out that this is exactly the line that Hero should take. We can assess these turn situations in a

similar way to the flop spots we looked at earlier in Figure 41. Here are the factors again:

Good Factors	Bad Factors
Good or True Equity	Poor or Ghost Equity
Outs When Behind	No Outs When Behind
Invulnerable SDV	Vulnerable SDV
In Position	Out of Position

Figure 41 - Calling Made-Hands in Open Action Spots

1. Type of Equity: Our equity on the turn is now poor since a lot of Villain's range just improved to beat us; other parts picked up lots of equity vs. us in the form of a diamond draw, and a third part made a pair of kings and is now probably not betting the turn due to SDV. This eliminates a lot of the air Villain bets the flop with from his turn betting range. Moreover, calling any non T or 7 river is unfathomable without a read that Villain is crazily overbluffing turns and rivers. This turns much of the equity we do have into ghost equity, depending on how often Villain is likely to bluff rivers.

2. Outs when Behind: When behind, our outs are limited to 5 at an absolute push and are often worse than this when we're dominated by a better T or two pair+.

3. Type of SDV: is very vulnerable and there seem to be very few good river cards.

4. Position: We're out of position making getting to showdown that bit harder still.

Hero folds.

So my student might enquire at this point as to why on earth we're calling this flop when we had to fold the turn? Sometimes you'll even hear people use abhorrent logic such as:

"You called flop so you have to call turn."

This is totally flawed as on all turn cards (some more than others), we can expect a contraction between Villain's flop betting range and his turn betting range. Therefore, even if we were folding every turn card that didn't improve our equity, this is not necessarily a bad idea.

What we need to remember here is that Hero has many other hands in his flop calling range stronger than **Tc7c**. In fact, this hand is very close to the bottom of Hero's range on this particular turn card. The gutshots Hero floats the flop with have now improved to straights and decent pair + gutshots and can feel fine about check/calling again. Hero's **Ax** hands are an abundance of his range and are calling the next street too, and any **diamond/diamond** hand he calls flop with has now improved to a draw good enough to take some non-folding action with. Overall, this turn card is actually pretty good for Hero's range and lots of it can continue here; just not this hand.

Against Regs, we strive for balance where we lack a more +EV direction. Given this Villain has no obvious imbalance towards either over or underbluffing this turn, we shouldn't look to over or underfold. This equates to defending enough but not too much of our range to make bluffs neither good nor bad by Villain. By folding the bottom of our range alone we do not make Villain's bluffs good.

If we see the bigger picture out with this one hand, we see that Hero is playing a pyramidal calling strategy here.

A **Pyramidal Strategy** is one in which Hero's range to take an action shrinks proportionately on a street by street basis from pre-flop through to the river. Hero does this in order to make sure that he is not taking one action with too large or small a part of his range on any street. Such an approach creates balance and a solid complete strategy.

Look at the figure below to help visualize this idea.



Figure 46 - Pyramidal Strategies

So in reality, if we were to call turn with every hand we called flop with, we'd in fact become more exploitable, not less exploitable. The pyramid would not narrow at all and Villain would have 0% fold equity vs us. This would make it incredibly profitable for Villain to exclusively value bet and never bluff on the turn. We have no desire to offer Villain this route to strategically crushing us, not unless we suspect he's doing the opposite.

For now then, we'll aim to roughly emulate a balanced pyramidal calling strategy in these spots whenever we have no reason to be exploitatively overcalling or undercalling a street. We'll do this by assessing where we are in our range and how suitable the hand in question is to stay in the pyramid on the next tier/street. Our requirements for calling a later street will always be stricter than those for calling an earlier one.

In [Chapter 13](#) when we examine balance principles more closely, we'll be learning how to mathematically solve for optimal balanced strategies with our range.

I've stressed the importance of balance when Hero is void of information against Regs, but remember that he should always be on the lookout for reasons to do something unbalanced. As we saw earlier, where Villain's imbalances offer us a clear route to higher EV by adopting some exploitative strategy of our own, we should do that instead of being balanced. After all, balance is boring unless you're one of those math geeks that loves harmonious ratios of stuff. I think I might be one of those.

So to summarise what we just learned in [Hand 68](#), our hand falls into the small sub-range of hands that is good enough to ascend to the third tier of the pyramid (the turn), but no further. If this sub-range were disproportionately large, then Hero would be justified in feeling bad about calling flop and folding turn. Zooming out and remembering the balanced structure of his overall range should ease these worries. He does not have **Tc7c** on average here, he has lots of hands of varying strength and he's playing that collective body fine.

Back to Vacuum EV

Of course if **Tc7c** were actually -EV to call flop and fold turn with in a vacuum, then Hero would have to fold the flop, but this shouldn't be the case due to the amount of equity Hero can realise vs Villain's wide range on other turn cards and how many decent turns there are for Tc7c. Hero should never make awful calls just for the sake of making his pyramid neat. There will be spots in which the situation forces him to underdefend his range, but this hand is still a fine flop call.

Thinking about a pyramidal strategy does not excuse us from considering whether a play is actually +EV in a vacuum, it just allows us to see the bigger picture and aim at a sensible overall strategy. We should never intentionally make -EV plays. It could be that we want to grossly overcall the

river vs someone who bluffs too much; that doesn't mean that 9-high has enough SDV to call!

Now we have the approach down, let's look at another turn spot.

Hand 69

UTG – Reg {27/22/72/67}

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ fold, **Hero calls 3BB**, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



UTG bets 4.5BB, **Hero calls 4.5BB**.

Turn (16.5BB, 2 players)



UTG bets 13BB, **Hero?**

Pre-flop: We're getting closer and closer to the very important 3-betting chapter of this manual. These decisions will seem much more automatic after reading it, but for now, we can suffice to say that this is not a hand strong enough to 3-bet and get in a stack with vs. a 4-bet in these positions and that

to 3-bet for value is somewhat thin. This hand is much better as a flat, partially to set mine and partially to get to showdown without a set on the better run outs for us.

Flop: Calling is incredibly standard here. Hero does not desire a raising range in this spot with range disadvantage and the board being so dry and even if he did, it would be too thin to build a huge pot with this marginal value hand against an uncapped range.

Turn: Hero now has some reason to leave the realms of pure balance and start over defending his range. He knows that Villain is aggressive and bets a lot of flops and turns. If Villain is taking a wider range than average to the river as the aggressor, then so should Hero. That said this turn would be a standard call vs. most players. I can only really see folding being viable vs the nittiest of Villains. Given that Hero expects more bluffs than usual from this Villain, calling the turn is essential for Hero. It's both +EV in a vacuum and desirable from the pyramidal long term EV approach. To fold would be to fold a very large part of Hero's range since he simply doesn't have that much **Qx**, **9x** and has no **KK+**. The pyramid would shrink too much on the turn, making overbluffing too effective a strategy for Villain.

Fortunately, Hero does have some nutted hands here like **T9s**, **99** and **44** and that helps enormously with dealing with aggression here. It just shows how important it can be vs. an aggressive player to never raise this flop and to keep the pyramid of calling uncapped - there are more strong hands to take forward to the later streets.

Hero calls 13BB.

Hand 70

UTG – Unknown

HJ – Unknown

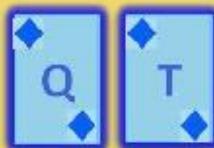
CO – Reg (19/16/64/45) (1200 hands)

BU – Hero

SB – Whale (78/15/40/33) (85 hands)

BB – Unknown

Dealt to Hero:



UTG folds, HJ fold, CO raises to 3BB, Hero calls 3BB, SB calls 2.5BB, BB folds.

Flop (10BB, 3 players)



SB checks, CO bets 6BB, Hero calls 6BB, SB calls 6BB.

Turn (28BB, 3 players)



SB checks, CO bets 16BB, Hero?

Pre-flop: This decision might be closer were it not for the presence of the Whale in the SB, but with this guy here, calling is clear.

Flop: Okay, so the Reg c-bets a dry board on which neither Hero nor the Fish should have a strong hand all too often. Fold equity for the Reg is reasonable given how weak and wide the Fish's range is pre-flop and how much utter trash he'll have flopped on average. CO's range does not need to be that strong to bet especially when we know that he likes to c-bet a healthy amount of flops in general. Hero's call is essential with a hand this high up in his

range and there are extra implied odds from the times the Reg is c-betting air and the Fish starts calling multiple streets with a terrible **Qx**, underpair or gutshot draw.

Turn: If there's ever a spot to fold top pair to just two barrels from a Reg then this is it. Although Hero normally wants to deploy a balanced pyramidal strategy against Regs there two great reasons for Hero to overfold the turn including this hand.

- Villain is pretty tight in general and seems to have a very value orientated turn barrel range betting only 45% of the time.
- The Whale calling the flop decimates the Reg's fold equity and any competent Reg will typically realise this. He is far less likely than usual to be bluffing this turn and Hero struggles to beat many if any value hands.

So this is the right time for an exploitative strategy of overfolding. Hero can go overboard and fold **QJs** and maybe even **KQ** here and the good news is that Villain is powerless to exploit it. Why? Because to exploit Hero's overfolding, Villain would need to overbluff and overbluffing the turn three-way with a whale in the pot is just EV suicide in a vacuum. Both Hero and the Reg are simply forced to play fit-or-fold here. If Villain had checked, Hero would have had a very easy value bet against the Whale's range, but facing this barrel he has to fold. Villain's betting range has contracted massively from the flop to the turn and so Hero's pyramid shrinks accordingly.

Hero folds.

So far we've been looking at some marginal made-hands on the turn. Let's take a look at a spot where Hero has a draw out of position and faces a bet that renders calling unprofitable.

Hand 71

UTG – Unknown

HJ – Reg (20/18/82/65)

CO – Unknown

BU – Unknown

SB – Hero

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, BU folds, Hero calls 2.5BB, BB folds.

Flop (7BB, 2 players)



Hero checks, HJ bets 4BB, Hero calls 4BB.

Turn (15BB, 2 players)



Hero checks, HJ bets 15BB, Hero?

Pre-flop: To recap, Hero can develop a flatting range out of the small blind due to the open not being in a steal spot as this reduces the likelihood of facing squeezes from the BB. This hand is just about playable enough vs. Villain's likely range, even out of position.

Flop: Hero could develop a raising range on this flop since range advantage is not hugely in Villains favour. Both players can have JT_s, JJ and TT. The only really strong hands Villain can have that Hero can't are 44 and [QQ-AA]. Even if Hero does have a raising range, this draw is a bit too good to

raise/fold and not anywhere near good enough to raise/not fold and so it functions best in Hero's calling range.

Turn: Villain is clearly bet-happy post-flop with a high c-bet stat on both streets. Despite this, calling again is definitely not an option for Hero with these pot odds out of position, holding a draw that has become a lot worse on this card. As the board is now three to a flush, drawing to a straight and trying to realise implied odds should he hit is a bad plan for Hero. It will be tough to get too much action from worse hands on the river but very easy to get action from flushes! Hero's options are therefore to raise or fold the turn.

Fortunately for Hero, his range is very strong on this turn card and becomes mostly airless since his flop range contained made-hands like pairs and then some draws, most of which were to the flush. Consequently, a raise here appears very strong indeed and Hero should have a good clout of fold equity to go with his bit of pot equity against Villain's fairly wide range. Using this hand as a bluff raise then makes a lot of sense. There is little air that Hero needs to balance his value hands with and so he should certainly look to bluff with any non-made-hand equity that he can't call again with. Hero can raise hands like this one as a bluff and then some of his better flushes for value. He can continue to call with weaker made-hands like poor flushes and good pair + draw hands.

The skewed pyramid that Hero uses in this spot leans towards underfolding the turn and this is exactly what Hero should be doing with such an airless range against a player who likes to barrel turns aggressively and can bet/fold a reasonable chunk of this range.

If Villain was generally more in line on the turn, then Hero would have to grit his teeth and check/fold this card, looking to bluff rivers if Villain checked behind.

Hero raises to 38BB.

Hero's sizing does not need to be too huge here. Setting up river shoves is the main priority with his whole range and this size achieves that while also grabbing some immediate fold equity.

8.4 Dealing with Donk Bets

A **Donk Bet** is a bet made in a heads-up pot by the pre-flop caller before the pre-flop raiser has had a chance to c-bet. To make a bet like this is to **Donk** the flop.

To Lead is to take the betting lead in a multiway pot as a pre-flop caller.

These two bets should usually be handled in different ways. While the former is usually, but not always, a bet made by weaker players often with a wide range of hands, the latter is often correctly made by Regs and can be strong due to the multiway nature of the pot.

While multiway pots are normally conducive to a much more fit-or-fold strategy for all, facing donk bets can be really tricky. It feels as though by suddenly grabbing the initiative in a pot that you the raiser have initiated and were getting ready to c-bet, Villain has offended the natural law of poker and now must be punished. The temptation to go into all out attack mode vs. donk bets is an intuitive one, but these days people are realising more and more that there are times when fold equity can be quite limited on Hero's part in these situations. The spot thus needs a great deal of finesse so I've decided to dedicate a little section to it.

The lower the stakes Hero plays, the more often he'll be sat with the type of players who'll frequently put him in these situations.

Let's start with eight truths about facing donk bets that will prepare us to assess a couple of example hands. We'll cover leads in multiway pots afterwards.

1. Normally when Villain donks, he is putting money into the pot without range advantage so this is not theoretically much of a problem for Hero. All else being equal, he should defend wider than vs c-bets for this reason.

2. Hero is always in position vs. donk bets and so later streets will be much easier to play for him than for Villain; again, he should defend wider than vs c-bets.

3. Fish subtype is extremely important in Hero's decision. Identifying whether Villain is closer to the aggro or passive side of the spectrum determines:

(a) How likely Villain is to keep betting should Hero call and how hard it will be for Hero to get to showdown. This in turn determines how much of Hero's equity is true equity with weaker hands and how inclined he should be to slowplay big hands.

AND

(b) How likely Villain is to be donk/folding. Hero should have a raising range vs. less combative Fish especially where he can turn extra equity and fold equity.

4. Donks on wet textures promise less fold equity as Fish will usually have enough incentive to see the next card(s) with a wide part of their range.

5. Fold to Flop CBet can be used to determine how Villain plays his range on the flop as the pre-flop caller. Fish who fold to lots of c-bets, but have a donking range are likely to be checking weak hands and donking better ones. Hero can play very straightforwardly against such players.

6. The stat: **Donk Flop** can be used to gauge how likely Villain is to be donking a wide attackable range.

Donk Flop

Definition: **Donk Flop** describes the % of the time a player has donked the flop given he had the opportunity to do so. Though in this book I'm using 'donk' to refer only to heads-up pots, this stat describes any situation where a player has bet the flop as the pre-flop caller before the raiser has had the chance to c-bet and includes multi-way pots.

Reliability (No of Hands)

Since a Villain who donks is likely to be a Fish with a high VPIP, the sample of donk opportunities in a given sample of hands will be larger than with the average player. Consequently, this stat converges to something useful much more quickly than many others that we've looked at.

50 = Poor

100 = Decent

200 = Good

500 = Excellent

Interpretation

0-25 = Low: This player rarely donks. He checks some good hands as well as bad hands. His donking range could be weak but is most likely made of hands that have connected in some way.

25-40 = Medium: This player has a substantial donking range and likely donks some weak hands. Look at **Fold to F Bet** to see how strong a range he checks.

40-60 = High: This player donks a wide range of hands many of which must be weak.

60-80 = Very High: This player frequently donks total air or close to it. Hero must defend much wider now.

80+ = Insane: this player is putting money into the pot with close to his whole range with range disadvantage. Hero should fold only the worst hands and only where there is little fold equity despite Villain's wide range (EG. against a very aggro Fish).

7. Donking ranges are often very depolarised.

A **Polarised** range contains two clearly different parts: strong hands for value, and weak hands as bluffs. The medium strength hands in between are not a part of the range.

A **Depolarised** range does not have two clearly different parts and can contain anything from the nuts all the way down to complete air with anything in between.

(a) Against **polarised ranges**, bluff catchers need less showdown value because even bad showdown value is sufficient to beat total air. Against **Depolarised ranges** there is a need for stronger showdown value when bluff catching. Against donk bets then, Hero needs to be careful about bluff catching with very weak showdown value such as bad ace-high. The Fish can be 'bluffing' with better.

(b) Against **polarised ranges**, value raises can only be made with very strong hands as there is no sense in raising moderately good hands for value against either total air or the nuts. Against **depolarised ranges**, however, value raises can be made with weaker hands. This means that Hero can widen his value raising range vs. donk bets and not be afraid of building bigger pots with medium to high strength hands such as top pair good kicker.

8. Donking ranges are often capped. While Fish have a tendency to donk a medium strength hand to 'find out where they're at' or to 'just take the pot down' they will much more rarely donk the nuts through fear of their opponent folding and the irresistible urge to slowplay and 'deceive'. This means that Hero can raise even wider for value vs donk bets and exert more pressure where there is likely to be fold equity.

Wet Board Poor Equity

Hand 72

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Aggro Fish (57/30) [80BB] (35 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds, BB calls 2BB.

Flop (6.5BB, 2 players)



BB bets 6BB, Hero?

Pre-flop: Not much to say about this open other than that it's standard unless we have highly aggressive 3-bettors ahead.

Flop: As donk bets go, this is a huge one. This makes calling less attractive as pot odds and implied odds decrease substantially vs. a huge bet.

We have little player specific information on Villain here as is so often the case with Fish. Since recreational players come and go like the wind, building up a large sample of data on them will be difficult. So often we have to go on general player type reads in these spots, lacking more specific information. As this flop texture is pretty wet, there are a vast array of draws and made-hands of varying strength that we can assume this player type is going to dissuade himself from folding should we raise.

We know that fold equity and implied odds are inversely proportionate so doesn't Hero have enough implied odds to call? Sadly not. Although the few times Hero does stumble into one of his four outs on the turn, he's likely to get paid off, the price to chase with no future fold equity is too unfavourable and one of his four **6s** also completes flushes, which will kill action to some extent, or worse, make Villain a better hand. There is an insufficient total of equity, fold equity and implied odds to make continuing in any way +EV.

Villain's range could be fairly wide and certainly likely to be depolarised containing some hands like second pair, bad draws and weak top pair, but Hero will nevertheless require a hand capable of getting to showdown and winning more often vs. this spew machine of an opponent. A patient fold is in order. Just because Villain should fold a lot of this range to a raise does not mean that he's going to. Bluffing the Fish in these spots is a major leak worth eliminating from your game. Fight mindless aggression with mindful patience, not blind retaliation.

Hero folds.

Facing The Min Donk

The fourth (blue) number on the HUD in the hand below is **Donk Flop**.

Hand 73

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Passive Fish (42/7/60/60) [55BB] (100 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds, BB calls 2BB.

Flop (6.5BB, 2 players)



BB bets 1BB, **Hero?**

Pre-flop: Nothing to say here

Flop: we meet a bizarre and actually pretty common Fish phenomenon: the min-donk. My note box on these kinds of passive Fish is often filled with the good old 'MDF QQ5r', or in semi-English, 'Min-Donk/Fold QQ5 rainbow'. The point is that when you see a player make this min-donk-bet on the flop, and you decide to raise them, it's worth noting their response. One school of passive Fish just habitually does this with air usually folding when raised, while another school does it to try to induce action or find out where they're at with some made-hand. A third school does it for both reasons or even with every hand in their range.

In this spot we don't know which school this passive Fish belongs to, but we do know that the flop is incredibly dry and that Villain's wide range just has

air an enormous portion of the time on it. Folding is clearly out of the question as these pot odds make any two cards +EV to call without the extremely rare read that Villain only does this with **Qx**. There are a couple of reasons why it's important to raise this spot though:

- Hero actually has the best hand a lot here, but he wants to protect his equity vs. worse hands that often have two live cards to improve. Remember that raising for protection is fine as long as Hero actually has the best hand a lot and he certainly does here.
- Hero would like to fold out some of Villain's **Ax** and low pairs now or on later streets if the board runs out to give him some more equity.

Overall, raising is good. The donk is so insignificant that the situation closely resembles one in which Villain checks and Hero c-bets this flop with every hand in his range. From this we can extract a rule to help us in these situations in general.

The Min-Donk Rule: Against the min-donk (MD) from a Fish, without information as to which kind of min-donker Villain is, Hero should default to raising every hand he would normally c-bet and calling every hand he would normally check behind

Unless..

Hero has a part of his checking behind range with such abysmal equity that calling even 1BB is -EV. EG. **5d4d** on **AcKcQc**.

SDV Against Donk Bets

Hand 74

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Aggro Fish (75/45/35/60) (75 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds, BB calls 2BB.

Flop (6.5BB, 2 players)



BB bets 4BB, **Hero?**

Pre-flop: Open that hand up. Playing pots in position vs the BB is going to be Hero's main source of gold on this table.

Flop: There are a few good reasons for assuming that BB's donking range is very wide here. For starters, his **Donk Flop** stat is an active 60% so far indicating a high likelihood that he is donking weak hands, even total air. Secondly, on a dry board like this, it's much easier to flop air than anything strong. Finally, Villain's broad player type is very indicative of a bluff heavy donking range. These players are often what we call **reverse players**.

A **Reverse Player** is one who tends to play aggressively with weak hands and passively with strong hands and therefore has an extremely air heavy betting/raising range especially with large sizing and a stronger than average checking/calling range or when he uses smaller sizing.

Reverse Players almost always have Aggro Fish stats and can be identified by observing them bet or raise complete air while checking or calling a strong hand.

It's not that we know that this is definitely true of our Villain here, but it's certainly likely that an Aggro Fish will try to bludgeon his way to fold equity with weak hands and still have the innate Fish instinct to slowplay the nuts a lot of the time.

This means that Hero needs to fold fairly infrequently here whenever he has SDV or decent non-made-hand equity - his focus should be on making money against air. It's probably good for him to slowplay his big hands and allow this very aggressive player to keep barreling and only raise as a bluff with lower equity draws that will have a hard time calling turn bets. This kind of unbalanced strategy should exploit Villain perfectly.

Regarding playing **99** and similar weakish SDV, it might be tempting to want to raise to protect that equity. After all, we'd c-bet this flop and raise a min-donk so why not raise vs this larger donk bet too? The problem is that by raising vs. an aggressive player, we lose value vs his air, while inflating the pot vs his rarer value hands. This is a disaster for our EV and a worse price to pay than not protecting our hand from 6 outs or so at most (Villain won't be folding stronger draws than this).

It's okay to c-bet for thin value/protection facing a check as Hero can expect to get called by worse hands sometimes, and more importantly, has no reason to expect Villain to blast the turn with his air like he does in the actual hand. Protection, in that case, would be a higher priority.

It would also be okay to raise a min-donk as again Villain would not seem to be building a huge pot with his air in that case either. Hero thus loses less future value from Villain's bluffs by raising right away. Moreover, when

Hero raises the min-donk, he doesn't create such an uncomfortably massive pot vs. Villain's better hands as when he raises the 4BB donk-bet.

Hero should just call in this hand, leaving Villain's range wide and able to spew future streets while keeping the pot size manageable. It would be very unpleasant to raise and then face a 3-bet in this situation from a player who could well have a higher than average flop 3-bet bluff frequency.

It is true that there will be some awkward turn cards to make decisions on. Hero will need to be making some close choices as to which boards he can call down to showdown on, but this is just a spot where Hero needs to be brave and keep it in the back of his head that Villain's donking range is very likely to be extremely weak. Just because a line feels a bit uncomfortable does not entail that it's not the most +EV line. Raising the flop just to avoid this discomfort is not sensible and in reality, only creates a different but equally unpleasant spot when Villain doesn't fold and when he does fold... well; he certainly folded a worse hand than **99** anyway.

Hero calls 4BB.

We've covered facing donk bets with weak hands and draws. Now we should take a look at how to play a decent value hand in such a spot.

Hand 75

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Fish (42/0/NA/0) [74BB] (12 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds, BB calls 2BB.

Flop (6.5BB, 2 players)



BB bets 3BB, **Hero?**

Pre-flop: Time for a bit of revision. Note that Hero's sizing in the last few hands, including this one, has been 3x from the CO. This contradicts the default size recommend in [Chapter 2](#), but for good reason. In all of these cases Hero has been targeting a weaker player against whom he has position. This coupled with the absence of any known aggressive 3-bettor behind him makes 3x a better size. Hero benefits from the larger pot-size in position vs. a Fish as he magnifies his opponent's post-flop mistakes and wins more when his c-bets are successful.

But wait a second, we only have 12 hands on Villain. How can we know he's a Fish?

There are two factors that make this player very unlikely to be a Reg.

- Regs rarely play with less than 100BB stacks, understanding the importance of playing full stacked to maximise their edge at the table over weaker competition.
- While it's possible for a Reg to run 42/0 over 12 hands, it's pretty unlikely. He'd have to have called opens or limped 5 times so far without raising once.

Remember combined probability? The chances of two unlikely things both being true are exponentially more tiny than those of just one being true. Villain is a Fish here a ridiculously large percentage of the time, and usually a passive one.

Flop: Now thinking back to [Chapter 5](#) on value betting, should Hero raise this flop?

The first factor we looked at there is whether Hero is ahead of Villain's continuing range vs. a raise. I think it's clear that he's comfortably ahead here since Villain has few better hands and plenty of worse Kx, Tx and draws, but that's not the full story. The next question is: how much incentive do you think there is to build the pot immediately?

The answer is 'plenty'. Since Villain's donk size was relatively small in relation to the pot, Hero will need to do some building earlier on in the hand to maximise his potential value from all of those hands that he is comfortably ahead of. These hands make up a very large part of a passive Villain's likely donking range. This player is less likely to be donking total air than the aggressive Fish in [Hand 74](#) and more likely to have a defined depolarised range of mediocre hands. Hero is advised to raise for value against this range just as he'd bet vs. a check to build the pot. Passive players are also less likely to spew money into the pot if left with the betting lead on the turn, at least with the hands that they wouldn't call a flop raise with anyway. This makes slowplaying unsuitable with a hand that can get plenty of value right now.

Hero raises to 9BB.

Facing Multiway Leads

In general, as we've already seen, multiway pots promote honesty; split the burden of defence between two or more players when someone bets, and cause Hero to play tighter in all situations. Facing leads is no exception and even most Fish will be less naturally inclined to steal pots with three or more players to the flop. They intuitively understand the simple notion of multiwayness better than they understand most other poker concepts.

The hand below demonstrates the need to tighten up in these situations. Multiway leads deserve more credit than heads-up donk-bets and can be made much more often by Regs as well as Fish.

Hand 76

UTG – Unknown
HJ – Unknown
CO – Hero
BU – Unknown
SB – Reg (23/16/62/**11**) (500 hands)
BB – Whale (61/15/40/**25**) [56BB] (86 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB calls 2.5BB, BB calls 2BB.

Flop (6.5BB, 2 players)



SB bets 8BB, BB folds, **Hero?**

Pre-Flop: This is a clear open and you might well know why it's 3x and not 2.5x. If unsure, consult [Hand 75](#) above to clarify.

Flop: If there's one benefit to facing a lead multiway it's that Villain's range is normally much better defined than it would be heads-up. The BB is a very stationary looking player. Is SB, a standard looking Reg, really leading such a wide range into two players for pot, one of whom is this Whale? I doubt it. A good estimate of SB's leading range here would be mainly better made-hands and draws with plenty of equity vs. 77. It makes a lot of sense for Villain to lead his value range here, playing it fast as the Fish is his primary mark for extracting payment, not Hero, and Hero is less likely to c-bet light with the Whale in the hand any way.

As a result, Hero really has no choice but to fold a hand with weak vulnerable SDV and significant ghost equity. What turns is he thrilled about? Only 2/47. It just won't be profitable to bluff catch and get to showdown in such a marginal way vs. a range that probably contains far too few low equity hands. This is the nature of the three-way pot with a Fish involved. If you think about it, such transparency is a good thing that saves Hero some money in the long run.

Hero folds.

The increase in complexity throughout this chapter has been anything but gentle. We're about to move on and cover some mandatory poker mathematics that will set the groundwork for dealing with the complex beasts of 3-bet and 4-bet theory and then the rest of the manual.

If your head is a bit of a muddled mess after slogging through all of the new material we've just covered, my advice is to re-read this chapter and take a break from the manual to play some poker, tag some hands in your tracking software that fit the bill of this chapter and have a go at analysing them using the material covered here. This is necessary to cement the theory in a way that it can be accessed and applied to good effect on the tables.

Learning poker requires hands on application of concepts. Reading this book from cover to cover is not enough.

9. Combos and Blockers

We've done some intermittent mathematical work throughout the manual so far. I've taught the two most essential procedures of calculating required equity and required fold equity, but I've thus far stayed clear of what's by far the most useful mathematical tool in poker: understanding how to use combos and blockers to aid decision making.

We'll kick off by introducing the notion of the 'combo' and then move onto blockers later in the chapter.

A **Combo** is any combination of 2 of the 52 cards in the deck and constitutes an *exact* starting hand in Texas Holdem.

Ac Ah is one combo.

Ah As is another.

AA is the name of the group of all of the combos that contain two aces.

We say that **Ac Ah** is a combo of **AA**.

Before we learn how to apply combos to everyday poker thinking, it's important to memorise the three combo group types pre-flop and how many individual combos each one contains.

Group Type	Example Group	# Combos	Exact Combos
Pairs	88	6	8c8d 8c8h 8c8s 8d8h 8d8s 8h8s
Offsuit	AQo	12	AcQd AcQh AcQs AdQc AdQh AdQs AhQc AhQd AhQs AsQc AsQd AsQh
Suited	JTs	4	JcTc JdTd JhTh JsTs

Figure 47 - Hands and Combos

Note that **8c8d** is exactly the same combo as **8d8c**. We only care about which two cards make up the starting hand, not the order in which they are dealt. There are **1326** possible combos that Hero can be dealt pre-flop, each one equally as likely as the next. However, when we start lumping combos into the groups we commonly refer to as 'starting hands' such as **KK**, **32o** or **45s**, we see that these hands are not dealt at equal frequencies. How abundant the combos of a hand are is the measure of how easy it is to be dealt that hand. For every pocket pair in a player's range pre-flop he will have 6 combos, but for every unpaired hand he'll have 16. It's more than twice as easy to be dealt an unpaired hand than it is a pair.

Say for example that some bizarre Villain in some bizarre poker universe had a BU opening range consisting of only **AA** and **72**, he would only have **AA** just $6 / (6 + 16) = 27\%$ of the time.

This goes to show that the natural distribution of starting hands is uneven. Appreciating the ways in which they are unevenly dealt gives us a better feel for how likely a player is to have certain parts of his range, or how balanced or unbalanced Hero's own range is when it contains certain starting hands. We can use combos for two purposes:

- To put our opponents on ranges and decide what we should do against those ranges.
- To build our own ranges so that we can aim at the appropriate long-term strategy for the situation.

We'll be using combos to build our own ranges in the next chapter on 3-betting. For now, let's take a look at some concrete examples of using combos to weight our opponents' ranges.

9.1 Using Combos Pre-Flop

The following hand illustrates a spot that we'll deal with more closely in [Chapter 11](#) on reacting to 3-bets. For now we'll use this situation as a good example of how an appreciation of combos can help us avoid a very common pitfall that I often see among my students.

Hand 77

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Hero
SB – Passive Fish (44/12/**4**)
BB – Reg (24/20/**8**)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB folds, **BB raises to 11BB**, **Hero raises to 24BB**, BB raises to 100BB (all in), **Hero?**

Generally speaking, if Hero is going to 4-bet **QQ** BU vs BB it will be with the intention of calling a shove. Let's say for the sake of argument only that we know Villain's range is exactly **[KK+ AK]** when he shoves over the 4-bet. This could make 4-betting somewhat questionable in Hero's position if Villain doesn't flat many worse hands, but we'll ignore this for now.

Some students will now ask the following question:

"How can calling the shove with QQ be +EV? If Villain is only shoving KK, AA and AK, then surely Hero is either flipping or crushed?"

Okay before we go any further: what is the first thing Hero actually needs to consider in this situation? That's right, his required equity (RE) to make the call. If Hero fails to take this into account then he'll be on the wrong track from the start of his analysis. This is an End Of Action Spot (see [Chapter 7](#))

We know that $RE = ATC / (ATC + TP)$, which in this case is:

$$76 / (76 + 124.5) = \mathbf{37.9\%}.$$

The dangerous assumption to dismiss is that Hero needs to be good half of the time or more in order to call.

Now that we know our RE, we need to work out our equity against Villain's range. We'll do this first by using an equity calculator and then we'll come back to combos to explain why the calculation comes out as it does.

The calculator tells us that Hero's equity with **QQ** vs. the range of **[KK+AK]** is **39.9%** and that this is indeed a comfortable call, but why is this the case?

It is true that vs. **AK** Hero has close to 50% equity and vs. **KK** and **AA** he has significantly less. My students' claim that Hero is 'flipping or crushed' is loosely correct. Hero's equity being sufficient to call here is a direct result of the combos in Villain's range weighting that range away from the bigger pairs that crush us and towards the **AK** portion against which we're a slight favourite.

Applying what we've learnt about combos so far, we know that there are 16 combos of unpaired hands (12 offsuit and 4 suited) and only 6 of a pocket pair. This means that Villain's range contains 16 combos of hands we are a slight favourite against (**AK**) and only twelve combos of hands that are crushing us (**KK** and **AA**). This is what gives us almost 40% equity here.

The flawed thought that here is that because there are two outcomes, one neutral and one bad, that the equity situation must be very bleak. The failure to realise the immensely different frequencies of occurrence of these two outcomes is something I call the **Equal Chance Fallacy**.

The **Equal Chance Fallacy** is to think that just because there are two options, those options are just as likely as each other.

When I leave my house to go for a run in a few minutes time we can stipulate two potential outcomes. It is certain that either of these two things will happen:

- **A:** I will be pecked to death by ravenous seagulls.
- **B:** I won't be pecked to death by ravenous seagulls.

I am almost entirely certain that B will occur and not A, and that's why I can go for a run without suicidal desires. The chances of A and B occurring are vastly different. There are far more ways that B can happen than A. In poker speak, there are far more combos of B than there are of A.

This might seem obvious and even insulting to your intelligence to state here, but I want to use the absurd seagull case to dispel what is actually a very common mistake made in poker thinking, namely, the disregard of combos and how likely they make one part of a range compared to another.

Let's move on to look at how we can use combos to decide how to play against our opponent's range post-flop.

9.2 Using Combos Post-Flop

Combos are also a natural weighting factor post-flop and determine how often our opponent will hold different parts of his range. One of the most essential skills in placing an opponent on an accurate range is being able to quickly estimate how likely one part of that range is compared to another. In [Hand 78](#) below, Hero has the following two very useful player specific notes:

- Villain raised a flush draw on flop vs c-bet.
- Villain is capable of betting three streets as a bluff with a missed draw

Hand 78

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Unknown

BB – Reg (20/17/7)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB calls 1BB**.

Flop (4.5BB, 2 players)



BB checks, Hero bets 2.5BB, BB raises to 8BB, Hero calls 5.5BB.

Turn (20.5BB, 2 players)



BB bets 13.5BB, Hero calls 13.5BB.

River (47.5BB, 2 players)



BB bets 35BB, Hero?

First port of call as always in an end of action spot is to find RE which comes in at $35 / (35 + 82.5) = 29.7\%$

In game, we know that Villain's bet size was very close to 3/4 of the pot, which we know from our RE table ([Figure 37](#)) means that we need very close to 30% equity to call.

Let's try to put Villain on a likely range of hands:

When Villain raises the flop and blasts turn and river it's very likely that his range is polarised. It wouldn't make much sense to take a marginal value hand like **KJ** and overplay it to this extent as it's going to be tough to have good equity *when called* with such a hand.

When Hero has decent showdown value against a polarised betting range, he is always going to be winning against one part of Villain's range and losing against the other. We can therefore assign Villain two very different sub ranges relative to our hand.

- The very strong value hands that beat us.
- The bluffs that we beat.

Sub-Range 1: Value

What comprises this part of Villain's range? Hero can instantly discount **[QQ-AA]** and probably **JJ** too as it's just far too likely that a Reg with a 7% 3-bet stat will we 3-betting these hands pre-flop especially in late position battle spots such as BU vs. BB.

There is very little in the way of two pair in Villain's range. He would have to flat **J6s**, **J2s** or **62s** pre-flop and this is fairly unlikely from a tightish player even against the min raise. We'll exclude these hands from Villain's range.

So what does that leave for value? Essentially, just flopped sets. We've already discounted **JJ** due to pre-flop and the fact we hold a **J** in our hand makes this even less likely. That leaves just **66** and **22**. Villain can certainly have these hands. Let's count the combos.

Pre-flop these pocket pairs are 6 combos each, but what happens when we stick another of the same card on the flop? Well, it means that there are now only three suits of that card left to form combos. Since **6h** is now impossible for Villain to hold, he can only have **6c6d** **6c6s** **6d6s** for a total of 3 combos of **66**.

22 is even harder to have due to the second **2** appearing on the river. There is only 1 combo of that now (**2d2s**).

Villain's value range is only likely to contain just four value combos.

Sub-Range 2: Bluffs

The picture is already forming. If we only need 30% equity to call and Villain's value range is so tiny, it won't take many bluffs at all to be in there for calling to be +EV.

Let's be conservative and say that Villain only raises the flop with sets and flush draws; this assumes that he uses no bluff combos other than hands with two hearts in them. Let's be even more conservative and say that though we've seen Villain bluff missed flush draws before on the river he only bluffs with them half of the time.

Let's see how many combos of bluffs Villain can be estimated to have here. We'll start by seeing how many combos in his pre-flop calling range contain two hearts.

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

 Bluff Range

 Value Range

Figure 48 - Ranging: Comparing Value to Bluffs

In green are the flopped sets (now boats or Quads) that we already decided were very likely to be a part of Villain's range.

In red is an estimate of all the suited hands that Villain flats pre-flop. Note that the very best and very worst suited hands have been excluded on the grounds that they are too good and too bad to flat the open with respectively.

I've also removed any hands containing **Jh** as this would not be part of a polarised range on this board given the SDV of the hand. I've also removed any hands containing a **6** or a **2** as it's not possible to flop a flush draw with these given the **6h** and **2h** are on the flop. Now there are four combos of each

suited hand in this range, but only one of each (**hearts**) is going to give Villain a flush draw.

We said we'd use half of all the possible flopped flush draws for Villain's river bluffing range, which is fairly conservative given our two notes on this player.

In total, there are 31 combos of flush draws in Villain's range. We'll therefore estimate that Villain has 15 bluff combos on the river.

The results are staggering. If our estimates are not miles off, then Villain is only betting a better hand than Hero's $4 / 19 = 21\%$ of the time. Since Hero beats all of Villain's bluffs he beats 15 / 19 combos and can expect to have **79%** equity vs this range.

Hero only needs 30% equity to call and so after this analysis we see that Hero's decision isn't close.

Hero calls 35BB.

Balance Considerations

A balanced river betting range should grant Villain's bluff catchers exactly his RE% in order to make calling break even for Villain. This ensures there is no exploitative strategy available to him.

Remember in [Chapter 8](#) when we talked about whether to have a raising range or not on a certain flop? If Villain wants a balanced strategy in [Hand 78](#) above, then it will be very difficult to correctly balance a river betting range between value and bluffs. He has just four value combos and so would need to bluff even less combos of his missed draws to be unexploitable to an overcalling strategy from Hero.

To be balanced, Villain would need to make Hero *indifferent* to calling with a bluff catcher, which is to make it 0EV for Hero to call with a hand like the AJ he holds in [Hand 78](#). This would require giving Hero exactly **30%** equity and no more or less as this is Hero's RE due to Villain's sizing. To do this Villain would need to bluff 30% of the time and value bet 70% of the time. Since he only has four value combos, even having two bluff combos would equate to Hero having $2/6 = \mathbf{33\%}$ equity and the option of profitably overcalling his range on the river.

Combos naturally skew ranges. It's much easier to get to the river with a busted flush draw than with a full house or better. In [Hand 77](#) Villain is getting exploited enormously by Hero's plan to overcall his range on this river. Hero should be calling any hand with more than 30% equity against Villain's range and that will be almost his entire range for facing this bet. Villain is getting strategically crushed thanks to Hero's reads and according exploitative plan.

Many Villains, even Regs, will be obviously unbalanced in this way for no good reason and this is exactly why we can beat them. We'll be returning to this theme in [Chapter 12](#) when we go on to talk about forming our own post-flop bluffing ranges. This will save us from suffering the same fate as Villain in that last hand.

9.3 Blockers

In [Hand 78](#) it became harder for Villain to hold either **66** or **22** when the flop came down with both a **6** and a **2**. We can say that these hands were 'blocked' by the flop; the combos of each were slashed from 6 to 3. If we'd thought that Villain could have had **JJ** even though he didn't 3-bet pre-flop, we would have discounted this to only 1 combo because the hand was not only blocked by the flop, but by Hero's **AJ** too.

A Blocker is a card in either a player's hand or on the flop that reduces the number of combinations of some hands in another player's range.

Holding an **A** reduces the combinations of:

AK from 16 to 12

AKo from 12 to 9

AKs from 4 to 3

AA from 6 to 3

A set of AA on Axx from 3 to 1

The following hand is a pre-flop spot in which blockers are crucial to our equity being as good as it is.

Hand 79

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Passive Fish (44/12/**4**)

BB – Reg (24/20/**8**)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB folds, **BB raises to 11BB**,
Hero raises to 24BB, BB raises to 100BB (all in), **Hero?**

AKo is a very standard 4-bet call BU vs. BB against the average active Reg. The reason for this is two fold.

1. Fold Equity

Hero picks up a lot of dead money when Villain folds to the 4-bet. Villain folds to the 4-bet more than usual when Hero holds both an **A** and a **K** as these blockers eliminate a lot of **AA**, **KK** and **AK** combos which obviously don't fold to the 4-bet.

Let's assume that Villain 3-bet shoves a range of **[JJ+, AK, AQs]** which is a reasonable, but tightish range to shove over a BU 4-bet Reg vs. Reg. If Hero's cards were **4c4d** then this shoving range would contain **44 combos** (24 pairs + 16 **AK** + 4 **AQs**).

As it is, when Hero has **AKo**, he blocks three **AA** combos, three **KK** combos and seven **AK** combos. Villain's 3-bet shoving range has just $44 - 13 = 31$ **combos** now instead of 44. Hero's blockers ensure that Villain only shoves $31/(X+31) \%$ of time instead of $44/(X+44) \%$ of the time, where X is

Villain's amount of 3-bet bluff combos. The first number will always be lower because regardless of how many bluffs Villain uses, his value hands are blocked to a greater extent. This added fold equity helps Hero's EV tremendously.

2. Equity

The **A** and **K** blockers don't just boost the EV of 4-bet/calling by increasing Hero's FE, they also help his pot equity. The only hands in Villain's range that really have **AKo** in bad shape are **KK** and **AA**. Hero's **AKo** is a self protecting sledgehammer in that it blocks the hands that hurt it while grabbing a great deal of fold equity and pot equity vs. the rest of Villain's range.

Hero's equity vs. Villain's estimated shoving range of **[JJ+ AK AQs]** is **42%** and this is plenty for Hero to call off the rest of his chips after 4-betting. RE here is **37.9%**. This equity would be far less if Hero's blockers didn't stop Villain from having four aces and kings to build nutted hands with.

You might be wondering why Hero wants to get all in in this situation in the first place if he only has 42% equity vs. Villain's getting it in range. It must be -EV surely?

No. The fold equity that Hero gains by 4-betting and making Villain fold the rest of his range more than compensates for the deficit in overall pot equity when the money goes in. Moreover, Villain's range can and should be wider than this in many situations, which will see Hero's pot equity climb further. Finally, it's important for Hero to have **AK** in his 4-bet/call range for balance reasons. Undoubtedly, Hero will want to be 4-bet bluffing and folding to a 5-bet with a sizable range here and so will need those precious 16 combos of **AK** that can 4-bet/call to prevent Villain from having very profitable light 5-bet shoves at his disposal.

We'll deal with building 4-bet ranges in [Chapter 11](#) when we come to face 3-bets. For now, it's time to be on the other end of the battle and take a plunge into how to assess life as the 3-bettor. Make sure you're very comfortable

with the notions of combos and blockers discussed in this chapter before we jump right in.

There are post-flop uses of blockers too and these will be discussed later in the manual when we come to using blockers to create balanced bluffing ranges and calling down ranges. In the meantime, feel free to have a think about how they might be used in these ways.

10. 3-Betting

This is possibly the area of poker I've specialized the most in as a coach. It's one that is frequently recurring, crucial to your win-rate, and difficult to master. These three elements make competent 3-betting an excruciatingly tricky, but hugely rewarding thing to get right. I've developed my own systematic approach to handling the decision of whether to 3-bet a hand in a given situation. Before we get stuck into the detail, I'd like to say a few general things about this approach:

- The approach is very long-term EV centred. As it's such a common occurrence that someone opens and Hero has the choice between 3-betting, flatting and folding, Hero wants to think about his range and his overall strategy in these spots. Moreover, becoming comfortable with creating 3-bet ranges for a situation will prepare Hero to handle the spot with any two hole cards and not just the ones he happened to hold in a particular hand.
- The approach always starts with the same first question regardless of the type of 3-bet situation. This question concerns the initial shape of Hero's 3-betting range. Before constructing a building it's prudent to know whether it's going to be a factory or a castle. If you set off without an answer to this question, the end result is likely to be fairly messed up. Similarly we need to know if our 3-bet range is going to be polar or linear and we'll meet these shapes very shortly.
- Often the range that Hero wants to call the open with has a large effect on the shape of his 3-betting range and vice-versa. We learned a lot about when we do and don't want to have a flatting range vs. an open back in Chapter 6. Making this decision will be very important in deciding upon our 3-bet strategy especially from the SB where we commonly choose to flat nothing at all.
- I have no interest in spoon-feeding premade 3-bet ranges as such an approach does not help Hero's problem solving skills. Rather, it leaves him dependent on charts that are too rigid for the dynamic reality of 3-bet spots and without the core skills he needs to adjust from situation to

situation. Instead, I'll be teaching a thought process, the mastery of which will equip Hero with all he needs to always find the correct 3-bet strategy in all spots of this nature.

With those preliminary observations in mind, let's look at a road map of the thought process we'll be using to build our 3-bet ranges.

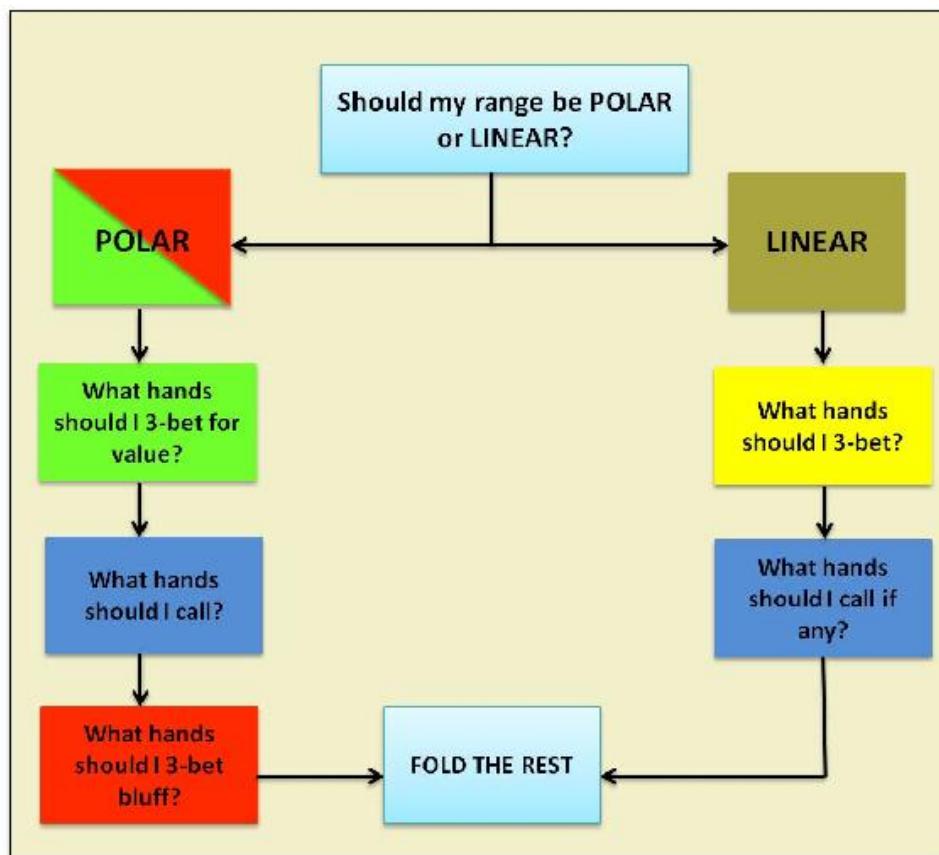


Figure 49 - Building 3-Bet Ranges

I'm not expecting these flowcharts to be crystal clear on first inspection, but I do want to map out the shape of the thought process we'll be using over and over again in this chapter as we start building some ranges. I urge you to refer back to this model as the chapter progresses and watch it gradually make more and more sense.

Let's begin. There are two broad shapes of 3-bet range and each one suitable in a different type of scenario. Our first question is always to choose between a **polar** and a **linear** 3-bet range and we do this by assessing the relevant factors in the spot.

10.1 Polar 3-Betting

A 3-bet range is **Polar** when it contains two distinct groups of hands: **value hands** and **bluffs**.

When using a polar 3-bet range, Hero always has a range **to call the open** which sits in between these two parts of his 3-bet range. The calling range is weaker than his 3-bet value range, but stronger than his 3-bet bluff range.

Hero 3-bets every hand he deems good enough for value then calls every hand from the remaining hands good enough to call. Only then does he start to 3-bet bluff hands. These hands always come from what would otherwise be his **folding** range vs. the open, not his calling range.

Let's start with a generic example of a polar 3-bet range and introduce the colour scheme we'll be using throughout this chapter.

Warning: The polar range example below ([Figure 50](#)) is not intended for use in any old 3-bet spot. While there are real poker situations in which it would be a fine choice, I am not dealing with when and where to use the range just yet so please don't deploy it for no reason. Read on and we'll soon come to building the correct polar range the applicable situation.

AA	AKs	AQs	AJs	ATs	A9s	ABs	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

 3-Bet Value

 Call

 3-Bet Bluff

Figure 50 - An Example Polar 3-Bet Range

Group 1: 3-Bet Value (Green)

Green means go - this hand is strong enough to 3-bet for value and when this is the case, 3-betting will almost always be the best option, but what does 3-betting for value actually entail? In [Chapter 5](#) we learned that a value bet or raise is not justified by the mere fact that we're ahead of the range that has checked to us or bet at us. In order to put more money into the pot for value we need to be ahead of the range that Villain continues with vs. our bet or raise. A value 3-bet is no different. If a hand is not ahead of the range that Villain is likely to continue with, then it cannot be 3-bet for value, irrespective of how it fares vs. Villain's opening range.

Hero only correctly deploys the range above when he expects Villain to be calling with a range that KQs is in just about good enough shape against, but KQo is not. This is his cut off point at which he thinks value runs out.

Group 2: Call (Blue)

Blue means chill out and merely flat the open. A calling hand in a polarised range is one that Hero has deemed not strong enough to 3-bet for value, but good enough to call with and thus too good to waste as a 3-bet bluff.

In the polar model, any hand that is good enough to call is automatically too good to 3-bet bluff with. Where Hero deploys a 3-bet bluffing range, he expects to have at least reasonable fold equity. Therefore, he does not wish to sacrifice hands that are good enough to call the open to the cause of grabbing pre-flop fold equity. Instead he will use the best of the bunch he deems unsatisfactory in strength to call the open with (see group 3 below). This way he gets to play more hands overall in a +EV manner and has to fold less often. Folding as little as possible vs. opens is what we should be aiming for, as long as we refrain from making -EV 3-bets and calls.

Group 3: 3-Bet Bluff (Red)

Orangey red means go grab that pre-flop fold equity and use hands that you wouldn't otherwise be doing anything with but folding. This group is not strong enough to call, let alone 3-bet for value and so the 3-bet is clearly for the purpose of fold equity. Hero uses hands that, whilst not super strong, can hold their own by having one or both of the following two perks:

- **Blockers:** As we saw in the last chapter hands containing an **A** or a **K** in particular are very effective for mathematically reducing the frequency with which Villain will continue to the 3-bet. They block hands that certainly aren't going anywhere in many spots like **AQ**, **AK**, **KK** and **AA**.

- **Playability:** Just because the primary purpose of a 3-bet bluff is fold equity doesn't mean that Hero can wildly select useless hands as bluffs. Since his 3-bet will still be getting called sometimes, Hero desires some post-flop options. The red hands above fulfill this role by being suited and in some cases connected. Suited aces can flop nut flush draws and these are very handy weapons to occasionally possess in a 3-bet pot.

A Word on Long-Term EV

Why does Hero need to limit the amount of bluffs he uses in a polar range? If it's +EV in a vacuum to 3-bet any two cards against someone who folds too much shouldn't Hero just 3-bet every single time?

No. Just because the current situation is profitable to 3-bet bluff in does not make 3-bet bluffing the best play when we factor in long-term EV. By 3-betting **84o** for instance, Hero is adopting a strategy that equates to 3-betting an enormously wide bluff range. Presumably, if he's 3-betting **84o**, he's also 3-betting **85o** and **97o** and **T4o** and **43s** and so on. If he's 3-bet bluffing **84o**, but not these better hands, then something has gone horribly wrong. For example, if Hero 3-bets 75% of all the possible hands he can be dealt as a bluff, then even sluggish Villains will notice this pattern and adjust by not folding too much anymore. As a result, Hero actually finds himself being suddenly played back at, and worse still, does not know exactly when this has started happening to him, to what extent and how soon he should readjust.

A non-poker-playing friend curiously asked me about this recently and wondered:

"Okay, but can't I just bluff with a trash hand then quickly stop bluffing again and own my opponent?"

You can, but again you hurt your long term EV. If you only have X 3-bet bluffs that constitute an optimal strategy for every value 3-bet that you make, then you have a choice. You can either make those X bluffs with more playable

hands with better blockers, or you can do them with trash. Which will be higher EV?

It doesn't matter a great deal whether you use those finite 3-bet bluffs this orbit or the next one. It does matter what hands you choose to make those bluffs with. This is why we use the top of our folding range in the polar model and refrain from getting too out of line against most players.

As we know from [Chapter 8](#), against players who overfold we should look to overbluff as the correct exploitative adjustment. However, if we overbluff too much, then we create an even more obvious hole in our own game than Villain originally had in his. If we 3-bet 95% of hands, then Villain has a new monumentally effective plan at his disposal: namely that of underfolding against our 3-bets by flatting more, 4-bet bluffing more, or better, both.

We can infer from this that the process of adjustment and readjustment in poker is exponential. In a world where both players over adjust, they open up bigger and bigger holes to leak money from in the long run. See [Figure 51](#) below.

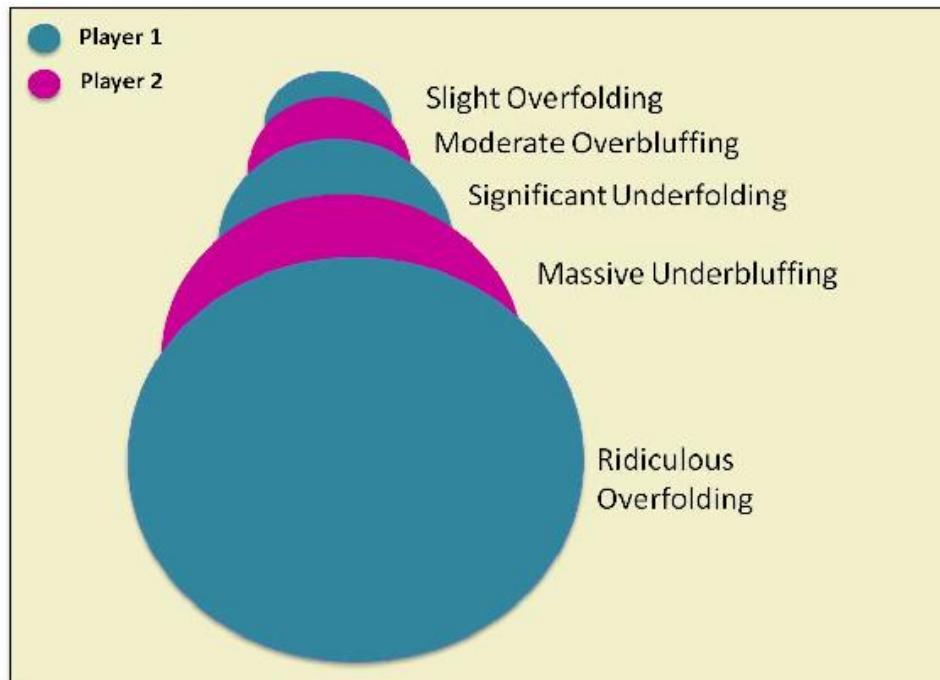


Figure 51 - The Dangers of Over-Adjustment

Player 1 Starts out by folding a bit more of his range than is balanced to 3-bets. The small circle represents a slight window of opportunity for player two to gain a little EV if he adopts the correct exploitative strategy of overbluffing.

Player 2 eagerly jumps on this leak by overbluffing a more obvious amount. His 3-bet stat is now climbing out of the realms of balance opening an even larger surface area of potential exploitation to his opponent.

Player 1 could now adjust in a subtle way that exploits Villain's wide 3-bet range without making it blindly obvious that he's playing in this way. By doing so, he would gradually extract lots of long-term EV by 4-betting a bit more as a bluff or tightening his opening range. In any case, the correct long-term strategy would be to underfold a bit to Villain's 3-bets. Instead, he starts 4-betting a very obviously wide bluffing range and cuts his fold rate vs. 3-bets by a considerable and noticeable margin.

Player 2 now sees an even larger leak than was present before and has a great opportunity to start 3-betting mainly for value, but instead he tightens to such an extent that he's just never 3-betting his opponent as a bluff at all. He's using a nitty range of **[QQ+ AK]**.

Player 1 quickly realises this and starts folding 90% of his range to 3-bets. Uh oh. Now player two can start bluffing again to devastating effect... the cycle goes on indefinitely.

The lesson here is that it is correct to exploit imbalances in an opponent's game, but it's prudent to do so in a way that doesn't offer up such massive and obvious counter adjustments.

In this chapter we will be creating both balanced unattackable ranges that offer no surface area of exploitation to Villain and also ones that are exploitative and aimed at Villain's own imbalances. The latter ranges will never be more unbalanced than we think we can get away with in the interests of preserving long-term EV at the expense of vacuum EV; the former is more important.

There will be exceptional times against weaker players where we can adopt extremely unbalanced approaches, expecting Villain to be too unaware to find the appropriate highly effective adjustment. Most times against Regs, however, we'll be respecting the prospect of Villain counter adjusting and ending the success of our exploitative strategy if we step too far out of line.

Now let's discuss where and why we want to adopt a polar range in the first place.

When to be Polar

There are two necessary conditions to be met before a polar 3-bet range should be adopted.

Necessary Condition 1: Fold Equity

If the opener is the type of player to seldom fold to 3-bets, or if there are players behind Hero who are apt to cold call 3-bets with a very wide range, then Hero is not advised to have a 3-bet bluffing range.

To **Cold Call** a 3-bet is to call not as the opener but as a player who has so far put no more money into the pot than a big blind.

If it's bad to have a 3-bet bluffing range, then the whole concept of polarity goes out the window. Fold equity is essential for polar 3-betting, but how much is enough?

It's time to meet one of the core stats on any serious grinder's HUD, **Fold to PF 3-Bet After Open**.

Fold to PF 3-bet After Raise

Definition: Fold to PF 3-Bet After Raise describes the number of times a player has folded to a 3-bet after opening out of all the times he had the opportunity to do so. The PF stands for Pre-Flop.

Reliability (No of Hands)

50 = Awful
100 = Poor
500 = Decent
1000 = Good
5000 = Excellent

Interpretation

0-30 = **Extremely Low:** This player calls and raises far too many 3-bets.
30-40 = **Very Low:** This player is very stationary.
40-50 = **Low:** This player is a little unbalanced towards underfolding to 3-bets.
50-60 = **Average:** This player folds close to a balanced amount vs 3-bets.
60-70 = **High:** This player overfolds to 3-bets
70-80 = **Very High:** This player overfolds dramatically
80+ = **Extremely High:** This is just absurd.

So at what point in this sliding scale do we have enough fold equity to suddenly start using a polar range against our opponent?

I recommend using a polar 3-bet range against Villains with a **50% Fold to PF 3-Bet After Open** and higher.

As this stat starts to climb, Hero will adjust his bluff to value ratio, gradually adding more bluffs to capitalise on the extra fold equity. Note also that Hero needs some kind of decent sample to take this stat into account. Where sample sizes are far too small, Hero should revert to using the average stat value for the Reg population unless Villain appears to be a Fish in which case fold equity should be presumed to be quite low.

This 50% benchmark might strike you as somewhat arbitrary so let me back it up with some maths.

We've already met RFE many times throughout the manual. Recall from [Chapter 2](#) that RFE pre-flop is far from an accurate value as there are still three more potential streets of action should Villain call our open. This meant that to steal the blinds, we needed less fold equity than the RFE calculation suggested. So when we 3-bet bluff pre-flop with a hand that has some post-flop prospects, we need much less fold equity to print money in a vacuum than the value of RFE suggests here too. Let's look at an RFE calculation for a typical 3-bet spot and then adjust that target based on our post-flop prospects should Villain call.

Let's say that Villain opens to 3BB from the BU and the SB folds. Hero makes it 9BB in the BB, which is a fairly typical 3-bet size, if not a tad small from out of position. We know that:

$$\text{RFE} = \text{R} / (\text{R} + \text{PG}), \text{ which in this case would be: } 8 / (8 + 4.5) = \mathbf{64\%}$$

The risk is 8 and not 9 because Hero's dead BB is not anything he is investing from his point of decision to 3-bet and it's this point from which we're assessing his options. PG is 4.5 because it includes the BU's open, the dead SB and the dead BB that no longer belongs to Hero.

64% is the target fold equity Hero would need to break even with a 3-bet bluff if he planned to fold every flop when Villain called and always fold to a 4-bet. As it is, Hero might 3-bet bluff some hand like **86s** or **A4s** and therefore have chances to flop well. Hero can also c-bet selectively when called and increase his EV in this way. We'll reduce the RFE target from 64% for this spot to 50% to account for these factors. If Hero can make Villain fold around half the time he should do fine with a hand that has some playability and blockers; the latter makes it easier for Hero to meet his RFE.

This target is rough and will differ slightly from situation to situation depending on bet-sizing. The idea is that when Hero can get 50% fold equity, then on average, a mediocre hand likely to be a part of his 3-bet bluffing range in a polar strategy shouldn't lose money in a vacuum. This renders a polar strategy acceptable as 3-bet bluffs are not losing any money as long as Hero uses sensible hands and can play reasonably well post-flop relative to his opponent(s). On the other hand, if 3-bet bluffing is -EV due to insufficient

fold equity, then Hero should revert to a linear 3-bet strategy instead and we'll get to this model very soon.

Necessary Condition 2: Having a Calling Range

This one is a little trickier to get your head around. Hero can only consider a polar strategy when there is a group of hands that he wants to flat the open with. Remember that polar 3-betting requires both a value range and a bluffing range and that these two ranges lie on either side of the hands in the middle (the calling range). If you remove the hands in the middle because Hero no longer wants to call anything, then it would be ridiculous to 3-bet a strong hand for value like **AKo**, fold a mediocre hand like **QJs** and then 3-bet a bad hand like **75s** as a bluff.

Instead Hero would 3-bet some of the mediocre hands along with the good hands and then fold the weaker hands. This is no longer a polar strategy. Have a look at [Figure 52](#) below for a visual representation of what's going on here.



Figure 52 - The Polar Spectrum

Of course, we want to play all of the strongest hands available to us in some way before we want to play anything weaker, regardless of our strategy or the amount of fold equity that we have. Therefore, if we don't want to flat any hands, then we'll need to 3-bet the blue band before we 3-bet the red band and this takes us out of polar territory. **Having a calling range vs. the open is essential for adopting a polar strategy.**

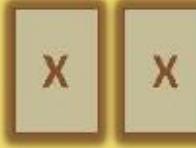
Let's have a go at building some polar 3-bet ranges in good situations to do so. Our knowledge of combos is about to come into play as we choose our bluff to value ratios then flesh those out with the correct hands for the slots.

In [Hand 80](#) below, the third (light green) number on the HUD is **Raised First In** from the relevant position, and the fourth (dark green) number is Villain's **Fold to PF 3-Bet After Open** stat.

Hand 80

UTG – Unknown
HJ – Reg (24/19/**15/53**)
CO – Unknown
BU – Hero
SB – Unknown
BB – Unknown

Dealt to Hero:



HJ raises to 3BB, HJ folds, CO folds, **Hero?**

Just as we did in [Chapter 6](#) when we looked at calling opens, we'll be assessing these 3-bet situations as range building exercises and not limiting ourselves to deciding what to do with just one set of hole cards in a vacuum.

Before we build the polar range for this spot, let's confirm why a polar strategy is the right one here. Villain is opening a moderate 15% of hands from the **HJ** and so there will be some hands in this range weak enough to fold to 3-bets. It's worth noting that it wouldn't make sense to have a bluffing range against someone who only opened 5% of hands! What would such a player be folding?

Hero's plan to be polar is based on satisfying the previous two conditions:

- Villain is not continuing so often to 3-bets that Hero can't profitably bluff. 53% is above our threshold **Fold to 3-Bet After Open** stat for using a polar model.
- The second necessary condition for polarity is also fulfilled here: Hero wants a flatting range. There are many hands that will flatable here for the reasons outlined in [Section 6.1](#): namely because they either have sufficient implied odds, are in good shape vs. Villain's opening range or both.

All in all, a polar approach is fine here. Now let's build the range.

AA	AKs	ADs	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



Figure 53 - A Balanced Polar Bluffing Range BU vs. HJ

The Value Range (Green)

As per the polar spectrum (see [Figure 52](#)), we start at the top and first make a decision as to which hands we should feel comfortable 3-betting for value, or in other words, which hands can get called by enough worse hands that they're ahead when called? Hero must give some thought to the position from which Villain opened here. He is not likely to want to defend as many weak hands to 3-bets out of position after he opens in the HJ as he is say when he opens the BU and gets 3-bet by the BB.

Hero might struggle to be comfortably ahead when called should he 3-bet something weaker than **[QQ+ AK]** and he certainly doesn't want to have to fold **AQ, JJ** or **TT** to a 4-bet since most regs do have a 4-bet bluffing range here these days at stakes like 50NL and 100NL.

While **QQ** and **AK** may not be hugely +EV to 3-bet and shove over a 4-bet in a vacuum, Hero needs to make sure that his 3-bet value range doesn't shrink to the point where his bluffs make up a ridiculously large proportion of his overall 3-bet range; he therefore needs to flesh his range out with as many value combos as possible. Moreover, Villain is a reasonable looking Reg and doesn't appear to be overly tight. Hero should therefore assume that Villain does have some kind of 4-bet bluffing range and that hands like **QQ** and **AK** will be +EV shoves due to fold equity and pot equity when called combined. Recall from [Chapter 9](#) that these hands will always have reasonable equity even vs. fairly tight 4-bet/call ranges.

So that's the value range defined and it weighs in as 34 combos. It's worth remembering that the common tight 3-bet value model of **[QQ+ AK]** is always **34 combos** or **2.5% of hands** ($34/1326$ possible combos).

The Calling Range (Blue)

Now Hero selects his calling hands. The ones in blue in [Figure 53](#) are callable for the reasons mentioned in [Chapter 6](#). Please go back and

refamiliarise yourself with these reasons, if it's at all unclear why we might flat any of these hands.

Only when Hero has chosen his calling hands in the polar model is he ready to select his bluffs. Remember that these bluffs cannot come from the batch of hands he's happy to flat the open with - to do so would be a waste of combos and would equate to Hero having to fold more weaker hands since he'd have filled his bluff allowance with stronger callable ones. The next question is: what bluff to value ratio should Hero be using?

As always in a polar model, Hero wants a 3-bet bluffing range, but as Villain seems quite balanced in how he reacts to 3-bets, Hero doesn't want to be unbalanced himself and provide an obviously large leak of his own for no good reason. Let's work out what an optimal balanced strategy would look like for Hero. This will be our polar starting point. The more exploitative, bluff-heavy strategies we'll use vs. future Villains who fold more than this guy does will branch off from here.

A balanced 3-bet strategy should achieve the following aims:

- Villain will be indifferent to 4-bet bluffing. That's to say taking a 4-bet/fold line as a bluff is 0EV for Villain.
- Villain would not have a profitable option in either over or underfolding to Hero's 3-bet. Calling mediocre hands will be roughly 0EV.

Okay, assuming for now that we are not deploying a flatting range against 4-bets, Hero wants to shove enough of his 3-bet range to cause Villain to break even on a 4-bet/fold bluff. 4-bet bluffing would become 0EV for Villain and this would require that he gets exactly his RFE on a 4-bet bluff and no more or less. Remember that the EV of a pure bluff that realises no equity will be wholly determined by RFE compared with actual FE.

Let's look at a sizing model to see what Hero's frequency of shoving to folding would look like against a 4-bet from Villain in order to achieve this aim of balance. In achieving the first aim of making villain indifferent to 4-bet bluffing, we'll also be creating a range that roughly achieves the second aim of making villain indifferent to overcalling his range, depending on other factors such as the skill levels of each player post-flop.

If Hero makes a standard 3-bet to 8BB after the 3BB open, then Villain's 4-bet may be somewhere around 19BB out of position (2.2-2.5x the 3-bet is the most common sort of 4-bet sizing these days amongst Regs).

So Villain's RFE would be his $R / (R + PG)$ which is an equation we're now well acquainted with.

R = 16BB - Villain is risking 16BB from his point of decision to make a 4-bet bluff.

PG = 12.5BB - Villain stands to win his 3BB open which is now part of the pot, Hero's 8BB 3-bet and then the 1.5BB dead money from the blinds

$$RFE = 16 / (16 + 12.5) = 56\%$$

So there we have it, Hero should be folding roughly 56% of his 3-bet range to a 4-bet in order to be balanced. Hero would need a 56:44 ratio of bluffs to value to achieve this frequency, which means that:

Hero would need $56/45 = 1.27$ combos of bluffs for every value hand in order to be balanced.

We know that Hero is using 34 value combos. He therefore needs 34×1.27 bluffs, which equates to **43 bluff combos**.

He should select these bluffs in terms of both blockers and playability using the most suitable hands that are not good enough to be in his blue calling range. Refer back to [Figure 53](#) now.

Okay so this isn't exactly balanced using the potential 4-bet sizing we stipulated, but it's very close. We're 3-betting 34 value combos and 44 bluffs instead of the 43 we decided we needed. This is absolutely fine as our estimate of balance is rough anyway based on a predicted size of Villain's would be 4-bet. If Hero wants to pernickety he can regulate his frequencies to hit 43:34 by not 3-betting **As5s** (or whichever suit he dislikes the most) eliminating one combo. Doing this really isn't important, but using individual combos in this way is nevertheless very instructive.

So what's so good about the bluffing hands we've chosen here? Hero's bluffing range can be separated into a few constituent parts.

1. Double Blocker Hands [AJo KQo]

While not in good enough shape to flat vs. the HJ opening range, these hands are the bread and butter FE grabbers that dramatically decrease the frequency that Villain holds hands such as [AA KK QQ JJ AK AQ AJs KQs] all of which he's unlikely to fold to the 3-bet. It's true that **AJo** and **KQo** can sometimes be dominated when called, but the amount of extra fold equity they grant Hero pre-flop and their ability to have two overcards to a large chunk of Villain's calling range [**88-TT**] makes them the first choice of 3-bet bluffs.

2. Suited Aces [A9s A5s]

These hands have been chosen due to their hybrid ability to both block Villain's continuing range and flop nice chunks of playable equity in the form of decent pairs and draws. **A9s** has the ability to cover 9-high boards well, while **A5s** can flop gutshots and pairs on the lower boards. Hero is advised to make sure he has reasonable board coverage when developing balanced ranges as this will help him play a balanced strategy post-flop on more textures.

A range has good **Board Coverage** when it can connect with a wide variety of different flop textures.

Board Coverage is important to aid the creation of balanced ranges, but matters less where Hero is overbluffing pre-flop to capitalise on great immediate fold equity. Blockers take precedence in that situation.

The thought is that when Hero is playing a polar range vs. someone who will be flatting and seeing flops a reasonable amount of the time, he will benefit from ensuring he can connect with more of the possible flop textures with his

bluffing range. If Villain folded to 85% of 3-bets, however, then seeing flops would be a much rarer occurrence and blockers would become far more important as adding pre-flop fold equity becomes the primary concern.

3. Suited Connectors and Gappers [QTs 98s 87s]

These hands help with both board coverage and general playability. They lack the blocking power of the rest of the 3-bet bluff range, but make up for this in the amount of flops on which they grant Hero more options. Being able to flop flush and straight draws is huge in 3-bet pots as these hands combine very well with Hero's initiative in a large pot to provide a good deal of fold equity and pot equity at the same time.

And this is how we construct a balanced polar 3-bet range where such a strategy is applicable. Let's move on now to a spot where increased fold equity causes us to want to play more exploitatively than this and use a larger ratio of bluff to value combos in our polar range. Knowing how to be balanced is actually a good first step in forming appropriate unbalanced strategies. Even where fold equity is more abundant, we must be careful not to go too far in the exploitative direction unless Villain is very unaware and unlikely to find the correct counter adjustment. It's therefore prudent to keep in mind what a balanced ratio of bluffs to value looks like. We now know that this ratio is not 1:1 but is closer to 1.25:1 bluffs to value. We'll increase this when Villain folds more, but not outrageously.

In [Hand 80](#) below we face an open, this time from out of position. Apply the thought process we just used (illustrated in [Figure 49](#)) to have a bash at building a strategy for this spot. You'll definitely want to make use of [Chapter 6](#) again too as a reminder of how wide we should be inclined to flat the open; this has such a huge effect on the combos we choose to 3-bet bluff in the polar model.

Hand 81

BU – Reg (26/21/61/67)

SB – Unknown

BB – Hero

Dealt to Hero:



BU raises to 2BB, SB folds, Hero?

This Villain is opening a very wide range on the BU and folding a large part of it to 3-bets. Clearly both of our polar conditions are firmly met here since Hero has both great fold equity and is receiving an awesome price to flat a lot of hands. Before we build our range let's talk about what's changed in this hand from the one before.

- Villain is opening from the BU and is in position so even though his **Fold to 3-Bet After Raise** stat is higher, he'll be more inclined to defend the better hands in his range and may even be calling more combos than the Villain in [Hand 80](#) was; it's just that those combos make up a much smaller part of his overall opening range. Hero can, therefore, still 3-bet a decently wide value range.
- Hero will be flatting very wide for this price and is closing the action. This equates to having a much weaker 3-bet bluff range than in Hand 80 as so many of the hands Hero was 3-bet bluffing there have now been upgraded to very +EV flats.
- Hero will want to adopt a larger bluff to value ratio to exploit the fact that Villain is folding to too many 3-bets. This will make Hero more vulnerable to being 4-bet, but he reasons that as long as he doesn't over do it, then Villain is likely not to notice the exploitation.

Try to build the range on your own range now for this spot then look at my answer below. I recommend using the program **PokerRanger** (available at

www.pokerranger.net) for these exercises as it is very user friendly and allows the division of ranges into subranges by colour coding just as we've been doing in this book. The program comes with a free trial for thirty days, but is a very sensible purchase for anyone willing to invest a bit of money in essential poker tools in taking the game more seriously.

Now I'll assume you've had a bash at that range. Here is the answer:

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



3-Bet Value



Call



3-Bet Bluff

Figure 54 - 3-Betting BB vs. BU Against Overfolding Reg

3-Bet Value: The plan is to 3-bet a moderate range of value hands. If Villain is opening 60% of hands and continuing 33% of this 60%, then we can expect him to continue to Hero's 3-bet with around 20% of all possible starting hands. Against this range Hero is doing very well and even with the worst hands in his range like KQs he has 51% equity. In fact, when Villain merely

flats the 3-bet, he is unlikely to have **[QQ+ AK]** and Hero's equity with **KQs** jumps up to 54%. Hero may want to fold hands like **KQs**, **AJs** and **AQo** to a 4-bet depending on what he knows about Villain's 4-bet tendencies. If Villain has a propensity to 4-bet bluff though then shoving this whole green range should be fine as these hands have good blockers and okay equity when called.

Call: Hero is in a favourable situation for flatting since his price is so good and he's closing the action and so the hands in blue should be higher EV to call than they are to fold. In other words, they lose less than 1BB on average from the point of view of the whole hand if Hero calls them.

3-Bet Bluff: Hero's ratio of bluffs to value is now 124:70 or **1.77:1** which is a very reasonable exploitative adjustment. I've seen players argue for bluffing ranges that are 3 or 4 times the size of the value range in this spot and I think it's a categorical long-term mistake vs. most Regs. There are of course Villains that play 24 tables and are so unaware, nitty or automated that they just won't adjust even to extreme bluff to value ratios like 3:1 and 4:1. Most players in 2016 however, will be aware enough to quickly start flatting and 4-betting more, opening less and generally re-exploiting such a strategy. The hands in red are again chosen as the best of Hero's would be folding range in terms of playability, board coverage and blockers.

Against anyone who folds more than this, Hero's bluff to value ratio in the polar model increases further. I've come across many a Villain who opens wide, folds to 80% of 3-bets and never seems to want to fight back. Against this player type Hero should adopt a much more unbalanced ratio. Just don't go 3-betting **75o** as long term EV will usually come back to bite you.

The theory of polar 3-betting is more complicated than what's now to follow. Let's enter the totally different and simpler realm of linear 3-bet strategies.

10.2 Linear 3-Betting

A 3-Bet range is **Linear** when the top of it is the best hand that Hero wants to 3-bet and the bottom of it is the worst one that he wants to 3-bet. Hero may or may not have a range to call the open. If Hero has a calling range it sits below his 3-bet range and above his folding range.

Linear 3-betting is often a range of exclusively value hands due to limited fold equity, but not always.

The figure below is an example of a linear range. Note the difference in shape and lack of segmentation into subranges.

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



3-Bet



Fold

Figure 55 - An Example Linear 3-Bet Range

You'll also notice that there is no calling range here. This is not a mandatory requirement of using a linear 3-bet strategy. There are times when Hero wants a linear 3-bet range and then a flatting range and then times when he wants to simply 3-bet everything he's playing like in this linear strategy.

A few years ago when the terms 'polar' and 'linear' first became commonplace in the poker community, there was a bizarre misconception in circulation. I once read a thread on a forum where players debated furiously about whether Hero should be polar or linear in every situation. This is obviously absurd. Just as there are great reasons to be polar in some situations (as we just saw: having fold equity and wanting a flatting range) there are great reasons to be linear in others.

Hero should use a linear 3-bet strategy when:

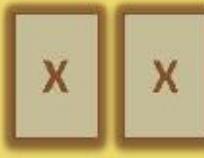
- He has limited fold equity. Remember that against Regs we're using the cut-off point of less than 50% **Fold to 3Bet After Open**. One very common example of this is facing opens from Fish.
- He does not usually want to flat due to being in the SB, having a very small effective stack, or there being known squeezers to act behind him.

These two reasons for linear 3-betting are basically the inverse of those in favour of polar 3-betting. Let's take an example of each reason in action and build a couple of linear ranges while we're at it.

Hand 82

UTG – Aggro Fish (45/37/30/15)
HJ – Unknown
CO – Hero
BU – Unknown
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ folds, **Hero?**

This is a spot where it makes sense to have a flatting range but not a 3-bet bluffing range. While hands like **44** and **67s** realise a good amount of implied odds here in position against a player likely to spew off a lot of money post-flop should Hero get there, weaker hands like **85s** and **A6o** lack the fold equity they'd need to 3-bet bluff as the top of Hero's folding range. A polar strategy is therefore undesirable and Hero is best placed to 3-bet all and only those hands strong enough to cope with a lack of pre-flop and post-flop fold equity. In other words, Hero only 3-bets for value.

This range doesn't have to be super tight as there is a lot of value to be gained from isolating this player with hands rich in frequent strength (refer to [Chapter 3](#) for a reminder of this) and being the sole beneficiary of the mistakes he makes post-flop.

Hero's strategy then is a linear one and looks like this.

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



3-Bet



Call



Fold

Figure 56 - A Linear Range vs. An Aggro Fish

If Villain was a little more cooperative post-flop and was likely to fold to c-bets then Hero's linear 3-bet range would expand considerably. When 3-betting with linear ranges against Fish, Hero should consider the following two things.

- The more the Fish plays fit-or-fold post-flop, the more inclined Hero should be to open up his 3-bet range as having post-flop fold equity reduces the need for frequent strength. The crazier the Fish plays post-flop, the more need there is for Hero to connect with flops more often.
- Fish defend a lot of their range to 3-bets as a natural tendency, therefore the wider the Fish opens in the first place, the wider the range Hero should feel comfortable 3-betting for value.

Note that all of the hands in yellow above have a good degree of frequent strength and so Hero can survive the anticipated lack of fold equity on a good amount of flop textures. The weaker hands that have the potential to flop monsters more rarely (blue) are not suitable for 3-betting for value and prefer to take the reasonable price offered by Villain's open to try to flop big and only then extract value. Inflating the pot pre-flop with **33** to flop a miserable underpair 87% of the time without much fold equity is not conducive to healthy EV.

So this range is linear for reason one: lack of pre-flop fold equity; now on to the second reason to adopt a linear range.

CO's HUD numbers are the same stats as we've been using so far in this chapter. BB's third (red) number is **3-Bet Preflop**.

Hand 83

UTG – Unknown

HJ – Unknown

CO – Reg (19/16/22/62)

BU – Unknown

SB – Hero

BB – Reg (20/16/8)

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU folds, Hero?

More brown Xs. Life is rich when you get dealt a range and not just two rigid cards. Don't worry, we'll be going over some exact hand examples very soon. As 3-betting decisions should very rarely be made in a vacuum, the first stage of the process is figuring out what the right overall strategy looks like and only then deciding what to do with the exact two hole cards you happen to have in front of you.

In this hand Hero would love to develop a polar strategy involving a lot of 3-bet bluffing since CO folds to a lot of 3-bets, but this is unadvisable, as it requires having a flatting range. As we saw in [Section 6.3](#), it's not going to be easy to defend a flatting range from the SB with this active player in the BB who could be squeezing very frequently, at least not without doing something horrible like slowplaying our big pairs pre-flop. So as per the recommendation in that chapter, Hero reverts to 3-betting everything he's playing and this makes his strategy linear.

Hero still has the liberty of choosing between a balanced (tighter) and exploitative (wider) range in this spot. Although the line between value and bluffs is blurred by the linear approach, he will still have those hands he's planning to shove over a 4-bet from CO and those he's planning to fold vs. that 4-bet.

In the model below I've divided Hero's linear range into 3-bet/shoving hands in green and 3-bet/folding hands in yellow. Note however that the range remains linear due to the lack of a calling 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	O9s	O8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	OJo	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

 3-Bet/Shove

 3-Bet/Fold

 Fold

Figure 57 - A Linear SB vs. CO Range

This range is exploitative and designed to capitalise on extra fold equity. Hero is intentionally making 4-bet bluffs by CO +EV as he expects a tight player who folds a bit too much to 3-bets not to 4-bet bluff as much as he should. Hero would be folding to a 4-bet $112/164 = 68\%$ of the time. Since Villain's RFE would be around 55-60% with a 4-bet bluff depending on sizing, 4-bet bluffing is clearly very good for him. This preemptive exploitative adjustment is simply the best way to play against this general player type. Of course CO could turn out to be an avid 4-bet bluffer, but until

he has further info, Hero should play vs. the average player with these stats - more often than not it will be the best approach.

Against an unknown Villain, Hero would be advised to shove more of this 3-bet range to a 4-bet, or else 3-bet/fold less combos if he wants to be balanced vs. the population.

The hands in this linear 3-bet range are chosen in terms of brute strength, playability and blockers. They are not necessarily the top X% of hands as far as raw equity goes when called, but are designed to be the top X% of hands in terms of being highest EV to 3-bet.

Now onto some practice examples where we'll be emulating a faster thought process more feasible for in-game decisions. We'll first choose a rough strategy, as we've been doing in the last four hands, before deciding where the hand in front of us falls into that strategy.

10.3 Practical Examples

[Figure 49](#) is a great guide for refining 3-bet strategies in an out of game context. The problem with using it in game is that Hero simply doesn't have time to decide exactly how many and which combos he needs to 3-bet for value, call and so on. Instead, he needs to approximate what his strategy should look like and then quickly move onto thinking about that strategy in relation to the two cards in front of him so that a decision can be reached in the time available. It's all very well to decide that your 3-bet model should be wide linear in some spot, but how wide is wide and does that include the **KJø** on our screen?

The following figure is an in-game guide to solving a 3-bet problem concerning our actual hole cards.

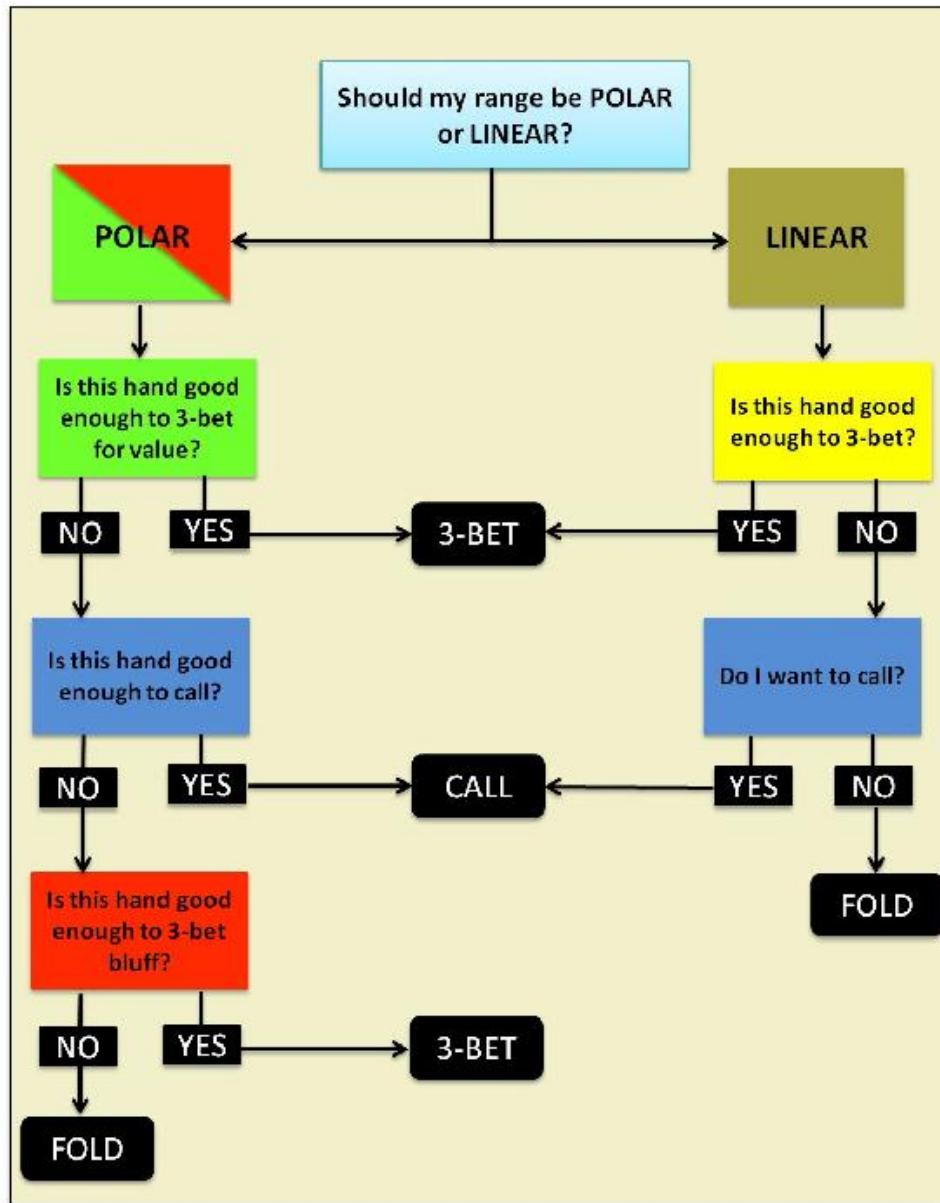


Figure 58 - In-Game 3-Betting Flowchart

This flowchart is really nothing more than the thought process we've already been using in this chapter adapted for thinking about one hand specifically instead of a complete range. Let's put it to use.

Hand 84

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Unknown Reg (20/20) (5 hands)

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **SB raises to 2.5BB, Hero?**

This informational void is an incredibly common phenomenon in online poker, especially in Zoom formats.

Zoom Poker is a format where instead of sitting at one or more set tables, Hero makes one or more entries into a pool of players where new tables are constantly created and disbanded each hand. Hero has the option of folding before the action reaches him in order to join the next table faster and increase his volume.

Due to the lesser information and opportunity to use it in **Zoom**, win-rates per 100 hands are generally smaller, while volume of hands is much greater, which evens out hourly expectation.

In this hand, Hero is in the BB and faces an open from an unknown who he assumes to be a Reg. That might sound like a contradiction. If we only have 5 hands on Villain, how can we assume he's a Reg and not a Fish? A few facts make it very likely that Villain is some form of Reg and that Hero will do best by playing vs. the average Reg in his player pool.

- Villain's stack is full (if not, it would have been stated). While many Fish will not automatically top up their stacks, a Reg will the vast

majority of the time. Of course this could just be one of the full-stacked Fish, but it does increase the chances of Villain being a Reg somewhat.

- Villain's stats over this 5 hand sample are far from conclusive, but not meaningless. A Fish will usually have a large gap between VPIP and PFR over the long run. That is to say that there will be a chunk of hands that he will fold, call and raise in each position, but the hands he'll call will be quite numerous compared to the other portions. It is of course possible that these 20/20 stats have arisen from a Fish being dealt 4 folding hands and 1 raising hand so far, but it's more likely that this player has a tighter gap between VPIP and PFR and is therefore a Reg.
- The most conclusive evidence that Villain is a Reg is his sizing. It seems to have been chosen as some kind of conscious move towards finding the right sizing for the situation. It's not unheard of for a Fish to open 2.5x, but to type this half big blind into the sizing box is not something that occurs to many of them. I'd say this player is a Reg based on sizing alone around 90-95% of the time.

Villain could be a Fish here if all of these pieces of evidence happen to be wrong, but it's very unlikely. Hero is perfectly correct to treat Villain as a Reg for now.

So we've decided that SB is very likely a Reg. Now how to use that information to get started in our thought process? The first question is whether to adopt a polar or linear range. So much comes down to population reads here and how the player pool typically behaves facing 3-bets B vs. B, but in most pools we can comfortably expect enough fold equity to be polar.

So we want a polar range. Next question: is **A4s** strong enough to 3-bet for value? Answer: No, we certainly can't expect to be ahead of a reasonable continuing range here and without reads that Villain 4-bets a lot, we'd probably be 3-bet/folding in most player pools.

Is **A4s** good enough to call? Yes, and it's a no brainer. This hand is enormously higher EV to call than to fold in position with great pot odds against a likely widish stealing range.

We have our answer and don't need to waste time thinking about what our 3-bet bluff range looks like, but it would consist of hands much weaker than

A4s that were not good enough to flat as per the rule of the polar model.

Hero calls 1.5BB.

Hand 85

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Reg (19/16/34/70)
SB – Hero
BB – Aggro Reg (25/20/13)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 3BB, Hero?

This time we have a bit more information. First question as always is: should Hero be polar or linear? Never forget to ask yourself this. Adopting the best long-term strategy depends on it. Hero should definitely be linear here not due to lack of fold equity, but due to the fact that having any kind of calling range at all looks horrendous due to the Aggro Reg behind us. Recall that having some kind of calling range is a mandatory requirement for being polar.

So given we have a linear range, how wide should that range be? Well, fold equity is extremely good against the opener, but we do have to make sure our range doesn't get too out of hand here for two reasons:

- Firstly we don't want to ruin the juicy long-term EV of 3-betting a wide range vs. BU by grossly inflating our perceived 3-bet range.
- Secondly, BB seems like the kind of Aggro Reg aware enough to cold 4-bet us lightly given we're 3-betting an overfolding nitty Reg in very late position.

3-betting **A9o** would be to 3-bet a very large chunk of hands given that the hand flops poorly, can often be dominated when called and only has one blocker. It might be +EV in a vacuum to 3-bet, but it's not part of the best strategy here, and therefore, this should be an easy fold.

Hero folds.

Hand 86

UTG – Unknown
HJ – Unknown
CO – Passive Fish (45/6/8/0) [40BB] (300 hands)
BU – Unknown
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, **CO raises to 4BB**, BU folds, SB folds, **Hero?**

Polar or linear? Linear! This is a very tight Fish against whom having a 3-bet bluffing range would be insane.

Is **AJo** good enough to 3-bet? No. Villain's RFI from the CO is a measly 8% of hands which equates to a range of roughly **[88+ AJo+ ATs+ KTs+ QJs]** and even if Villain continued every combo of it to a 3-bet, Hero's equity would only be around 40%.

Can Hero call here? Certainly not. Pot odds are horrible given the 4x open. Implied odds are even worse with a hand so incapable of flopping very strong undominated hands. Even **Axx** is a frightening flop in this situation for Hero and not to mention Villain only has 36BB behind if Hero does manage to flop trip jacks. Fold equity post-flop is also very poor vs. a Fish with a strong range.

Hero folds.

There are many more examples out there and they come from reviewing your own play in these extremely common spots in your database. Get to work reviewing what models of ranges to 3-bet against different opponent types in different positions with different configurations of players to act behind. Never forget to ask the polar/linear question regardless of whether you're battling in game, or training out of game. Ingrain the order of the polar model and try to never violate it without very good reason. When it comes to linear ranges don't be shy about 3-betting very wide to isolate wide opening Fish, but do be careful vs. Regs and tighter Fish.

[Chapter 6](#) and this chapter should now be blending together into one kind of thinking: how to react to opens. In [Chapter 6](#) we also covered flatting after an open and other calls before the action reaches us. What we haven't yet talked about is which hands to squeeze with in these spots so let's move onto that now.

10.4 Squeezing

As we learned, a squeeze is a 3-bet made after one or more players have called the open. It's generally larger in size to help reduce the favourable pot odds created by the multiway situation and ensure that fold equity and isolation chances remain decent. There are a few reasons for squeezing and the notions of polarity and linearity are still central to decision making.

Types of Squeeze in a Vacuum

Before we build some ranges, let's talk about the different reasons for squeezing an individual hand:

1. Bluff-Bluff

A bluff-bluff squeeze occurs when Hero 3-bets a hand with which he wishes to extract fold equity vs. both players in the hand. Usually neither player will be a stationy Fish or overly combative Reg.

2. Value-Bluff

A value-bluff squeeze is for value against a more stationy player (usually a Fish) and as a bluff against a more solid player against whom there is fold equity (usually a Reg). Hero often uses this kind of squeeze to eliminate a Reg from the pot and isolate a Fish to gain all of the benefits of isolation that we know so well by now.

3. Value-Value

A value-value squeeze is used to build the pot with hands that figure to be ahead when called. It could be vs. two Fish when Hero has **AJs** or even two

Regs where Hero has **KK**. Either way, getting called in both spots is not a disaster and Hero desires at least one call. Isolation can often be a motive here too. Hero would like to thin the field with hands like **AQo** that prefer to flop their top pairs vs. only one opponent.

The Multiway Element

Now how does the presence of additional players in the pot affect our decision as to which hands to squeeze and why? There are a few differences between these spots and the heads-up variety we've been examining thus far in the chapter.

- **Difference 1:** Hands with good nut potential such as **JTs** and **55** go up in value multiway and can therefore be flatteed more easily. There is less incentive to bluff with these hands in a polar model since they are so often profitable calls and hands that want to keep the price of seeing a flop low and have little interest in thinning the field. Realising implied odds is the goal of these hands in multiway situations.
- **Difference 2:** Big offsuit hands tend to depreciate in value since they prefer to be heads up in order to have good relative hand strength with the one pair hands they flop most often. These hands are, therefore, often better choices to turn into double blocker bluffs as flatting them may become -EV in three and four way pots.
- **Difference 3:** Fold equity is usually more limited due to the multiway nature of the situation and so linear ranges are more commonly applied in squeeze spots than polar ones are, though of course, there's a time and a place for both.

With these points in mind let's build ranges for a couple of squeeze spots. Just like before we'll be using [Figure 49](#) to construct out of game ranges. In the third and fourth example hands to follow we'll be zooming in and going back to Figure 58 to practice our in game decision making.

Have a look again at [Figure 49](#) and have a think about what kind of range we'd be inclined to adopt here and what the different parts of that range would look like.

Hand 87

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Reg (18/15/40/67)
SB – Reg (23/14/64)
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 2BB, SB calls 1.5BB, **Hero?**

Starting at the top, this is an extremely clear spot in which to be polar. Both players are folding a substantial amount to 3-bets and Hero is thrilled to have a very wide flatting range with incredible pot odds closing the action.

Moreover, SB is probably folding much more out of position with a capped range than he would be in most other situations facing 3-bets and so we can expect his **Fold to PF 3Bet After Raise** stat to increase dramatically in this specific spot. This illustrates the dangers of having a flatting range from the SB in the first place. Now onto Hero's subranges:

3-Bet Value: This range shouldn't be too wide since we aren't expecting to get called by extremely weak ranges. It shouldn't be too tight either though as BU is probably defending more combos in these positions than he is to a 3-bet anywhere else on the table. A moderate 3-bet value range will do.

Call: This will be the widest sub-range by a mile. Fold equity is the primary aim with squeezing and so no hand good enough to flat should be wasted on a squeeze bluff and a lot of hands will be good enough to flat under these circumstances. This range will contain a good few hundred combos at least.

3-Bet Bluff: Hero will need to pick a sensible but exploitative bluff to value ratio. In this spot RFE is actually more favourable for Hero than where he

makes a non-squeeze 3-bet bluff. If his sizing is a reasonable 8BB then RFE is $7 / (7 + 5) = 58\%$. Decrease this a bit further (by 10-15%) for Hero's equity and post-flop ability with his squeeze bluffing range and we see that vacuum squeeze bluffs should be pretty profitable. Since the SB is so powerless to react here I'm going to recommend a fairly unbalanced ratio of 2:1 bluffs:value.

Now let's see what the strategy looks like in range format:

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

 Squeeze Value  Call  Squeeze Bluff

Figure 59 - A Very Polar Squeezing Range

This range is especially bluff heavy as fold equity is so good. I don't recommend deploying squeezing ranges with 2:1 bluffs:value ratios in general, but this spot is definitely an exception.

Hero is using 102 value combos, which will play very well against BU's likely flatting range and 204 bluffs, which are the best of the rest as always in the polar model.

Needless to say, Hero is folding a lot to a 4-bet here, depending on how much of his value range he wishes to continue with. We are assuming for now, however, that BU is going to overfold substantially to 3-bets and so any times we do get 4-bet bluffed are outweighed by the EV from fold equity in the first place. Of course, if Villain were more balanced or we thought he was likely to notice and adjust to our strategy, then we'd have to be more in line and not 3-bet/fold anywhere near this amount of our 3-bet range. The upside is that if Villain were able to adjust well to light 3-betting, then it's unlikely he'd have this high a **Fold to PF 3-Bet After Raise** stat in the first place.

Hand 88

UTG – Unknown
HJ – Reg (26/21/17/55)
CO – Unknown
BU – Passive Fish (56/13/20)
SB – Hero
BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, BU calls 3BB, **Hero?**

This spot is a little less clear cut. Your initial instinct should be that Hero needs a linear range in this spot. While Hero would like to take a very wide linear range indeed to isolate the semi-whale playing 56% of pre-flop holdings, he must show some restraint due to two negative factors:

- Firstly he is out of position post-flop and fold equity is likely to be far from abundant vs. this magnitude of Fish.
- Secondly, the Reg knows fine well that BU will be inclined to continue too wide of a range to Hero's squeeze and therefore will choose to defend more of his own range than usual. That said, Villain's opening range is relatively wide for the HJ and Hero should expect *some* fold equity provided that he squeezes large enough.

A medium width of linear range is appropriate here. Hero's strategy will, for a change, include a calling range out of the SB because implied odds are boosted by the presence of the Fish. Moreover, squeeze bluffs from the BB are unlikely given the opener's position and the lack of fold equity here. Let's flesh out our strategy.

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



Squeeze



Call



Fold

Figure 60 - A Linear Squeeze Range

Hero's yellow squeezing range consists of two types of hands; the line between them is a little blurry. He has those hands that are just pure value raises against both Villains such as **QQ** and **AKo** and then he has hands which are clearly ahead of the Fish's continuing range but perhaps not the Reg's such as **AJ0** and **A9s**. While these hands will make fine value squeezes vs. the Fish, Hero would very much prefer that the Reg folded as Hero faces some domination issues against the Reg's range. A hand like **QQ** then is a value-value squeeze while **AJ0** is a value-bluff squeeze.

If Hero was in the BB getting better pot odds and closing the action, he could flat wider than this, but with terrible position he has to be careful. Unless the BU plays incredibly badly post-flop (worse than the average 56/13 that is) then flatting hands like **A7s** will not be +EV from this seat. All pocket pairs, however flop gin often enough to justify the set mine. Investing 2.5BB will only need to yield an average payoff of 25BB to break even minus the pot on the flop. Hero will need to extract around 17BB more on average post-flop when he makes his set and this should be relatively easy three or four-way with the BU involved, even out of position.

Back to The Vacuum

Let's jump back into the vacuum and assess whether we want to make one of the three types of squeeze outlined at the start of this section.

Hand 89

UTG – Fish (40/0) (20 hands)

HJ – Unknown

CO – Unknown

BU – Reg (23/17/46)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG raises to 3BB, HJ calls 3BB, CO folds, BU calls 3BB, SB folds, Hero?

This is a spot where a transparent fit-or-fold approach from Hero is more or less forced. The UTG opener's range looks to be incredibly tight (though sometimes Fish will limp AA and suddenly raise 96s for no apparent reason.) There is a serious problem with squeezing anything but a very tight linear range here. Fold equity is non-existent and there is a very strong range in the pot. To bloat the pot with even hands as strong as AQo and JJ is suboptimal.

If Hero squeezes his JJ here, it's almost inevitable he'll be seeing the flop with UTG and probably at least one other player, if that is, he doesn't get 4-bet by [AA KK]. There are three possible rough strengths of hands that Hero can flop: a set, an overpair and an underpair.

- A set happens so rarely that it is far better to mine this hand cheaply and only bloat the pot upon getting there in a spot where the overpairs that JJ flops are far from nuted and fold equity does not exist.
- An overpair is marginal because we'll be multiway with set mining going on, and the Fish's range could well contain better overpairs even if he just flats the squeeze given his passivity thus far.
- An underpair is worthless in almost every post-flop branch that is likely to occur here and is also the most common thing Hero will flop. He'll

quickly wish he hadn't bloated the pot in this branch too.

So overall, squeezing is a severe error. My students will make mistakes here very commonly due to not thinking enough about what a squeeze would actually accomplish. This hand illustrates how important it is to get a handle on the right strategy for the situation instead of blindly 3-betting because "I have JJ".

Calling on the other hand is hugely +EV and by far the best line. By calling, Hero gives himself an insanely profitable set mine for only 2BB, controls the size of the pot vs. a strong range and doesn't value own himself by building an enormous pot with a hand that will do poorly out of position vs. strong ranges multiway on the vast majority of boards.

Hero Value Owns himself when he mistakenly tries to value bet a hand that is too thin to value bet.

Hero calls 2BB.

Hand 90

UTG – Reg (20/16/13/61)
HJ – Unknown
CO – Reg (25/18/NA/47)
BU – Hero
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ folds, CO calls 3BB, **Hero?**

This is a spot where being polar makes a lot of sense. Okay, so CO isn't the most prolific folder vs 3-bets, but UTG is certainly a fan of folding and I'd assume even more so from out of position. He's the Villain we care about. Why? Because he's the player with the uncapped range that can credibly 4-bet us light and defend more of his range. CO might be stationary to 3-bets in some spots and may well call here with some hands he should probably fold, but as long as our polar bluffs are chosen to block both player's strong hands and can have decent playability vs. continuing ranges, then we're happy.

KQo has incredible blockers and is right at the top of Hero's folding range. As CO may not have **[QQ AK]** and almost never **KK+**, the hand is also unlikely to be too frequently dominated by his continuing range and has superb equity vs. the hands like **[88-JJ]** which should be a good chunk of the range he's flattening the squeeze with.

This is a great spot for a bluff-bluff squeeze that should yield decent fold equity plus prospects in position when called. If Hero is polar, which he should be, then he'll have a bluffing range, and if this hand does not feature in that bluffing range, then it seems he's constructing it poorly. In fact, the twelve combos of **KQo** would be my first choice of bluffs as I'd feel happy flattening **AQo** here as well as **KQs** and **AJs**. **KQo** is just such a great hand to squeeze here as it blocks three combos of **KK**, three of **QQ** and another four of **AK**. It also blocks four combos of **AQ**, which is one of the hands we really don't want CO to be holding.

Hero squeezes to 11.5BB.

10.5 3-Bet Sizing

It's essential to have a great grasp on the reasons to 3-bet different types of ranges and how those strategies relate to EV. It's also possible to squander away the EV you should be gaining from correct 3-bet understanding by not putting enough thought into sizing. There are a few sizing related concepts worth recapping before I introduce a table of sizing guidelines for 3-bets.

1. RFE and FE

Remember that RFE, meaning required fold equity, is a value that serves as a rough guide as to how often Hero needs Villain to fold in order to break even on a bluff or semi bluff. In 3-betting, RFE is a function of the sizing Hero uses. While tiny 3-bets will have incredible RFE, they'll also have almost no FE at all. Huge 3-bets seize much more FE, but also ramp up the RFE value to the point that bluffing becomes unprofitable.

There is, for every 3-bet we make, a sweet spot where RFE and FE are perfectly optimised so that the EV of a 3-bet bluff is maximised. In more visual terms, the picture looks something like this:

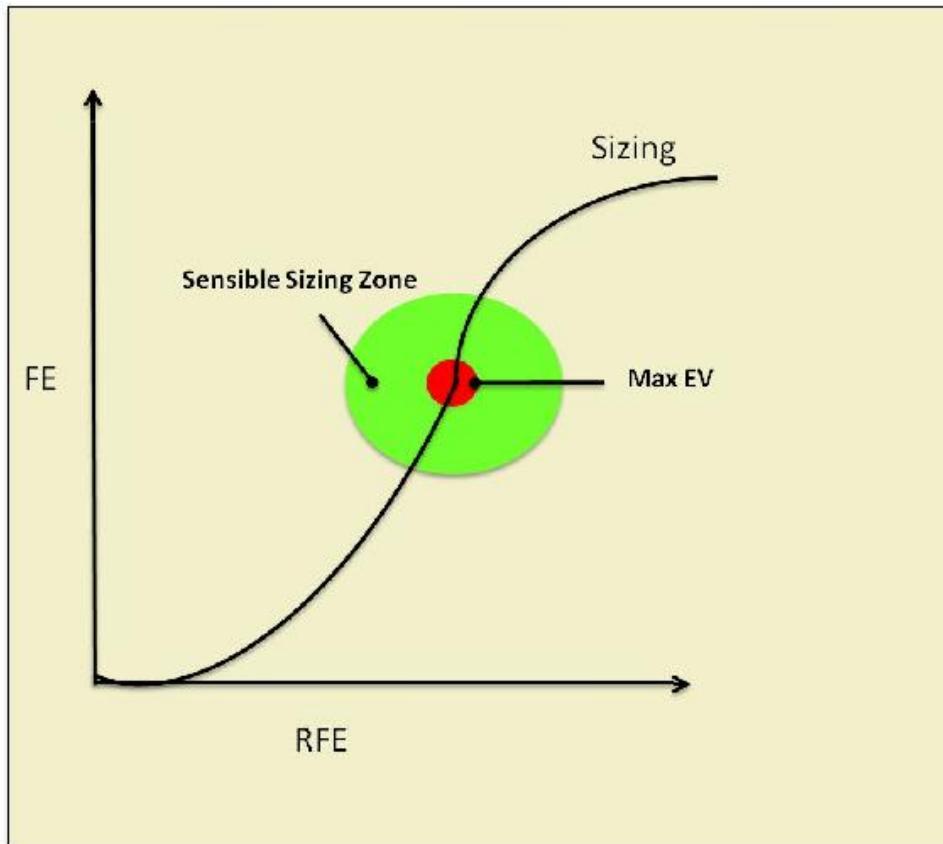


Figure 61 - Sizing, RFE and FE

Our primary aim as far as possible to make sure that non-value 3-bets achieve the highest possible EV with their sizing. The balance of RFE and FE reaches its highest EV where neither is too large or too small.

2. Balance

When 3-betting against Regs, Hero will need to ensure that he balances his sizing. This does not mean, as some students have erroneously believed that we change our sizing each hand to be unpredictable. It only means that we use the same size with all parts of our range. Whether Hero is value raising or bluffing with his 3-bet, the sizing should not change against anyone competent. If we're concerned with finding the best RFE to FE ratio with our bluffs we'll be deploying whatever size achieves that with our value hands too. They don't mind there being a BB or two less in the pot as they're going

to be able to get 100BB stacks in very easily in a 3-bet pot. Regardless of whether we make it 9BB or 10BB pre-flop.

Against Fish, we're usually exclusively 3-betting for value or else to set up very profitable c-bets with post-flop fold equity gained from isolation. In either case, having a bigger pot is great with both value hands and bluffs, and so, for different reasons, our sizing remains balanced against this kind of player too.

3. Pot Odds/Implied Odds

When we use a tiny size that results in favourable RFE and terrible FE, our opponent is calling us very wide because his pot odds and implied odds are excellent. We must be careful as the 3-bettor not to make 3-bets so small that our value range will be successfully mined by the likes of **55** and **76s** where this is avoidable. Again, it's a delicate balance because if we render our opponent's implied odds too dreadful, then in turn we make it fine for him to fold a large chunk of his range. His EV skyrockets vs. huge sizing each time he does have a very strong starting hand decreasing the need for implied odds in the first place.

One other important point here is that the bigger Villain opens, the smaller the stack to pot ratio and so Villain's implied odds to call a 3-bet are already naturally cut. As a result we don't need to size so big vs. larger opens to reduce implied odds, but we need to go bigger vs. smaller opens.

4. Position

In position Villain has an easier time making +EV calls vs. our 3-bets. Out of position he'll have to fold more of his range. It follows that Hero gets more FE in position and can use smaller sizing there to make RFE all that more juicy. Out of position he'll have to accept a worse RFE in exchange for getting the fold equity he needs when bluffing or 3-betting a weaker hand in a linear range.

Our job as the 3-bettor is to at least hit the sensible sizing zone in Figure 61 with our bluffs and balance that sizing with our value hands too.

The following table is a recommendation for common situations that fits these guidelines. Study it, but be sure to think about why each size has been recommended for each spot. We'll then finish up the chapter by looking at an example where stacks are shorter than usual.

Spot	Sizing (BB)
OOP vs 4BB OPEN	12
OOP vs 3BB OPEN	10
OOP vs 2.5BB OPEN	8
OOP vs 2BB OPEN	7
OOP vs 4BB OPEN (SQ)	13
OOP vs 3BB OPEN (SQ)	12
OOP vs 2.5BB OPEN (SQ)	11
OOP vs 2BB OPEN (SQ)	9
IP vs 4BB OPEN	11
IP vs 3BB OPEN	8
IP vs 2.5BB OPEN	7
IP vs 2BB OPEN	6.5
IP vs 4BB OPEN (SQ)	12
IP vs 3BB OPEN (SQ)	11
IP vs 2.5BB OPEN (SQ)	10
IP vs 2BB OPEN (SQ)	8

Figure 62 - 3-Bet Sizing Table

The trend is clear. Sizing is bigger vs. smaller opens, out of position and when squeezing. Sizing is smaller vs. bigger opens, in position and when not squeezing.

This table is for default use against Regs. There are situations vs. Fish, especially the fit-or-fold variety, where ISO and value 3-Bets should be closer to 4x even in position to capitalise on the post-flop fold equity. The bigger the pot we can create vs. a fit-or-fold player, the higher EV light c-betting and value betting become post-flop.

The above table also assumes 100BB stacks. So far in the manual, we've spent little time in the realms of non-standard stack sizes. Let's look at a hand where stacks are smaller than normal. In [Chapter 14](#) we'll be covering the implications of deeper stacks in these spots and many others.

Hand 91

UTG – Unknown
HJ – Unknown
CO – Short Stacker (29/25/32/70) [40BB]
BU – Hero
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, Hero?

Let's think about Hero's sizing in terms of what CO is doing wrong here. I'd like to note that the CO's open size is horrible. In fact, the whole strategy he's adopting is horrible. He's opening 3BB from the CO with a very wide range and then folding to 70% of 3-bets. This makes exploitative overbluffing using small sizing very +EV for the players behind, especially for the BU (Hero) who has position. CO's implied odds are already cut by his 40BB stack size

so flatting a wide range to 3-bets out of position will usually be unprofitable even to small sizing.

If CO wants to play more solidly, he should min open from this position with this effective stack and lose less when he gets 3-bet, forcing his opponent's to give themselves less favourable RFE on their 3-bet bluffs. CO doesn't have to worry about Villains getting a great price to flat his opens as their own implied odds is already cut. Smaller effective stacks hurt implied odds substantially.

We see from the [Figure 62](#) above that, normally, in position against a 3x open, Hero would choose an 8BB 3-bet. Such a size offers a reasonable RFE target while still making sure that Villain doesn't get great pot odds and implied odds. There is a problem with going 8BB here - it's too big.

Since villain has much worse implied odds on calling 3-bets at this stack depth, Hero can afford to size down and lower his RFE. Hero probably doesn't want to min 3-bet, but any reasonable size will ruin implied odds at this stack depth. Moreover, let's consider Villain's RFE on a potential 4-bet. If Hero goes to 8BB, the RFE of 4-bet bluffing the remaining 37BB will be immense since a 4-bet is a shove at this depth and Villain gets to realise equity when called as well as fold equity when not called.

Hero needs a size that punishes Villain appropriately for his open sizing mistake and cuts the RFE of 4-bet shoving light. At the same time, Hero must not offer decent implied odds to the 40BB stack by going tiny.

Hero raises to 6.75BB.

If you don't like typing in awkward decimals, then get some hotkeys set up. If you want to find that sweet spot in [Figure 61](#), sometimes this kind of precision will be necessary.

11. Facing 3-Bets

Hero has done it! Having become competent in the areas covered so far, he's managed to move up in stakes from 25NL to 50NL. There's a problem though. This game is awfully aggressive compared to what he's used to. It feels like he's being 3-bet every single time he opens a pot and, as of yet, he has no idea how to defend appropriately. If he calls, it seems like he just misses the flop and has to fold in a big pot. If he 4-bets, they always seem to shove. If he folds, then he feels like the aggressive 50NL population is abusing him. He's suddenly gone from hunter to prey.

Facing 3-bets doesn't need to be so off-putting. In this chapter we'll be building a toolbox for competently dealing with 3-betting. We'll be talking about:

- What makes a hand +EV to flat against a 3-bet.
- How to design polar 4-bet ranges.
- What other adjustments can be made vs. rampant 3-bettors to increase EV.
- Designing ranges for opening and defending that meet minimum defense frequencies.
- When to mine against 3-bets.

And finally we'll be cementing our newfound knowledge with a healthy dose of example hands.

11.1 Flattening 3-Bets

In earlier poker times people were terrified of playing post-flop without the initiative. I remember the days when 3-betting just printed obscene amounts of EV as players either folded far too much or flatfolded a lot and then played fit-or-fold on the flop vs. c-bets. Today, the community even at stakes like 25NL and 50NL is more aware that flattening 3-bets, especially against very light 3-bettors in position is actually extremely profitable, as long as the caller ensures to defend enough of his range to c-bets post-flop.

When Hero opens 3BB and then folds to a 9BB 3-bet, his overall EV for that hand is -3BB. In order for Hero to profitably defend against that 3-bet, he doesn't need to be +EV for the whole hand, but only +EV from his point of decision where he either calls or folds having already committed 3BB to the pot.

When we have a more marginal part of our opening range and get 3-bet we are supposed to lose money. This does not mean that we are supposed to fold. Of course there are parts of our opening range that to defend would cost us more than 3BB, particularly when we have those parts of our range out of position. It's important to frame the EV goal of a flat though: it does not need to show up green on your tracking software, but merely less red than folding would be.

In this first section of the chapter we'll be talking about what makes a hand profitable to call and ignoring 4-betting for now.

Good Factors	Bad Factors
In Position	Out of Position
Frequent Strength Good vs. Villain's Range	Frequent Strength Poor vs. Villain's Range
Good Versatility	Poor Versatility
Known Post-Flop Weaknesses in Villain	No Known Post-Flop Weaknesses in Villain
OR	
Sufficient Implied Odds = Call	

Figure 63 - Flattening 3-Bet Factors

The first thing to clarify is the distinction between implied odds and the other factors. This table should be assessed from top to bottom. The first five factors will often allow Hero to call. If they are insufficient, he may look to make an implied odds based call instead where he thinks that it is possible to play fit or fold due to a favourable ratio of risk to potential gain post-flop.

Usually when facing a 3-bet 100BB deep, Hero will not have a satisfactory combination of nut power and favourable price to generate decent implied odds. Having to invest 6, 7 or 8BBs to see the flop seriously harms implied odds since they are simply the ratio of investment to average payout. This is why we take the other reasons first; they are more common grounds for flattening a 3-bet.

Position: A familiar guest in factor tables by now. Defending a hand in position to a 3-bet is going to increase the chances of taking that hand above the -X EV of folding where X is Hero's open size. Hero has an easier time floating post-flop, making it to showdown, protecting his equity, picking up pots when both players miss, and more. This is a colossal factor here.

Frequent Strength: We've dealt with this concept a lot, particularly in [Section 3.2](#). This time frequent strength needs to be relative to Villain's 3-bet range. **KQo** will dominate an 18% 3-bettor in the BB, but will be crushed by a 4% 3-bet range. Interpreting stats and player type will be essential for estimating frequent strength. Also recall that frequent strength is not the same as equity. A hand like **44** has a healthy 44% equity vs. an 18% linear 3-bet range, but is usually a terrible call due to how infrequently it flops anything of use. **KQo** on the other hand has only 3% more equity but is going to be a clear defend in position vs. this width of range due to how often it flops something Hero can continue with facing a c-bet post-flop. Essentially, Hero folds the best hand much less often post-flop when he holds higher frequent strength hands.

Versatility: Hero wants to avoid flatting 3-bets and playing fit-or-fold unless Villain is very straightforward. Therefore, it will benefit him to flop non-made-hand equity sometimes too. Versatile hands like **98s** and **A4s** will make for sound defends against wide 3-bet ranges where Hero is in position.

Villain Weaknesses: This concept can cover a lot of areas, but here are some examples:

- Hero wants to defend more hands vs. Villain's who c-bet too often and then give up as floating the flop as well as just flopping top pair go way up in value.
- Hero wants to flat more implied odds hands when Villain is spewy and prone to bluffing off stacks post-flop.
- Hero wants to flat more speculative hands (weaker frequent strength) vs. Villains who check/fold too much as the 3-bettor or play a fit-or-fold post-flop style in general.

The list goes on. By this point, Hero should be well versed in gathering information on Villain's tendencies on future streets and using this information to make decisions on earlier streets.

Let's pick a few examples of spots where we face a 3-bet and decide if calling is an option. We'll start by looking at a few exact hands; then when

we've learned how to 4-bet bluff and call effectively, we'll begin building some complete defence ranges for tricky spots where we face a 3-bet.

Hand 92

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Hero
SB – Unknown
BB – Reg (24/18/**9**)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, BB raises to 7BB,
Hero?

Position is in Hero's favour allowing him to defend many hands that would be questionable or even terrible to defend out of position.

Frequent Strength is not fantastic, but not bad by any means. Villain's overall 3-bet stat is 9%, and so BB vs. BU, it should be a good bit higher than this average due to the combative nature of the late position battle. Something like 15% is a fair estimate. How well Hero will fare with the hands **A8s** typically flops will depend on whether Villain is linear or polar. Against a 15% linear range, frequent strength will suffer a bit due to domination from better **Ax** and **88+**, but where Villain is polar, it will be absolutely fine and can even dominate some worse **Ax** and **8x**. We don't know which model Villain is using, but the situation won't be too bad in either case and a lot of people start off polar BB vs. BU since they have a substantially wide calling range and usually some fold equity.

Versatility is quite high. **A8s** not only has moderate top pair flopping power, but can flop nut draws too. Even the backdoor flush draws it often flops will

help a great deal with the EV of floating especially when accompanied by two overcards or a backdoor straight draw. Suited aces always have at least some implied odds from being able to flop the nut flush. While this happens rarely and is not a reason to call in and of itself, the small amount of implied odds do boost the EV of calling to an extent.

Weaknesses: We may know very little about Villain, but with population reads we should build up an idea of how the Reg population plays in 3-bet pots and whether this makes us more or less inclined to flat lightly.

Overall, this hand is comfortably strong enough against a likely wide 3-betting range and must be defended by calling. As we'll see in the next section of this chapter, the hand is too strong to turn into a 4-bet bluff, despite the fact that, in a vacuum, it makes a fine one.

Hero calls 5BB.

Hand 93

UTG – Unknown
HJ – Hero
CO – Unknown
BU – Unknown Reg (25/25/**50**) (8 hands)
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, **BU raises to 9BB**, SB folds, BB folds,
Hero?

We have 4 hands on Villain, which is a pretty meaningless sample even for stats like VPIP and PFR. However, a player who has already 3-bet (likely one time from two opportunities) and has not yet limped or called an open is

more likely to be a Reg than a Fish. His normal Reg-like 3-bet sizing makes this even more likely.

Position: Being out of position will cause a great deal of difficulty post-flop. When the pot is larger any mistake made due to lack of information from bad position will be magnified. It is now Villain who reaps all of the benefits and as his EV increases, Hero's decreases.

Frequent Strength: 77 has pretty poor frequent strength especially out of position even if Villain's range does turn out to be very light and bluff heavy. We're flopping some underpair, second pair, or more rarely a weak overpair 88% of the time. That's 88% of our potential 6BB investment or 5.28BB that is being thrown into the pot under very negative conditions. This lack of playability is even worse out of position.

Versatility: 77 is a completely rigid hand. It either flops the world or very little. Hero will have no aid in the form of semi-bluffing equity.

Weaknesses: We don't know of any.

Implied Odds: As 77 is an implied odds type of hand, it's worth investigating if these are sufficient to compensate for the other factors all being against us. Hero would be investing 6BB to see the flop and so with implied odds alone would need to be winning back around 60BB the times he flops a set to break even using our set mining rule. As the pot would already contain 19.5BB from both players 9BB plus the blinds, Hero would need to make an additional 40BB just to break even from Villain's stack post-flop each time he flops a set. Out of position against a potentially weak range, this is far too optimistic a target. Hero is not close to having the implied odds to make a pure set mine and so they don't assist enough with the other factors being so miserable.

Hero folds.

The two spots so far have been relatively straightforward. Let's have a look at a less comfortable situation where the decision is close as to whether or not we should call a 3-bet. By looking at close decisions in poker we get an idea as to where the boundary between +EV and -EV lies in certain thematic

spots. In this grey area where EV is likely to be either microscopically positive or negative, it won't matter a huge deal what we do. Still the committed player will strive to find the play that's higher EV even if only by a tiny margin.

Hand 94

UTG – Hero
HJ – Unknown
CO – Unknown
BU – Unknown
SB – Reg (26/22/9)
BB – Unknown

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO folds, BU folds, SB raises to 10BB, BB folds, Hero?

Against anyone tighter, flatting **AQo** to a 3-bet in these positions would be dubious and likely -EV.

Villain 3-bets 9%, but do not make the common mistake of ascribing him a 9% range in these seats. In almost all games across the microstakes and low stakes, Regs formulate much wider 3-bet ranges against late position opens than early ones. Hero's UTG open implies a stronger range, which causes Villain to 3-bet tighter. If we looked at Villain's stats by position (and this needs a very substantial sample size) then we'd likely see a range of closer to 5 or 6% than 9%. Hero is not in great shape vs. such a range and will struggle to continue on the majority of flops. That said he could be dominating some hands if Villain is using **AJ** or **KQ** as a polar bluff and folding **AQo** does equate to folding a large chunk of his UTG opening range to 3-bets.

The frequent strength we do have suffers from a lot from reverse implied odds, for example vs. **KK+** on **Qxx** flops, and vs. **AK** on **Axx** flops. It is a little sad that we're not able to flat a hand this far up in our opening range even in position but that's okay - we don't need to fold it either.

This sort of aggro Reg will usually have a light 3-bet range of some sort and will be folding to some 4-bets. What better hand for Hero to 4-bet bluff with than the top of his folding range with two great blockers to villain's likely value range of [**QQ+ AK**]? Hero should favour suited hands with blockers and playability such as **A5s** for this purpose too, but the double blocker of **AQo** is probably better here. Note that if **AQo** is only slightly too weak to call then **AQs** would be a fine call.

4-bet sizing is another thing we'll cover shortly. Suffice to say for now that 4-bets need not be anywhere near as large as 3-bets. The greater proportion of stacks that are already in the middle harms implied odds and the EV of flatting a 4-bet greatly with 100BB stacks.

In a vacuum we need Villain to fold $R / (R + PG) = 19 / (19 + 13.5) = \mathbf{58\%}$ for 4-betting to be automatically profitable. Of course if Villain ever defends to the 4-bet by flatting then we get to realise some pot equity and post-flop fold equity too. This target of **58%** should be very close to achievable vs. most players with 9% 3-bet stats. Vacuum EV is good. Long term EV is also happy since Hero is using the right hand in his range for the right job.

Hero raises to 22BB.

One final point is that Villain probably doesn't fold any **better** hands to this 4-bet, but that's fine. Hero struggles to make flatting the 3-bet +EV so if 4-betting is +EV then it's better than either calling or folding. Even if Hero loses 2.8BB in this whole hand over infinite trials, 4-betting is 0.2BB per trial better than folding!

11.2 Complete Defence Ranges

Balanced Defending

We've learned that the basic principles of 4-bet bluffing are to use the top of our folding range and the best mix of blockers and playability should we be flatted. It's now time to construct some complete defence ranges for dealing with 3-bets. I'm going to start by outlining what a balanced defending to 3-bet range looks like and use some maths to generate what we'll be calling our **Minimum Defence Frequency (MDF)**.

The **Minimum Defence Frequency (MDF)** in any poker situation is the portion of Hero's overall range that he must defend to a bet or raise in order to make his opponent indifferent to adding extra bluffs to his 3-bet range.

When Hero defends enough of his range to meet his MDF, Villain fails to gain EV by overbluffing.

Why do we stop at making overbluffing 0EV for Villain? Why do we not punish it severely by folding even less? When meeting MDF, Hero is adopting a balanced strategy that is unexploitable. If he were to defend more hands than MDF suggested, then it's true that overbluffing would become worse for Villain, but in the process, underbluffing would become very good and Villain would be able to increase his EV by removing bluffs from what started off as a balanced strategy. This is not in the spirit of balance and is something we must avoid until we have an exploitative reason to think that this is a more desirable as a long-term strategy.

We'll now use the following rule for building our opening and defending ranges.

When striving for **balanced play**, Hero should design a strategy that meets the MDF for the situation while not making any 4-bets or flats that are -EV in a vacuum.

If Villain overbluffs or underbluffs with his 3-betting, then Hero can exploitatively aim to exceed or fall short of his MDF in order to increase his EV.

But which kind of opponents should we be striving for balance against? In a nutshell: aggressive and competent Regs. These players are probably 3-betting quite optimally and aware enough to adjust to an unbalanced defence by us that either folds too much or too little.

The next step is to look at a common 3-bet spot in which we want to be balanced and find our MDF for that spot. We can then separate our opening range into +EV flats and 4-bets so as to satisfy our MDF; we can then fold the rest of our range.

So let the fun begin! We'll start by generating the hand that will serve as our model for the time being. The manual is about to ramp up in complexity once again so please ensure that you're very comfortable with everything covered in this chapter so far before reading on.

The Model Hand

Hand 95

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Reg (25/21/11)

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises 2.5BB**, BU folds, **SB raises to 9BB**, BB folds,
Hero?

Villain in this hand is the typical kind of player against whom balance and meeting our MDF should be a priority. Hero opens 2.5BB with a range. Let's begin by reminding ourselves what this range looks like.

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



Fold



Open

This range is the same one we met back in [Chapter 2](#). Remember that it's sensible for Hero to tighten up his opening range where there are multiple light 3-bettors ahead and widen it where the table is overly tight or fishy. This range contains a total of **338 combos**. We'll return to this number when we've worked out the MDF for this spot.

Finding MDF

MDF can be found by looking at the risk to reward ratio from Villain's point of view and then adjusting it for any equity and other bonuses he'll realise when we flat his 3-bet. Our goal is to make the addition of 3-bet bluffs to Villain's range a 0EV one. This means that Villain needs to be hitting his adjusted RFE on the 3-bet bluff exactly. When we call the 3-bet and go to the flop, even Villain's weak 3-bet bluffs like **64s** will sometimes flop equity, win at showdown, be able to make +EV c-bets, and so on. Villain's RFE will need significant adjustment for these advantages.

We'll estimate that Villain needs 10-15% less fold equity than the risk and reward calculation first indicates.

Of course, not all of Hero's continuing range will be hands that he calls with. He will be 4-bet bluffing sometimes too and claiming the entire pot right away against the weaker parts of Villain's 3-bet range when he does so.

So in our model hand, Villain risks 8.5BB (9 - 0.5 SB) for a potential gain of 4BB (dead open + SB + BB)

RFE = 8.5 / (8.5 + 4) = 68%. Let's reduce this by 10-15% compensating for the aforementioned bonuses those times we flat and make the rough estimate that Villain ceases to profit from adding extra bluffs to his range when Hero folds 55% of his range or less.

The minimum defence frequency then is 100% minus the amount Hero should fold and so **MDF = 45%**.

We'll keep this rough benchmark value in mind and try to emulate a strategy that folds roughly this much, but where all of its non-folds are +EV in a vacuum.

Hero's CO opening range contained 338 combos. He must look to defend 45% of that range in some way in order to get close to a balanced strategy.

45% of 338 is **152** and so this is how many combos we need to defend. These 152 combos will need to be split between +EV 4-bets and +EV flats. We'll also need to take care to ensure our 4-bet bluffing range doesn't start to

dwarf our 4-bet value range or else we become exploitable to light 5-betting and do away with balance - the very thing we're aiming at.

Let's separate the CO opening range into subranges that meet all of these requirements and then talk about why we've chosen each hand for each job.

Building A Strategy

Our opening range will now be split into the following four parts, from strongest to weakest:

- 4-bet/call
- Call
- 4-bet/fold
- Fold

Note that Hero will always adopt this kind of polar 4-betting approach vs. Regs unless the Reg in question is notorious for flatting or shoving over a lot of 4-bets. Let's first look at the answer to this challenge and then explain why it's the right one. If you'd like to be pro-active and make your use of this book in a more student-centred way, then this is another great opportunity to have a bash at the solution by yourself before reading on. If you do, consider what makes each hand in the CO opening range above suitable for one role or another and don't forget the rules that a polar strategy must adhere to. For example, there must not be a hand in the 4-bet/fold range that is stronger than a hand in the calling range.

Now onto the answer:

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	JJo	ITs	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

 4-Bet/Call
  Call
  4-Bet/Fold
  Fold

Figure 64 - A Balanced Defence Strategy vs. 3-Bets. CO vs. SB.

Let's go through the individual sub-ranges and see why they've been constructed as they have.

4-Bet Call

As we saw in [Chapter 9](#), this range is not necessarily ahead when the action goes open, 3-bet, 4-bet, shove, call; but each hand within it is +EV to 4-bet and call a shove with. **AKo**, for example, makes up for a slight deficit in equity vs. a tight 3-bet/shoving range of **[QQ+ AK]** by picking up dead money and blocking the hands that crush it.

I recommend **[QQ+ AK]** as a standard 4-bet/call range CO vs. blinds. In a more aggressive spot like CO vs. BU, BU vs. SB, or SB vs. BB; this can be widened to include **JJ**, and sometimes, even weaker hands. Hero should widen this sub-range as an exploitative adjustment vs. known light 5-bettors.

[QQ+ AK] eats up **34 combos** of our 152 required defending combos. 118 more to go.

Flat

Being in position against a probable wide 3-bet range entitles Hero to defend quite wide and yet still remain in +EV territory in a vacuum. Using the criteria from the earlier part of the chapter, Hero selects hands he thinks fare well enough with respect to the factors in [Figure 63](#). This sub-range takes Hero another **78 combos** closer to meeting MDF. Just 40 left now.

4-Bet/Fold

This is Hero's 4-bet bluffing range and consists of the hands that block Villain's 3-bet/shoving range the best, preferring playability where blocker power is equal. **KJo** is of course not suited, but its double blocker potential renders it a more suitable 4-bet bluff than something like **K7s**. It's likely that **JJ** will form a part of Villain's 3-bet/shoving range, while **77** will not and so the **J** is the more useful blocker to hold. Also note that **[A2s-A5s]** has been chosen before **[A6-A7s]** because while both these groups have similar pair flopping potential against a likely range that flats our 4-bet, the former have more playability since they can flop gutshots.

This segment contains the final **40 combos** that we need to defend. Hero is deploying ratio of 40:34 bluffs to value or 1.18 bluff combos for every value combo. Hero will be folding to a 5-bet 54% of the time and this will prevent Villain from being able to profitably widen his 5-bet shoving range to include hands much weaker than **[JJ+ AK]**. An EV calculation will show that he needs a bit more fold equity than this to shove a hand such as **77** or **AJs** given that Hero's 4-bet call range is quite tight.

Hero has hit his target defense frequency and can rest assured that he cannot be exploited by either overbluffing or underbluffing on Villain's part. That said Hero's approach is not set in stone and should he learn that Villain is bluffing too much or too little, then he is at full liberty to widen or tighten his defence ranges to exploit this imbalance.

Designing Balanced Opening Ranges

Note that creating this balanced defence range that meets MDF was only possible because Hero's opening range was tight enough to begin with. The non-folding sub-ranges constituted enough of that opening range that Hero didn't need to make any unbalanced or speculative defends to meet MDF. It would not be permissible for Hero to open 80% and call hands to the 3-bet that are clearly -EV to call. The opening ranges back in [Chapter 2](#) were chosen as they were so that Hero could defend enough of them to 3-bets.

When building his opening ranges where balance vs. 3-bets is important, Hero should begin by working out his MDF in a reasonable sizing model and then decide which hands will make +EV defends (either as value 4-bets, calls or 4-bet bluffs) in a vacuum, ensuring that his 4-bet range is also balanced. The correct width of balanced opening range to use will be that where Hero adds hands he'll open with and fold to the 3-bet until these hands constitute exactly MDF% of his overall opening range.

Unbalanced Defending

There are many reasons that Hero might want to deviate from a balanced approach in these spots:

- Villain might be a passive Fish against whom Hero doesn't care about balance and needs to tighten up his defending ranges, doing away with 4-bet bluffing entirely.
- Villain could be a Reg who is so crazily aggressive that Hero needs to defend more than MDF in order to exploit this unbalance.

- Perhaps the population is just very aggressive and tends to fold almost never to 4-betting. In this case Hero wants a linear 4-bet range that he can call most if not all of against a 5-bet shove.

The skill of picking the best combos for each job in Hero's defence range is equally important where Hero is defending exploitatively. Have a think about what kind of exploitative defence strategy Hero wants in the following situation ([Hand 96](#)). Here's a hint: although an exploitative strategy is going to be best, Villain is still a Reg and so Hero cannot be doing away with the notion of balance entirely. How does he exploit Villain's imbalance without being obviously unbalanced himself?

The third number on the HUD in Hand 95 is **3-Bet Preflop** once again. The fourth number is a stat we've not yet met called **Fold to PF 4Bet After 3Bet** and is covered directly below.

Fold to PF 4Bet After 3Bet

Definition: Fold to PF 4Bet After 3bet describes the number of times a player has folded to a 4-bet after 3-betting before the flop out of all of the times that he had the opportunity to do so. This is a worthwhile stat, but one that takes a long time to converge into meaningful data.

Reliability (No. of Hands)

500 = Awful
2000 = Poor
5000 = Decent
10000 = Good
25000 = Excellent

Interpretation

0-30 = **Extremely Low:** This player dramatically underfolds to 4-bets.
30-40 = **Very Low:** This player underfolds to 4-bets.
40-50 = **Low:** This player is a little unbalanced towards underfolding to 4-bets.
50-60 = **Average:** This player folds close to a balanced amount vs 4-bets.
60-70 = **High:** This player overfolds to 4-bets.
70-80 = **Very High:** This player overfolds dramatically to 4-bets.
80+ = **Extremely High:** This is just absurd.

Now onto the hand:

Hand 96

UTG – Unknown
 HJ – Unknown
 CO – Unknown
BU – Hero
 SB – Unknown
BB – Reg (19/17/13/69) (17k hands)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB raises to 8BB**, **Hero?**

Villain's fold to 4-bet stat is significant as it renders 4-bet bluffs by Hero very +EV in a vacuum. In a sizing model of $2BB > 8BB > 18BB$, Hero will be risking 16BB to win 10.5BB.

$$RFE = R / (R + PG)$$

$$RFE = 16 / (16 + 10.5)$$

RFE = 60.4%

If Villain's range for 3-betting is wider here than in most other positions, he may even fold to more 4-bets in this spot than the 69% suggests and 4-betting therefore prints money in a vacuum.

This of course doesn't justify a 4-bet with any two cards, but it does make Hero inclined to adopt an unbalanced ratio of bluffs to value that makes folding too much to 4-bets a significant mistake. At the same time, this ratio can't become so inflated that Villain quickly figures out that Hero is making an extreme adjustment and readjusts. A balanced 4-bet range would be something similar to the one we created in [Figure 64](#). It will contain slightly

more bluffs than value hands, but Hero's job is now to bluff a bit more often than this.

A ratio of 2:1 bluffs to value should make a fine exploitative adjustment. Hero uses considerably more bluffs than value hands but not to such an extent that it quickly becomes obvious. One in three of Hero's 4-bets will still be with a nutted hand and although such a strategy makes light 5-betting very profitable for Villain, we don't expect him to be doing much of that - if he were, his fold to 4-bet stat would be much lower in the first place.

Villain is generally a nitty player, but one who happens to 3-bet very wide. Hero is justified in assuming that Villain will have both a wide range and not be too tough to play against post-flop due to his tight nature. He therefore also makes the adjustment of flatting more hands in position than he normally would vs. a stronger opponent with more normal pre-flop Reg stats such as 23/19.

Overall Hero's defence range considerably exceeds his MDF for this spot and intentionally so in order to exploit Villain's imbalances. His strategy looks something like this:

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	ITs	I9s	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

 4-Bet/Call
  Call
  4-Bet/Fold
  Fold

Figure 65 - An Exploitative Defence Range BU vs. BB

Hero 4-bets **40 combos** for value. This sub-range must remain quite tight to fit the exploitative spirit of Hero's plan. Since Villain is not continuing with much of his 3-bet range vs. 4-bets, it wouldn't make sense to be getting it in lightly as when Villain does shove over the 4-bet, his range is likely to be too strong for 4-bet calling TT or AQs to be feasible on Hero's part.

This calling range is much wider than in the hand before and this is down to Villain having a wider range and being a weaker player. It encompasses **224 combos**. Each hand defended in this range is estimated to be higher EV to defend than to fold, or in others word, better than -2BB in EV from the point of view of the entire hand.

The 4-bet bluff range spans **88 combos** and roughly makes up the 2:1 bluff to value ratio we were aiming for. These bluffs are chosen using the same criteria as before - they're the best of a relatively bad bunch of remaining combos. Playability is not such an issue here though given that Villain is unlikely to be calling too many 4-bets with a VPIP/PFR so close together and such a high fold to 4-bet stat.

Hero folds the rest of his opening range happily, knowing that overall he is only mucking 266 combos / 618 combos = **43%** of his range. This is comfortably less than MDF would have him fold, and just as well. Villain is playing in such a way that this strategy is much better than striving for balance would be.

The exploitative strategy is complete. Villain can expect to lose quite a bit of money playing like this against Hero for the foreseeable future.

Completely Unbalanced Defending

In [Hand 96](#), balance was less of an issue than in [Hand 95](#), but it was still an issue. We expected a dramatic shift in our strategy to cause an undesired adjustment from Villain, ruining our long-term chances of exploiting the hole we'd found in his game.

However, when we're against Fish or other unaware player types too unsophisticated to adjust at all to hugely exploitative strategies, any strategies which are best in a vacuum, will also be best in the long-term.

This hand is a great example:

Hand 97

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Unknown

SB – Passive Fish (37/7/1/0) (3k hands)

BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, **SB raises to 8BB**, BB folds,
Hero?

Trying to be balanced in this situation would be a ridiculous approach. Firstly, Villain is almost certainly never 3-bet bluffing and his 3-bet range may be as tight as [KK+] or similar. Secondly, this is not a player who is ever going to be noticing and reacting to even extreme imbalanced adjustments like the one Hero is about to make.

Given that Villain only has strong value hands in his range, Hero must fold most of his dominated hands that are not rich in implied odds, 4-bet AA and only AA for value, and 4-bet nothing as a bluff. His calling hands will be only those hands capable of recouping X times their investment to see the flop the 1/Xth of the time they flop a monster. These hands will be exclusively pocket pairs and the most able suited connectors - they're exclusively implied odds calls.

This is an easy exploitative strategy to find because balance considerations have been completely removed from the picture. It's much easier to build defence ranges against players who will not react in an adverse way to the optimal short-term strategy. As is so often the case vs. Fish, short-term and long-term EV blend into one.

The full strategy is below.

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

 4-Bet/Call
 Call
 Fold

Figure 66 - A Very Unbalanced Defense Range vs. a Passive Fish

This strategy appears a little ridiculous but it has justification. If Villain is only 3-betting 1% of hands over such a large sample, then his range is likely no wider than [KK+]. Therefore, even hands like **AKs** are hopelessly dominated. Pocket pairs are okay to defend as they flop hands that crush Villain 12% of the time. Their implied odds will be phenomenal especially for the generous price of only 5BB to call. Some suited connectors from our HJ opening range are okay defends here, namely the ones low enough not to require aces and kings to make straights. Aces and kings are heavily blocked by Villain's range.

Everything else is simply a fold as it lacks the ability to flop monsters often enough to compensate for being crushed the rest of the time.

Hero's strategy is absurdly crushable by any reasonable counter adjustment. All Villain would have to do is start 3-bet bluffing sometimes and Hero's approach would become dreadful. That's fine though. We don't fear being hit by deadly meteors from outer space because they don't come around so frequently. Players who are this passive adjust well to the strategy above about as often as meteors wipe out life on Earth. Grab that free EV and exploit this Villain to the extreme.

11.3 Preemptive Adjustments

Have a look at the following spot:

Hand 98

UTG – Unknown
HJ – Unknown
CO – Hero
BU – Aggro Reg (24/19/11**)**
SB – Aggro Reg (26/22/12**)**
BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB, BU raises to 9BB, SB folds, BB folds,**
Hero?

This hand should never occur. It's not good enough for Hero to just find himself out of position CO vs. BU facing a 3-bet from a very aggressive 3-bettor with a weak indefensible range having opened 3BB. Position is a sledgehammer of an advantage so even if Hero thinks himself to have a significant skill edge against an Aggro Reg, he's still going to be on the back foot and forced to fold a lot of his opening range. The solution is to never be in this situation in the first place. We talked a bit about this back in Chapter 2, but let's remind ourselves of the pre-emptive measures we should take against active 3-betting and build on these ideas further.

1. Open Tighter

This isn't always a necessary adjustment against light 3-bettors, but there are times when we can't do without it. In [Hand 96](#) there was really no need to tighten our opening range dramatically because we had position and an effective exploitative strategy available to counter Villain's active 3-betting. We knew that he didn't continue enough of his 3-betting range vs. 4-bets and we had position to boot. These bonuses entitled us to comfortably defend far more of our range than our MDF demanded of us and so there was little need to reduce the amount of combos we opened in the first place.

In [Hand 98](#) above, it's absolutely essential that we open tighter than any range that includes **J9o**. As we know, being out of position limits the amount of hands we can profitably flat a 3-bet with. Moreover, there is not one, but two very aggressive Regs waiting to pounce behind us with high 3-bet stats. If BU happens to actually 3-bet 15% in this late position battle spot and SB 13%, then we in fact face a 3-bet $1 - ((1-0.15) \times (1-0.13)) = 1 - (0.85 \times 0.87) = 26\%$ of the time. This is huge and doesn't even take into account the unknown BB's 3-bet frequency, which should be assumed to be that of the average Reg in our games (normally somewhere between 5 and 8%). The EV of opening hands at the bottom of a standard or light CO range is completely decimated here.

Let's summarise by saying that Hero should tighten his opening range in the face of light 3-betting whenever he doesn't have a more +EV route to exploiting the light 3-bettors that involves opening wide and defending wide. This will frequently be the case when he is out of position or facing Regs who just love to battle pre-flop. These players are nothing to fear; we just need to take a bigger weapon into the fight and play a stronger range in the first place.

2. Open Smaller

Opening smaller does a few things to improve the EV of opening vs. light 3-bettors. Recall that when we open 3x and get 3-bet, there are times when calling might lose us, say, 2.6BB in EV from the point of view of the entire hand while folding of course loses us a full 3BB. In this case, our best-case scenario is to accept the 2.6BB loss. If we make the prudent preemptive

adjustment of opening only 2x instead, however, then folding now loses just 2BB and this is an immense improvement on opening 3x and being forced to continue due to pot odds.

In the sizing model CO vs. BU where Hero opens to 3BB and Villain 3-bets in position to 8BB. Villain risks 8BB to win 4.5BB with a raw RFE (pre-adjustment) of 64%.

When we open 2BB and Villain 3-bets to 6.5BB in position then he risks 6.5BB to win 3.5BB putting his RFE at 65%. This is not a huge difference, but from this switch in sizing Hero gains one big advantage: a deeper stack to pot ratio. With more money behind in relation to what Hero has to invest to see the flop, implied odds are better and Hero has more room to make post-flop decisions and use any skill edge he might have.

If Villain wants to keep his sizing larger to reduce our implied odds and force us to invest 6BB to call, then he'll have to make it 8BB. And this will shoot his RFE up from 65% to $8 / (3.5 + 8) = 70\%$.

When we open smaller then we in fact give Villain a dilemma. He must choose between:

A: Giving us more room to defend and more implied odds in order to keep his RFE down.

AND

B: Worsening his RFE in exchange for cutting out implied odds and maneuvering room post-flop.

Either way, Hero increases the EV of his open and will never be losing as much as 3BB on any open whether he's able to continue to the 3-bet or not.

3. Move Table

When aggressive Villains have position, we need to realise that we're supposed to lose money in the long-term to them provided they aren't making significant mistakes. Money circulates in a continuous clockwise stream unless people play much worse than those to their right.

If we have to remain at such a table because it contains other players whom we consider weak or because we're playing Zoom and didn't choose the table in the first place, then our job is to minimise how -EV the times we open and get 3-bet out of position are going to be. This is not necessarily a problem. In poker there are spots we're supposed to win money in like getting dealt AA on the BU and spots we're supposed to lose money in such as having our CO opening range and getting 3-bet by the BU. Just because we lose EV on the occasions where we get 3-bet doesn't mean our open is -EV since there are lots of times when we don't get 3-bet.

That said, sometimes we can improve our EV by just never having to deal with being out of position to aggressive competent Regs at all. If the table is not otherwise lucrative and there are not multiple or enormous Fish at it to compensate for our positional disadvantage against an active Reg, then there is absolutely no shame in getting up and looking for a better seat elsewhere. Small skill edges usually don't save the EV of facing aggression out of position or compensate for the rake.

When Hero finds himself with one or more aggressive and solid Regs to his left, it's often time to search the lobby and swap out that particular table. Strong winning players do this all the time. It has nothing to do with ego and everything to do with maximizing EV.

11.4 Example Hands

Once again it's time to practice the application of the strategies we've looked at so far in this chapter in an in-game context with two specific hole cards instead of a whole range.

As **Fold to PF 4Bet After 3Bet** is not a stat we'll all too often have a large enough sample to use, I've omitted it from the HUD in these next few hands to remain in the spirit of the more realistic situations that come up all the time.

Hand 99

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Unknown
SB – Hero
BB – Reg (25/20/8)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB, BB raises to 8.5BB, Hero?**

These spots are somewhat unpleasant and Hero's initial instinct may be that calling is bad due to being out of position with no initiative and a hand that can be dominated by Villain's value range. These things are all negative factors, but there is much more to this spot. Recall that for defending to be an improvement over folding it only needs to be better than -3BB. Hero does not need to make money in this spot by calling overall, but only from this point of decision where he's deciding how to react to the 3-bet. We can state that in

order for Hero to call, it must be +EV from point of decision and less than -3BB for the whole hand.

KJs flops very well, dominates 3-bet bluffs in a polar 3-betting range, and has plenty of frequent strength. The price is also good here with a further investment of just 5.5BB.

Moreover, it should be jumping out at you by now that to fold **KJs** here would equate to folding an enormous portion of Hero's opening range. This would be to exploitatively overfold, which seems like a very bad idea in an aggressive situation against an aggressive looking Reg - we'd be nowhere near meeting our MDF if we mucked this hand. Of course 4-bet bluffing is also something Hero should look to do with a portion of his range and he should keep a balanced ratio of 4-bet bluffs to value until he gains more information as to how Villain plays. Using **KJs** for this purpose, however, would not make much sense. Sure the hand is a good candidate 4-bet bluff choice in a vacuum with its double blocker power and added suited playability, but the hand is also a profitable call. Why should we waste a hand that we can defend by calling as a 4-bet? Instead, we should look to 4-bet bluff the best blocker plus playability hands that are too weak to call. Hero will remain polar with respect to 4-betting until it's proven that Villain is part of the rare segment of the Reg population that significantly underfold to 4-bets.

Hero calls 5.5BB.

Hand 100

UTG – Hero

HJ – Unknown

CO – Nit (19/14/3)

BU – Unknown

SB – Unknown

BB – Fish (56/12/4)

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO calls 3BB, BU folds, SB folds, **BB raises to 6.5BB**,
Hero?

100 hands, 100 little lessons in poker. I hope you're enjoying them!

There is not too much joy in calling here to see a flop of Kxx or Qxx. While Hero does sometimes flop the best hand on these textures he's often dominated by [AQ, AK, QQ+]. Villain's range for clicking the min 3-bet button is probably tight and his range for adding on this extra half a big blind is probably scarier still.

Remember though that implied odds are a standalone factor and even when Hero expects his frequent strength to be poor vs. the 3-bettors range, implied odds alone can still justify a call. But surely Hero's hand is not an implied odds hand; doesn't it rarely flop anything better than one pair? This is true. Hero makes better than one pair pretty rarely and it would of course be much better to have 66 than KQo for mining purposes. However, this spot is still a call and here's why:

- Implied odds are determined by more than just how often the hand flops the nuts. They also depend on the price to call and see the next street. This is very much in Hero's favour.

- Villain is passive and so when Hero does flop one pair he will have an easy time folding in the face of Villain's aggression. Sometimes flopping one pair will be enough to get to showdown with and win and when Hero does flop the best hand with one pair, he can expect Villain to allow him this privilege.
- The three-way pot boosts implied odds further those times Hero sees a flop of flops **KQx** or better.

This is a reluctant call where Hero expects to be folding the flop most of the time but doing just about well enough given the very favourable price and stack to pot ratio in position.

Hero calls 3.5BB.

It should be noted that if stacks were smaller and say Villain had just 40BB, this would be a pretty easy fold due to the steep decrease in implied odds.

Hand 101

UTG – Hero
 HJ – Unknown
CO – Unknown Reg (24/18/6) (50 hands)
 BU – Unknown
 SB – Unknown
 BB – Unknown

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO raises to 9BB, BU folds, SB folds, BB folds, Hero?

One population read that will hold true in almost any player pool is that people 3-bet much tighter against UTG opens than they do in later position wars. This means that while **AKo** is an absolutely slam dunk part of most BU

vs. BB or CO vs. BU 4-bet/call ranges, it's going to be much less sound to use it for this purpose when Hero has opened from UTG.

The problem is that although Villain might be 3-bet bluffing sometimes, it's unlikely that he's shoving worse than **[QQ+ AK]** and this range might even be as tight as **[KK+]**. If Hero 4-bet and called it off here, he'd be getting it in with poor equity and not as much fold equity as he'd need.

4-betting **AKo** to fold to a shove is also a disaster as Hero turns a hand that is doing fine against the average 3-bet range into a bluff, making Villain fold most of his worse hands. In some cases Villain might shove **QQ** or **AK** and we'll have bloated a big pot to fold around 50% equity and this is a travesty.

Folding to the 3-bet is not terrible but does equate to Hero folding a humongous part of his opening range. This is okay as an exploitative adjustment in very passive or tight games, but is otherwise too unbalanced an approach.

The solution is to call the 3-bet with this hand, employing a very tight value 4-bet range of **[KK+]** and probably looking to use **AQo** as the 4-bet bluffing range that will fold to a shove from Villain. We care much less about surrendering the minimal equity that **AQo** has vs. a reasonable shoving range. It is in far worse shape than **AKo** is and so wasting it as a 4-bet fold is much less upsetting.

Hero calls 6BB

Hand 102

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Reg (34/29/9)

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU raises to 7.5BB, SB folds, BB folds,
Hero?

Again we're out of position and again we're going to have to accept that a lot of our range is just supposed to lose money here. At least our sizing is a sensible 2.5x making defending an easier task and folding a less -EV option.

Unfortunately calling is likely still on average worse than losing 2.5BB. Implied odds are poor given that Villain's range is fairly wide and Hero is out of position. We do flop some good non-made-hands to float with, but the positional disadvantage is crippling. Moreover, the second pair type hands that **98s** usually makes are going to be tricky to successfully get to showdown with if Villain is c-betting and barreling with a healthy frequency. Too often we'll be folding before the river post-flop. What we need to negate this positional disadvantage and make calling profitable is higher frequent strength and that's going to require larger hole cards.

Lower pocket pairs and suited connectors are very unplayable in this specific situation where position and implied odds are not in our favour and where we have no specific weakness in Villain's game to target.

It's also worth noting that this hand is not a suitable 4-bet bluffing candidate due to its non-existent blockers to Villain's value range. Why use a hand that

doesn't decrease the frequency with which our opponent has the nuts? We only have a finite amount of 4-bet bluffs in our balanced defence model so save the 4-bet bluffing for the blockers.

Hero folds

As a side point, the BU in the above hand is a nightmare to have on our left. He's not only 3-betting actively, but is cold calling a lot too and probably not playing anything close to fit-or-fold when in position post-flop. If Hero has no promising reasons to stick around, it could well be time for a table swap. I could sit to the right of one of my more solid students and I'd still expect to lose money. I might be their coach, but they have position! You need one enormous skill edge to show a profit out of position in the long-term, especially after rake.

11.5 Facing Squeezes

When we face a squeeze with around 100BB stacks, we're generally going to be folding more than we would vs. a standard 3-bet. This is due to the fact that the effective stack is smaller in relation to the amount we have to call and thus our pot odds and implied odds are cut. This means we'll need to favour frequent strength over implied odds. A hand like **KQs** or **JJ** will be a much better defend vs. a light squeezing range than **98s** or **77** will be.

As the Pre-flop Raiser

There are two roles we can be in when facing a squeeze: that of the pre-flop raiser (PFR) and the pre-flop caller (PFC). Generally speaking, we're going to have a much easier time defending more of our range when we are PFR as our opening range is uncapped. When we're the PFR, we have a choice between two balanced approaches when facing a squeeze. We can choose either:

- To develop a polarised 4-bet strategy and have a capped calling range.
- To have no 4-bet range at all, flat everything we're continuing with and thus have an uncapped calling range.

Let's have a look at a couple of examples, one for each approach.

When reading the HUD for spots where we face a squeeze, the stat: **Preflop Squeeze** will be useful where the sample is large enough. The interpretation of this stat functions similarly to **3Bet Preflop** but it takes longer to converge due to squeeze spots occurring less frequently than 3-bet spots. There is also a fair bit of variance concerning how many squeeze opportunities a Villain has had over smallish samples so be sure to hover your cursor over the stat to find this information. In common play where the sample size is smaller, Hero is advised to refer to **3Bet Preflop** and broad player type to get a feel

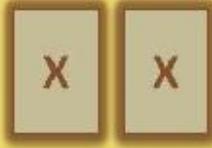
for Villain's likely squeeze tendencies - the **Preflop Squeeze** stat will not yet be reliable.

Have a look at [Hand 103](#) below and think about which of the two approaches above should suit best then try to construct a defence range for Hero. The third, (red) number on the HUD is as always **3Bet Preflop** - the most common stat you'll be using in squeeze spots unless you have thousands of hands on most players in your pool.

Hand 103

UTG – Unknown
HJ – Hero
CO – Aggro Fish (51/32/**6**)
BU – Unknown
SB – Reg (25/18/**8**)
BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, **SB raises to 12BB**, BB folds, **Hero?**

The first thing that might jump out at you here is that CO is a very fishy looking player who is quite likely to be continuing to this squeeze. This impacts Hero's decision in a major way. Essentially, post-flop will be far more profitable for Hero should he flat due to the frequent presence of this weaker player. This makes the EV of flatting any hand in Hero's range higher than it would be if he were just likely to be seeing the flop HU with the squeezer. This points to the second of the above two strategies being the correct one. Whether Hero has a nutted hand like **AA/KK**, a weaker frequent strength hands like **KQs**, or a hybrid implied odds/frequent strength hand like **TT**, calling seems best. When he has the nuts it will still be very possible to

stack the Reg on many flops and Hero gets the added bonus of being able to take advantage of the Fish stacking off too lightly.

Since Hero doesn't really want to 4-bet any of his range for value, having a 4-bet bluff range isn't going to be possible from a balance perspective. There is no incentive to start off madly unbalanced and only 4-bet weak hands unless Villain folds to a lot of 4-bets over a large sample. Having a 4-bet bluff range also isn't necessary from the point of view of meeting MDF for two reasons:

- Hero can flat a lot of his range since the CO boosts implied odds so much. If so much of Hero's opening range can be defended in this way, then the need to 4-bet bluff to meet MDF is diminished.
- CO's presence and tendency not to fold substantially relieves some of the burden of defence from Hero. Villain meeting his RFE on a light squeeze will depend not just on Hero folding but on CO folding too. This means that Hero does not have to defend enough of his own range to make Villain indifferent to adding light 3-bets to his range; the Fish mathematically helps out in this respect. Hero only has to make up the difference between how often the Fish folds and how often Villain needs both players to fold.

So the overall defence strategy should look something like this.

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



4-Bet/Call



Call



Fold

Figure 67 - Defence Range for Hand 103

Hero ditches the lowest implied odds hands with bad frequent strength, namely the smaller pairs and suited connectors. The larger suited connected broadways make fine defends due to how often they connect well. These hands also play reasonably nicely three way and flop well against the Fish's weak range. **AQo** and **AKo** just have too much top pair flopping power vs. both opponents' ranges to be folded. Finally, as discussed, Hero slowplays his big pairs in order to keep the Fish in the pot and because he has no need for a 4-bet range of any sort here.

Let's look at a spot where we should react to a squeeze using the first strategy as the pre-flop raiser.

Hand 104

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Tight Passive (24/11/4)

BB – Reg (26/20/8)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB, SB calls 1.5BB, BB raises to 9BB, Hero?**

This spot is very different to the last one. BB may well have a very wide and even polarised squeezing range here and the timid SB is likely to be folding most of his range to the squeeze. Also, Hero has his weak BU opening range and will be bearing the brunt of meeting MDF mostly on his own, expecting little help from the SB in the way of calls or 4-bets. All of this means that Hero should defend as many combos as possible and the best way to do this is to adopt a typical polar strategy with a 4-bet value range, a calling range then a 4-bet bluff range containing hands too weak to flat.

BB risks 8 to win 5 and so his raw RFE on a squeeze bluff comes in at 8 / 13 = **61.5%**. We can comfortably reduce this by 10-15% here due to the equity and other advantages Villain will realise with his 3-bet bluffs when Hero flats. Let's call Villain's adjusted RFE **45-50%**. If SB were never helping out with the defence, then Hero would need to be folding no more than 45-50% of his opening range. This would be a tall order indeed. Fortunately, SB is not folding 100% of the time on average and so will contribute a bit to reducing the EV of Villain's bluffs. Hero can therefore defend around 35-40% of his range to create a balanced defence strategy and leave the rest up to SB.

If it's just very +EV in a vacuum for Hero to steal wide from the BU here given that SB very rarely 3-bets and plays fit-or-fold post-flop, then it could be fine for Hero to intentionally underdefend his range a little as a default strategy against BB's 3-bets. The thinking is that the hands Hero opens and folds to 3-bets like **75s** are still comfortably +EV to steal with due to how little threat the SB poses. In this case, both Hero and Villain would be dicing up a share of SB's dead money in the long run and so Hero should feel less incentive to meet his MDF against BB's 3-bets. BB might be profiting by adding extra bluffs to his range in this case, but as long as Hero doesn't think he'll go crazy, then underdefending could be okay. Hero should only look to underdefend by a subtle margin though and should avoid opening obviously wide from the BU as BB is aware and likely to react by greatly ramping up his 3-bet % in the light of an out of line BU steal percentage.

Back to the squeeze spot in question. Hero will use a balanced ratio of 4-bet bluffs to value involving using slightly more bluffs than value hands, which makes Villain indifferent to 5-bet bluffing. The reason for this is that in a model where Hero 4-bets to around 20BB and 4-bet/calls a range like **[QQ+ AK]** to a shove, villain will usually need 50-60% fold equity to profitably shove marginal hands like **AQo**. Hero thus makes villain indifferent to making such plays by 4-betting the right ratio of bluffs (4-bet/folds) to value (4-bet/calls) achieving balance.

Let's run the math on this and find out how to calculate the RFE of a shove. Feel free to come back to this calculation later on as it's not mandatory for understanding the answer to the hand in question. For the math enthusiast here it is:

The RFE of a Pre-flop Shove

Technique: To calculate the RFE on a pre-flop shove we should calculate the EV of two different branches: the one where the other player folds to the shove and the one where he calls. We'll then use algebra to solve for the frequency of occurrence of each branch that would make the overall EV of the shove zero.

The Model Situation: In our example in Hand 103, Hero opens to 2BB, SB calls and BB raises to 9BB. Let's now imagine that Hero 4-bets to 20BB, that the SB folds and that Villain shoves for a total of 100BB (91BB more). We'll be working out Villain's RFE on the shove when he holds AQo and assuming that Hero 4-bet/calls with [QQ+ AK].

Branch 1 – Hero folds: In this branch Villain's EV is simply how much he profits by making the shove. Villain will win the pot which is 20BB (from Hero) + 2BB (from the SB) + 9BB (from Villain) = **31BB**.

Branch 1 EV = +31BB

Branch 2 – Hero calls: In this branch Villain's EV is the difference between his investment when he makes the shove and what he gets back on average from the pot. His investment is simply **91BB** – the amount risked. Villain's AQo has **24.42%** equity vs Hero's [QQ+ AK]. This is the percentage of the total pot that Villain gets back on average. The total pot is 100BB (Hero's stack) + 100BB (Villain's stack) + 2BB (from SB) = **202BB**. Villain gets back $202 \times 0.2442 = 49.3BB$ on average. Now we subtract his investment to find the branch EV. $49.3 - 91 = -41.7BB$

Branch 2 EV = -41.7BB

The Algebra: Let's call the frequency of branch 1 'X'. 0 stands for the break even point in EV. We want both branches added together to come out as 0 and we need to find the value of X that makes that the case. This can be solved manually or by using an algebraic calculator.

$$0 = 31X + -41.7(1-X)$$

$$X = 57.3$$

Conclusion: Villain's RFE on a shove is **57.3%** in this spot.

Hero will then call the 3-bet with all of the hands in his range that have decent frequent strength vs. Villain's range and fold the more implied odds geared hands that usually flop poorly. His strategy should look something like this:

AA	AKs	AQs	As	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	ITs	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



Figure 68 - Defence Range for Hand 104

This range equates to Hero defending 31.5% of his range, which is definitely a slight underdefend even with SB in the pot, reducing Hero's MDF. This is probably fine, however, given how +EV opening wide will be here in a vacuum. How might we fix it though if we were set on being perfectly balanced here? How could we get our defence frequency up to the 35-40% we'd need?

This strategy flats every hand that should be +EV to flat and so widening this flatting range is not a satisfactory solution as it involves making -EV defends. 4-bet bluffing more combos isn't a satisfactory solution either as it creates another type of imbalance. Widening the 4-bet/call range and then the bluff range by a similar proportion is possible, but this could lead to making some clearly -EV 4-bet/calls.

The solution then, if Hero puts balance before making good vacuum EV steals, is to open less hands in the first place and be folding less combos as a result. Indeed, if Villain were highly aggressive, then this would be the way to go as underdefending would be a big deal.

Poker is complicated! There is just so much to think about in even a seemingly simple spot like this one. Knowing how to defend adequately to aggressive 3-bettors and squeezers is a skill that takes practice, but once you've familiarised yourself with a defense strategy like this one, you'll make pre-flop decisions with much more ease and confidence. Bad results from theoretically good defends will tilt you less as you'll know they were born from a sound strategy in The Grinder's Manual.

As the Pre-Flop Caller

As the PFC against a squeeze, the burden of defence mainly rests not with us but with the PFR since he's the one with the uncapped range. Generally, we'll be 3-betting the very best hands that we can have in every position on the table vs. an open and will hence have a capped range in spots where we flat the open. This makes 4-betting as part of a balanced strategy impossible since we just don't have any value hands in our range in the first place. There are of course rare exploitative situations where someone squeezes so much behind us that we start flatting premium hands instead of 3-betting them and develop a 4-bet range, but more often than not we won't be doing anything like this.

Our decision then is usually purely whether or not we can call the squeeze. Expect to fold a lot of your range in these spots and accept that this is okay. We are not the ones being exploited as it's mainly the PFR's responsibility to ensure that Villain isn't printing lots of EV with light squeezes. If we've decided that our hand is +EV to flat an open with in a vacuum, then we've already considered that that we will get squeezed sometimes and won't always get to see the flop - it's part of our decision to call in the first place.

Now take a look at the following hand:

Hand 105

UTG – Unknown

HJ – Reg (21/17/**7**)

CO – Hero

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ opens to 3BB, **Hero calls 3BB**, BU raises to 11BB, SB folds, BB folds,
HJ folds, Hero?

Which hands could we profitably defend here assuming Hero's initial flatting range looks like this:

AA	A1s	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

Call Open CO vs HJ

Figure 69 - A Flattening Range CO vs. MP

Let's analyse each part of this range and see what we can continue with. As we noted earlier, MDF considerations will largely be ignored since our role is pre-flop caller and not pre-flop raiser.

Some hands that we certainly can't call here would be **[66-88]** as these have such poor playability and insufficient implied odds since we have to invest 8BB to see the flop. Getting back 80BB minus the pot which will be 25BB equates to us needing to win 55BB every time we flop a set to break even and this is too ambitious. **99** is borderline, but probably too weak to call and **[TT-JJ]** can be called fairly comfortably since they have some frequent strength to help out with the implied odds not being good enough on their own.

In terms of unpaired hands, the offsuit broadways will suffer from too much reverse implied odds here and will not flop well enough out of position. Even **AQo** should be a fold without the read that Villain is squeezing very wide indeed. As it stands Villain is unknown so we lack this read.

Finally, it's probably fine to flat the best suited broadways like **AQs**, **AJs** and **KQs** but only just. While these hands do suffer from some domination they also flop many more options for floating and semi-bluffing post-flop. Hero's calling range looks like this.

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

Call

Fold

Figure 70 - A Defence Range for Hand 105

11.6 Facing a 3-Bet cold

When the 3-bet is **Cold** to Hero, he has not invested any more than a blind when he faces that 3-bet. That is to say he is neither the pre-flop raiser nor a pre-flop caller.

His options in these spots are to fold, to **Cold Call** the 3-bet or to **Cold 4-Bet**.

Recall that, technically, the blinds are the 1-bet, the open the 2-bet and then the re-raise the 3-bet. In the following spots Hero has invested no more than a 1-bet when the 3-bet reaches him.

Reacting Cold In Steal Spots

Steal spots are those where the opener has raised from the CO onwards. Since opening ranges are generally wider in late position, it's more commonplace for light 3-betting to occur there.

Let's look at an example. Think about what Hero's strategy should look like in the following spot. What hands, if any, should he cold call and cold 4-bet? We'll aim to come up with something balanced since we have no obvious exploitative reason to deviate from a defensive approach.

Hand 106

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Reg (31/24/**8**)

SB – Reg (25/19/**7**)

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 2.5BB, SB raises to 8.5BB, **Hero?**

The first thing to note is that Hero has no burden to meet any kind of meaningful MDF in this spot. It is not his open that is being attacked but that of the BU. Strictly speaking, Hero has some mathematical duty to defend his 1BB a tiny amount of the time here against the 8.5BBs that are being risked to win it, but we'll ignore this side of things in these spots as the vast majority of the burden of defence rests with the BU. It is primarily his strategy and not Hero's that determines how profitable SB's light 3-bets will be. Hero will be folding the vast majority of his range facing this action; this is normal and not exploitable.

That said, Hero is not stuck in fit-or-fold city. He should expect the average 3-bet range from a 7% 3-bettor to be quite wide, especially SB vs. BU and so should be able to claim some fold equity here. BU's range is wide and will have to fold very often in the light of a cold 4-bet. We can thus state our first guiding fact about how Hero should play this situation.

Hero should have a 4-bet bluff range.

Since we should be starting out balanced here barring some extreme population read about how people react to cold 4-bets, and given we have 4-

bet bluffs in our range, we can assert:

Hero should also have a 4-bet value range.

Now what about having a cold calling range in this spot? There are some pretty big disadvantages to calling here:

- Hero has poor pot odds.
- Hero is not closing the action.
- There is an uncapped BU range waiting to act behind Hero.

This doesn't necessarily mean that calling is -EV in a vacuum with every hand, but it will certainly be difficult to defend a capped range like [99-JJ AQo AJs-AQs KQs]. For this reason, I prefer vs. competent opposition to 4-bet or fold my range in this spot. Calling to fold to a 4-bet with all of these hands is very undesirable.

By calling, Hero would be investing a full 7.5BB cold to not always see the flop and struggle with a capped range against an uncapped range post-flop. The latter is a problem we often faced in the non-cold 3-bet spots earlier in this chapter, but the difference there was that we'd invested an open and were hence getting a better price to call the 3-bet. In this hand with only 1BB invested, our pot odds just don't really justify calling with the aforementioned disadvantages in play.

If I called a range like the one above here I'd also want to call [QQ+ AK] to balance and I'd much rather have those hands in my 4-bet value range. Having accepted this, we can assert the third and final truth about our strategy.

It's preferable for Hero not to have a cold-calling range here.

Our complete strategy, then, should look something like this.

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



4-Bet/Call



4-Bet/Fold

Figure 71 - A Strategy for Hand 106

The ratio of value to bluffs is a snug 40 value combos to 48 bluffs. This range is nicely balanced and avoids the perils of flatting in this situation. Just a couple of disclaimers:

- These bluffs are selected with full priority to blockers. The assumption is that our cold 4-bets won't be getting flatted all too often, but if you play in games where Regs defend to 4-bets by calling a lot then you should look to use more hands that flop well and less offsuit big cards.

If the Reg population calls 4-bets far too much, then we shouldn't be bluffing in the first place.

- 4-bet calling **JJ** and even **QQ/AK** could be marginal or even bad in very passive microstakes games where cold 4-bet bluffing is rare and Regs just give it a lot of respect. In these sorts of games we need to increase our bluff to value ratios and avoid 4-bet calling it off too lightly as we'll be crushed when we get it in. In such games it's more sensible to develop an even more polar strategy where we then need a calling range to accommodate hands like **JJ** and **AKo**.

Reacting Cold In Non-Steal Spots

In non-steal spots, the open has come from either UTG or the HJ and the resulting opening range is likely to be much stronger. Regs who 3-bet against these opens typically have fewer light 3-bets in their range, are less likely to be shoving over 4-bets light and will definitely respect cold 4-betting a great deal more. It therefore becomes increasingly difficult for Hero to cold 4-bet anything but the nuts for value and this is even more the case when the 3-bettor is not very aggressive or if the player pool just typically underbluffs against early position opens. Even as I write this in March 2016, there are still a fair few Regs at games like 50NL, 100NL and 200NL that 3-bet exclusively for value in these spots.

Look at the following example. How might Hero want to play his range in this spot?

Hand 107

UTG – Reg (19/16/5)

HJ – Reg (20/16/7)

CO – Unknown

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ raises to 9BB, CO folds, Hero?

The upshot of the tight ranges in play here is that Hero has almost no incentive to cold 4-bet bluff since he'll be needing somewhere around 60% FE from a 3-bet range that might often consist of nothing but nuted value hands. Moreover, the UTG opener will have the top hands much more often than BU did in the hand before. Due to his likely bad equity should stacks go in pre-flop, the only hand Hero should feel thrilled about cold 4-betting for value would be **AA** and this is a very small value range indeed and would lead to a ridiculously unbalanced strategy.

The solution? 4-bet nothing! Hero doesn't really want a 4-bet range of any sort and he can leave his calling range uncapped thereby protecting the likes of **JJ**, **QQ** and **AK** with his powerhouse **KK+** combos. The strategy looks like this:

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

Call

Figure 72 - A Strategy for Hand 107

It might seem extreme to be playing such a tight range here and only for a call, but remember that Villains' actions have narrowed their ranges immensely especially in these positions. Calling 9BB cold does not afford us the implied odds to mine with any lesser pocket pairs that lack frequent strength and to play any big cards worse than **AK** would lead to far too much domination. In fact, in very passive games, hands worse than **KK** can quickly become folds in this spot where we're facing the nuts insanely often.

Two very different cold spots call for two very different approaches.

To summarise, in Hand 105 we have sufficient fold equity to desire a 4-bet bluff range, we can get in a wider 4-bet value range as ranges are in general

wider and more aggressive, and we don't really want to have to call a capped range for those poor pot odds.

In Hand 106, fold equity is much worse and so bluffing becomes undesirable, getting in **AK** or **QQ** will lead to being in much worse shape vs. more nutted ranges, and we don't have to call a capped range due to our lack of 4-bet value range.

Chapter Summary

Facing 3-bets doesn't have to be so daunting. Hero can take comfort in the fact that in every spot he has a range and not just one set of hole cards. There is no urgency to defend the very hand in question if it falls in the lower part of his opening range. Building some strategies for common spots where you face a 3-bet is a great way to make yourself secure in how you should react and takes the pressure off in the moment of decision. Such clarity also reduces tilt caused by uncertainty and builds confidence for the rest of your poker career.

I advise you to review many of your own hands that fit the spirit of this chapter and devise some defence ranges for the many spots that were impossible to cover here due to space constraints. Hopefully you've now learned the exploitative procedure of adjusting to overly light and overly tight 3-bettors as well as developed a feel for what balance defence looks like for those opponents who fall in between.

In [Chapter 13](#) we'll look at how to play post-flop in 3-bet pots. We might know what hands to 3-bet and call 3-bets with in different spots, but what do we do after that?

Before we get to that though, it's time to take a closer look into bluffing the turn and river in general. We need to know the principles of selecting our bluffing hands and ranges before we are ready to 3-bet, and then triple barrel bluff our stack off.

12. Bluffing the Turn and River

We discussed c-bet bluffing way back in [Chapter 4](#) where we were striving for fold equity against a wide range that had usually missed the flop. In this chapter we'll start off by discussing:

- Which parts of our range make sense to continue bluffing on the turn and river after our light c-bet gets called.
- Delayed c-bets and double delayed c-bets.
- Spots where we did not have the initiative pre-flop and wish to stab the turn or river after previous streets checked through.
- Bluff raising vs. river bets.

The lines in this chapter are fun and feel good to successfully pull off, but we must remember that the success of a bluff often depends on variance and which part of Villain's range he happened to be holding. It's essential that we work out what constitutes a good bluff so that we can identify them as such independently of results. As always, results over small samples are a terribly unreliable way to measure the EV of a play. The temptation to feel like a poker god due to one bluff getting a fold is an important one to resist!

12.1 Double Barrel Bluffing

Hero **Double Barrels** when he c-bets the flop and then bets the turn. A **Double Barrel Bluff** is the same thing as a light turn c-bet. Hero's intention is to realise fold equity either immediately, on the river, or both.

As we know well by now, there are two ways in which we can view poker decision-making:

- We can look at what is going to yield the highest EV in a vacuum and do that.
- Or we can develop what we think is going to be the highest EV long-term strategy with our range.

To recap, we're inclined to take the first approach vs. unaware Fish who will not adjust well to our strategy being unbalanced, and also in spots that are very rare and don't recur often enough for Villain to get an idea of how we're playing. We take the second approach where Villain is more competent and capable of exploiting an unbalanced vacuum orientated strategy; and in spots that recur so frequently that even the less skilled type of opponent will see obvious patterns in unbalanced strategies and react in some way that is undesirable for us.

Double Barrel Bluffing in a Vacuum

Let's start by talking about what makes a hand good or bad to barrel the turn as a bluff with in a vacuum.

The following table contains good and bad turn barrel bluff factors and is divided into two sections: one for Regs and another for Fish. These spots revolve around how much fold equity is available and so it's worth making

this broad distinction in player type as it affects fold equity to such a great extent.

Against Regs		Against Fish	
Good	Bad	Good	Bad
Turn card improves Hero's range	Turn card does not improve Hero's range	Turn card seems scary	Turn card does not seem scary
Good equity	Poor equity	Good equity	Poor equity
River fold equity	No river fold equity	There are scary river cards	There are no scary river cards
Tight Reg	Warring Reg	Passive Fish	Station or Aggro Fish
Low Fold to F CBet	High Fold to F CBet	Low Fold to F CBet	High Fold to F CBet
No SDV	SDV	No SDV	SDV

Figure 73 - Turn Barrel Bluff Factors

Factor 1: The Turn Card Itself

This factor like many of the others has been worded differently for the two broad opponent types Hero is likely to face. A competent Reg can usually understand in greater detail how a turn card affects Hero's flop c-betting range. While obvious scare cards like big overcards to low boards and those that complete flushes will improve a lot of Hero's bluffing and semi-bluffing range on the flop, the Reg understands that Hero's range can strengthen in other ways too. To be more precise, a Reg has a greater understanding of the turn textures that reduce Hero's air combos.

Most weaker players struggle to accept the fact that Hero has a range of hands with which he takes certain actions and try to jump straight to putting Hero on an exact hand; their reasoning, or lack thereof, takes forms such as:

"He probably has the flush now. This always happens to me."

"I put him on AK so I fold"

Or

"He's trying to represent the ace so I call."

Take the following texture for example:



When Hero c-bets this flop BU. vs. BB and then fires again on the **9d** turn, a Reg will usually understand that Hero now has less air than he had on the flop. This card improves Hero's **JT** to a Straight that he is now value betting and hands like **J9** and **T9** have now picked up SDV and no longer need to bluff. Hero has less air on this turn than he'd have on the **4s**. It is likely that Hero's fold equity vs. a hand like **A8** has improved substantially on this turn card against a competent Reg.

Against a Fish, however, fold equity may not improve so much. The turn is not obviously bad. It's not a big scary **A** or **K** and so many weaker players might refuse to fold **A8** here since **AK** (or whatever exact hand they've decided Hero has) didn't get there.

The point is that we shouldn't expect Fish to understand how our range strengthens and then act accordingly. It's generally a bad idea to bluff too many turn cards vs. Fish as when they call the flop, they usually have a piece that they like, unless the texture has changed in some dramatic way. We should expect them to fold on texture changing turns less than Regs do and

only in the more obvious spots. The following two textures are exceptions and ones where we should definitely expect more fold equity vs. Fish and can expect our bluffs to be a bit more successful.



This turn card is more blatantly frightening to a Fish. You might see them fold second pair here because there are very illogical but easy to find inferences available to them such as:

"My opponent has AK."

Or

"He's probably hit that A."

Or

"That card really sucks, I know I was good on the flop. He got lucky"

In reality, the Fish is dramatically oversimplifying by trying to psychically read our exact hand, but it generates us some fold equity nevertheless. Conversely, a Reg is actually very unlikely to fold **9x** here since he expects Hero to bluff this turn quite often and probably realises that there is a lot more air in Hero's flop betting range than just **Ax**. He sees the bigger picture.

There's one other common turn spot in which Hero can generate some turn fold equity against Fish:



The flush completing is the other time when Hero might venture a turn semi-bluff against a Fish, preferably when he holds a club to both give him more equity and block Villain's nutted combos. Fish are always losing players. They lose more big pots than they win and go to showdown too much. As Regs tend not to bluff them, they also end up losing at showdown the vast majority of the time they try to bluff catch. As a result some Fish may be justifiably pessimistic and say:

"I've been burnt by a flush so many times in this spot."

Selective memory of bad beats also adds to this effect making the Fish more likely to fold this turn card than most others. That said, there are stationary Fish who will fold almost never on this turn having called flop and recognising those players and refraining from bluffing them is very important.

Regs will fold more on this turn card too, but the better ones will understand that flushes are a smallish part of Hero's range. A Fish might just see red (or green as it is here) and freak out.

Though Hero gains more fold equity on average vs. Fish in the above two spots, it's still very unpredictable how a Fish will react to a turn card that changes the board texture, but one thing is true: non-texture-changing turn cards will almost never cause a Fish to fold much of his flop calling range.



In this spot, 90% of Fish are folding an absurdly small percentage of their flop calling range. After all, why would they fear the **2d**? It's a perfectly harmless turn card right?

A Reg on the other hand, if he's competent, will realise that just because the turn card doesn't affect the board texture doesn't mean that Hero's betting range does not contract. In fact, should Hero barrel a meaningless turn like this one, it's likely that his range has strengthened considerably from the flop.

To summarise, when readless against Regs, Hero's betting range should contract from the flop to the turn regardless of the turn card. On turns that improve his range however, there is less need to shrink the betting range by such a great margin. If the turn card makes Hero's range stronger, then he naturally has more value hands available and can add more bluffs as a direct result. If the turn card does not create extra value combos within Hero's range, then he cannot bluff so much, but that is not to say he should give up all the time without a made-hand. Bluff this turn with a close to balanced range against standard or unknown Regs and favour higher equity hands when you do, but be inclined to adopt an exclusively value based strategy against Fish until you learn that they're of the rarer breed that can actually fold some weak pair or draw here.

Factor 2: Equity

As we know, equity when bluffing is immensely important. The greater the chances of improving to the best hand when called, the lower true RFE will be and the higher EV the bluff becomes. Bluffing selectively with equity on the turn achieves a few things:

- Hero can win not just the pot should he get there on the river but an additional bet into a pot that's now a healthy size. This implied pay-off improves turn RFE further.
- By betting the turn with some pot equity, Hero gets to see the river and realise his full equity with hands that he'd have to check/fold out of position if he'd checked due to insufficient pot odds and SDV.
- Hero uses the amount of equity he has as a way of controlling his turn barrel bluffing frequency, ensuring that his range remains somewhat balanced where this is desirable.

Let's take a look at an example of using equity to bluff turns. The third (red) number is **3Bet Preflop**. The fourth (purple) number is **Fold to F CBet**.

Hand 108

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Reg (24/20/7/52)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 2.5BB**, BB calls 1.5BB.

Flop (5BB, 2 players)



Hero bets 3BB, BB calls 3BB.

Turn (11BB, 2 players)



Hero bets 8BB

With no pot equity and no +EV plans to barrel the river, Hero's RFE would be $8 / (8 + 11) = 42\%$. However, when we consider the fact that $12/46 = 26\%$ of river cards make Hero a very strong, almost nuted hand, the situation improves massively. On J or heart rivers Hero does not just earn the pot as it stands, but makes on average his river bet size divided by Villain's calling frequency on top of the pot. This makes fold equity almost totally unnecessary on the turn. Okay, we'll need a little sliver of fold equity, which should be very achievable, but not much at all and far less than the 42% that raw RFE suggests.

This is also a turn on which Hero's range doesn't improve too strikingly. As a result, Hero doesn't have the luxury of bluffing really wide out of position and so restraining his bluffs to hands with good equity like this one helps balance his turn betting range, keeping his bluffing frequency in check.

Factor 3: River Fold Equity

On some textures we can expect Villain's turn calling range to become quite a bit weaker on a good amount of river cards. These are usually textures where the river will fairly often be a card that improves a sizable part of our range - either an overcard or some other type of scare card. Let's take a look at some turn textures and assess how many good river cards there will be to bluff and how strong Villain's turn calling range will be on average on the river.

With the following examples, we'll be assuming that Villain is a Reg. As we've already established, it's not so advisable to start attacking a Fish with bluffs on the turn and river unless we have good equity. When we're on the river, our bluffs will have exactly zero chance to improve since there are exactly zero cards still to come. For this reason we generally avoid bluffing Fish on the river, though there are a few exceptions.



This is a board that affords little opportunity for texture worsening river cards. Even those that make straights possible in our range can also provide a reasonable chunk of Villain's range with two pair. It's not to say that Villain is always calling river when he calls turn, but aware players will know that Hero's range has not improved at all on most river cards. This means that all the air that Hero reaches to the river with is still air. For this reason, Hero can't be bluffing too crazily here without the read that Villain rarely gets to showdown. Against more stationary populations, Hero should even look to underbluff his range on this river since folding top pair is rarely on the agenda for calling stations on boards this dry.

Hero needs to bear this in mind when betting the turn. He should preemptively adjust to the fact that there are few river cards that significantly boost his fold equity by having less bluffs in his turn betting range in the first place, particularly if those bluffs have no equity at all (eg. **8h7h**).

Moreover, Villain is not very likely to get to this river with too weak of a range. There are likely no draw or pair + draws that he calls turn with. **Kx** may or may not call turn and so Villain ends up on the river with a range weighted considerably towards top pair and better. The less weak hands there are in Villain's river range, the less fold equity we'll have there and the less inclined we are to barrel the turn lightly.

Again, I'm not advising betting the turn solely for value; we're still allowed to have a bluffing range, but this is one more factor that we need to consider along with the others.



This board is a different story. Villain's flop calling range could contain many small pairs and pair + gutshot hands as well as flush draws. That Jc on the turn improves a good amount of our flop air range to top pair. While Hero can have **club/club** combos in abundance, Villain shouldn't be calling too many combos of these hands on the flop due to them not having any SDV. The upshot is that Hero should expect increased fold equity on any river that completes either flush or puts out a second overcard to the flop. Hero's air range is shrinking on a lot of run-outs and this puts pressures on Villain's range.

Moreover, Villain can make it to the river with a lot of weak hands himself on this texture. He might have some unimproved A high flush draw that we need to bluff against with our air or some minnow pair to which there are now two or three overcards. Hero can use future fold equity to have a wider

turn barreling range and take more combos of bluffs to the river, especially those with decent equity.



This is not a texture where there will be lots of overcards to Villain's flop calling range, but it is a texture on which he'll be enticed to call a lot of one pair hands on the turn. Most of Villain's one pair hands now have some kind of gutshot or open-end straight draw to boost their equity. On bad river cards like a 9, Q or A, these hands become nutted, but on the majority of rivers these hands will go from pair + draw to just one pair on a pretty scary texture. On the previous board, Hero's fold equity improved on dangerous rivers. On this board it improves on safe rivers!

Villain's range simply weakens a lot on blanks and so Hero should be more inclined to have a bluff heavier range on these river cards vs. the average Reg. Hero's own range doesn't contain too much air given how much of his pre-flop raising range contains a K, J or T or is now a straight. Hero can again predict that all of this will be the case on the turn and be inclined to barrel more semi-bluffs there in anticipation of river fold equity.

Factor 4: Villain Type

We've already made the distinction in this chapter between barreling turns vs. Regs and vs. Fish. Now I want to hone in on some different variations of these two broad player types and see what they mean for our turn barrel ranges. I'll provide some guidelines as to which stats and behaviours might help us to detect each player subtype and then discuss how we should exploit them with reference to barreling the turn.

A: The Fit-or-fold Reg

Detection: These are players who generally run on the tighter end of the VPIP/PFR Reg spectrum. A player with stats of 19/16 is much more likely to be fit-or-fold post-flop than someone running 28/21. The former is choosing to enter pots mainly with the initiative and with a stronger range of hands pre-flop which implies that he likes to be the one seeking fold equity and is not a fan of being on the wrong side of aggression.

These players will often have a high **Fold to PF 3Bet After Raise** ([See here](#)) stat of around 65-75% (Any higher is absurdly fit-or-fold.)

Two other stats that can help us here are **WTSD** and **WWSF** ([see here](#)) The former being less than 25% or so indicates that Villain folds a great deal before the river and is somewhat of a showdown Nit.

Non-stat based clues for this player type could be observations such as Villain not making an easy bluff with no SDV on the river, or checking back zero SDV for three streets as pre-flop raiser on a very bettable texture. This kind of player is not winning anywhere near his fair share of pots and we'll see this in his post-flop play whether or not he had the initiative pre-flop.

Implications: Against the fit-or-fold Reg, we should look to apply more pressure by widening our bluffing ranges on the turn and river. We can then accept lesser equity hands as bluffs and even start to turn more of our SDV into a bluff since it can fold out more hands that it loses to at showdown than it could vs. the average Reg.

B: The Warring Reg

Detection: The warring Reg is the type of Reg who 3-bets a lot, goes to SD more often (27%+), has a higher than average **WWSF** of 50%+ and folds to less 3-bets. You might see this player 4-bet absurdly wide at first to establish his image in a Reg war or make calls that equate to calling a huge portion of his range as he fears being bluffed more than actually losing money. Warring Regs often have huge egos; they might rage in the chat or act very quickly. Their 3-bet numbers are rarely less than 7% or so.

Implications: Hero wants to tighten his bluffing ranges vs. this player and look to have a value heavy turn c-bet range. As I've advised before against

overly unbalanced aggro players, do not fight fire with fire. Just because Villain is refusing to fold more than 10% of his range doesn't mean that we should. In fact, if we simply tighten up, stop bluffing and expand our value ranges, we'll do very well to exploit this guy.

C: The Timid Fish

Detection: This player usually has a large gap between VPIP and PFR and these numbers are usually less insane than with stationary Fish. Timid Fish are more likely to appear as 41/9 or 34/11 than 76/8. These players typically have a low 3-bet stat, a high fold to c-bet of around 60% or more and very rarely get out of line. They want to see the next card and will call a street with some lousy pair or draw; big pots scare them when they don't have a strong hand.

Implications: There is more fold equity vs. this player type than you might expect against the average Fish, but Hero still needs to be very conscious of board texture. Big overcard turns, flush cards etc. will boost fold equity significantly, but don't expect these players to lay down **88** or even **A9** because you bet twice on **4422**.

D: Non-Timid Fish

Detection: These are the Fish that don't fit the above description. There are many forms of these players and a recap fish types in [Section 3.3](#) will serve as some useful revision at this point. Players who run 80/45, 55/7 and 49/36 will all fall under this bracket.

Implications: These players strongly dislike the fold button. Their stats show a larger propensity to throw money into the pot in one form or another and so even on board texture worsening turns, fold equity may well be limited.

There are other factors that determine when Hero can make exceptions to the **don't bluff Fish on the turn and river** rule. Recent history, dynamics, Hero's image and other meta-game factors will also affect how much FE is up for grabs.

'Meta-Game' is the term used to describe the dynamically changing understanding between Hero and his opponent. It encompasses what each thinks about the other's game and how each is likely to react based on this as well as how each player can capitalise on this state of affairs to anticipate exploit, or cause mistakes in his opponent.

Just because a certain Villain is playing one way against the population does not entail that he is playing this way against Hero where there are meta-game factors present. For example, if Hero has just won a huge pot from a Fish by the Fish folding on the river, he should expect much less fold equity the next time round. Fish tend to react in very predictable, obvious ways. It is rare for them to think on a higher level when reacting to the meta-game and hence Hero can usually win the mental battle by anticipating the obvious response, and when unsure, expecting fold equity to decrease as the session goes on, especially if the Fish is losing.

Factor 5: Fold To F CBet

A player's **Fold to F CBet** stat can be a useful indicator of how often he floats and chases the flop lightly ([see Chapter 8](#)). With the exception of some of the very stationary players described above, Villains who call flop c-bets with a very wide range will find more folds on the turn, even where that card is not a big texture changer. Their ranges are just weaker to begin with when the turn card comes down and so Hero needs less of the other factors to be favourable in order to bluff lighter than he normally would.

Competent Regs normally float flops quite wide in position. It's natural to balance your strong flop calling hands with some weaker ones that expect future fold equity, especially when in position vs. wide ranges like in BB vs. SB battles. This means that Hero must not play turn cards in a fit-or-fold manner where Villain is likely to be capable of floating wide. Hero must make sure that he doesn't c-bet the flop too wide and that he continues bluffing enough of his range on the turn to stop Villain's floats from being easily profitable, even on safe turns that don't change the texture.

The wider Villain floats the flop, the more unbalanced towards bluffs we should be on the turn. If in doubt, balance is a healthy starting point. Having a roughly even ratio of bluffs to value in your turn barrel range often equate to a balanced strategy on the turn as we'll come to see later in [Chapter 13](#).

See [here](#) for a recap of how to interpret the **Fold to F Cbet** stat.

Factor 6 - SDV

SDV has been a very frequently recurring factor throughout the manual. The trend is clear: the less SDV Hero has, the more inclined he should be to bluff provided there is the expectation of some fold equity. Bad showdown value hands gain much more EV than good SDV hands do by bluffing since they almost never win the pot unimproved at showdown. The fold equity that a bluff or semi-bluff reaps for low SDV hands is precious as it turns a hand that usually loses into one that wins X% of the time where X is fold equity plus any sliver of SDV Hero might pick up on the river.

Hands with greater SDV don't jump so drastically in EV when they bluff. If a hand already wins 40% of the time without fold equity, it is not much use to make 40% of Villain's range fold. That 40% is almost certainly the same chunk that Hero was already beating at showdown. Hero does however, in the process of turning the hand into a misguided bluff, lose more money against the stronger parts of Villain's range that aren't folding.

Example Turn Spots

Let's put what we've just learned into practice and decide whether or not Hero should continue bluffing or semi-bluffing the turn in the following three hands.

Hero's HUD reads the same as before.

Hand 109

UTG – Hero

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Reg (32/24/**12**/46)

BB – Reg (21/17/**6**/48)

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO folds, BU folds, **SB calls 2.5BB**, BB calls 1.5BB.

Flop (9BB, 3 players)



SB checks, BB checks, **Hero bets 6.5BB**, SB calls 6.5BB, BB folds.

Turn (22BB, 2 players)



SB checks, **Hero?**

Flop: Hero's flop bet is not necessarily best. This hand does have a huge slab of equity and so building a bigger pot can never be a bad thing. That said, Hero also has a fine bluff catcher with SDV and one that loves a good amount of turn cards due to the flush draw. Don't rule out checking this flop back to protect our checking range on club turns and because it just makes a lot of sense with a versatile and strong hand, but one that's not miles ahead when its c-bet is called. Checking flop would be my first choice especially without a Fish in the pot against whom balance is unimportant and value more urgent. As it is, we will very often have the chance to get one to two streets of value unimproved on the turn/river anyway and it's not that common

that we get three streets from a worse hand three way vs. two Regs, even on flush completing cards, though admittedly, it can happen. In any case, Hero bets flop here and now faces this turn decision.

Turn: This turn is a very easy check. With a Fish in the pot however, Hero should be swayed towards betting for thin value/pot building because he is further ahead when called and incase he gets there on the river since a Fish is more likely to pay off a big bet in a big pot on a flush river. To bet this turn vs. the Reg is probably not to put money in with great equity. Checking back here allows Hero to make a more informed decision on the river if he does wish to make a thin value bet there facing a genuinely range capping check by Villain. He can also find a fold should Villain bet the river as there aren't so many missed draws in villain's range when AcXc makes top pair and Hero blocks so many other flush draws.

The mistake my students sometimes make here is to reason:

"The A is a good scare card so I should barrel."

A good scare card against what exactly? Worse hands, which we beat at showdown anyway for the most part. This is the problem with bluffing reasonable SDV: our hand doesn't gain enough EV to justify the loss of additional money when Villain has a better hand - here AQ or a set.

Hero checks.

Hand 110

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Reg (27/21/5/50)

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU calls 2.5BB, SB folds, BB folds.

Flop (6.5BB, 2 players)



Hero bets 4BB, BU calls 4BB.

Turn (14.5BB, 2 players)



Hero?

The flop is a very easy c-bet with no SDV, very solid equity when called and a texture on which fold equity, while not great, is far from dreadful (villain is unlikely to fold any pair or Ax but can fold weaker hands).

This turn presents a dilemma: it changes nothing and Hero would expect to have almost no fold equity against a Fish, at least not on the turn alone and so would need to choose between checking back or running a three street bluff to dislodge A-high and some bad pairs on the scarier rivers. Against the Reg though, firing turn is very reasonable regardless of whether or not Hero elects to bluff river too. Reasonable players will float this flop pretty wide

in position with both A-high, which has a gutshot, and with two overcards with a backdoor flush draw, which has reasonable floating prospects in position. Villain's range, unlike the Fish's, is likely to narrow by a meaningful margin in the face of a turn bet by Hero. Hero's equity plus fold equity will be sufficient for a semi bluff to be +EV.

From a balance point of view, if Hero is not betting a seven high hand with at least 8 outs vs. the bulk of Villain's continuing range as a bluff, then it's not clear what hands he is bluffing on this rainbow turn card where most of his light c-betting range is starved of equity (Hero should elect to check/call this flop with many of his AJ-AK type hands that have SDV + chances to improve). From a balance standpoint then, this hand has to fall into Hero's turn bluffing range, or else there's nothing to balance all of those combos of overpairs, full houses, and straights. Indeed Hero should bluff worse equity hands than this too since he has plentiful value hands here.

Hero bets 11BB.

Turn sizing should generally be large in single raised pots - somewhere between two thirds and three quarters of the pot. This is because Hero wants to exert significant pressure and combat the fact that Villain often has both SDV and equity to improve his hand by the river. Hero's value hands also want to build a large pot so they can get more of the effective stack into the middle by the river. Betting turn half pot here would only serve to improve the EV of Villain's calling range, get less value when Hero has the nuts and give Villain an easy time calling the vast majority of his flop range profitably vs. our turn betting range.

Hand 111

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Unknown

BB – Whale (76/32/14**/25)**

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 3BB**, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero bets 3BB**, BB calls 3BB.

Turn (12.5BB, 2 players)



BB checks, **Hero?**

Hero's flop c-bet is close to a value bet. This Villain is incapable of hitting the fold button and so betting AJ high has a few nice advantages:

- Villain can call dominated and crushed hands to the c-bet.
- Villain will have a pair relatively infrequently.
- Hero gets to protect his equity if Villain does decide to fold.
- Should Hero turn an A or J, he has a huge hand relative to Villain's range and can happily value bet for pot on the turn and river.

Checking is a close second choice on the flop since Villain may well be inclined to bluff turns and rivers very wide. Hero should plan on calling down vs. this player type if he elects to check flop.

This is one of the turn cards on which we can sometimes make an exception to the do not bluff Fish on the later streets rule. Unfortunately, there are limits to these exceptions and we have to draw the line at stationary maniac whales. While a more passive Fish will fold **65** and **77** here very often on the turn, this player is unlikely to.

Since Hero's flop bet often gets called by worse hands, he also has some SDV here that he would never have vs. a tighter player on this texture and with this action. Value has also run out by the turn and Hero can no longer expect to get called by enough worse hands since this turn card improves a portion of Villain's range and probably makes very bad hands like **Ad4d** less likely to call. Checking is now the only option with no fold equity and with pot equity being insufficient to bet for value.

Hero checks.

12.2 Triple Barrel Bluffing

Hero **Triple Barrels** when he c-bets the flop and turn and then bets the river when called. A **Triple Barrel Bluff** is the same thing as a light river c-bet. Hero's intention is to realise fold equity.

In this section we'll quickly run through the factors that make rivers good to triple barrel as a bluff in a vacuum, but there'll also be a bit of thought to range building from a balance perspective. One very common mistake made by Regs at the microstakes is to have an exclusively value weighted range when they fire the third barrel. This tendency is very suboptimal where there is the expectation of sufficient fold equity both in a vacuum and as a long-term strategy.

Against Regs		Against Fish	
Good	Bad	Good	Bad
River card improves Hero's range	River card does not improve Hero's range	River card seems scary	River card does not seem scary
Tight Reg	Warring Reg	Weak Passive Fish	Station or Aggro Fish
No SDV	SDV	No SDV	SDV
Hero blocks Villain's river calling range	Hero blocks Villain's river folding range	Hero blocks the strongest hands in Villain's range	Hero blocks the weakest hands in Villain's range
Villain's turn calling range got weaker	Villain's turn calling range is still strong	Villain's turn calling range got weaker	Villain's turn calling is still strong

Figure 74 - River Barrel Factors

The first factor is identical to that described for turn barreling, it's just that now Hero's range can only have been improved by making a made-hand not by making a draw. Having four cards to a flush is not so much use with zero cards still to come.

Rivers are scary for Fish in the same way that turns are. Overcards complete the **AK** (a hand Fish love to assume their opponent holds) and flush cards complete flushes. That said, Hero has to be more careful when bluffing random Fish on rivers as showdown is tantalisingly close. Many Fish will just click call with their bluff catchers knowing that they get to see Hero's hand immediately without having to invest any additional money on the next street. As a result, river fold equity vs. Fish is generally a lot lower than on

the turn. It is for this reason that Regs at the microstakes are very used to adopting unbalanced, value-heavy river betting ranges. These work very well against Fish but are very exploitable against more solid players.

Player type is relevant in the same way as it was on the turn as is SDV. Now however, there is no such thing as betting for protection. With no more cards to come, Hero doesn't care about betting vulnerable hands to protect their equity in the pot, therefore all SDV is good SDV and any SDV gives us more incentive to check and not bluff when we can't value bet.

The next factor is the newest and most complex one in play here. Since river triple barrels are bets made for fold equity, Hero wants to reduce the combos that Villain is likely to call him with by blocking those and increase the combos that Villain is likely to fold by **not** blocking those. Take the following texture for example:



Imagine that Hero has c-bet the flop and turn without a made-hand and is now considering bluffing the river, which hand do you think is better to bluff with: **AhJs** or **8c5c**?

The answer is **AhJs**, by a mile. It blocks loads of Villain's potential flushes as well as **KJ** and these are all hands that are probably never folding the river. Sure **8c5c** has less SDV in absolute terms, but note that both of these hands have roughly the same SDV relative to Villain's range (none) which is likely to be exclusively one pair and better on this specific run out after he calls two streets.

Hero should expect a lot more fold equity when he holds **AhJs**. Therefore, if he arrives at the river and is trying to decide which turn bluffs to bet and which to give up on in order to stay balanced, this factor will help him

decide. It is also very possible that **AhJs** is +EV to bluff with in a vacuum as Hero meets his RFE, but that **8c5s** is not because he doesn't.

Against fish, I've worded this factor slightly differently because while it's very possible to accurately estimate whether it is a Reg's calling range or folding range that Hero is blocking, it's more difficult to do this with weaker players. Fish are apt to randomly call hands on the river that we might consider ludicrous and so blocking the top of a Fish's range on the river is not such a powerful weapon since he might just call all of the weaker hands anyway.

The final factor in the table concerns how Villain's turn calling range has changed on the river card in question. The **3h** river on the board above makes the top pair type hands in Villain's turn calling range weaker, but at the same time strengthens his flush draw part, making it nutted. In a vacuum, it will generally be higher EV to bluff on river cards that weaken Villain's turn calling range more than they strengthen it. For example, when an overcard or backdoor flush draw completes that doesn't figure to hit Villain's range for calling the flop and turn, fold equity should improve as Villain's relative hand strength weakens.

Take the following run out for example:



Villain could have all kinds of low pairs, flush draws, straight draws, pair + draws etc. when he calls the first two c-bets. This range largely misses the turn and river and these cards strengthen Hero's flop bluffing range substantially. Hero should therefore expect more fold equity than normal on this type of run out and, all else being equal, should probably favour a bluff-heavy range full of hands with very poor SDV against most opponents. If Villain is skilled enough to react to such a strategy well then Hero can always retreat into balance, which will still involve a fair bit of bluffing -

Hero can value bet thinly here as Villain's range is quite weak and could well be capped.

Example Hands

Let's put what we've just learned into practice with a few examples. Try to decide whether Hero should triple barrel bluff in the following spots.

Hand 112

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Hero

SB – Unknown

BB – Reg (24/15/**7**/55)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, SB folds, **BB calls 2BB**.

Flop (6.5BB, 2 players)



BB checks, **Hero bets 4BB**, BB calls 4BB.

Turn (14.5BB, 2 players)



BB checks, **Hero bets 10BB**, BB calls 10BB.

River (34.5BB, 2 players)



BB checks, **Hero?**

Flop and turn are very standard bets with this much equity against a Reg and it's clear that on this texture there will be some river fold equity. Villain can have quite a few hands like missed draws and Qx that are now folding.

Hero's actual hand is not very suitable for triple barreling on the river though for two reasons:

- Firstly it has enough SDV to beat other missed flush draws as well as something like **JTs**.
- Secondly, the **A** in our hand blocks **AQ**, which is definitely a hand we'd expect Villain to fold quite often here. We don't block any of Villain's calling down range either with our **A** and **7** assuming that Villain 3-bets **AK** pre-flop since his 3-bet stat is relatively high. It would be much better to have a **J** in our hand to block **KJ**.

All in all, a triple may be okay here in a vacuum and if we were sure that Villain went to showdown rarely, then it could be fine to use this hand as a bluff in a long-term unbalanced strategy. Otherwise, using a hand like this as a bluff when we have the likes of **JTs** and **J9s** as well as lower busted flush draws without the **Ac** in our range would be to overbluff significantly. If we bet **Ac7c**, we'd be betting the river as a bluff a very large amount of the time that we bet the turn and our value combos are not so abundant in this spot. We only have **AA**, **KK**, **QQ**, **AK** and **KQ** for a total of 33 combos that we can value bet.

When we use normal sizing, balance affords us considerably less bluff combos on the river than we have value combos as we'll come to see in [Chapter 13](#). It does not demand, as some mistakenly assume, a 50:50 ratio of bluffs to value. Such a ratio would allow Villain to call river bets very profitably with any bluff catcher. To understand why, have a think about required equity in end of action spots ([Chapter 7](#)).

Hero checks

Hand 113

UTG – Unknown

HJ – Hero

CO – Fish (37/12/2/64)

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero bets 4.5BB, CO calls 4.5BB.

Turn (16.5BB, 2 players)



Hero bets 12BB, CO calls 12BB.

River (40.5BB, 2 players)



Hero?

Flop and turn are very reasonable bets. This player will fold a lot of his range by the river by the looks of his general player profile and high **Fold to FCBet** stat.

This river card is perfect for a triple barrel. Hero shouldn't be concerned with balance here vs. a weak opponent and should instead seek to simply bluff whenever he makes it to this river with air. On more blank rivers, there is a danger that the timid looking Fish gets stubborn and calls down some **TT, 99, Q8** etc. but on the **A** river, these hand become even weaker and this player likely fears Hero's hand a lot more now. Since we're only interested in vacuum EV against the weaker player, we can simply calculate raw RFE and see whether we achieve that percentage of folds on average. Raw RFE here will be totally accurate, needing no adjustment for pot equity since there are no more streets still to be played.

Hero's RFE on a reasonable bet of 25BB will be $25 / (25 + 40.5) = \mathbf{38\%}$. It is very likely that Villain folds much more of his range than this on this particular run out and so bluffing whenever SDV is insufficient is the correct exploitative approach for Hero.

The last two hands called for very different approaches. In the first hand we were concerned with balance and opted out of a marginal river bluff spot with the intention of using the more suitable parts of our turn bluffing range to fire the river with. In the second hand, we didn't care about balance and were happy to adopt a strategy that would maximise vacuum EV.

12.3 Delaying The C-Bet

A **Delayed C-Bet** is a bet made on the turn by the pre-flop raiser either:

A: In position where Hero has checked the flop behind and Villain has checked a second time on the turn.

OR

B: Out of position where Hero has checked the flop and Villain has checked behind.

Note that as the pre-flop caller, both checking the flop behind and checking the turn after the flop checks through are usually range-limiting actions depending on the texture of the turn card. They are not procedural checks. This is central to why Hero can expect a delayed c-bet to be +EV in some situations where a flop c-bet would not have been.

We'll start with the three main situations where a delayed c-bet is a good alternative to the immediate c-bet. We'll then look at a few example hands and decide whether delayed c-betting is a good or a bad idea. If it's good, we'll practice identifying the reason for it being so from the following three potential reasons.

Reason 1: Flop C-Bet is -EV, but Delayed C-Bet is not

Sometimes Hero decides that a flop c-bet bluff lacks the fold equity + pot equity to be profitable, but that if Villain checks at the next opportunity, fold equity will have risen to a point where betting the turn as a bluff is profitable.

These situations occur when Villain's range connects too well with the flop and Hero lacks the pot equity to compensate for this. However, when Hero checks back he has shown an unwillingness to commit money to the pot of his own accord, therefore Villain will frequently be leading out on the turn when he has a value hand. Villain may also be leading some bluffs and semi bluffs too, but the idea is that if Villain checks a second time, then he is unlikely to hold the top part of his range, especially where the turn card does not dramatically improve Hero's flop checking range.

Look at the following board. Imagine that we are SB vs. BB and that Hero checks the flop as the pre-flop raiser and that the BB Villain checks behind.



It is very likely that if BB had a decent Q, two pair, a set or a flush that he'd be betting this flop for value and protection, thus the range he sees the turn with after checking flop is likely to be very capped and more air-heavy than his range for seeing the flop was. Hero can now expect to take a low equity hand, that was too poor to c-bet out of position on a wet flop, and realise enough fold equity with a delayed c-bet on the turn.

It's not that Hero should always bet this turn with any hand he was planning to check/fold the flop with. If he has some equity and no SDV, this helps the EV of the delayed bluff. And so where Hero wants to be balanced he should delayed c-bet first and foremost with hands that have these two attributes.

Some Villains may be calling enough of their flop checking range on this turn card to be balanced, but most will be folding too much of their range here due to how capped they are. There won't be enough SDV left to balance the hopeless air that they decided not to bluff with on the flop. I therefore recommend an exploitative strategy for Hero of overbluffing his range on this turn vs. most populations at micro and small stakes due to the population tendency to not balance properly in this spot. Although, if Villain's **Float**

Flop ([see here](#)) stat is very high, then Hero should expect him to be stabbing his air on the flop and hence have a more SDV weighted turn range that folds much less often. He should adjust to this exploitative strategy by underbluffing the turn.

Reason 2: C-Betting Flop is +EV, but Delayed C-Betting is Even Better

This neat little spot occurs against the type of rigidly straightforward player that has little to no bluffing range on the turn and plays very fit-or-fold vs. c-bets and delayed c-bets. Against this kind of Villain, Hero can consider a flop check in order to collect maximum information before going for fold equity on the turn.

Sure, Villain will fold enough on the flop for Hero to meet his RFE on a c-bet there, even when Hero has terrible equity, but if Villain is literally broadcasting on the turn whether or not he has a hand that he likes, then Hero should wait for that second weakness confirming check before he bets. If Villain leads the turn, Hero simply assumes that his fold equity was minuscule on the flop anyway against this sub-range that now bets and so Hero simply folds and has saved c-bet that was getting called anyway. Hero may safely fold to turn leads from this Villain type without fear of exploitation.

The delayed c-bet is even better where there are few ways that Villain's flop folding range can improve on the turn. The only drawback to this line vs. this player type is allowing him to realise equity he would have folded on the flop. Hero must therefore weigh the need for protection against the merit of the delayed c-bet. Take the following board for example. Imagine that Hero has raised BU vs. BB against the type of player described above.



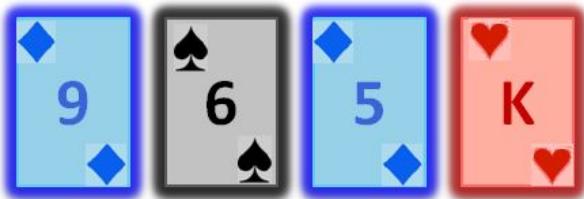
This board is perfect for the delayed c-bet against our fit-or-fold friend. Any hand that Villain is folding on the flop has at most four outs to improve to a hand that he won't fold on the turn (eg. QJ). This means that protection is less of a worry. Villain's flop folding range very often remains weak on the next street and so Hero can happily check behind and wait a street before he c-bets. If Villain checks again, then the green light of fold equity now shines brighter. If Villain leads, then it turns red and Hero saves a precious bet which will add to his long-term win-rate. Finding subtle improvements in spots like this is one thing that separates the great players from the merely good ones. But beware, if Hero isn't sure that Villain plays fit-or-fold on the turn then passing up a profitable flop c-bet and then sometimes folding the turn to a bluff lead from Villain is disastrous.

Reason 3: Hero Plans to Give Up, but the Turn Card Improves his Range and Therefore his Fold Equity

In these spots our flop check is always made with the intention of being finished with the hand. We're usually showdown bound if we're allowed to get there, but if not, it's no great loss and we're happy to fold to a bet from Villain.

Perhaps we have **4c4s** on some medium coordinated board and c-betting is very unattractive with such bad equity when called, a miserable texture for fold equity and some SDV to win the pot if we can get to showdown. Villain checks to us on the flop and we check behind.

On the turn the board now looks like this:



The **Kh** is somewhat of a saviour of a turn card. It improves a lot of our flop check/folding range. Now our **4c4s** has even less SDV but a lot more FE. This makes it a very tempting choice to turn into a bluff. Our FE has not necessarily improved here due to Villain's second check, but due to the turn card itself. In fact, Villain is advised to check his whole range on this turn where balance is his priority since Hero's range is comfortably ahead.

Extreme changes in board texture should cause Hero to reconsider his plan.

Example Situations

Let's play a game. In the next four hands, look at the situation before choosing from the following answers. Each answer will be correct once and once only.

A: Delayed c-bet good for [reason 1](#).

B: Delayed c-bet good for [reason 2](#).

C: Delayed c-bet good for [reason 3](#).

D: Delayed c-bet not good.

Hand 114

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Unknown

BB – Nit (16/12/4/41)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB calls 1BB**.

Flop (4.5BB, 2 players)



BB checks, **Hero checks**.

Turn (4.5BB, 2 players)



BB checks, **Hero?**

The reason for Hero's flop check is not that he thinks c-betting to be -EV. A small c-bet of 2.5BB would only need to work $2.5 / (2.5 + 4.5) = 36\%$ of the time to break even minus a bit for the gutshot draw. This should be very easy to achieve, but a delayed c-bet is a better plan against a player who will have a stronger pre-flop flatting range out of the BB vs. a BU min raise than most and one who is likely to play fit-or-fold on the turn.

On the turn, Hero plans to fold to a reasonably sized bet from this Nit, but is now very happy to bet facing Villain's second check, which limits his range

considerably. In fact, this Villain is even more likely to bet **Kx** than a passive Fish is since he is typically more paranoid about flush draws and other draws getting free cards. This weights his checking range even further towards air.

Answer: B

Hero bets 2.5BB.

Hand 115

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Passive Fish
SB – Hero
BB – Reg (22/17/6/55)

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU calls 1BB**, **Hero raises to 5BB**, BB calls 4BB, BU folds.

Flop (11BB, 2 players)



Hero checks, BB checks.

Turn (11BB, 2 players)



Hero?

The flop is pretty horrendous for fold equity and Hero's pot equity doesn't do a great deal to compensate. Although Hero's backdoor flush draw and two overcards are something, Villain's range is faring very well here. It's much tighter than it normally will be BB vs. SB since Hero's raise is not a 3x open but a 5x ISO from out of position. Check/folding the flop seems reasonable as a c-bet could well be -EV.

This turn card improves a huge amount of Hero's flop checking range. So much of the time his pre-flop ISO range that gives up flop will be **Ax**. Therefore, fold equity has increased and Hero's **KQ** can still have two overcards to some of Villain's turn calling range. One problem here is that Villain hits this **Ac** fairly well too, but given how little air Hero has in his range now, he must bet as a bluff holding one of the lowest SDV hands he can have in this spot.

Answer: C

Hero bets 7BB.

Hand 116

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Reg (25/19/10/49)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 2.5BB, BB calls 1.5BB.**

Flop (5BB, 2 players)



Hero checks, BB checks.

Turn (5BB, 2 players)



Hero?

If Villain is particularly fit-or-fold on the flop and is not going to use his position as he should to make life difficult for Hero's weak range, then Hero can consider a c-bet here. Otherwise check/folding this poor ace-high is fine. The trouble is that Villain can just float here with two overcards, backdoor draws and anything with some prospects to improve. If Hero gets too out of line with his c-bet frequency, he can easily be punished. Given that Hero doesn't really want to end up on the turn with lots of combos with terrible equity, he needs to check/fold some hands that he can't check/call for SDV. If Villain decides to be passive with bad SDV here, then Hero can even win at

Showdown when the hand checks down. The fact that Hero has an **A** here is more of a reason to check than to bet, even if Hero is check/folding. Also note that Hero would much prefer to c-bet a hand with two overcards instead of one to the **5** on the flop. **QJ** makes a much better bet than **A3** does.

Villain's check behind on the flop is indicative of two types of hand: hands that don't need to bet like **AT** and **KQ**, perhaps deemed sufficient in SDV to go to showdown and then some air hands like **QcTc** that just don't want to bluff. Should Hero delayed c-bet this turn with his **A** high, Villain will simply call with any **A** which splits the pot or a pair that's miles ahead and will likely be folding his worse hands for the most part. There is therefore no sense in betting here whatsoever - in fact it's just horrible. Hero should use this part of his flop checking range as a bluff catching check/call now as it's relative hand strength is now totally satisfactory for that job on this turn card after Villain has also checked the flop.

Delayed c-betting is probably +EV here, but it's far from the most +EV line. A +EV line can easily be a horrible line if there's a much better alternative!

Answer: D

Hero checks

Hand 117

UTG – Unknown

HJ – Hero

CO – Reg (26/21/9/45)

BU – Unknown

SB – Unknown

BB – Passive Reg (20/13/4/62)

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO calls 3BB, BU folds, SB folds, BB calls 2BB.

Flop (9.5BB, 3 players)



BB checks, **Hero checks**, CO checks.

Turn (9.5BB, 3 players)



BB checks, **Hero?**

This flop is not far from a profitable c-bet, but the multiway aspect more than counteracts Hero's bit of equity and the reasonable board texture.

On the turn, however, now that both players have made a range limiting check, Hero feels much better about his fold equity. While CO's flop check was limiting as the last player to act on that street, BB's was not - he was merely checking to the raiser on a high flop - a very normal thing to do with 100% of your range. When BB checks a second time on the turn, however,

his range is now limited the vast majority of the time as he will very often be leading for value and protection with his stronger hands.

Hero can therefore expect to take this pot down pretty often from hands worse than **Qx**. Good players will be checking this turn with some **Qx** and bad **Ax** if they have any, but this will not be a substantial enough part of their ranges to deter us from delayed c-betting a hand with 4 outs to the virtual nuts now that ranges are capped. Finally, much of the range that Villain will be folding vs. a delayed c-bet could be pocket pairs and **K-high**. These hands cannot consider calling a turn bet three-way, but they do beat Hero's **J-high** so causing them to fold is a great result. Again, a lack of SDV makes bluffing better.

Answer: A

Hero bets 6BB.

12.4 Probing The Turn

A **Turn Probe** is a bet made by the pre-flop caller out of position on the turn after the pre-flop raiser has checked the flop behind. It may be made for value, protection or as a bluff.

It's very common in games, even up to 100NL and 200NL on some sites, for Regs to be checking behind on flops with too weak of a range that is too often folding on the turn vs. a bet. Due to this, on textures where Villains are playing fit-or-fold, Hero should look to be very active with his turn probing, particularly as a bluff. In this section we'll mainly be focused on probing the turn without a value hand (light turn probing). Value probing follows the same rules detailed in [Chapter 5](#) on value betting. By now we should be able to have a solid attempt at working out the factors that make a play good. Before reading on, try to think up a list of what things should be in place for a light turn probe to be a good idea then look at the table below to see how many you identified.

Light Turn Probes

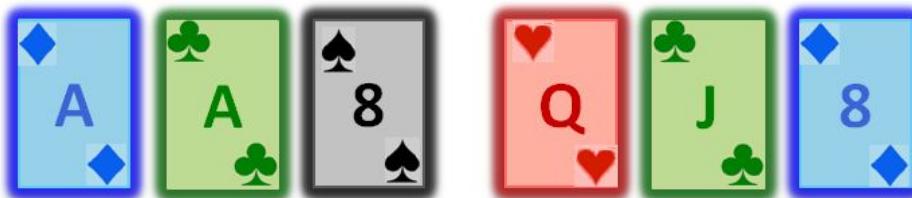
Good Factors	Bad Factors
Villain's flop check behind range is weighted towards air	Villain's flop check behind range is weighted towards SDV
Good equity	Poor equity
No SDV	SDV
Turn card doesn't help villain	Turn card helps villain

Figure 75 - Light Turn Probe Factors

Factor 1: Villain's Flop Check Back Range

This factor can be divided into two sub-factors: flop texture and player type. The more suitable the flop texture for a low to zero equity c-bet, the more likely Villain just bets all his hands without SDV there and then. This doesn't hold true for all player types though: a Passive Fish or a nitty fit-or-fold Reg may well just miss out on too many +EV flop c-bets and end up with too air filled a range on the turn, even on dry textures. If a more aggressive Reg checks back in position on a flop that is normally decent for c-betting air, it's much more likely that he has a more SDV weighted range.

Compare the following two flops. Hero has flatted a BU open from the BB and goes heads-up to the flop. He checks each flop and his opponent checks back in each case. What's the difference?



When most players check the first flop, they're more likely to be calling the turn with SDV. A Reg will c-bet air on this flop very rampantly and so will typically check back **K**-high, pocket pairs, **8x** and maybe even a poor **A** once in a while with the intention of calling the turn. This is not to say that he'll never check air either, but on the whole, his range will be weighted more to SDV than air and so Hero's light turn probes will work less often. If an Aggro Fish checks the first flop, Hero should expect very little fold equity on the turn as Villain's range will be full of slowplays; after all, air is an easy bet for him, but he'll do everything to discourage you from folding when he's flopped his mighty trips with **A7o**... he may well check this hand even at the expense of not building the pot.

The second flop is one on which most players feel the need for a check back/give up range that is just too weak to c-bet on such a wet texture. A Reg's flop checking range here will contain plenty of SDV like **Jx**, **98** etc. that doesn't want to bet for obvious reasons, but these combos will be balanced and perhaps even outweighed by air. Hero should expect more turn fold equity on the second texture.

Factor 2: Equity

For clarity, equity once again refers to non-made-hand equity since we're dealing with light turn probes for now. It's not always a mandatory requirement depending on the other factors, but it helps a lot wherever the situation is remotely close and can turn poor probe bets into fine ones.

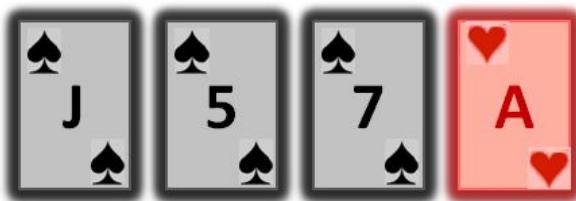
Factor 3: SDV

You should know what this means by this point. There is no need to bluff with hands that beat everything that will fold to that bluff unless Hero has the best hand a large amount of the time and his SDV is of the vulnerable variety; in this case it can be permissible to bet for protection only. Where the bet is a hybrid of protection and value, the requirements for protecting equity can be lessened somewhat since Hero is actually ahead sometimes when called.

Factor 4: The Turn Card

Villain's flop checking behind range might have been weak, but that doesn't mean his turn range is weak on every single card. There are some tricky turns that improve much of his flop checking range and Hero needs to be more careful about probing the turn on these cards. In a vacuum, he'll need more of the other factors to be in his favour in order to bet, but if he wishes to construct a balanced long-term strategy, he may be advised to check all of his range to the raiser just as he did on the flop, since Villain's range has been unlimited again by the turn card falling.

Here's an example:



This turn card hits a good amount of Villain's flop checks. Most players will bet the **A**s on the flop, but hands containing the other two aces are very likely to be checking back with a high frequency. Just as Hero should consider checking his whole range in a non limiting way to the PFR on the flop, this **A** turn resets the state of affairs in play and throws us back into a world where Villain's range is stronger than ours. Hero should avoid making light turn probes here versus competent opposition, against whom he's striving for balance.

Such a turn card causes Hero to **range check** this street.

Hero **Range Checks** a street when he checks his whole range on that street for balance reasons, Regardless of the equity and SDV of his hand.

Now onto some example hands. The third number above is Villain's **CBet Flop** stat.

Hand 118

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Reg (23/20/68)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2.5BB**, SB folds, **Hero calls 1.5BB**.

Flop (5.5BB, 2 players)



Hero checks, BU checks.

Turn (5.5BB, 2 players)



Hero?

When a Villain who clearly has a propensity to make light c-bets checks a fairly dry high flop BB vs. BU, there should be an immediate suspicion that he may not be helplessly giving up with air too often on such a favourable board to c-bet in position. What does the checking range of the average Reg with these stats look like then? I'd expect it to be SDV heavy and mostly planning on calling the turn. It's just too likely that air that could fold the turn would choose to c-bet on this flop most of the time. Of course checking back only SDV hands is unbalanced but it's very common for Regs to be completely unbalanced at the micro and low stakes.

Therefore, Hero is going to need some selectivity to his light turn betting range. If these population reads are accurate, which they should be for most

games, then Hero should avoid barreling turn and then giving up river as Villain will have fairly few combos that are folding immediately. He should then select his firing-twice-range by favouring his own combos with decent semi-bluffing equity. There isn't a whole lot of that here to pick from but JT and QJ are an improvement on Th8h.

It is certainly going to be a mistake to just blindly fire the turn every time Hero is short of SDV in this situation. If Villain checks a second time on the turn, Hero can take the bottom of his range and make a delayed probe bluff on the river. While Villain's range on the turn after one check can contain some weak Ax that is never planning to fold, this is highly discounted when he checks a second time.

Hero checks

Hand 119

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Reg (22/13/51)
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 3BB**, SB folds, **Hero calls 2BB**.

Flop (6.5BB, 2 players)



Hero checks, BU checks.

Turn (6.5BB, 2 players)



Hero?

This spot is very different to the last. This Villain appears far more fit-or-fold and generally less likely to c-bet air on the flop. This texture is also a little wetter and less favourable for his BU opening range, which might contain every offsuit A, but certainly not every offsuit or even suited 9. As a result, Villain's checking back range is normally largely weighted towards give-ups, giving Hero a big boost of fold equity on the turn. Betting this turn is therefore mandatory. Hero cannot check/call with no SDV and has far too much equity + fold equity with a bet to ever consider check/folding.

What would Villain's turn calling range look like here vs. Hero's probe and what does this mean for how Hero should play the river?

Well, **8x** is a very small part of his range. There aren't too many combos of that in a tighter player's pre-flop opening range even from the BU. The bulk of his turn calling range then will consist of stuff that wasn't overly happy on the flop and was probably giving up on most turns but likes this one enough to call. The hands I'm referring to are those with one high club, usually the **Ac** or **Kc**. This means that Hero has a clear plan available. He should be happy to continue his bluff on blank rivers as these hands have now bricked and are just **A**-high or **K**-high facing a second bet from an uncapped range. They'll almost always be folding. On a club river, however, Hero should be inclined to give up as a lot of Villain's range has just improved.

More sophisticated players may take care to ensure their range for checking back flop and calling turn is not so predictably weighted, but fortunately, such players are rare at least until we reach low to midstakes.

Hand 120

UTG – Unknown
HJ – Unknown
CO – Reg (26/21/65)
BU – Unknown
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, **CO raises to 3BB**, BU folds, SB folds, **Hero calls 2BB**.

Flop (6.5BB, 2 players)



Hero checks, CO checks.

Turn (6.5BB, 2 players)



Hero?

The main difference between this hand and the previous two is that Hero has SDV in this case. This means that there is not the same level of urgency to win the pot via fold equity and that Hero can actually stand to call a bet. Furthermore, Hero's hand is very invulnerable against the range Villain would fold vs. a turn probe and so probing for protection is certainly not a priority. If Hero can't bluff and can't make a protection bet, then there is only one possible reason for which he could consider betting this turn: value. Value from worse hands is not so forthcoming here. Maybe some hand like **8d8x** or perhaps a hand like **AdJx** could call, but this is no reason to value

bet as the former hand is usually only calling one street and is a tiny part of Villain's range. The latter is more substantial but is also very likely to bet as a semi-bluff now and so we won't miss too much value from these hands.

The upshot is that checking is the only play that makes any sense. We get to catch all of Villain's delayed c-bet bluffs this way and keep our checking twice range a bit stronger. Hero definitely needs a more polarised betting range on this turn than betting **TT** would create.

Some students may argue that our hand has a flush draw and this is a reason to bet. It's not. All that the flush draw does is allow us to check/call even more happily as we mind less river cards. It doesn't make us more inclined to bet. This hand fits perfectly into our check/call range. We can bet most rivers for value if Villain checks again on the turn.

Hand 121

UTG – Unknown

HJ – Unknown

CO – Passive Fish (37/14/44)

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU folds, SB folds, Hero calls 2BB.

Flop (6.5BB, 2 players)



Hero checks, CO checks.

Turn (6.5BB, 2 players)



Hero?

Another spot where Hero's hand falls into the zone of not air, but not a hand he can really value bet. Bluffing and value betting are both pretty impossible here. There may be some thin value if Villain decides to station two big cards, but this won't happen all too often. There is only one reason left for which Hero can bet: protection, but is it a good one in this case?

Yes, absolutely! Villain seems like a fit-or-fold player and therefore has a turn range likely weighted overwhelmingly towards two big cards. While these hands are probably folding to a turn bet, they have 6 outs against our

hand. Why would we want to allow these folding hands to realise their equity against us when we can cause them to fold and secure 100% of this pot right now? To bet for protection, Hero needs to figure to have the best hand a lot and also be folding out hands with meaningful equity. 6 outs is certainly a meaningful quantity and so Hero should bet for protection. His SDV is vulnerable.

Hero bets 3BB.

This sizing is smaller than that used in the last two hands for good reason. Hero is only trying to get folds from very weak hands and doesn't need to bet much to this end. Moreover, he's against a Fish and doesn't care about balancing his protection bet sizing with that which his value range would prefer to use. Finally, there could be some thin value here from stubborn AK and the like and this size is more likely to extract it than a bigger bet.

One final hand before we move on to the next part of the chapter. Ask yourself what the main difference is here from [Hand 121](#) above? How does that affect our turn decision?

Hand 122

UTG – Unknown

HJ – Unknown

CO – Reg (18/16/70)

BU – Station Fish (55/10/50)

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU calls 3BB, SB folds, **Hero calls 2BB**.

Flop (9.5BB, 3 players)



Hero checks, CO checks, BU checks.

Turn (9.5BB, 3 players)



Hero?

The most crucial difference here is that we're multiway. Note that Hero once again has some SDV and again this SDV is vulnerable, but there's now a significant problem with betting. We simply don't have the best hand often enough for a bet that hardly gets called by worse to be the best line. Hero has the best hand a reasonable amount here but not loads, and when called, his equity is usually terrible. The passive Fish and the Reg can both have SDV in their flop checking ranges that beats Hero's and isn't folding the turn.

The less often we figure to have the best hand, the less we gain and the more we lose from betting for protection.

Hero needs to check again, fold to a bet, and hope to emerge victorious at showdown.

Hero checks

12.5 Bluff Raising the Turn and River

Remember in [Section 8.2](#) when we discussed floating the flop? There are times where that future fold equity we called for needs to be realised in the form of bluff raising vs. Villain's betting range on the turn as he's not so generous as to check and let us take the pot away more cheaply.

Hero's turn bluff raises will usually occur where he floated the flop with non-made-hand equity which now has insufficient pot odds + implied odds + SDV to call again. Just like on the flop, Hero should look to bluff raise more turns out of position where calling is less profitable. When in position, it can often be better to delay the whole raising range until the river, but like everything in poker it depends on the situation. Hero also needs to be careful about player type and reserve lines like bluff raising turns and rivers for those who can actually fold. Passive Fish tend not to barrel the turn too wide and when they do, they tend not to fold much of that range.

Let's look at a spot where it makes a lot of sense to bluff raise the turn in position. The third and fourth (brown) numbers on the HUD are **CBet Flop** and **CBet Turn** respectively.

Hand 123

UTG – Unknown

HJ – Tight Reg (18/15/67/40)

CO – Unknown

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3.5BB, CO folds, **Hero calls 3.5BB**, SB folds, BB folds.

Flop (8.5BB, 2 players)



HJ bets 5BB, Hero calls 5BB.

Turn (18.5BB, 2 players)



HJ bets 8BB, Hero raises to 23BB.

Villain's line is pretty typical of a weak tight Reg. He opens a tight range in the HJ, bets the flop mainly for value but also with some c-bet bluffs and then makes this puny sized, scared looking bet on a turn card that completes the obvious draw. I'm not one to endorse mind reading our opponents, especially in online poker, but some informational patterns allow for fairly accurate range reading. I'd say with somewhere around 80% confidence that this Reg's range is capped at AA. There may sometimes be the odd fullhouse thrown in that he's trying to milk with, but the bulk of his range is usually a fairly scared

[99 ATs KTs JJ QQ KK AA] given that he doesn't bet turns lightly as a bluff and would likely bet bigger with a stronger hand.

What should Hero do with this hand vs. this range? Raise! His equity is good enough to call in position here assuming that there are some implied odds the times Villain makes a worse four flush with **KsKx** and similar, but if Hero can get folds right away from the above range which beats him on most river cards, then this is clearly a superior route to take. Hero doesn't want to call the turn, brick the river then have only one bet to fire at the Reg's now bluff catching overpairs. He needs to apply more pressure than this to maximise the fold equity he so desperately needs with this deficit in pot equity.

Sometimes player type + texture + line just makes a certain kind of range overwhelmingly likely, but take this read with a pinch of salt - sometimes it will be wrong and we'll be facing the kind of player who bets only flushes and better here even for this size. Also do not apply such reads where information is more limited. Hero's play in this particular hand is good, but it's not a license to raise every turn spot where a flush completes.

In this next hand we'll look at a turn bluff raise spot that's more grounded in solid balanced play than in exploitative reads.

Hand 124

UTG – Unknown

HJ – Unknown

CO – Aggro Reg (25/19/68/57)

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, **CO raises to 2.5BB**, BU folds, SB folds, **Hero calls 1.5BB**.

Flop (5.5BB, 2 players)



Hero checks, CO bets 3BB, **Hero calls 3BB**.

Turn (11.5BB, 2 players)



Hero checks, CO bets 7.5BB, **Hero raises to 20BB**.

Hero's value raising combos here on the turn could be any two pair or better. If he is to raise [66, 77, 76s, KQ] for value, that's a total of 17 combos. Slightly less bluffs than this will constitute a balanced strategy for Hero and we'll come to learn why this is the case in the next chapter. There are very few better hands to use as a bluff here than our 98s, since we just don't have that many high equity semi-bluffs in our range on this card. Turn is therefore a clear bluff raise. Hero might strive to defend his range on this turn a bit wider than would be balanced due to Villain's aggressive stats, in particular

his high flop and turn c-bet. Hero could therefore deploy an unbalanced ratio and bluff raise a good amount of less suitable hands than **98s** too.

This bluff raise should be +EV in a vacuum, but also a necessary component part of any balanced turn range. Hero does not have the pot odds, implied odds and future fold equity to call out of position with his draws, and so these naturally become turn raises along with his value hands, which are very happy to play this way too.

Let's wrap up the chapter with a spot where it's fine to wait until the river before having a raising game at all.

Hand 125

UTG – Unknown

HJ – Unknown

CO – Aggro Reg (26/22/64/59)

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 2.5BB, Hero calls 2.5BB, SB folds, BB folds.

Flop (6.5BB, 2 players)



CO bets 4BB, Hero calls 4BB.

Turn (14.5BB, 2 players)



CO bets 12BB, Hero calls 12BB.

River (38.5BB, 2 players)



CO bets 27BB, Hero raises to 81.5BB (all in).

Flop and turn are very standard calls in position. On the turn our pot odds, implied odds, SDV, and river fold equity make calling absolutely fine. Our value hands also don't mind just calling this turn. In fact, against an aggressive Reg, it benefits us to keep our range uncapped on **heart** rivers as

we're expecting a fair amount of double and triple barrel bluffing from this player. Being uncapped helps our defence frequency stay healthy without having to make absurdly light call downs in case Villain is tighter than we think on the river.

And so we reach this river with a suitable part of our range to turn into a bluff shove. The value hands we'd play this way are sets, **QJ** and possibly **8h6h**, if we flat that pre-flop. Our hand is fairly useful as a bluff as it decreases Villain's value range by blocking **44** and it also has no blockers to the club draw which will be the most abundant type of bluff in his river range. Of course we are not just making this shove to make bluffs fold, if that were the case we'd just call with our pair of **4s**. The aim is to get Villain off of a substantial part of his value range such as **[Qx KK AA]** and maybe even better hands too if he is in the mood to give our line a lot of respect.

The main point here is that, in position, when we can delay our bluffing and value raising until the river, and there is no great reason to go for that fold equity right away on the turn as there was in [Hand 123](#), then we should adopt a river raising game instead of a turn raising game. It keeps our river range stronger and more versatile.

As always, keep these balance considerations in mind against Regs and err on the side of maximising vacuum EV against weaker players as in [Hand 123](#).

13. 3-Bet Pots and Balance

In this chapter we'll start by examining some crucial differences between 3-bet pots and the single raised pots we've been dealing with thus far. We'll then use the context of a 3-bet pot as a nice simplified realm where ranges are narrower to explore the real nature of balance. How do we apply it as the aggressor and as the defender and when should we deviate from it to maximise EV?

3-bet pots can be troublesome. They involve a stack to pot ratio we're less familiar with as 100BB deep cash players and any mistake that we make in them is magnified by the sheer size of every bet, call and raise going into the pot. We'll start out as the aggressor and talk about c-betting the flop. We'll discuss how sizing changes due to the difference in the effective stack and then move on to consider what some good ranges for value betting and bluffing and calling could look like Reg vs. Reg with the focus on balanced play.

13.1 C-Betting 3-Bet Pots

Implications of C-Bet Sizing

So far in the manual, we've been first considering whether or not to c-bet a hand on the flop and only then deciding upon our sizing. I'd like to reverse the process in this chapter. The effective stack size and ease with which we can get stacks into the middle in a 3-bet pot will have a large effect on the optimal c-bet size which will in turn have implications as to how wide we want to c-bet. Have a look at the following hand as an illustration.

Hand 126

CO – Reg (20/16/61/56)
BU – Unknown
SB – Hero
BB – Unknown

Dealt to Hero:



CO raises to 2.5BB, BU folds, **Hero raises to 8.5BB**, BB folds, CO calls 6BB.

Flop (18BB, 2 players)



Hero?

In a single raised pot, Hero would struggle to get stacks in by the river by making a standard two thirds pot sized bet. The pot might only be 6BB or so on the flop. Betting 4BB and getting called would leave a pot of 14BB on the turn and even a pot-sized bet there would leave a river pot of 42BB with an overbet 75-80BB left behind.

In a 3-bet pot there is no such issue and Hero's sizing, especially that of his flop c-bet, can be far smaller and still allow for the full amount to go in by the river. A bet of just 9BB here would create a pot of 36BB on the turn, which is very easy to work with in setting up a river shove.

In this hand, the hole cards are again marked with the sacred Xs that indicate that it's Hero's range and not any single part of it that will be the focus of our attention. Smaller c-bet sizing of around half pot is actually very agreeable to both Hero's light c-bets and his value c-bets. The former are always keen to decrease their RFE and make bluffing more profitable, while the latter are happy with any sizing that allows the money to go in over three streets. On wetter boards and vs. weaker opposition it can sometimes be better to build a bigger pot earlier with value hands since urgency of value is of higher importance and balance of lower importance. On a board this dry though, and against a Reg, all of Hero's c-bet range is comfortable betting 9BB.

Remember that a linear 3-betting strategy is usually advisable SB vs. BU since Hero doesn't want a flatting range by default unless he knows that BB rarely squeezes. This means that Hero will have an overpair much more often on this flop than Villain will and Hero's overcards will often dominate Villain's. This equates to significant range advantage for Hero. Villain will struggle to stop a half pot c-bet being +EV with any part of Hero's range. After all, it only has to succeed 33% of the time minus equity adjustment to break even ([See Figure 23](#))

Hero bets 9BB.

It doesn't really matter what Hero has in this spot. A 9BB bet with his whole range is sensible and hard to exploit. This does not mean, however, that this strategy is always best. If Hero had reason to think Villain was unbalanced in some respect, then he could of course deviate from this plan. Against opponents who stab a lot of flops (have high **Float Flop** stats) Hero should

develop a checking range and frequently check/call the flop. Against Villains who float (not the same as above) the flop relentlessly he could check/fold some hands and exploit them by betting a more value heavy range. The list goes on.

In summary, the main lesson here is that 3-bet pots are often more c-bettable than single raised pots as smaller sizing will always improve the RFE of light c-bets and there's no downside to this. There is no part of Hero's range that suffers from the pot growing more slowly.

C-Betting Light

We should already be experts on these decisions in single raised pots due to reading [Chapter 4](#). It's now time to apply our knowledge to 3-bet pots. As we saw from the last hand, the following will be true.

The RFE on a Light C-Bet is usually lower in a 3-bet pot. Hero should assess the factors in the same way as in single raised pots, but be more lenient with what constitutes a good light c-bet for this reason.

Lower RFE is a luxury afforded by pot size. Hero should capitalise by c-betting wider in most but not all cases. When then, might it be a bad idea to c-bet too wide in a 3-bet pot? Well, Villain's range to flat the 3-bet is better defined than his range to call an open would be. It's tighter and more uniform and so there are certain textures that it actually misses quite rarely. Take the following hand for example. The third (green) and fourth (purple) numbers on the HUD describe **Fold to PF 3Bet After Raise** and **Fold to F Cbet** respectively.

Hand 127

UTG – Unknown

HJ – Tight Reg (19/15/58/46)

CO – Hero

BU – Unknown

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ raises to 3BB, Hero raises to 8BB, BU folds, SB folds, BB folds, HJ calls 5BB.

Flop (17.5BB, 2 players)



HJ checks, Hero?

Let's start by giving this player a calling range to Hero's 3-bet from out of position. It will surely be tight, capped, but still strong. His opening range shouldn't be wide to start with and we know that he folds a fairly large amount of the time to 3-bets hence Hero's polar approach including A5s as a bluffing hand.

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

Call

Figure 76 - A Tight OOP Flatting Range vs. a 3-Bet

If Villain flats only these robust hands out of position here, which seems like a reasonable assertion, we can see that he absolutely nails flops like this one. The weakest hand he can have here is still a gutshot and two overcards (AK). The rest of his range is some kind of second pair or better and pair + draw or better and so Hero's immediate fold equity should be very low in [Hand 127](#). It's not that Hero could never consider bluffing this flop, it's just that when he does he should probably be firing many turns and rivers as most of the fold equity he has vs. this range takes more than one street to realise. Such a situation caters for some selectivity of c-bet bluffs. It won't do to just take our whole range to the river by tripling - this would result in barreling with terrible equity sometimes and being very unbalanced.

Hands with absolutely no equity when called like **As5s** then should simply be give-ups. Good RFE or not, Villain is just not folding enough of his range on this flop.

Hero checks.

This next spot is one where c-betting light is actually very good against Villain's range. What differences do you think make this the case?

Hand 128

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Reg (27/22/42/52)
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2BB**, SB folds, **Hero raises to 7.5BB**, BU calls 5.5BB.

Flop (15.5BB, 2 players)



Hero?

The main difference here is that this board misses Villain's range really badly. A somewhat stationary Reg is going to be flatting very wide BU vs. BB and so will have an abundance of unpaired hands. Hero's deploys a wide linear value 3-bet range because he expects Villain to call too much.

One truth about NLHE is that it's much easier to be dealt a non-pair than a pair. For every pair there are only six combinations and the baby ones are rarely flatting the 3-bet due to how badly they perform in 3-bet pots. The top pairs are also unlikely guests in Villain's range as most players 4-bet as wide as **JJ+** in this late position battle spot. Every unpaired hand, however, is 16 combos and so these hands are much easier to hold.

As a result, Hero has such a significant range advantage that he can c-bet until his heart's content, even though he's out of position. Again, half-pot sizing makes for a nice low RFE of 33% before adjustment for realisation of equity and more fold equity in some branches when called. I'd reduce this number by a healthy 10% or so given our 6 good outs and backdoor flush draw. This would leave the true fold equity target at a tiny 23% or so. Hero's true RFE will be a little lower. This target should be incredibly achievable. To see why, let's visualise how Villain's range connects on this texture.

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



Folding Very Often



Folding Often



Folding Rarely



Folding Never

Figure 77 - A Wide BU Flattening Range vs. SB 3-Bet

This range is fairly standard for a loose Reg to defend with in position on the BU, if not even a little conservative. We can see from the distribution of his range on this flop how rarely Villain has any kind of one pair or better. The darker green group has nothing but two raw overcards and is not advised to continue without reads that we are c-betting then giving up too much. The

lighter green group has usually flopped a backdoor flush draw and overcards to the board and so will float sometimes. Villain must be careful though as these overcards are often dominated and hitting them can be as much of a curse as it is a blessing vs. our uncapped linear range. We still expect to get a good amount of folds from this group. The yellow group has sufficient SDV to usually want to peel the flop but it's not unheard of for Regs to fold these hands. Finally, the red group is one pair plus and pretty much never going anywhere.

The eager combo counter should take this moment to count up what percentage of Villain's range each of these groups constitutes. The result will show how much more fold equity we have than the measly target we have to surpass when we bet half pot usually with two overcards or better when called. The average Villain with these stats will certainly fold much more than 23% here. While this doesn't automatically make c-betting the highest EV line in and of itself, I can't imagine checking behind being better. C-betting everything is a good way to utilise range advantage, make lots of high EV c-bets in a vacuum and play an unexploitable strategy.

Hero bets 8BB

13.2 3-Bet Pots As The Aggressor

Value-Betting 3-Bet Pots

Just as we saw in single raised pots in [Chapter 12](#), if starting out balanced is our concern, then we'll need to choose the most appropriate segments of our range to bluff/semi-bluff with as well as deciding which hands we can value bet on each street. One central concept here is that value ranges for getting stacks in should be wider in 3-bet pots than they would be in single raised pots due to the smaller effective stack making players more committed. As we just saw in a 3-bet pot, 100BB stacks end up in the middle just by one player betting three times and so getting all in is very achievable without getting raised.

Let's start with an example of a bread and butter situation where barreling off for value is standard.

Hand 129

UTG – Unknown

HJ – Unknown

CO – Reg (24/19/55/56)

BU – Hero

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **CO raises to 2.5BB**, **Hero raises to 7.5BB**, SB folds, BB folds, **CO calls 5BB**.

Flop (16.5BB, 2 players)



CO checks, Hero bets 8BB, CO calls 8BB.

Turn (32.5BB, 2 players)



CO checks, Hero bets 19BB.

River (70.5BB, 2 players)



CO checks, Hero bets 66.5BB (all in).

The main advantage Hero wields here as the pre-flop 3-bettor is that of having an uncapped range against a capped range. It is very likely that Villain 4-bets **AK** pre-flop and so these combos should be heavily discounted. If **AK** is so unlikely, then what better hand does Villain get to the river with? Given

his moderate 55% **Fold to 3Bet After Raise** stat, it's also doubtful that he calls the 3-bet with **A6s** or **A8s**, though the latter in particular is certainly far from impossible. If Villain has any better hands at all in his range than **AQ**, then they are few and far between. This grants Hero free reign to value shove this river against all of the more abundant **AJ/AT** combos without fear of value owning himself.

The more often that Hero has the best hand, the thinner he can afford to value bet since even if Villain calls only rarely with a worse hand, there are so few hands that Hero loses to.

3-bet pots can justify stacking off with weaker absolute strength hands for two reasons:

- The relative stack size is smaller and so Villain should be inclined to stack off with a weaker range himself.
- Ranges for calling 3-bets are better defined than ranges for calling opens and as a result are frequently capped to exclusively worse hands. This allows Hero to value bet with impunity even with just top pair second best kicker.

Bluffing in 3-Bet Pots

Constructing bluffing ranges can be a tricky task in a single raised pot due to the sheer amount of combos in Hero's opening and c-betting ranges. In a 3-bet pot this task becomes a little simpler. Ranges are smaller and better defined and so are easier to work with whether striving for balance or some exploitative ratio of bluffs to value.

3-bet pots serve as a nice simplified environment in which to get our feet wet with this type of exercise. Let's take a look at how Hero might select his bluffs in a 3-bet pot where he is very aware of his own 3-betting range.

Hand 130

UTG – Reg (21/17/68/50) (655 hands)

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG raises to 3BB, HJ folds, CO folds, BU folds, SB folds, **Hero raises to 10BB**, UTG calls 7BB.

Flop (20.5BB, 2 players)



Hero bets 9BB, UTG calls 9BB.

Turn (38.5BB, 2 players)



Hero bets 22BB, UTG calls 22BB.

River (82.5BB, 2 players)



Hero bets 59BB (all in).

Okay, so here's a step by step template of how we decide what hands to bluff all-in with on the river.

Q1. What is Hero's pre-flop 3-betting range?

Q2. How many combos are we barreling off with for value on this river?

Q3. Given this, how many bluff combos would give us a balanced ratio of bluffs to value.

Q4. What should these bluffs be?

Q1. What's our pre-flop 3-betting range?

Hero should clearly have a polarised strategy here and one that is more bluff heavy than balance would call for due to Villain's tendency to overfold vs. 3-bets. As we saw in Chapter 10 [Hand 87](#), he should strive to 3-bet a tight value range vs. such a player opening from UTG and use the best hands he'd otherwise be folding as bluffs as per the polar model.

His range could look something like this:

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



3-Bet Value



3-Bet Bluff

Figure 78 - A Bluff Heavy Polar 3-bet Range BB vs. UTG

Hero's bluff portion of his range outweighs his value portion by 40 combos to 12 or 3.33:1. No doubt this range is very exploitative, but 68% is a huge fold to 3-bet stat and so such an imbalance is easily justifiable. Bluffs are once again chosen from the best of the 'would be fold' hands based on which have the best blockers + post-flop playability. [A2s-A5s] here should outperform [A8s-A9s] due to their extra playability and similar pair flopping power. Villain is unlikely to be defending weak Ax or medium pocket pairs like 77 and 88 here and so whether or not we have a 9 or a 5 with our ace does not matter from a pair-making perspective. It does matter from a straight making perspective though and only the wheel aces have a shot at doing this.

Q2. What's our river value range?

Here our task is very simple indeed, we have 12 combos of overpairs and then 4 combos of straights (**A3s**) and these are the only value bettable hands in our range on this river. That gives us a total of 16 value combos. Let's now work backwards and see what hands we would like to bluff in order to create a balanced strategy.

Q3. How many bluffs would give us a balanced river betting range?

To answer this question we first need to acquaint ourselves with what we're going to be calling the indifference principle.

The Indifference Principle

1. Whenever Villain will be OEV by calling a bet with the middle of his range, Hero's betting/raising range is balanced.
2. Whenever Villain will be OEV by bluffing, Hero's calling range is balanced.

We implicitly met this concept already in [Chapter 11](#) when we designed balanced defense ranges. The indifference here is that Villain does not profit from choosing one option over another and this means that he cannot exploit Hero through making his choice. If calling and not calling are equal in EV in [Hand 130](#), then Hero has achieved a balanced betting range i.e a range that cannot be exploited.

Such a strategy is defensive in nature and should be adopted only where Hero does not have a higher EV exploitative strategy at his disposal. The thought is that by becoming balanced, Hero gives away no opportunity to be exploited, and since he himself has no route to exploiting Villain, this is the best he can do. Why give Villain imbalances to attack if you're not gaining anything in the process? It's only when we figure to gain by being unbalanced that we can justify granting such an opportunity.

Back to our model hand: why do we want a balanced strategy here? Because we have no relevant information on Villain with which to determine a way that he is unbalanced post-flop. Since we do not know whether Villain is overcalling or undercalling his range on the river, we don't have a reason to stray from balance. Beware of the following fallacy.

The **Readless Therefore Nit Fallacy (RTN Fallacy)** is the belief that Hero should refrain from bluffing until he knows more about his opponent. All this does is create a very unbalanced range that underbluffs, offering Villain a route to exploit Hero by overfolding. There is no reason to do this unless the population grossly underfolds its range in the spot in question.

Some players are terrified of bluffing incase it turns out that they had no fold equity, but it could just as easily turn out that there was lots of fold equity and that not bluffing was a big mistake. Don't be unbalanced for absolutely no reason other than irrational fear - this is rightly forgotten 2004 thinking.

How then do we create balance with respect to our bluff combos? We follow the balancing principle below.

Balancing Principle 1

Villain is indifferent to calling Hero's bet in an end of action spot with a bluff catcher whenever Hero's bet size generates an RE target of X.

AND

Hero's ratio of bluff to value combos in a polarised betting range gives Villain exactly X equity with a bluff catcher.

Recall that RE describes the equity % of Villain's hand vs. Hero's range that will cause Villain to break even on a call in an end of action spot. It is his bare minimum equity for calling a bet from Hero.

In [Hand 130](#) Hero's bet-size is a shove as the effective stack is small enough for shoving to be feasible and there is no reason to suppose any other bet-size will be better with Hero's range. Generally speaking, polarised ranges on the river want to bet big as this will generate a higher RE target and thus allow for more bluffs in Hero's range.

Hero bets 59BB into a pot of 82.5BB. What is Villain's RE?

$$RE = ATC / (ATC + TP)$$

$$RE = 59 / (59 + 141.5)$$

$$\mathbf{RE = 29.4\%}$$

Following the balancing principle, this means that 29.45% of Hero's river betting range should be a bluff. Since his betting range contains 16 value combos we can solve for his required bluffs (X).

$$X / (16 + X) = 0.294 \quad (1)$$

$$X = 0.294 (16 + X) \quad (2)$$

$$X = 0.294X + 4.704 \quad (3)$$

$$(X - 0.294X) = 4.704$$

$$0.706X = 4.704$$

$$X = 4.704 / 0.706$$

$$\mathbf{X = 6.662}$$

(1) We know that X will be 29.4% of Hero's total betting range. Hero's total betting range will be X + his value combos (16 + X).

(2) Simplification: multiply both sides of the equation by (16 + X).

(3) Simplification: multiply both 16 and X by 0.294 to remove brackets.

For the algebraically shy, there are readily available algebra calculators online for such a job. Let's round this fractional answer up to the nearest whole number and conclude that Hero needs **7 bluff combos** to create the 7:16 or 0.44:1 ratio of bluffs to value that satisfies the balancing principle.

Q4. What should these bluff combos be?

This firstly depends on what bluff combos Hero gets to the river with. Let's say that he continues bluffing on the turn with **[A2s-A3s]** (8) and one third of the combos of **KQo** (4). Hero value bets **KK** and **AA** (12) and so has a turn range of **12 value combos and 12 bluffs**.

So we need just 7 combos of bluffs and we have the choice between either **KQo** or **A2s**, which has now made a pair. How are we to select between these combos? There are two central guidelines when it comes to choosing bluffs to flesh out our range.

1. Hands with less SDV are better to bluff than hands with more SDV.

And

2. Hands that block Villain's calling range and not his folding range are better bluffs than the opposite.

The first point is simple and is to do with the EV gain of bluffing. See the box below for a detailed explanation, but feel free to skip it for now.

EV Gain of Bluffing

We always compare the EV of a bluff to the EV of the more passive alternative (checking or calling) and not to OEV. This tells us how much better bluffing is than not bluffing.

Checking and going to showdown some % of the time with SDV, even with the intention of folding to a bet, is always better than OEV as Hero wins some amount of money some % of the time from the pot.

If Hero lost all of the pot all of the time (had no SDV) then checking would be OEV from point of decision.

When Hero checks a hand with no SDV his EV is 0.

Bluffing that hand needs to be better than OEV to be the best line i.e be successful RFE% of the time or more.

When Hero checks a hand with some SDV his EV is +X depending on how often he wins the pot and the pot size.

Bluffing that hand needs to be better than +X EV to be the best line and therefore be successful some amount more than RFE% of the time to be the best line.

This is why we favour lower SDV hands when we bluff.

The second point is to do with card removal. If Hero blocks the combos Villain would have called with, then Villain folds a higher % of his range and Hero's bluff is higher EV. If Hero blocks the combos Villain would have folded with, then Villain calls a higher % of his range and Hero's fold equity is less and his bluff lower EV.

So let's apply this criteria to our river decision in [Hand 130](#). Which combos of the bluff candidates in our range best satisfy these requirements? Recall that we bet the turn with KK(6), AA(6), A2s(4), A3s(4) and KQo(4), but on the **2h** river, **A2s** has become only 3 combos and **A3s** has become the nuts and goes into our value range, as we saw.

The only possible bluffs we now have are our 4 **KQo** combos and our remaining 3 **A2s** combos. Conveniently, this meets our 7 combo bluff target exactly! To be balanced here, Hero needs to follow through with every bluff in his range. The fact that he shouldn't give up with any bluffs would normally make him unbalanced on most river cards, but not ones like this, which help his turn bluffing range tremendously. Let's not just stop our analysis there though, which hand would be the better choice if Hero needed less than 7 bluffs and did want to give up some combos?

Well it's fair to say that neither **KQo** nor **A2s** has much SDV vs. a range that Villain calls flop and turn with, but maybe **A2s** wins vs. Villain's **AK** sometimes. This alone makes it worse to bluff.

Blocker wise, **KQo** is also clearly better. This hand blocks **KK** and **QQ**, two hands that Villain is fairly likely to call the river with. Allowing likely folding hands like **TT** and **99** to be a bigger part of Villain's range. Hero would prefer **KQo** to **A2s** here, but as is he'll be betting both.

Conclusion

This exercise has been highly theoretical and is not something I recommend trying in game. Doing work like this in 3-bet pots is a nice place to get started with balancing complete post-flop ranges since 3-bet pot ranges are snugger and easier to work with. Rinse and repeat this process out of game for a multitude of different 3-bet pot scenarios and your in-game feel will gradually improve allowing you to play closer to balanced on the fly.

Balancing Betting Ranges Before the River

Before we move on, let's return to our turn range in [Hand 130](#). This is not an end of action spot so the correct balanced strategy is not so easy to solve for. This is because Hero's bluffs are not 0 equity hands vs villain's bluff catchers, they can and often do improve! How does this fact change things when we solve for villain's RE and use it to satisfy the indifference principle? See the semi-bluffing principle below:

The Semi-Bluffing Principle

Hero should add more bluffs to his balanced betting range on the flop or turn when:

1. His bluffs have more outs vs. Villain's bluff catchers.
2. There are more streets to come.

This is because when Villain is considering calling a bet on earlier streets, he needs to consider that Hero's bluffs have equity vs his bluffcatchers and so Villain's RE target increases. Villain does not have either 0% or 100% equity with a bluff catcher with cards still to come as he would on the river. He is crushed by Hero's value hands and Hero's bluffs still have some equity. He might instead have something like either 8% or 80% equity depending on whether Hero is bluffing.

As an approximate guide, Hero should adjust Villain's RE upwards by around **20% on the flop** and **10% on the turn**, but the exact amount will depend on how many outs Hero's bluffs have.

This allows Hero to approximate balance in open action spots.

So on the turn in [Hand 130](#) we were betting 22BB into 38.5BB. Villain's RE before adjustment would be $22 / (22 + 60.5) = 27\%$.

But, we must adjust this to account for Hero's equity with his **KQo** and **[A2-A3s]**. The former has 6 outs vs. bluff catcher hands like **JJ** while the latter has 7 outs. As per the rule above, we'll add 10% onto this target and give villain a 37% equity target to break even on calling turns.

Recall that Hero ended up betting 1:1 bluffs to value hands meaning he was bluffing 50% of the time. This makes calling the turn with a bluff catcher +EV for villain. If Hero wanted to still bet this range and make Villain more indifferent to calling then he'd have to increase his sizing a bit to hurt Villain's RE. We can't always be perfectly balanced. Note that if Hero was to subtract some **KQo** from his turn bluffing range to achieve perfect balance on the turn, he'd no longer be able to bluff enough on the 2h river.

Sometimes board run outs can just unbalance ranges and it's hard to get your sizing and range construction exactly right in-game. As long as we try our best to emulate optimal balanced strategies where desirable, we'll be on the right track. The goal is to be aware of our range and use it along with our sizing to come as close as we can to balance where that is a desirable end. A lot more money is made from good exploitative play than getting balance right down to the decimal point!

In-Game Balance Examples

Let's now look at a few examples where we have exact hole cards before moving on. This will help us approximate the above kind of thought process in-game. In the following hands, try to decide if Hero should bluff the street in question or if there is a better alternative.

Hand 131

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Likely Reg (4 hands)

SB – Hero

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO folds, **BU raises to 2BB**, **Hero raises to 7.5BB**, BB folds, BU calls 5.5BB.

Flop (16BB, 2 players)



Hero bets 8.5BB, BU calls 8.5BB.

Turn (33BB, 2 players)



Hero?

A likely Reg is a player who has done something over a very small sample that Regs will commonly do, but Fish won't. This will usually be some sizing related clue, perhaps Villain 2.5x opened his SB a couple of hands ago.

Hero 3-bets a linear but fairly wide range here SB vs. BU. The absence of any kind of Fish or weaker player in the BB would deter him from 3-betting polar even if he suspected that the Reg population folds to too many 3-bets. Hero simply doesn't have a flatting range by default here.

On the flop then, Hero has clear range advantage since his range contains **[JJ+]** where as Villain's capped range most likely does not. Hero can also hold **AK** where as Villain usually can't. **AK** is a surprisingly strong hand on this texture since it dominates Villain's air, has 6 outs vs. all of Villain's pocket pairs and has a very substantial degree of SDV. Many of Hero's one pair hands are in need of protection here on this texture and so Hero should simply bet his whole range on this flop. Villain will not be equipped to deal with it given his range disadvantage. This way Hero can delay forming a checking range until later in the hand and make sure he protects his equity advantage.

So Hero reaches the turn with his whole pre-flop range. **AsKs** is a rare part of that range that has both SDV and a nutted draw. How should it be played? Well, since we know of no exploitative route to take here we should be aiming at having a balanced strategy and bluffing/semi bluffing the turn with slightly less combos than we'd value bet. Recall from the [Semi-Bluffing Principle](#) that on the turn we may use a higher concentration of bluffs than on the river.

We will also need a check/call range as well as a betting range as undoubtedly there are now some hands with poor equity that we'd rather give up with and so we now have a check/folding range that needs balancing. We must not fold the turn a disproportionate amount of the time when we check. Checking hands is now far more acceptable than it would have been on the flop as Villain's flop call narrowed his range meaning we no longer have such an advantage range vs. range by the time we get to the turn.

What hands should go into the check/call range then? Certainly, SDV is our first and foremost requirement and **AK** has plenty of this vs. Villain's flop floats and A-high SDV calls. In fact, it dominates a great portion of those hands. While betting the flop with **AK** was probably technically a value bet for Hero, betting the turn would not be; it would be to turn a high SDV hand into a bluff, something that a balanced strategy will usually have us avoid. Normally **AK** would be a clear check/call on this turn.

Does our flush draw change things though? No, not at all, in fact it helps the check/call plan further. Villain is probably not folding many better hands than

this one even if we bet turn and river and so semi bluffing is just not enticing with this part of our range. Having a flush draw is actually quite nice in the sense that it puts some flushes in our c/c turn range those times a spade falls on the river. Hero should check the turn and look to gladly call a bet. He can bluff weaker hands than this and value bet stronger ones. What better hand to balance his check/folding range with?

Sure it's +EV to bet, but it's part of the highest EV long-term strategy to check.

Hero checks.

Hand 132

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Aggro Reg (31/24/35/36) (4k hands)

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **SB raises to 3BB**, **Hero raises to 9BB**, **SB calls 6BB**.

Flop (18BB, 2 players)



Hero bets 9BB, UTG calls 9BB.

Turn (36BB, 2 players)



Hero bets 21BB, UTG calls 21BB.

River (78BB, 2 players)



Hero? [70BB left]

This hand could well be a call pre-flop against most opponents. Few Regs are flatting as wide as this guy is out of position here though and so KhJh can serve as a value 3-bet as part of a linear range.

The flop is an unbelievably easy c-bet. If we're not bluffing this hand with it's frequent two overcards to many pairs, backdoor flush draw and gutshot, then we are simply not bluffing the flop anywhere near enough in position. SDV is insufficient to check. On the turn the same is true. We now pick up so much equity that our hand is now possibly the most suitable turn bluff in our entire range if we don't 3-bet **JhTh**. This street is also a must bet for similar reasons unless Hero wants to check his whole range and he really doesn't given that he has a lot of **Qx** that wants to value bet three times against pocket pairs and **9x**.

Hero's river shove would be for almost pot, which we now know mean that he needs a ratio of just over 2:1 value to bluffs to be balanced since these are the odds he's offering to Villain by shoving. Hero's value range is likely no weaker than **Qx** for value (anything else would be too thin). If Hero 3-bets only **KQ** and **AQ** pre-flop (**QJs** should be okay too though), then he has 16 combos of value. This means he needs around 7 bluff combos and so should select only the most suitable hands for the job.

This hand blocks **KQ** and **QJ**, which are undoubtedly a sizeable part of Villain's river calling range. This is a first class bluffing candidate and so should be bluffed even though Hero's value range is small.

The only reason not to bluff here would be if we thought Villain was too stationy to fold even the lower parts of his range. There could be an argument for this given these stats, but Hero should have built up some player notes over the 4k sample and should now refer to these to see if such an extreme exploitative adjustment is warranted. Otherwise...

Hero shoves.

Hand 133

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Fish (44/24/20/58) (800 hands)

SB – Hero

BB – Unknown

Dealt to Hero!



UTG folds, HJ folds, CO folds, **BU raises to 3.5BB**, **Hero raises to 10.5BB**, BB folds, BU calls 7BB.

Flop (22BB, 2 players)



Hero bets 9.5BB, BU calls 9.5BB.

Turn (41BB, 2 players)



Hero?

Pre-flop is a clear 3-bet yet many of my students might make the mistake of flatting this hand. They may argue that they should 3-bet an exclusively value 3-bet range and that **QTs** is not good enough to be a part of this range. This thinking is mistaken here due to one saving factor - post flop fold equity.

It is far better to inflate the pot and isolate a bad player with a very playable hand while gaining the initiative to harvest post-flop fold equity than it is to flat and potentially get squeezed out of the pot and miss some pre-flop fold

equity too. Hero will also win the pot much less often when he sees the flop as the pre-flop caller. Hero must 3-bet here!

The flop c-bet is good given all that pot equity and definitely a fair bit of fold equity too. Some people are terrified of this flop. They might protest:

"But this flop is all over his range."

This is just the [Fish Flop Fallacy](#) in action again.

This turn is a pretty clear bet in any spot where Hero craves balance - he just doesn't have many better bluffs in his range. Balance is one of the last things we care about here though. This player is very unlikely to be folding enough of his flop calling range on this anonymous turn card for betting to be better than checking. By checking we accept that betting is not going to be much better than 0EV, and stop ourselves from ever getting blown off our equity, which is fairly disastrous. Checking is clearly a good bit better than 0EV due to all the times we get there on the river and win the pot as it stands or, better yet, a further bet. Don't bluff Fish on non-board changing turns; this is one very reliable rule if there is such a thing in this game.

Hero checks.

13.3 Strategy As The Defender

As the defender post-flop we have a similar route available to achieving balance and satisfying the [indifference principle](#) that we met earlier. We are now working with the second part of it: "**Whenever Villain will be 0EV by bluffing, Hero's calling range is balanced**", that is to say that Hero is neither undercalling nor overcalling his range.

Calling hands should be chosen again using two central criteria.

1. Hero should elect to call the hands with the most SDV.

And often more importantly:

2. Hero should look to call the hands with the best blockers to Villain's value betting range and least blockers to his bluffing range.

It's a symmetrical situation to bluffing. Hero wants to bluff catch with the hands that make bluffs the most likely type of hand for Villain to hold and that involves blocking the non-bluffs. There are many common situations where Villain's betting or raising range is totally polarised. This means that each bluff catcher combo in Hero's range has exactly the same SDV as the others. If Villain can only have a flush or air, then a straight is as good as a pair, it's the one that blocks flushes the most heavily that takes priority in the calling range.

Let's look at an example of how to defend our range facing a bet on the river as this is the simplest street to assess in terms of how to play a balanced range.

Hand 134

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Unknown

BB – Unknown (0 hands)

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU folds, SB folds, **BB raises to 8.5BB**, **Hero calls 6BB**.

Flop (17.5BB, 2 players)



BB bets 10BB, Hero calls 10BB.

Turn (37.5BB, 2 players)



BB bets 26BB, Hero calls 26BB.

River (89.5BB, 2 players)



BB bets 55.5BB (all in), Hero?

We'll begin with Hero's calling range pre-flop. He'll be looking to defend something like the following to ensure he isn't overfolding or underfolding his opening range vs. the 3-bet.

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

Call

Figure 79 - A Default Defending Range CO vs. BB

This range equates to defending just under half of a fairly wide CO opening range of around 30%. It may be necessary to open the CO tighter depending on the player pool, but this range is definitely fine for more passive micro-stake games. The wider Hero opens, the wider his default defending range vs. the 3-bet.

On the flop we're looking at calling any Ax and our better pocket pairs as well as a few good broadway combos with backdoor flush draws. This gives us some balance and prevents Villain from being able to c-bet and then give up on the turn with impunity. If you're keen on practicing this exact process of combo counting, then go ahead and tally up some combos and see how wide we are defending the flop.

On the turn, enough of our flop calling range was **Ax** that we can now fold the rest of our range at this point without folding too much or too little to be balanced on this street. As an aside, most populations tend to underbluff the turn so being a bit tight here is not going to be the end of the world.

So let's focus our attention on the river: the balance decision we're primarily concerned with.

The balancing principle we met earlier can now be extended to cover the situation where Hero is facing a bet.

Balancing Principle 2

Villain is indifferent to bluffing whenever Villain's bet size generates an RFE of X.

AND

Hero is folding X% of his range and calling only hands that beat all of Villain's bluffing range.

In this hand Hero needs to calculate Villain's RFE in the usual fashion. He then proceeds by counting up all of his combos and calling exactly 100 minus Villain's RFE% of those combos deciding which ones are best to call.

So Villain's RFE is $(R / (R + PG)) = 55 / (55 + 89.5) = 38\%$

Hero's range contains the suited aces: **AQs, AJs, ATs, A9s, A5s, A4s, A3s** and **A2s** and all of these are 24 combos combined (8×3)

Hero's range contains the offsuit aces: **AQo** and **AJo** and these are 18 total (9×2).

Hero's range contains the quads **88** (1 combo).

Hero's total river range contains **43 combos**. He needs to fold 38% of these and so needs to call $100 - 38 = 62\%$ of those to make Villain indifferent to

bluffing him.

Hero needs to call $43 \times 0.62 = 27$ combos (rounded).

Now to decide which ones are best to call. Well, here blockers aren't really an issue. There are no busted draws to consider and so while **ATs** and **A4s** might be as good as each other to call with, we may as well just revert to preferring the one with the most SDV. This spot is simple. Hero will just call the top 27 combos SDV wise.

These are **AQ** (12), **AJ** (12), and then **ATs** (3). That's the balanced strategy solved for. **AT** and above is a call and everything below is a fold. Hero is unexploitable. Bluffing for Villain is 0EV and so doing it too much or too little makes no difference to either player in this one hand (though it may hurt Villain long-term if Hero notices.)

Final Disclaimer: most lower stakes populations, in the experience of myself and my students, do not triple barrel these high dry boards anywhere near enough to be balanced and so the best strategy in reality is likely to overfold our range. Maybe we can fold everything but **AQ** and that strategy will turn out to be higher long-term EV than the balanced one we just created.

So often, our job as poker players is to maximise EV by finding the right spots to deviate from balance and to what extent.

Let's consider a few of examples to round off the chapter. Compare the following two situations:

Hand 135

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Unknown (0 hands)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB, BB raises to 8.5BB, Hero calls 5.5BB.**

Flop (17BB, 2 players)



Hero checks, BB bets 9.5BB, Hero calls 9.5BB.

Turn (36BB, 2 players)



Hero checks, BB bets 23BB, Hero calls 23BB.

River (82BB, 2 players)



Hero checks, BB bets 59BB (all in), Hero?

Have a look at this hand and have a think about what range Hero gets to the river with, then consider the difference between this and [Hand 136](#) below.

Hand 136

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Unknown

SB – Hero

BB – Unknown (0 hands)

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU folds, **Hero raises to 3BB, BB raises to 8.5BB, Hero calls 5.5BB.**

Flop (17BB, 2 players)



Hero checks, BB bets 9.5BB, Hero calls 9.5BB.

Turn (36BB, 2 players)



Hero checks, BB bets 23BB, Hero calls 23BB.

River (82BB, 2 players)



Hero checks, BB bets 59BB (all in), Hero?

The difference between these two situations is that in [Hand 135](#), Hero has called the flop and turn with what is pretty far from the top of his range. His hand is low enough down on the river that he should have a comfortable fold to the river shove. Villain's RFE on this shove comes out at $59 / (59 + 82) =$

42%. Hero should call the most suitable **58%** of his range. He has plenty of combos of **QT**, **QJ**, **KQ** and **AQ** that have greater SDV and these hands also do a better job of blocking Villain's value range. **AJ** is not going to qualify as a call. Hero can work this out roughly in-game and come to this conclusion without calculating the exact percentages.

In [Hand 136](#), Hero is very near the top of his range on the flop and the turn and much closer to the top of his range on the river than he was in the hand before. The combos of **QT**, **KQ** and **AQ** no longer exist in his range by the river as Hero has no incentive to get to the river with these hands. This means that **AJ** is very likely to be in the top 58% of his hands suitability wise since he has few combos of better and the **A** does a nice job of blocking **AQ** and **AA** - two of Villain's likely value combos.

Hero folds in Hand 135.

Hero calls in Hand 136.

In the final hand of the chapter below, there are two questions to consider:

Q1. Is Hero's hand suitable enough to warrant a call from a balanced perspective?

Q2. Does Hero have a reason to adopt some exploitative strategy instead and does this change his decision?

The HUD reverts back to its usual form for when we are not the pre-flop aggressor. The red number is **3Bet Preflop** and the following three brown numbers are **CBet Flop**, **CBet Turn** and **CBet River** respectively.

Hand 137

UTG – Hero

HJ – Unknown

CO – Unknown

BU – Crazy Reg (34/28/**16**/89/67/75) (575 hands)

SB – Unknown

BB – Unknown

Dealt to Hero:



Hero raises to **3BB**, HJ folds, CO folds, BU raises to **8BB**, SB folds, BB folds, Hero calls **5BB**.

Flop (17.5BB, 2 players)



Hero checks, BU bets **12BB**, Hero calls **12BB**.

Turn (41.5BB, 2 players)



Hero checks, BU bets **25BB**, Hero calls **25BB**.

River (91.5BB, 2 players)



Hero checks, BU bets **55BB (all in)**, Hero?

Q1. Villain's RFE on a river bluff is $55 / (55 + 91.5) = 38\%$. Hero needs to call 62% of his river range to play defensively. This hand is certainly fairly low down in Hero's river range and will not creep into the top 62%. It has no club blocker and when quite a few draws get there, there are few worse SDV

hands in Hero's range. He has a few combos of flushes, some quads and boats, **AQ** and some but not too much **Jx**. His overall range is strong enough that **KQ** with no club is an easy fold from a balanced perspective.

Q2. But, Hero has a great reason to disregard balance and play his range by dramatically overcalling vs. this Villain. BU is extremely aggressive, likely to have a very wide 3-bet range pre-flop, and likely to be overbluffing every street substantially based on these stats. Hero only seeks the balanced answer when he lacks the information to accurately determine whether he is likely to meet his RE equity target on a call. RE only makes sense to consider when we have some idea whether or not we can muster the sufficient equity to satisfy it.

$$RE = ATC / (ATC + TP)$$

$$RE = 55 / (55 + 146.5)$$

$$\textbf{RE} = \textbf{27\%}$$

It seems clear that even on one of the worst rivers possible, Villain's range is likely to contain more bluffs than this measly target requires it to. Hero needs to play exploitatively and call down, even with a hand this low in his range.

Hero calls 55BB

Let's summarise what we've just learned.

The Offensive/Defensive Rule

When Hero has a good idea whether or not he is likely to meet either RE on a call or RFE on a bluff, he should play his range **offensively/exploitatively** post-flop and look at the maths from his own perspective.

When Hero is unsure whether or not he is likely to meet either RE on call or RFE on a bluff, he should play his range **defensively/balanced** post-flop and look at the maths from Villain's perspective.

This rule embodies perhaps the most crucial idea in succeeding at the modern online game. We'll finish with our final rule for the chapter.

Degrees of Exploitation

The more true the conditions below, the more incentive Hero has to be extremely unbalanced and favour vacuum EV.

- A: Villain is very unbalanced.
- B: The pot is large.
- C: The spot is rare.
- D: Villain is unaware.

Because there is less of a drawback in the form of hurting long term EV.

A: As we saw in that last hand, the more unbalanced Villain is, the greater the margin by which we'll exceed or fall short of our RE or RFE target. The greater this margin, the higher the EV of the exploitative strategy and the vacuum EV of adopting it.

B: Simple enough. The bigger the pot, the more money we win by adopting the best line in a vacuum. Also big pots happen much less often than small ones so this feeds into the next reason too.

C: The rarer the spot the less opportunity Villain will have to firstly, build up data on how we're playing that spot and secondly, exploit that data. This means that high EV vacuum plays incur much less of a long-term downside in rare spots.

D: Here we can get away with sustained unbalanced play even in more common spots since Villain is not the type of player who is likely to adjust properly or even know what is going on in the first place.

We now know how to be balanced, but we must ensure that we don't succumb to the very common pitfall of being too balanced in spots where there are better alternatives. The above guide can be used as an aid in determining when to remain in the box of balance and when to smash your way out in

order to make a lot more precious EV. Balance is our vessel to success as we move through the stakes and exploitative spots become fewer and further between, but exploitative spots will always exist, lest online poker is officially dead.

14. Stack Depth

Varying stack depth presents a whole new problem by distorting the thought processes we've built into our arsenal for playing 100BBs deep. It's not that everything changes, but there are some new implications to playing at non-standard stack depth that will cost us a lot of EV left unrecognised. We've all had to deal with the table where we're a terrifying 300BB deep with the solid aggressive player to our left (probably leave!) or when we have that 16BB Fish behind us irritatingly shoving over our every open. This is a short chapter in which we'll address how to handle these situations and everything in between.

Being forever uncomfortable both shallow and deep is not acceptable for the serious poker player and an approach of just avoiding these stack sizes is totally unsatisfactory. There is simply too much EV that can be pillaged in favourable non-standard stack situations. So let's get adapting.

14.1 Playing Deep Pre-Flop

Deep Stacks = More Implied Odds

This is the first important consideration for playing deep pre-flop. Hero is very often able to widen up his ranges for both flatting opens and flatting 3-bets. As always, when implied odds are high he should favour flatting hands that have a lot of **nut potential (NP)** such as pocket pairs, suited connectors and suited aces. We looked at this attribute when we considered starting hands way back in [Figure 4](#). These NP hands, which usually connect too infrequently in a huge way at normal stack depth, can easily become calls where stacks are deeper and the reward is larger. After all, remember that implied odds are just a measure of Hero's investment to see the next street compared with what he stands to gain from Villains' stacks should he connect in the way he desires.

Take the following hand as an illustration:

Hand 138

UTG – Aggro Fish (36/18/10/25)
HJ – Unknown
CO – Hero
BU – Unknown
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG raises to 3BB, HJ folds, **Hero?**

This is a spot we'd normally fold fairly quickly 100 BB deep. **86s** is not a hand that will flop something powerful very often. To recoup enough money on average to compensate for the 3BB investment it costs to see a flop here is not normally possible. If Hero knew he was unlikely to get squeezed and would indeed see the flop close to 100% of the time that he flatfolded, then calling would be more reasonable, but with three unknown players left to act behind and without the BU, calling is undesirable.

Let's look at what changes 200BB deep. With these much deeper stacks, Hero can potentially win a lot more from the Fish by flatting in position. He will have the option of making large flop raises, big turn bets and huge river bets until close to 200BBs are in the middle. This makes the ratio of investment to potential gain far better and Hero should definitely flat this spot even with knowledge that he'll get squeezed some relevant amount of the time.

So deeper stacks lessen the requirements for how often our hand needs to flop big in order to call. We can mine with weaker implied odds hands like **86s** when deep vs. a weaker player in position, but we'd need to be against a particularly horrible player and be very likely to see the flop after investing our 3BBs to call a hand as bad as **65o** in this spot.

Hero folds at 100BB stack depth.

Hero calls at 200BB stack depth.

Let's take an example where we face a 3-bet now.

Hand 139

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Reg (23/17/8)

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU folds, **SB raises to 9BB**, BB folds,
Hero?

Another hand that just shouldn't be a part of our defending range with 100BB stacks. It flops terribly the vast majority of the time and so we'll be forced to fold on a huge amount of flops or else adopt an insanely unbalanced floating/raising strategy. It's also an awful hand to 4-bet bluff since it blocks none of Villain's 3-bet value range whatsoever.

With 200BB stacks however, it's less fatal that we have to fold on a lot of flops. Those times we do flop a set (around 1/9) we'll be able to extract a lot more money when Villain is stacking off. This lessens the burden on how often we need to defend to a c-bet on the flop and improves implied odds drastically.

Have a look back at the [set mining rule](#) we devised back in [Chapter 6](#). We normally need to recoup roughly 10x our investment here in order to break even on a set mine assuming that we have little intention of playing anything but fit-or-fold post-flop, which is pretty much true with a hand as rigid as 44 - it either flops the world or nothing at all. We invest 6BB here to call the 3-bet and the pot will be 19BB if we do. We'll have to make 60BB in total to break even on a call, which equates to another 41BB from Villain's stack on top of the pot. Winning just under half of Villain's stack with 100BB stacks is optimistic, but when we can sometimes win 200BB, this task becomes much easier. This hand is fine to call with deeper stacks especially in position.

Hero folds at 100BB stack depth.

Hero calls at 200BB stack depth.

You may wonder at this point where the cut off lies in these two hands. At what stack size would our implied odds cease to be sufficient in each case? The answer is somewhere in the middle and it's really just a case of estimation. These spots are too complicated to calculate exactly due to the vast array of post-flop possibilities, but I'd say in the first case we should start calling at around 140BB stack depth and in the second about 160BB. What is this based off of? Experience, feel and an implicit familiarity with the post-flop possibilities, which are just too numerous to consciously or explicitly compute.

Practice this kind of estimation to develop a better feel for when stack depth causes us to call or fold hands we might not normally.

Stack Depth Magnifies Other Advantages

In [Hand 139](#), at 200BB stack depth, we were able to make a call that would normally be -EV (worse than folding). This was due to the deeper stacks bolstering our implied odds and holding a hand with great nut potential. Implied odds is not the only weapon made more dangerous by deep stacks. Skill edge and positional edge are two other assets boosted by having more money behind. This can make bloating large pots out of position very undesirable without a significant equity edge to compensate, especially vs. competent opposition that can use this advantage effectively.

This means that 3-betting thinly for value deep is unadvisable in many situations where it'd otherwise be acceptable. Take the following hand, for example:

Hand 140

UTG – Unknown

HJ – Unknown

CO – Winning Reg (26/21/45/53) [250BB]

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU folds, SB folds, **Hero?**

QQ is a hand that, 100BB deep, we'd normally be thrilled to have in our 3-bet and get it in range vs. any standard or looser Reg in these positions - it's a no brainer and must be part of our 3-bet/shove strategy.

At the stack size in question, however, there are two central reasons as to why 3-betting is not so desirable.

- As we saw previously, the opener's implied odds are better and he can very profitably defend much more of his opening range. This EV has to come from somewhere, and it's not being generously injected by the poker site, that's for sure! Hero is the one who grants Villain this extra EV by having to play a lot of good but non-nutted hands out of position post-flop in a large pot with a very large effective stack. What Villain gains in implied odds is equal to what Hero suffers in reverse implied odds.
- Villain's positional advantage and any skill advantage are magnified by the stack depth. This means that many decision points post-flop will be negative or at least lower EV for Hero that wouldn't ordinarily be at a smaller stack depth.

Calling is going to be the highest EV line for Hero in this situation given how unfavourable stacks are for 3-betting. Hero will be able to control the pot

size much better and prevent Villain from being able to threaten anywhere near 200BBs. To do this Hero will simply adopt a defensive [pyramidal calling strategy](#) as we saw back in [Chapter 8](#) on the boards where his range is suffering a lot against Villain's. The smaller pot then makes Villain's magnified positional advantage from stack depth less severe as Villain will struggle to grow pots to any size that makes the 200BB stack relevant without adopting some kind of bizarre over-betting strategy.

The potentially shocking conclusion for Hero is that he has no 3-bet range in this spot. The situation just favours the opener, not the 3-bettor.

Hero calls 3BB.

Some players might have two objections here:

- The first is about losing value by keeping the pot so small. Can we really play **AA** by just flatting?
- The second concerns Hero's lack of re-stealing; doesn't it make opening the pot with 100% of hands insanely profitable for villain?

To the first objection I would respond by stressing that building huge pots 200BB deep does not actually favour overpairs; these hands cease to be sledgehammers that want to shovel in three large bets in a 3-bet pot vs. most opponents. Ranges for committing large amounts of money this deep are more polarised than this and so overpairs will frequently be bluff catchers. Hero will end up wanting to pot control a street post-flop anyway a large majority of the time even with a hand like **QQ** on **874r**. This is much more achievable by keeping the pot smaller. Of course if Villain is stationy then Hero should develop a 3-bet range and embrace the variation that ensues.

In response to the second objection, I would remind the reader that we are developing an optimal strategy vs. a balanced BU opening range that can continue to plenty of 3-bets profitably. If Villain makes the adjustment of opening very wide indeed, we can start to develop a polarised 3-bet range and punish him for having too many hands that can't call, even at this stack depth.

Being out of position deep is a nightmare vs. anyone competent, but being in position deep as the 3-bettor yields a much higher EV return and Hero should not pass up the opportunity to have a 3-bet range in these spots. It is then Hero who wields the magnified positional advantage and so he has no problem building big pots in which he can swing this weapon. Pot control, value, fold equity etc. are all in Hero's favour and so in the following hand, he can afford to play a much less timid pre-flop game.

Hand 141

UTG – Unknown
HJ – Unknown
CO – Winning Reg (20/16/57/52) [250BB]
BU – Hero
SB – Unknown
BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, Hero?

In this spot we can breathe a sigh of relief due to our glorious position and revert to a balanced polarised range against this player who folds a slightly higher than balanced percentage to 3-bets after raising. In fact, **A6s** is a particularly suitable choice to form 4 combos of our bluff portion. It's slightly too weak to flat (depending on who is in the blinds) it blocks Villain's continuing range, but more importantly at this stack depth, it can flop the nuts and cooler Villain for a very large amount of BBs.

Hero raises to 9.5BB.

Hero's sizing is larger than what we're used to (see [Figure 62](#) for a reminder of what standard 3-bet sizing looks like). Hero benefits from using bigger sizing at this stack depth for two reasons:

- Hero gets to cut down Villain's implied odds and stop a large part of his range being very easy to defend.
- Hero does not need to fear this larger 3-bet size costing him too much EV when Villain 4-bets as Hero can flat a lot of his range vs. a 4-bet in this position. Villain could elect to 4-bet larger than usual, but this will cut back the profitability of his 4-betting by increasing RFE.

To conclude the first section of this chapter we've learnt two crucial things:

Deeper stacks enhance implied odds and make it much more profitable to be the pre-flop caller. This allows the caller to flat a wider range vs opens, 3-bets and 4-bets.

And:

Being **out** of position is not a *sufficient* reason to abandon having a 3-bet range.

Being very deep is not a *sufficient* reason to abandon having a 3-bet range.

Being **out** of position and being very deep can be a *sufficient* reason to abandon having a 3-bet range, especially where Hero is readless and Villain is competent.

It's now time to look at what happens when stacks are smaller than 100BB.

14.2 Playing Shallow Pre-Flop

There are a few different bands of effective stack size that fall under the umbrella term: 'shallow stacked'. We'll start off by examining the lowest stack size we're likely to encounter in a cash game of 10-20BB and then move upwards from there to 40BB stacks and finally 60-80BB stacks. Hero can then put the pieces together and draw his own conclusions about those stack sizes in between that weren't explicitly covered by the examples in this section.

10-20BB - The Pest Stack

A stack of 10-20BB waiting to act behind us can be a real nuisance and is the poker equivalent of that really annoying mosquito that dives in and out of your ears as you try to sleep. You know it won't do you any real long-term harm, but that doesn't stop it from ruining your night. Take the following example for instance and try to spot Hero's mistake.

Hand 142

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Unknown

SB – Passive Fish (42/8/**2/66**)

BB – Unknown [17BB]

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 3BB**, BU folds, SB folds,
BB raises to 17BB (all in), **Hero folds**.

The mistake is not that Hero should refrain from opening a hand as good as **98s** from the CO, unless the BB is shoving a very wide range indeed, but Hero has no reason to believe this the case as of yet. So opening is still correct especially with the other fully stacked Fish out of position to Hero in the SB. It's the sizing that's the problem here. Hero's aims in opening are:

- To win the blinds.
- To play a pot in position with the initiative and a skill advantage 100BB deep vs. the SB.
- To play a three-way pot with a nice multiway hand in position vs. two weaker players.

How do we know that the BB is a weaker player? Because he has 17BB! Regs simply don't have 17BB unless they're professional short stackers and even these will usually auto reload to a slightly deeper stack depth. Moreover, short stacking Regs are a much rarer breed than random 17BB stacked Fish.

Anyway, the three aims above can all be accomplished with a **2BB** open. Sure, Hero loses a bit of value that way from the building a smaller pot vs. the fit-or-fold Fish in the SB, but he loses far more by 3xing and having to fold quite often to a shove. 10-20BB stacks will usually shove more often than a deeper stack will 3-bet. Just as Hero is advised to open smaller vs. habitual 3-bettors, he should do the same vs. habitual shovers. This lower part of his opening range that he has to fold will save a lot of money in the long run and the hands in this sub-range are his most common holdings.

It should also be pointed out that, in this spot, we don't need to worry about punishing BB if he does choose to flat wide with his tiny stack as many horrible players might. The effective stack naturally negates his implied odds rendering a wide flatting range a horrible strategy. Hero needn't open 3x even if he knows BB flats more than he should. Saving money against the shoves is still of paramount importance and so Hero should open his whole range for 2x in this situation.

Open smaller when shovable stacks wait behind. Money saved from losing less to a shove with hands we have to fold will almost always outweigh any benefit gained from using bigger sizing.

Where those stacks are known to be shoving very wide, stop opening hands with insufficient equity to call vs. Villain's shoving range.

Now we'll examine Hero's decision to fold to the shove having already made his sizing mistake. Remember that this spot is an end of action spot (if Hero calls there will be no more action for the hand). This means that he can simply evaluate whether his hand is likely to meet its RE vs. Villain's range.

$$RE = ATC / (ATC + TP)$$

$$RE = 14 / (14 + 20.5) = 40.5\%$$

Using a reasonable assumption that Villain is shoving 20% of hands in this spot on average, Hero will have 37% equity and so folding is correct as played.

Now how should we approach the situation where the tiny stack opens and we're left with an oversized 3-bet remaining in our stack?

Hand 143

UTG – Unknown

HJ – Unknown

CO – Fish (29/16) [20BB] (20 hands)

BU – Unknown

SB – Hero

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 3BB, BU folds, Hero?

This is a spot where having a flatting range is just a categorical mistake. There is very little to be gained from playing in a fit-or-fold manner that tries to harvest implied odds as the payout is tiny compared to the investment, which represents more than 1/7th of the effective stack. There is, however, a large amount of EV to be gained from fold equity and just scooping up the 3BB Villain has left out there. Therefore, Hero should take the hands that have enough fold equity + equity when called and shove these, folding the rest.

Imagine for a second that Hero held two useless cards that lost 100% of the time post-flop. This is of course impossible, but it helps illustrate. If Hero's cards were totally worthless, then his raw RFE would be his true RFE.

$$\text{RFE} = \text{R} / (\text{R} + \text{PG})$$

$$\text{RFE} = 19.5 / (19.5 + 4.5)$$

RFE = 81%

Clearly shoving two blank cards then is a blunder. Hero's true fold equity shouldn't often be more than around 50% assuming that Villain opens about 20% from this seat and folds half of that to a shove.

This target can be brought down very easily indeed by Hero having some equity when called. What happens, given the assumption that Hero's fold equity is 50%, if Hero has **73o** and decides to put Villain all in? Will this be +EV? Let's find out how to calculate the EV of this shove. For simplification purposes, we'll make the clearly false assumption that the BB folds 100% of the time. In reality it won't be too far from this, but he will wake up with the nuts and interfere with our objectives from time to time.

The EV of a Pre-Flop Shove

There are two branches to consider in a spot where Hero shoves over an open: the one where Villain folds and the one where he calls.

Branch 1: Villain folds

EV here is simply the amount by which Hero profits in picking up the pot. In this case, Villain's 3BB open + the dead blinds (including Hero's own blind).

$$\text{EV When Branch 1 Occurs} = 3 + 1.5 = +4.5\text{BB}$$

But Branch 1 does not happen all of the time, and so we need to multiply it by how often it occurs. In this case 50% of the time since Villain is assumed to be folding half of his range.

$$+4.5 \times 0.5 = +2.25\text{BB}$$

$$\text{Branch 1 EV} = +2.25\text{BB}$$

Branch 2 : Villain Doesn't Fold

In this branch Hero loses his investment minus the amount he gets back from the pot at showdown based on his equity vs Villain's range. Against the top 10% of hands 73o has a lowly but very influential 26% equity.

Hero invests 19.5BB and he gets back 26% of the total pot. The total pot will be two 20BB stacks + the dead BB and so Hero gets back 26% of 41BB.

Hero gets back **10.66BB**.

Hero's net loss when Branch 2 happens is $19.5 - 10.66\text{BB} = 8.84\text{BB}$
Hero's EV when Branch 2 occurs is **-8.84BB**.

Again, we must multiply this by its frequency of occurrence.

$$-8.84 \times 0.5 = -4.42\text{BB}$$

$$\text{Branch 2 EV} = -4.42\text{BB}$$

Now we simply add our two true EVs together to find the real EV of shoving the hand in question.

$$\text{Overall EV} = 2.25 + (-4.84) = -2.59\text{BB}$$

Shoving a terrible hand like 73o here is -EV but not by a great deal!

Now we know the procedure, let's we plug in our actual hand of **55** and see what happens.

Branch 1 EV = +2.25BB. No change here.

It's Branch 2 that changes. **55** has 41% equity vs. the top 10% of hands. Hero now gets back 41% of the 41BB pot or 16.81BB. He only loses 19.50 - 16.81BB when called or 2.69BB.

His EV then is 2.69 x the 50% frequency with which the branch occurs.

Branch 2 EV = -1.35BB

Overall EV = $2.25 + (-1.35) = +0.9\text{BB}$

With these assumptions in place, it's profitable for Hero to put Villain all in, but does he want to do this?

No! The problem here is that unlike the last hand, this is not an end of action spot. In the real world, very occasionally, BB will wake up with a big hand and come over the top. In this case, Hero would be forced to lose 20BB if he folded. It's therefore more sensible here to just make a standard 3-bet size and accept that as far as CO is concerned it represents his stack. Even if CO makes the bizarre play of flatting Hero's 3-bet, the measly remainder of the money will go in on pretty much all but the very worst flops. Hero might even save a few bucks on **AsKsQs**.

Hero raises to 9BB

40BB - The 3-Betting Stack

Let's turn to an example where Villain has a more common stack size and one that short-stacking Regs like to wield aggressively. The reason that this stack can be played so aggressively pre-flop is that a smallish 3-bet can be used to create a very unpleasant situation for the opener. Take the following situation for example:

Hand 144

UTG – Unknown

HJ – Unknown

CO – Hero

BU – Reg (20/15/11) [40BB]

SB – Unknown

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **Hero raises to 2.5BB**, BU raises to 6BB, SB folds, BB folds,
Hero?

Hero is presented with two strategic problems facing the small 3-bet from this stack size.

- 4-betting any reasonable size commits Hero to the pot and so 4-bet/folding as a bluff is not an option.
- Calling offers very poor implied odds and so is less favourable than normal.

Hero's 4-bets now have to risk more money to take down the pot since they are effectively shoves, but shoving instead of 4-bet/folding as a semi-bluff comes with the bonus of realising equity, which a 4-bet bluff at 100BB stack depth usually does not have as Villain either folds, or shoves and we fold.

Hero's risk of 37.5BB to win 10BB here is pretty poor and leaves him with a raw RFE% (before adjustment for equity) of 79%. This is just about as unfavourable as shoving over the 20BB stack's open was in [Hand 143](#).

Nevertheless, Hero can profitably shove hands with reasonable equity. If we assume that BU 3-bets a wide 15% of hands in this spot and 3-bet/calls the top 7.5% of hands then again we have 50% fold equity. I've chosen 15% because his 11% is an overall average and BU vs. CO is a spot in which he should be exceeding that average.

Using the same hole cards of **55**, Hero now has 37% equity vs. Villain's 7.5% 3-bet/calling range of **[77+, ATs+ AJo+]**. Let's crunch the numbers and see if **55** is still a +EV shove.

When Branch 1 occurs, Villain folds and Hero's EV is **+10BB** (the total pot)

This branch happens 50% of the time so we multiply the above by 0.5.

Branch 1 EV = **+5BB**

In Branch 2, Hero has 37% equity vs. the top 7.5% of hands. Hero now gets back 37% of an 81.5BB pot or 30.16BB. He loses his investment of $37.5 - 30.16 = 7.34$ BB.

Branch 2 also happens 50% of the times so again we multiply by 0.5.

Branch 2 EV = **-3.67BB**

Overall EV of shoving = $5 + (-3.67) = +1.33$ **BB**

One mistake a lot of players make in this spot is to underestimate how good it is to shove. Missing +EV shoves here is one mistake I commonly try to eliminate in my students in these spots.

So Hero can defend quite wide by shoving, but how wide is too wide and what hands are better to call than to shove? Hero must make sure that he finds shoves with hands that are poor playability wise, but have reasonable equity when all in pre-flop. He should then seek to flat hands with lesser equity but higher good pair potential. Hero's required equity when called in order to shove profitably can be solved for algebraically as follows.

$$0 = \text{Branch 1 EV} + \text{Branch 2 EV}$$

$$0 = 10 + (81.5X - 37.5) \text{ Where X is Hero's equity when called.}$$

$$0 = 81.5X - 27.5$$

$$81.5X = 27.5$$

X = 33.74

So It turns out that Hero needs **34%** equity vs. Villain's calling range to make a +EV shove, but that doesn't make shoving better than calling as calling may also be +EV; sadly how +EV can only be estimated.

Having decided which hands are best to flat and shove with, Hero should then fold hands that are insufficient in both of these departments. His overall defense strategy should look something like this:

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	ITs	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



Shove



Call



Fold

Figure 80 - Dealing with 40BB 3-Bettors

This strategy has Hero folding 50% of his own range vs. the 3-bet. This does well to counter Villain's strategy as Villain's 3-bet folds have a raw RFE of 6

$/ (6 + 4) = 60\%$. We can deduct 10% from this target and probably no more since so many of Hero's defends come in the form of shoves, against which Villain realises no equity with his 3-bet/fold range. Hero is playing in such a way that he:

A: Is only shoving or calling hands that are +EV in a vacuum to do so.

AND

B: Negates any extra 3-bet folds that Villain adds to his range.

Hero is roughly balanced and protected vs. the 40BB stack as long as he finds all of these +EV shoves. He must avoid overfolding the situation at all costs.

There are of course other exploitative adjustments Hero can make in order to make life harder on the 40BB stack. If he ups his open size from 2.5x to 3x, then BU will be offering Hero a much better price on a 4-bet shove and, perhaps paradoxically, Hero will be able to defend wider having opened bigger vs. this particular stack size. That said, he would lose more the time he folds and would be advised to accompany the larger sizing strategy with a tightening of his opening range.

If Villain's 3-betting was really out of hand, then Hero should make this tightening adjustment, open large and just shove a huge amount of his range to print money. The smaller Hero opens, the wider his calling range should be as his implied odds are likely to better depending on Villain's 3-bet size. He should also shove fewer hands if he opens smaller due to the worse risk reward ratio on a shove.

Overall, there are many ways that Hero can counter this strategy.

This section has been very instructive not just for countering the aggro 40BB stack, but also in teaching a general awareness of poker math in action. Make sure you're comfortable with the above theory before we move on.

Finally, it should be noted that if a 40BB stack opens, the situation is exactly the same with roles reversed. Hero can bear all of the above theory in mind

when formulating his 3-bet range using the effective stack of 40BB; the last thing he wants to do is offer Villain the adjustment of shoving a very wide range. Have a go at building an optimal 3-bet game for this spot with the roles reversed. Try out various open sizes for Villain and see how Hero's strategy evolves.

60-80BB: The Awkward Stack

This stack size is one we'll commonly run into when facing weaker players. Fish will tend to buy in for random amounts, depending on what they feel like gambling that day, or on how much money is left in their account. They may also buy in for 100BB and then just not top up having lost a few pots. Hero should assume these stacks to be weaker players almost always. While there are Regs who buy in for these neither here nor there amounts, they're few and far between.

The first thing that should be recognised against these stacks is that it will be easier to get the money in post-flop. With a 60BB effective stack against a weaker player, value betting until all-in post-flop with decent top pair hands becomes much more attractive. As a result, Hero should favour opening, isolating, and 3-betting hands that can flop top pair frequently. At the same time, implied odds nut potential hands decrease significantly in value.

Let's take an example where the awkward stack size causes Hero to make a play that he wouldn't consider 100BB deep in many situations at all.

Hand 145

UTG – Unknown

HJ – Hero

CO – Unknown

BU – Unknown

SB – Aggro Fish (38/27/14) [64BB]

BB – Unknown

Dealt to Hero:



UTG folds, **Hero raises to 3BB**, CO folds, BU folds, **SB raises to 10BB**, BB folds,
Hero?

With 100BB we'd be inclined to 4-bet/call for value vs. such a player. Our equity when all in would be very decent, and moreover, Villain could flat a lot of dominated hands out of position to the 4-bet. Hero would also have more room to utilise his positional and skill advantages to outplay Villain post-flop and would expect Villain to make a lot of mistakes. Shoving 100BB deep would not be the highest EV play unless Villain 3-bet and called off his stack very wide indeed. With these stacks, however, 4-betting to a smaller size completely commits Hero on all but the very worst of flops. Consequently, when Villain then flats the 4-bet he is making far less mistakes by stacking off post-flop and his position is less of a handicap.

AKo is not a hand that figures to be miles ahead of Villain's range, though it should be in good shape. 4-betting small allows Villain to realise equity for cheap, play fit-or-fold, and given how pot committed we are post-flop, a strategy of flatting the small 4-bet to continue with one pair or better should actually serve him quite well. We'd much rather simply shove at this stack depth for a few reasons:

- Villain loses the ability to mine for a pair on the flop and stack us when he hits one.
- Villain will likely feel much wider pre-flop with a 60BB stack than he would with 100BB so Hero's equity if Villain calls the shove is much

better at the shallower stack depth, this makes shoving far less thin for value. Villain likely does not fold as many worse hands eg. AJo.

- Hero's shove protects his equity in the hand. Hero would much rather Villain folded a hand like QJs or 66 than took a flop with them given the significant and very large slabs of equity these hands have against AKo respectively.

Hero raises to 64BB (all in effective).

Now, how can we adjust our own 3-bet game to maximise our EV vs. an opener with 60-80BB?

Hand 146

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Tight Passive (24/13/70/64) [70BB]
SB – Unknown
BB – Hero

Dealt to Hero:



UTG folds, HJ folds, CO folds, BU raises to 3.5BB, SB folds, **Hero?**

BU is just the type of player Hero would love to 3-bet bluff a wide polar range against for fold equity purposes. Hero's value range will be narrow and his bluff range will span quite far down into his would-be folding range (hands too weak to call with.) This strategy is made even more lucrative by Villain's terrible cocktail of huge sizing and high **Fold to 3Bet After Raise** stat. This unique stack-size allows Hero to pick sizing that makes both shoving and 4-bet bluffing unattractive means of defence for Villain.

A standard 3x 3-bet to 10.5BB would be too large and would allow shoving to be a reasonable counter strategy. Hero wants to hurt Villain's RFE on a

shove but still maintain a reasonable degree of pre-flop fold equity. For this reason he should err on the smaller side. A 3-bet of 8.5BB here should still mop up a reasonable amount of EV in fold equity and renders a shove by Villain a little ridiculous due to a poor risk:reward ratio. Note though that a smaller 4-bet to 20BB with the intention of folding to a shove is probably even worse since Villain will be pot committed and have to call off the rest anyway with most reasonable 4-bet bluffing hands.

Hero will make a great deal of money in this spot and needs to attack it aggressively with smallish sizing.

Hero 3-bets to 8.5BB.

14.3 Playing Deep Post-Flop

In this section we'll be focusing less on bands of stack-size and more on the themes of being deep post-flop. We'll start out with one of the most misplayed areas of deep stack poker.

Out of Position Deep - Keep Pots Smaller.

Conventional poker wisdom states that calling is generally more profitable in position than out of position and so, whether Hero is looking for fold equity or seeking to extract value, he is advised to have more of a raising game post-flop on the flop and turn where he is out of position. One exception to this rule is when stacks are deep. As we know already, deeper stack-sizes exaggerate positional advantage. Another thing they do is increase reverse implied odds. When Hero builds a big pot 100BB deep, he can typically expect to be in excellent shape when a lot of money goes in with the second or third nuts (depending on board texture). Should 250BB end up in the middle, however, without an aggressive dynamic, the average Reg will have a much tighter range and bottom set may suddenly feel like a bluff catcher that has just value owned itself for two and a half stacks!

Being out of position removes Hero's ability to control the size of the pot on later streets. He cannot prevent Villain from betting the pot having checked and may find himself in some very uncomfortable situations should he build very large pots with unnutted hands. As we are always concerned with our range against competent Regs and not just our two cards in a vacuum, we'll often decide to forego having a raising range altogether when deep on the flop out of position, as there are so few (if any) combos we are comfortable building an enormous pot with. Balance, as always is very important where applicable.

Have a look at the following situation:

Hand 147

UTG – Unknown

HJ – Reg (20/16/55/50) [270BB]

CO – Unknown

BU – Unknown

SB – Unknown

BB – Hero

Dealt to Hero:



UTG folds, HJ raises to 3BB, CO folds, BU folds, SB folds, **Hero calls 2BB**.

Flop (6.5BB, 2 players)



Hero checks, BU bets 5BB, Hero?

100BB deep, this spot is a raise. The flop is wet enough that we want to get our value fast and we have range advantage due to having a higher concentration of sets and straights than Villain has. While both players can have these hands, they are less diluted in our range than they are in Villain's. If we get 3-bet on the flop with a 100BB stack, we'll simply shrug and shove expecting to have enough equity vs. a stacking off range of two pair plus and good draws (maybe even with the odd overpair that wants to protect itself vs. draws).

Getting 3-bet on this flop 270BB deep is extremely unpleasant. We know that this is often far from the last bet we'll be facing and we've created a situation where Villain can pile on pressure on any run out, even ones that seem safe for us. Bloating this pot with such a deep effective stack out of position is

horrible. Even if Villain just calls our poor flop raise, he will have the option of injecting the pot further on the turn and river should we need to start slowing down. If we raise and the turn is the **Qd** we're forced to check and decide between folding or calling and drawing to a hand that could be crushed by bigger sets. The reverse implied odds are awful.

Even on a 'safe' turns like the **4h** we may feel uneasy about betting and getting raised. Again, if we get raised on the turn with 100BB stacks we'll be gladly calling off the rest.

But if we just call flop aren't we letting Villain see free cards cheaply on a wet board? Yes, but don't be so quick to assume that that's the end of the world. Villain's range is far from just draws, if it were we'd simply shovel money into the pot then check/fold if they get there, check/calling all blank rivers. Sadly, his range contains better nutted hands too and even the draws he does have are very happy calling a flop raise in position with great implied odds due to stack-size.

Building big pots out of position with unnutted and/or very vulnerable hands is a recipe for getting destroyed. We don't need a raising range here as our positional disadvantage demands that we keep the pot smaller so as to cut down on our reverse implied odds. There's only so much we can lose to better hands by check/calling down and we can often still get three streets of value from an overpair on good run outs this way. I don't think it's necessary to deploy any kind of raising range here at all, but if you do want one, make sure that it's constructed with totally nutted hands, nutted draws and hands that are closer to pure bluffs. This will make life much easier on future streets out of position.

Hero calls 5BB

In Position Deep - Build Away

In position, the worries of the last hand are relieved. We now have the magical weapon of pot control. Say we raise up the flop in the last hand, get called and the turn comes a nightmare card. Well, most Villains will continue

to check to the aggressor; after all our range is far from capped and we could have the nut flush on a diamond turn very easily. In fact, Villain should generally range check every turn to the aggressor. Now we can check behind and go to the river. We may have a difficult decision to make here should Villain bet out, but at least it's just one difficult decision in a controlled pot. We're not check/calling our huge stack away with no idea as to Villain's bluffing frequencies.

Also, in position we get to play the role of the deep-stacked bully. As our positional advantage is so huge, we can apply pressure from an early street and always bail into a free card later; if that is, we don't want to blast away and make Villain's head hurt with two pair. Look at the following hand:

Hand 148

UTG – Unknown
HJ – Unknown
CO – Reg (20/16/55/50) [270BB]
BU – Hero
SB – Fish (56/5/0/25)
BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, **CO raises to 3BB**, **Hero calls 3BB**, SB folds, BB folds.

Flop (7.5BB, 2 players)



CO bets 6BB, Hero?

Hero's pre-flop call would be somewhat questionable if the Fish had not been in the SB. As is, Hero really wants to get into pots in position to weak players with a dominating hand so this is totally fine. SB folds: no cigar.

So now we find ourselves heads-up on the flop with a gut-shot, overcard and a beautiful blocker to the nut flush. Why is this latter feature so important deep? It stops Villain from being able to turn the nuts and this allows us to apply a lot of pressure on a spade turn. The extra equity from the gutter makes life even happier and this is clearly an excellent part of our range to turn into a bluff on a flop where we can have all the best value combos going. I'm not at all opposed to having a raising range on this flop. It should still be very polarised, however, and I'd probably stick to something like [88] [JJ] [T9] for value, some nut flush draws that thrive with this stack depth and some weaker bluffs to balance. We can always pot control by checking back the sets and straights on spade turns and can apply lots of pressure with our nut flushes and bluffs on those turns. Note that we're not raising this flop with a Q-high flush draw - it prefers a less than enormous pot.

Building the pot sooner in position when deep allows us to wield a giant hammer over our opponent and create a lot of discomfort. As a result, and due to this flop smashing our range really well, CO should deploy a strategy of checking most of his range on this texture. Few players actually do this though until you get to the higher and tougher limits. The brain dead Regs who auto c-bet like monkeys here deserve the beating they're likely to receive.

Hero raises to 24BB.

Woah, huge sizing! Absolutely! Hero has all three streets to apply pressure and is planning on barreling lots on many run outs. Therefore, he is perfectly happy building a huge pot with all parts of his range. The value wants to win the maximum and is close to nutted and the bluffs don't need a good RFE right now as they'll be blasting away so often on turns and rivers with increasing fold equity. This sizing makes a lot of sense - maximise the EV of your positional deep stack hammer!

Deep Stacks and Draws

The deeper we get, the greater implied odds become, but the more nuted our draws need to be to realise them without huge downside. There are occasions with 100BB effective stacks on which folding a weak draw on the flop or turn is totally fine, but where we must call with 200BB stacks.

Hand 149

UTG – Unknown

HJ – Unknown

CO – Whale (64/34/0/25) [200BB]

BU – Reg (27/21/56/54)

SB – Hero

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO raises to 2BB, BU raises to 7BB, Hero calls 6.5BB, BB folds, CO calls 5BB.

Flop (22BB, 3 players)



Hero checks, CO bets 8BB, BU calls 8BB, Hero calls 8BB.

Turn (46BB, 3 players)



Hero checks, CO bets 10BB, BU folds, Hero?

Pre-flop is a clear cold call. It's not that we want to play this hand 100BB deep OOP against the Reg's likely linear 3-bet value range that dominates us, it's that we want to get into a pot 200BB with a whale who is extremely likely to be calling the 3-bet. Our hand thrives from implied odds rich multiway situations with these stacks so calling should be obvious.

Now onto post-flop, but first remind yourself of the difference between [floating](#) and [chasing](#), if there is any doubt.

This whale offers very little in the way of fold equity and so the plan for Hero is simple: chase and draw his way to victory in a passive fit-or-fold manner. This is winning play against this kind of opponent. So Hero calls the flop because he thinks that the 8.5% of the time he'll turn the nuts is enough to justify the investment. He'll need to win back almost twelve times this investment from the pot and his opponent's stacks combined for the call to be profitable. To find this just turn our 8.5% chance to improve on the next card into a fraction by dividing both sides of the fraction by 8.5.

$$8.5/100 = 1/12.$$

Hero's investment is 8BB.

$12 \times 8 = 96$ and so Hero needs to claw back 96BB to break even on the flop call.

After calling the flop, the pot will stand at 46BB. This leaves another $96 - 46 = 50$ BB to be won over the turn and river. Against this opponent Hero decides this will be an easy task and there's always the chance of making more from the Reg too and so the flop is a very easy call. There's also the prospect of a free river card from time to time as well when Hero misses the turn and this helps implied odds further by allowing the realisation of more equity.

On the turn Hero must call 10 into 46. His chance to improve on the next card is now $4/46 = 8.7\%$.

$$8.7/100 = 1/11.5$$

Hero needs to win 11.5 times his investment on average to call the turn. He needs to make $10 \times 11.5 = 115\text{BB}$.

There will already be 66BB in there should Hero call the turn. This leaves a residual average target of $115 - 66 = 49\text{BB}$ more to be won on the river should Hero get there. Again this seems very reasonable against our whale opponent and so Hero should continue to chase.

If we make stacks shorter, the average payout will be significantly less and all streets will suffer a hit in implied odds. Chase more without fold equity as stacks get bigger, particularly where Villain has a preference for the call and raise buttons.

Hero calls 10BB

Deep Stacked Variance

Winning a 500BB pot can be exhilarating. Losing one can be crushing. Playing deep generates a lot more variance than we are used to dealing with in 100BB play. For this reason, I recommend that Hero takes extra care in avoiding -EV deep situations unless other table conditions are extremely favourable. With an aggressive and competent player to act after him, and where the effective stack is deep, Hero should acknowledge that his positional and possible skill disadvantages are inflated. Pride is meaningless in poker. Unless there are multiple Fish or a whale at the table, I advise Hero to get up and find a new seat. The Reg to his left has full reign to make life very unpleasant and create treacherous and -EV situations by the dozen if he knows what he's doing.

Similarly, when Hero is in position and deep, especially vs. inferior players, he should do everything possible to remain at the table and capitalise on the extra EV for as long as possible. Whether it means holding off on dinner and eating crisps for the next two hours, or losing an hours sleep, it might well be worth it, though the reader should of course maintain a healthy poker/life balance and avoid playing when exhausted or overly emotional.

For the beginning player, even one who's reached this part of The Grinder's Manual, it may be necessary to avoid deep stack play except in very clearly favourable situations at first. It's true that if you don't practice you won't get better, but save practice for obviously +EV spots. Don't stay there 300BB deep vs. an aggressive player if you can already feel it affecting your game and emotional composure. As you improve, you'll become better and better at detaching yourself from stack size emotionally, but attaching yourself to it logically and changing your game in the appropriate way.

Finally, if you're going to play in games where you're frequently deep stacked like Zoom without a ***get up and come back*** strategy for getting rid of your deep stack, you'll need a larger bankroll. I won't discussing bankroll management here as this is a technical manual about poker strategy, but there's a lot of great information floating around on the internet. Go find it.

14.4 Playing Shallow Post-Flop

Room To Check

In [Chapter 5](#) we talked about times when betting out and pot building from the get go was not the best strategy for extracting value, even as the pre-flop raiser. Many of these situations occurred when the effective stack size was shallow post-flop. Having the room to check a flop or turn means that there is no necessity to bet that street in order to ensure stacks can go in at some point should Villain call. With this in mind, take a look at the following situation in a 4-bet pot and think about how Hero wants to play the different parts of his range. His range for 4-betting pre-flop is stated in the hand history.

Hand 150

UTG – Unknown
HJ – Unknown
CO – Unknown
BU – Hero
SB – Unknown
BB – Reg (19/15/10)

Dealt to Hero: [JJ+, AK, K6s-K8s, A2o-A5o]

UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB folds, **BB raises to 7.5BB**, **Hero raises to 18BB**, BB calls 10.5BB.

Flop (36.5BB, 2 players)



BB checks, **Hero?**

Hero is using a fairly bluff heavy polarised and blocker filled 4-bet range, presumably because he thinks fold equity is forthcoming. Villain is uncompromising enough to flat the 4-bet and so to the flop we go.

There are two important things to note about the resulting situation on the flop:

- Hero needs just two streets of reasonable bet sizes or three of very small bet sizes to get the money in.
- Most of Hero's range does not want to get the stacks in and is some kind of moderate to weak SDV.

This points us towards one of two balanced strategies being best.

The first option is to check everything on the flop. This is in no way exploitable as Hero has many combos he can call the turn with like [AA AK A2o-A5o] and some pocket pairs too. He can call the Ax portion of these (or raise them) on the river should Villain bet again and fold the [JJ-KK] and [A2o-A5o] combos. If Villain checks again on the turn as he often will in practice (Hero should still be perceived to have range advantage in the eyes of a competent player) then Hero can check again with his pocket pairs, bluff his [K6s-K8s] and value bet his [AA AK]. He can split his wheel aces between bets and checks to keep his range fairly balanced and give him some more value combos. Then on the river, if called, he should shove his [AK AA] (15 combos) for a pot-sized bet. Villain will then need 33% to bluff catch and so Hero should bluff the amount of his [K6s-K8s] that gives Villain this much equity. 8 combos will do nicely and so Hero can bluff [K6-K7s]. There's really not much to choose from here, but K8s blocks 88, which is not an impossible hand for Villain to get to the river with. We don't want to block 88 when we're bluffing; if it somehow got here, it's almost certainly folding.

The second option is to c-bet the entire range small enough on the flop to leave two more small to reasonable sized bets for the turn and river. Hero could then split his range similarly to the first strategy by polarising his turn betting range and checking back his SDV and calling the [A2o-A5o] chunk to a river bet. He would bet his air as a bluff and his value hands, well, for value!

The main point here is that regardless of Hero's chosen strategy, he has no need to bet any significant size on the flop with any of his range. Value and fold equity can both be gained to a greater extent later in the hand and the texture makes Hero's value hands extremely invulnerable. There is simply no urgency at all here. If we were deep, however, then checking the flop behind could be a big mistake as we'd often miss out on three streets of value as every street would demand a decent-sized bet in order to extract maximum value.

Hero either checks or bets 7BB

Stacking Off Lighter

It may sound obvious, but when there's less money left behind, Hero should be inclined to lessen his requirements for putting that money in. Let's take a closer look at a very common type of situation, which illustrates this necessity.

Hand 151

UTG – Hero

HJ – Unknown

CO – Unknown

BU – Passive Fish (34/8/2) [30BB]

SB – Unknown

BB – Unknown

Dealt to Hero:



Hero raises to 3BB, HJ folds, CO folds, BU calls 3BB, SB folds, BB folds.

Flop (7.5BB, 2 players)



Hero bets 3BB, BU raises to 27BB (all in), Hero?

If this passive player was to make such a large raise size, or even a smaller one with standard 100BB stacks, Hero would be rather terrified to say the least. The all-in shove however usually sends an entirely more welcoming message. While the raise with deeper stacks from this player type typically means something to the effect of:

"I have the nuts and am terrified you might suck out on me"

The all-in with the shallower stack often says:

"I have a pair and or a draw, or possibly a big hand, but I may as well just shove because it's all going in anyway."

The shove is far more depolarised and is not weighted towards hands that crush us. The large raise with deeper stacks is a sign that **88** is crushed way too often and is very rarely better than a coin flip. Hero should fold in that case but call this shove happily.

Hero calls 24BB

Note that Hero's flop bet is too small. He is probably trying to induce some action and get the money in over three streets, but vs. a passive player who will be more inclined to call than raise, he should just pot the flop and shove the turn and get that value while it's there - this is a board that gets ugly fast and kills value on later streets.

Playing Draws Shallow

We know full well by now that when there's less money left behind, implied odds are slashed. This means that we are much better off in many shallow stacked cases treating our draws as semi-bluffing weapons. We often have the luxury of being able to shove all-in, capitalising on any fold equity while at the same time ensuring we'll get to see all five cards and realise our full equity in the hand.

The Villain in [Hand 152](#) below is not someone we'd typically consider bluffing against on the later streets, but Hero's turn play must be aggressive.

Hand 152

UTG – Unknown

HJ – Unknown

CO – Unknown

BU – Hero

SB – Aggro Fish (50/35/7) [18BB]

BB – Unknown

Dealt to Hero:



UTG folds, HJ folds, CO folds, **Hero raises to 2BB**, SB calls 1.5BB, BB folds.

Flop (5BB, 2 players)



SB checks, **Hero bets 4BB**, SB calls 4BB.

Turn (13BB, 2 players)



SB checks, **Hero?** (12BB effective)

There is some chance of fold equity on this card even against a short stacked Aggro Fish and Hero needs very little for shoving to be correct given that:

- Hero has a lot of pot equity. Against a typical non-folding hand like **QdTd** he has 34%. This means that if Hero were to check, he would be forced to check/call since he meets RE, and of course shoving and picking up fold equity to boot is an improvement over that line.
- Villain can even call off worse draws, which Hero utterly dominates. Fish frequently make this mistake when their stack has reached "who

cares I'm too short to fold" territory.

Note that, with deeper stacks Hero would have to fear being raised and may want to check/call the turn depending how little fold equity he expected to have vs. the Fish in question.

Hero bets 12BB.

Wrapping Up

Well, that brings us to the end of the technical topics. That doesn't mean you're now an expert and I advise the reader at this point to be far from done with The Grinder's Manual. The examples can be revised multiple times and it will take many revisits to fully incorporate the material in this manual into your game. You have the tools right here, but you will not be able to wield them all competently without a lot of practice. Be patient, focus on improvement and the monetary results will come in time. It's not your job to force that part so be patient and keep working hard on your game.

Appendix 1 - More About The Author



Peter Clarke, known in the poker community as 'Carroters', is a professional poker player, coach, video producer and author. He runs a thriving online poker community full of his private students and has been teaching online poker since 2010. His favourite hand is **Jc9c**. Outside of poker he is an avid chess and bridge player.

For details on private coaching from Peter, free poker instructional content and more information visit his website at www.carrotcorner.com.

For an archive of over 200 training videos from Peter and hundreds more from other poker instructors visit micro and low-stakes focused training site: www.grinderschool.com. Grinderschool.com is currently offering one free month of a poker training subscription for new members who have purchased this book. Please use referral code: **Grinder's Manual**.

Appendix 2 - The Jargon Handbook (Glossary of Terms)

3-Bet: To 3-bet pre-flop is to re-raise a pre-flop raise. To 3-bet light pre-flop is to do so with a wider range of hands than would be for value.

Absolute Hand Strength: Absolute Hand Strength is simply the rank of your hand (eg. 8 high straight, nut-flush, etc.)

Backdoor Draw: A Backdoor Draw is one that will need both of the next two cards to complete. EG. three cards to a flush or straight.

Balanced Sizing: To have Balanced Sizing in a situation is to pick a bet-size to use with your whole range in that situation so that you do not give away information as to the strength of your hand. It is a fairly mandatory strategy in most situations vs aware players, including c-betting.

Balanced Strategy: A Balanced Strategy is one designed to be solid in which Hero's range is not weighted towards either strong or weak hands. A Balanced Strategy does not exploit Villain's weaknesses, but has no weaknesses of it's own.

Barrel: A Barrel is a further bet made on a later consecutive street by the post-flop aggressor. To Barrel the turn is to bet the turn having bet the flop.

Blocker: A Blocker is a card in either a player's hand or on the flop that reduces the number of combinations of some hands in another player's range.

Bluff: To Bluff is to bet or raise with little to no equity with the intention of making other players fold better hands.

Board Coverage: A range has good Board Coverage when it can connect with a wide variety of different flop textures. Board Coverage is important to

aid the creation of balanced ranges, but matters less where Hero is overbluffing pre-flop to capitalise on great immediate fold equity. Blockers take precedence in that situation.

Board Texture: Board Texture refers to the nature of the flop in terms of how it connects with potential hole cards. Dry flops offer fewer ways to connect, Wet flops more.

C-Bet: A Continuation Bet (C-Bet) is a bet made by the pre-flop raiser on the flop. It is sometimes made with a strong hand with the aim of getting called by weaker hands (Value C-Bet), but is often made without a strong hand as a continued display of strength with the aim of picking up the pot (Light C-Bet).

Capped Range: A Capped Range is one which does not contain the strongest possible hands. Villain has a capped range when he's taken a line which makes it unlikely he has hands above a certain strength.

Card Dead: Card Dead refers to a finite period of time where Hero is not dealt many good hands and doesn't flop well.

Chase: To Chase is to call a bet with a non-made-hand in an open action spot with the intention of relying solely on having sufficient pot odds and implied odds.

Check/Fold: To Check/Fold is to check with the intention of folding to a bet.

Cold Call: To Cold Call a 3-bet is to call not as the opener but as a player who has so far put no more money into the pot than a big blind.

Combo: A Combo is any combination of 2 of the 52 cards in the deck and constitutes an exact starting hand in Texas Holdem.

Complete: To Complete is to call the remaining half big blind from the SB and is generally only a desirable option where there have been one or more limpers.

Crush the Deck: To Crush The Deck is to have a very strong hand on a board where Hero's hole cards make it much less likely that Villain has flopped anything decent.

Delayed C-Bet: A Delayed C-Bet is a bet made on the turn by the pre-flop raiser either:

A: In position where Hero has checked the flop behind and Villain has checked a second time on the turn.

OR

B: Out of position where Hero has checked the flop and Villain has checked behind.

Depolarised: A Depolarised range does not have two clearly different parts and can contain anything from the nuts all the way down to complete air with anything in between.

Dominated: A pre-flop hand or range is Dominated when it is likely to flop hands that will often be behind Villain's hand or range.

Donk Bet: A Donk Bet is a bet made in a heads up pot by the pre-flop caller before the pre-flop raiser has had a chance to c-bet. To make a bet like this is to Donk the flop.

Double Barrel: Hero Double Barrels when he c-bets the flop and then bets the turn. A Double Barrel Bluff is the same thing as a light turn c-bet. Hero's intention is to realise fold equity either immediately, on the river, or both.

Effective Stack: The Effective Stack is the smallest stack in play in the hand. It represents the maximum amount that each player can put into the main pot. In multi-way situations the effective stack may be one size for the short stack and another for the larger two stacks. In this situation a side pot is created for the bigger stacks if required.

Elasticity: Elasticity is the scale of how likely Villain's calling range is to grow or shrink as Hero increases or decreases his bet size.

Elastic Ranges are sensitive to the bet-sizing they face.

Inelastic Ranges are not.

End of Action Spot: An End of Action Spot is a situation in which Hero faces a bet or a raise and is considering either folding or calling, and if he calls, that will be the last action taken in the hand by any player. Such spots occur when facing an all-in on any street or a bet or raise on the river.

Equity: Equity, sometimes called 'pot equity' is Hero's share of the pot based on how often his hand will be best by the river.

Exploitative Strategy: An Exploitative Strategy is one designed to be unbalanced where Hero's range is weighted at least to some extent towards either strong or weak hands in an attempt to take advantage of Villain's imbalances. An Exploitative Strategy can exploit Villain's weaknesses, but has weaknesses of its own.

Float: To Float is to call a bet with a non-made-hand in an open action spot with the intention of realising future fold equity if necessary later in the hand.

Fold Equity: Hero wins the pot some % of the time due to all remaining opponents folding. This % is known as his Fold Equity.

Gap Concept: The Gap Concept is that in most situations, Hero needs a stronger range to play vs. an open than he would to open from that position himself.

Ghost Equity: Ghost Equity is equity that Hero has against Villain's betting/raising range in an open action spot on an earlier street that is not going to be fully realisable at showdown due to the necessity to fold sometimes on later streets.

Good Pair Potential: Hands that score high in this attribute are able to frequently make good pairs post-flop that will be the best hand far more often than not. Good pairs are top pairs with strong kickers or overpairs and are likely to beat most if not all one pair hands.

Implied Odds: Implied Odds are the ratio of Hero's investment to see the next street and what he stands to win on average if he makes a strong hand. The smaller the investment and the more he stands to win, the better the implied odds.

ISO: ISO is short for isolation. Hero ISOs when he raises after one or more players limp, usually with the intention of thinning the field to create post-flop fold equity and to play a pot heads-up with a weaker player.

Lead: To Lead is to take the betting lead in a multiway pot as a pre-flop caller.

Light C-Bet: A Light C-Bet is a c-bet made without a value hand. While Hero may have a draw or a weak pair, he expects not to be ahead of the range that calls him.

Limp Behind: To Limp Behind is to call 1BB after one or more players have already done so.

Linear: A 3-Bet range is Linear when the top of it is the best hand that Hero wants to 3-bet and the bottom of it is the worst one that he wants to 3-bet. Hero may or may not have a range to call the open. If Hero has a calling range it sits below his 3-bet range and above his folding range.

Linear 3-betting is often a range of exclusively value hands due to limited fold equity, but not always.

Long-Term EV: When we look at the EV of a play as part of a recurring strategy over many hands we are considering Long-Term EV.

Made-Hand: 'Made-Hand' is a post-flop term for anything from a terrible pair on the flop (involving at least one hole card) to the stone cold nuts. It's 'made' in the sense that it needs no more improvement from future cards to be better than card-high.

MDF: The Minimum Defence Frequency (MDF) in any poker situation is the portion of Hero's overall range that he must defend to a bet or raise in order to make his opponent indifferent to adding extra bluffs to his 3-bet range.

When Hero defends enough of his range to meet his MDF, Villain fails to gain EV by overbluffing.

Meta-Game: 'Meta-Game' is the term used to describe the dynamically changing understanding between Hero and his opponent. It encompasses what each thinks about the other's game and how each is likely to react based on this as well as how each player can capitalise on this state of affairs to anticipate exploit, or cause mistakes in his opponent.

Nit: A Nit is a player who folds too much in general, especially pre-flop.

Non-Made-Hand: 'Non Made-Hand' is a post-flop term for anything where neither hole card has connected to make a pair or better and covers anything from complete air to a 17 out monster draw. The hand needs improvement from future cards to become better than card-high.

Nut Potential: Hands that score high in this attribute have the ability to flop stronger hands than good pairs (EG. A set) with meaningful frequency. These hands figure to be best an overwhelming majority of the time.

Open: To Open is to raise before the flop before any other player has called or raised.

Open-Limp: To Open Limp is to call 1BB pre-flop as the first player to voluntarily enter the pot.

Open Action Spot: An Open Action Spot is one in which Hero faces a bet and if he calls that bet, there will be opportunities for further checks, bets, raises or folds to occur either on the current street or on a future street.

Out of Game Analysis: Out of Game Analysis is work that can be done off the tables but not very easily in the limited time available in-game.

Outs: Outs are the cards left in the deck that Hero can hit on future streets when currently behind to make a hand better than his opponent's likely holdings.

Over/Under Bluff: To Overbluff is to bluff more of your range than is balanced.

*We do this ourselves to exploit people who overfold.

*We exploit this in others by overcalling.

Over/Under Call: To Overcall is to call more of your range vs a bet or raise than is balanced.

*We do this ourselves to exploit people who overbluff

*We exploit this in others by underbluffing

Over/Under Fold: To Overfold is to fold more of your range than is balanced.

*We do this ourselves to exploit people who underbluff.

*We exploit this by overbluffing.

Polarised: A Polarised range contains two clearly different parts: strong hands for value, and weak hands as bluffs. The medium strength hands in between are not a part of the range.

Polar: A 3-bet range is Polar when it contains two distinct groups of hands: value hands and bluffs. When using a polar 3-bet range, Hero always has a range to call the open which sits in between these two parts of his 3-bet range. The calling range is weaker than his 3-bet value range, but stronger than his 3-bet bluff range. Hero 3-bets every hand he deems good enough for value then calls every hand from the remaining hands good enough to call. Only then does he start to 3-bet bluff hands. These hands always come from what would otherwise be his folding range vs. the open, not his calling range.

Pot Odds: Pot Odds are the ratio of the pot as it currently stands to Hero's investment to see the next card.

Procedural Check: A Procedural Check is one made by the non-aggressor of the previous street to the aggressor of the previous street before that player has had a chance to act on the current street. It is generally done with a player's whole range and skews that range in no way towards either strength or weakness.

Pyramidal Strategy: A Pyramidal Strategy is one in which Hero's range to take an action shrinks proportionately on a street by street basis from pre-flop through to the river. Hero does this in order to make sure that he is not taking one action with too large or small a part of his range on any street. Such an approach creates balance and a solid complete strategy.

Range: Hero's X Range is the selection of hands that he does X action with. Hence, his opening range from some position on the table is the group of starting hands that he chooses to open the pot with from that position.

Range Advantage: A player has Range Advantage when his range contains more strong hands than his opponent's does. It is possible to have varying degrees of range advantage depending on how many good hands the player has in his range that his opponent does not have. A player with Range Advantage generally wants to be applying pressure and should be inclined to take the betting lead, whereas his opponent should prefer to keep the pot smaller and play more passively.

Range Check: Hero Range Checks a street when he checks his whole range on that street for balance reasons, Regardless of the equity and SDV of his hand.

Relative Hand Strength: Relative Hand Strength refers to how good that hand is relative to factors such as: board texture, Villain's actions, Villain type and stack depth. This is the hand strength that really matters to our decision.

Results Orientation: Results Orientation is the tendency to judge a play or stretch of play based on the results of an insufficient sample of hands rather than the logical factors that make that play objectively good or bad.

Reverse Implied Odds: Reverse Implied Odds are the opposite of implied odds and refer to the situation where Hero stands to frequently lose the pot and subsequent bets on the next street when he connects well.

Reverse Player: A Reverse Player is one who tends to play aggressively with weak hands and passively with strong hands and therefore has an extremely air heavy betting/raising range especially with large sizing and a stronger than average checking/calling range or when he uses smaller sizing.

Scare Card: A Scare Card is one that is perceived to improve a player's range making his opponent more inclined to fold.

Semi-Bluff: To Semi-Bluff is to bet or raise with reasonable non-made-hand equity with the intention of making other players fold better hands.

Set Mine: When we Set Mine we call a pre-flop raise with a pocket pair with the primary purpose of making enough money to justify this call the times we flop a set.

Showdown Value (SDV): The Showdown Value of a hand (SDV) is the measure of how likely that hand is to win at showdown unimproved.

Slowplay: To Slowplay is to play a very strong hand in a passive way by either:

1. Checking instead of betting.

Or

2. Calling instead of raising.

Small Pocket Pair Curse: When a small pocket pair misses the flop and is behind, it only has two outs to improve, but when it misses the flop and is ahead, most hands have at least six outs against it.

Squeeze: To Squeeze is to 3-bet after one or more players have called an open.

Thick Value: Thick Value occurs when Hero's hand is comfortably ahead when called - it's not close.

Thin Value: Thin Value occurs when Hero's relative hand strength hand is fairly weak, but still good enough to get called by a range it has +50% equity against.

Tilt: Tilt is any deviation from an optimal logical thought process caused by emotional interference leading to lower EV plays being made.

Triple Barrel: Hero Triple Barrels when he c-bets the flop and turn and then bets the river when called. A Triple Barrel Bluff is the same thing as a light river c-bet. Hero's intention is to realise fold equity.

Turn Probe: A Turn Probe is a bet made by the pre-flop caller out of position on the turn after the pre-flop raiser has checked the flop behind. It may be made for value, protection or as a bluff.

Uncapped Range: An Uncapped Range has not been limited in this way by Villain's actions and can contain the strongest hands possible.

Vacuum EV: When we look at the EV of a play in one hand in isolation we are considering Vacuum EV.

Value Bet: A Value Bet is a bet made where Hero expects to have +50% equity vs. Villain's continuing range to that bet.

Value Own: Hero Value Owns himself when he mistakenly tries to value bet a hand that is too thin to value bet.

Versatility: Versatile hands can connect with flops in a number of different ways. Being able to flop either a flush draw, straight draw or a decent pair promises more potential favourable boards post-flop.

Vulnerable SDV: A hand has Vulnerable SDV if and only if:

1. It can often win at showdown unimproved.

2. Turn and river cards can make it even weaker and harder to call bets with.
3. Villain can have a significant amount of hands that can easily outdraw it.

Zoom Poker: Zoom Poker is a format where instead of sitting at one or more set tables, Hero makes one or more entries into a pool of players where new tables are constantly created and disbanded each hand. Hero has the option of folding before the action reaches him in order to join the next table faster and increase his volume. Due to the lesser information and opportunity to use it in Zoom, win-rates per 100 hands are generally smaller, while volume of hands is much greater, which evens out hourly expectation.

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