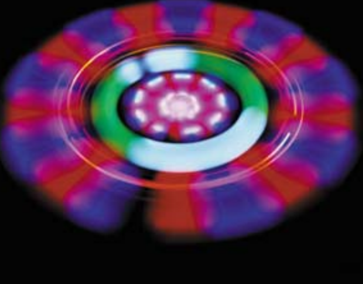
NEW EDITION

THE SCIENCE OF POKER



A COMPREHENSIVE ANALYSIS OF LIMIT AND POT-LIMIT OMAHA, TEXAS HOLD'EM & SEVEN-CARD STUD AS WELL AS NO-LIMIT HOLD'EM

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The Science of Poker

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HIGH STAKES
London
2006

This revised edition published in 2006 by
High Stakes Publishing
21 Great Ormond St
London WC1N 3JB

www.highstakespublishing.co.uk

ISBN 10: 1 84344 031 8
ISBN 13: 978 1 84344 031 4

Printed by Cox and Wyman, Reading

Text design and typesetting by Able Solutions (UK) Ltd

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Introduction

This new edition of *The Science of Poker* is divided into five parts. A brief discussion of some important Poker concepts is presented in the first part. The second part deals with four-card Omaha High, the third part is devoted to Texas Hold'em and the fourth part covers Seven-Card Stud. Finally the fifth part is dedicated to the most popular online Poker tournaments, No-Limit Hold'em.

Parts Two, Three and Four contain comprehensive analyses of starting hands, odds and probabilities. They include the new concept of Probability Coefficient, as well as after flop play, for Omaha and Hold'em, and after third-street play for Seven-Card Stud. Although the last chapters of Omaha and Hold'em are dedicated to pot-limit games, I advise the owners of this book to read each part thoroughly because the information presented in each chapter is pertinent to both limit and pot-limit poker. Finally chapters Seventeen and Eighteen incorporate a detailed playing strategy for No-Limit Hold'em tournaments together with a full discussion of many actual hands.

Appendix A, which deals with the mathematics of probability, is included for the benefit of readers who are interested in learning the basics of statistical calculations relevant to poker.

As you read this book, you will realise that it is not a thriller. It will be obvious that you are reading a reference book. You cannot assimilate the wealth of poker information at your disposal by reading the book once, unless you are endowed with photographic memory. Do not, however, be intimidated by the large number of simulated/calculated statistical data that were utilised in the analyses of the many examples of contests between a wide range of poker hands. I advise you to read the book more than once and to refer to the relevant part/section every time you have had to make a tough decision during a playing session. This will enable you to remember most, if not all, of the data in the book and subsequently to apply your superior knowledge to your advantage, during your future playing sessions. I am a devout believer in learning by repetition.

The number of starting hands that can be dealt in Omaha, Texas Hold'em and Seven-Card Stud is enormous. Therefore the task of selecting a winning starting hand can be difficult as well as confusing for the inexperienced player. In each part of the book I have classified starting hands into categories and then performed computer simulations on selected combinations from each one. Each selected starting hand was played at least 10000 times against 1, 2, 3, 4, 5, 6 and 7 opponents respectively. The opponents' starting cards were dealt randomly and every contestant played his hand till the end of the deal. At the conclusion of each simulation run, the win-rate (the number of times the hand wins, expressed as a percentage) of the selected hand was recorded. Its potential for making its holder richer, was then determined using the concept of the break-even point as described below.

If you are playing against one opponent, then you should win 50% of the pots in order to break even. Similarly against two, three, four, up to seven opponents, your break-even win-rates should be 33.3%, 25%, 20%, progressively down to12.5% respectively. For example, with three opponents there are four players, including yourself, therefore your break-even win-rate is 100 divided by four, which is 25%. If, however, your starting cards' win-rate against three opponents is say 30%, then you are winning five pots over your break-even point. That means you are getting 20% Extra Pots ((5 ÷ 25) x100) over and above your break-even point when you invest your money in those particular starting cards in 4-handed pots. Clearly, starting hands that can offer such good results are superior to those whose performances hover around their break-even points. Those with win-rates below their break-even points are, in the long run, bad news.

Thus, detailed analysis of the results of the computer simulations with the aid of the break-even point and the %Extra Pots will reveal the effect of the texture of starting cards on their performance against the specified number of opponents. This, to my mind, is valuable because one can extract the following information:

(1) the number of opponents against which that category of cards will play best

(2) whether you are holding "high percentage" starting cards with which a raise is a must, or marginal/garbage cards, in which case they should either be played from late position, or mucked with the discards.

I must, however, emphasise the following point: due to the compulsion of each player to go to the showdown, the computer simulations related to starting cards do not represent real playing conditions although, in some limit games, it is not uncommon for more than three contestants to see the river card (fifth board card). Consequently, the recommendations presented in the chapters related to starting hands should be taken as guidelines in the process of selecting the appropriate starting hand, rather than reasons to gamble all the way to the showdown.

Throughout this book, X-X-X-X(s) or X-X(s) mean starting cards of which two are of the same suit and X-X-X-X(o), X-X(o), X-X-X-X or X-X stand for unsuited hand

Part One
Basic Concepts

Chapter One
Poker – People – Money

Many old-fashioned players, whom I think of as the dinosaurs of the game, will argue that poker is a game of *people*. According to them, all you have to do is understand the psychology of your opponents. Once you have done that and identified your opponents' playing and betting habits you can't lose. They could not make a more misguided statement.

Poker is a game of *people*, *probabilities* and *money*. These are the primary skills of the game. The successful player will find the right balance between these three skills depending on:

(1) the structure of betting and the size of the buy-in of the game;
(2) the type of the game, as well as the size of the ante/blinds and the number of betting rounds;
(3) the level of the other players' skill.

Money is an important component, especially in pot-limit poker. It is also important in the bigger limit games. If you play in a game whose betting structure does not suit your bankroll, you will almost certainly end up as the loser no matter how good your knowledge of people and probabilities. It is very simple. Scared money can't win.

On the other hand, if you are an amateur who challenges the laws of probabilities all the time, please come and play in my games. Novices like to walk on water and will definitely sink because most of their calls and bets have negative mathematical expectations. They will win lots of pots on the very few days Lady Luck is on their side, but eventually skilled players will end up with the money.

Likewise, players who ignore the playing and betting habits of their opponents will be losers. They either put their opponents on hands they do not have or live in a state of oblivion, where only the cards they hold in the palms of their hands matter. Skilful players do not take prisoners. They will either bully that type of opponent or entrap him when they have the better hand. You need to know four things. (1) Who bets on the come, and if so how good is their awareness of the probability of completing the draw? (2) How aggressive or passive is your opponent's playing strategy? (3) Your opponent's financial position. (4) Whether your rival is winning or losing and if he/she is losing would he/she throw common sense out of the window and go on tilt?

I cannot give you a comprehensive list of all the things you have to watch out for. People respond in different ways when confronted with the same situation. Only experience will tell you which aspects of your opponents' playing habits you should be alert to.

Psychology is still an art and anybody who tells you otherwise is lying through his or her teeth. You will have to observe and learn.

Probability will be dealt with comprehensively in Chapters Two, Four, Seven and Eleven. I would like to devote this chapter to a brief discussion of the other two primary skills of poker.

1. People

Generally speaking, poker players fall into the following four broad groups:

(1) Loose passive
(2) Tight passive
(3) Loose aggressive
(4) Tight aggressive.

1.1 Loose passive

Loose passive players are the salt of the earth. They are very weak opponents who have little, if any, understanding of the necessary skills for poker. As far as they are concerned, poker is a game of luck. You will get paid by them handsomely when you have a hand. Furthermore, their passive playing habits will entitle their opponents to outdraw them at a low cost.

In pot-limit games the size of passive players' bets is an indication of the strength of their hands. When they put in a full-sized bet, you must release your hand unless you have a good draw that is offering you profitable returns. However, if the bet is of sub-pot size, then you know that their holding is not very strong. I know one Seven-Card Stud player who might as well show me his hole cards when he makes a bet on the fourth or fifth streets. As far as he is concerned, a big pair is worth about £10, two pairs are valued at about £20 to £30 and over £40 bets are reserved for much stronger hands.

Thus, weak players make sub-pot bets when their hands are not strong. Moreover, their bets are normally followed by a check on the subsequent round of betting, unless they receive a card that improves their hand. This is a very useful tell which you can exploit when you have to act after them.

Loose passive players seldom bet on the come. Clever moves and bluffs are wasted on most of them in limit poker. This is especially true in games like Omaha where they do not know what on earth they are doing in the pot. They often misread their cards. I know one player who at the showdown says 'I do not know what I have'. If I had a dollar for every time he has made this statement, I would be a rich man. Against this sort of opponent, you must produce the winning hand.

If, however, you have the image of a 'rock' player who always has the hand he represents, then you may get away with well executed bluffs in pot-limit games. On the very few occasions you undertake such hazardous tasks, make sure that both you and your opponent have enough money on the turn of the river card. Then your pot-sized bet may win the pot for you. You must never force loose passive players to put all their money in the pot before the river card if you intend to bluff them.

1.2 Tight passive

Tight passive players are the second best opponents in a poker game. You can read their hands on the few occasions they are contesting the pot. If a good player calls their bet, they are liable to put the brakes on and the pot may get checked all the way to the river. Consequently you are almost guaranteed a few free cards if you challenge them. Alternatively you may bluff them fairly easily because tight passive players have a habit of second guessing themselves. They always assume that their opponents have the goods.

Tight passive players do not believe in betting on the come, especially if they are out of position. If they bet, in pot-limit games, the size of their bets reflects the strength of their holdings. Again, sub-pot bets are allocated to weak/fair hands; in limit games you should raise their bets in the cheap rounds of betting in order to get at least one free card during the more expensive rounds. On the other hand they very rarely bluff and, if they make a full-sized pot bet or re-raise, you had better believe them. Hence you should sit to the left of tight passive players.

Even though you may like to play against tight passive opponents, they will not make you rich. The amount of money which you can gain from this category of opponent will be small.

1.3 Loose aggressive

Loose aggressive players are both dangerous and beautiful. They are like the necessary evils that make our lives interesting and even enjoyable. Their game is characterised by an unhealthy disregard of the basic poker skills and their philosophy is: 'You've got to speculate in order to accumulate.' Therefore they are more likely to put in pre-flop raises in Omaha and Hold'em and fire their chips at the pot, from any position, if the flop gives them a chance to win the hand. Seeing the flop in the latter two games is a must and paying for at least the fourth street card in Seven-Card Stud is a guaranteed certainty.

That is why they are dangerous. You will not be able to read their hands that easily and they will go for any kind of draw in order to win the pot. A loose aggressive player will outdraw and devastate you on a number of occasions, and then he will blunder your money a few minutes later. Do not let this affect your game. Just smile, compliment him and, if it makes you feel better, grit your teeth.

Loose aggressive players are also dangerous because they are aggressive. All aggressive opponents, however bad and wild, are dangerous. They will try to intimidate the other players by betting whenever the pot is checked to them. In fact this is where their biggest weakness lies. They love action and get a thrill out of trying to outdraw or bully their opponents, at any cost, rather than win the money by the end of a session.

When you face a player who just bets nearly every time it is his turn to act, it is not difficult to relieve him of his money. Just wait until you have a good hand and give him the punishment he is asking for. I have made lots of money by check raising or raising such opponents. The wonderful thing about them is that they feel insulted and annoyed when you play back at them. They have to protect their macho image and, therefore, will call your raise with anything most of the time. Although they have wiped out my chipstack on a few occasions, my bank balance has been healthy for a long time thanks to loose aggressive opponents who tried to get cute with me.

There is no consensus of opinion among many of the good players concerning the best seating position relative to a loose aggressive opponent. I prefer to sit to the right of such opponents so that their bets go through the rest of the other players before I have to act. My response will be influenced by who and/or how many players called the bet. Thus, having to act after the bully's bet has gone round the table gives me a great edge which I can exploit to my advantage. It helps me to decide which of the three courses of actions, fold, call or raise, is best for my hand.

Not all loose aggressive players are unaware of the principles of poker. A few of them are masters of the game. I call them the 'phoney loose players'. They are the most dangerous adversaries at a poker table. Their common playing strategy is to call everything when it is cheap to do so. They give the false impression of being loose but in reality they are playing a fairly tight game and will pounce on their opponents when they have the winning hands. They 'give action to get action'. I do not like playing pot-limit against such players because they usually play with large sums of money. If they beat me only once, they will acquire all my chips. I, therefore, try to avoid confrontations with such players unless I have the goods. I prefer to invest my money against the 'honest' loose players.

1.4 Tight aggressive

These are the second most dangerous poker players. Tight aggressive players are very well versed in most, if not all, of the correct tactics of poker. They do not try to win every pot because they know that is not possible. Thus, their basic playing strategy is 'selective aggression'.

Tight aggressive players contest pots with good starting cards. They understand the importance of positional play and therefore play marginal hands only from late position. If the turned cards do not present them with a good chance of winning the pot, their cards are mucked very quickly when somebody makes a bet. However, when they connect with the flop (Omaha/Hold'em) or catch the appropriate card on the fourth street (Stud), then they will try to get the optimum value for their made hands or draws; most of their bets/calls have positive mathematical expectations.

Tight aggressive players will punish you if you try to draw against them. They will attack your chipstack when your draw is at its weakest point. If you are check-raised by one of these opponents, release your cards and give up the pot unless you believe that you have the better hand, or he/she is trying to bluff you; they do not bluff frequently. However, the success rate of their bluffs is fairly high. On the other hand, you can steal a few pots from them.

Tight aggressive players do not take prisoners when they have their hands and will not waste their money on bad draws. That is why you want to sit on their immediate left, because you want to act after them.

1.5 Summary

The ideal line-up of opponents in a poker game will consist of loose passive players. Having one loose aggressive opponent will certainly liven up the game, but a game with more than two players of that category will become a shoot-out. Generally speaking, shoot-out games are showdown games; you have to show the winning hand at the end of the deal.

In the long run, you will not get rich by getting involved in pots with tight aggressive opponents. It is best to steer clear of this type of player and save your money for the 'authentic' loose passive/aggressive rivals, not the 'phonies'.

Remember, however, not to waste fancy moves on loose opponents. Stick to good poker against such players.

Do not try to win every pot. Adopt 'selective aggression' as your slogan but, once in a while, play loosely when it does not cost much to give your opponents the false impression of being a loose player.

Before I leave this section I must emphasise that the demarcation line between the four categories is very diffuse. Tight aggressive players' playing strategy is not confined to selective aggression all the time. Some of them will become tight passive when they are winning and loose aggressive/ passive if they are losing. Many of them will go on tilt when they are outdrawn several times.

One day a famous American poker author made a bad call in an Omaha game at the Victoria Casino in London. Lady Luck was on his side, however. One of the players at the table said to him: 'I thought you did not recommend such calls in your book'. The author's immediate response was: 'I was not losing more than £1,000 when I was writing the book.'

I have seen many good players make very bad calls or bets after they lose a big pot. They normally justify their bad play by saying, 'I am playing the player'. I have heard this phrase more times than I have had hot dinners. Bad calls/bets are indefensible against any player. A skilled player must play his best game when he is losing. That is the only way he will get his money back. When I analyse my game on the days I lose, I can allocate over 50% of my losses to either passive playing strategy or loose calls with negative mathematical expectations.

You should be alert to these changes in the playing habits of your opponents. Poker players are humans, not machines.

2. Money

Yes, money is an essential 'skill' in poker. I will illustrate the importance of money by the following proposition. Let us assume that I am a mega-rich man and you are about 50 years old. Let us also stipulate that you are worth $200,000. One day I approach you and offer you the following proposition: 'We flick a coin. Heads I give you $400,000 and tails you lose everything you own.' I would be giving you the opportunity to double your money on an evens (50%) chance. Would you take me on?

I know what my answer would be if a similar proposition were made to me. I would look at Mr Mega-Rich and politely tell him to get lost. There is no way I would risk everything I worked for at the flick of a coin even if he offered me ten to one on an evens chance. I just can't afford to lose everything after many years of hard work, even when the odds are heavily biased in my favour. Were I 30 years younger, I would take Mr Mega's challenge instantly. However, I do not think that he would 'make me an offer I can't refuse' if I were 20 years old!

Money is a powerful tool in poker. If you play in a game whose buy-in and ante structure does not suit your financial resources, you will be outclassed by your opponents no matter how good your other two skills (people and probability) are. You will be reluctant to call big bets when the draw is offering you positive mathematical expectations. Conversely, you will not make the necessary bets when you have your hand because you are scared of being outdrawn, thereby, allowing your rivals to capture the miracle cards they need. Maintaining the correct psychological disposition is an important aspect of winning at poker.

I knew two very good Omaha players who decided to play in a much bigger game than the one they were good at. A year later they stopped playing poker for good. As I said earlier, scared money does not win.

Now that we have agreed that you must play with money, which you can afford to lose, how big should your poker bankroll be? How much of that should you use in any playing session? The answer will depend on whether you play limit or pot-limit games.

In limit poker, generally speaking, you should be able to pull up the minimum-sitting stake up to three times. So, if you play in a game where the buy-in is $100, you should be able to replenish your chipstack about three times. This means you are ready to lose up to $400 per playing session. Your bankroll should, therefore, be in the region of $4000, allowing you ten consecutive losing sessions. (If you are capable of losing ten times in a row, do not play poker.)

In pot-limit poker, the best strategy is to sit with more money than the sum total of your opponents' funds, that is, you are covering the table. However, most players cannot afford to cover the table. The second best alternative is described below.

Allow yourself up to three pull-ups per playing session and no more than ten consecutive losing sessions. The minimum size of your chipstack will depend on the size of the expected pre-flop raise, in Omaha /Hold'em, or the raise on the third street in Seven-Card Stud. Let me deal with the three games separately. Before I do so, I must explain a very important concept that applies mainly to pot-limit. You are playing to see the flop in Omaha and Hold'em and the fourth street card in Seven-Card Stud. Therefore, the fraction of your chipstack which you invest in calling a raise should match the probability of capturing the desired flop/fourth street card.

(1) *Hold'em*: you need to have 20 times the minimum expected pre-flop raise. This will allow you to gamble with suited and connected cards against the raiser. For example, if you have suited 7-8, the flop:

    (a) will consist of three cards of your suit 0.8% of the time;
    (b) will give you two pairs 2% of the time;
    (c) will have two Sevens or two Eights about 1.5% of the time (66:1 against);
    (d) will give you a straight about 1.2% of the time.

    Thus, you will flop a made hand about 6% of the time. That is why you need to sit down with about 20 times the expected raise, because you should not invest more than 5% of your money on suited connectors in a raised pot. If you include the possibility of flopping a pair with a flush draw, then you should invest about 8% of your stack. Generally speaking, you will flop a made hand (two pairs or better) about 2–5% of the time with almost any two cards. I have not included the possibility of flopping only a flush or a straight draw because most of the time these draws have negative mathematical expectations (see Chapter Two) in pot-limit; most pot-limit contests are two-handed.

    If you adopt the above playing strategy, your bankroll should be at least 500 times the expected pre-flop raise.

(2) *Omaha*: you will flop a hand between 10 and 20% of the time. You should be prepared to gamble with up to 20% of your chipstack before the flop. You must also allow for the large

fluctuations you will experience in Omaha. Therefore, your bankroll should be at least 500 times the expected pre-flop raise.

(3) *Seven-Card Stud*: If you are dealt a small pair in the hole, you will catch the mystery card on the fourth street about 5% of the time. Therefore, you should have about 25 times the value of the expected raise on the third street in your chip-tray. Again your bankroll must contain at least 500 times the raise.

The above recommended bankrolls and sit down monies are based on the assumption that you will follow the playing strategies of tight aggressive players. If you intend to adopt the other playing styles, you must have a limitless bankroll.

In fact, if you sit down with the minimum buy-in, you must play with premium cards all the time, otherwise most of your calls will have negative returns. This is contrary to the accepted wisdom of many players, who believe that you must gamble more if you have little money in your chip-tray. I will discuss this point in more detail in the next chapter.

Chapter Two
Probability – Value – Implied Odds – Tells – Bluffs

You can bet or raise with any hand, but your calls must have positive mathematical expectations.

The above statement is a definition of one of the most important playing strategies in small/medium stake limit and pot-limit poker games. You are entitled to bet or raise with anything, because such a move may win the pot for you. Your calls, however, must produce positive returns on your investment in the pot. You are calling for 'value' only when the rewards of your calls outweigh the risks you are taking.

1. Probability

The probability of completing a draw on a card-by-card basis can be calculated by dividing the number of cards which will complete the draw (outs) by the number of the cards remaining in the deck. For example, the fourth board card (turn card), in Omaha, completes the straight draw of your opponent, but leaves you lumbered with top two pairs. You have only four outs working for you in the remaining deck. Since you have seen eight cards, four in your hand and the four board cards, there are forty-four cards left in the deck. Therefore, the probability of filling your two pairs is $(4 \div 44) = 0.09$. Normally, probabilities have values of less than one. However, throughout this book, probabilities and win-rates will be written as percentages. Thus, in the above example, you will have a win-rate of 9% if you buy the fifth board card (river card). Chapters Four, Seven, and Eleven and the Appendix will give a more detailed account of win-rates in Omaha, Hold'em and Seven-Card Stud. You will find some degree of repetition of the same concepts in the latter chapters because I wanted to make each part of the book as complete and comprehensive as possible.

Probability and odds are different, but related, methods of assessing the chances that a specific favourable event will take place, as in the completion of a specific draw in poker. Probability can easily be converted to odds. You simply subtract the win-rate from 100 and divide the result by the win-rate. Thus, in the previous example, the odds against filling the house are, $(100 - 9) \div 9 \cong 10$. The result of this calculation is stated as follows. The odds for completing the draw are ten to one (10:1) against, which means, out of every 11 times you make that specific draw, you will succeed once. Similarly, if your win-rate is 25%, the odds against ending up with the winning hand are 3:1 against.

2. Mathematical expectations – value

The win-rate of a hand is related to the cost of a call by the following simple ratio:

$$\text{Win-rate} = (\text{Cost of the call}) \div (\text{Projected size of pot}) \quad (1)$$

Your call, therefore, will have a 'positive mathematical expectation' if the expected win-rate of your hand is higher than the above ratio. To put it another way, if the product of multiplying your win-rate by the size of the pot is larger than the cost of your call, you are getting 'value'. On the other hand, if the product is less than the cost of your call, you are wasting your money no matter how large the size of the pot. You will break even when the product of the multiplication is the same as the cost of the call.

In general, calling decisions should be broken down into the following three steps:

(1) You should decide whether you want to go all the way to the showdown or the next betting round only.

(2) Next, you should estimate how much it will cost if you take either of the options in step 1 and what is the projected size of the pot if you do so.

(3) Use the information in steps 1 and 2 to calculate the break-even win-rate. If your chances of winning the money are less than the break-even win-rate, you should trash your cards unless you think you can make up the difference through playing for the 'implied odds' (see next section).

For example, in a \$20–\$40 Omaha game, you flop top two pairs. The flop, however, has two cards of the same suit, giving another player a draw to the flush. Your opponent calls your bet (\$20) on the flop, bringing the total size of the pot to, say, \$120. The turn card completes your rival's flush draw. You check and he bets \$40. Now the pot contains \$160. Your break-even win-rate, therefore, is 20% (40 ÷ 200 = 0.2). You know, however, that the river card will fill your house 9% of the time. Hence, you must release your cards immediately. In fact, you can calculate the exact amount of money you will be throwing away when you buy the river card. If you multiply your win-rate (9%) by the projected size of the pot after your call (\$200), you will get the size of your break-even call under the above circumstances (\$200 × 0.09 = \$18). Therefore, you will lose \$40 – \$18 = \$22 every time you decide to swim the river of negative mathematical expectations. Even if your opponent calls your bet when you complete your draw on the river, you will lose over \$18 every time you commit your money to such bad gambles. Of course, you will lose more if you feel obliged to call the river bet when you have not captured one of the four cards you need to make your house.

You can use a simpler approach if you are used to working with odds instead of win-rates. Let us assume that your chances of winning are A:B against and it will cost you \$40 to get to the showdown. You will break even if the projected size of the pot, at the showdown, is equal to (40 ÷ B) × (A + B). Thus, if you are 5:2 against winning the pot (win-rate = 28%) the amount of money in the centre of the table by the end of the deal should not be less than (\$40 ÷ 2 = \$20) × (5 + 2 = 7) = \$140. Similarly, if you are, say, 9:5 against (win-rate = 35%) and you know that it will cost you \$100 to see the river, then the pot should contain more than (\$100 ÷ 5 = \$20) × (9 + 5 = 14) = \$280 if you want to get positive returns on your gamble.

You must, therefore, have a rough idea of the success rate of your draw whichever approach you use when you call a bet made by one of your opponents. Don't despair and throw your arms in the air – I will show you how to get a fairly quick and accurate estimate of your win-rate in the relevant parts of this book.

The next thing I want to discuss before I launch into an analysis of implied odds is the difference between limit and pot-limit poker. Pot odds of 5:1 and even 20:1 are very common in limit poker because the size of the after-flop bet is small compared to the amount of money in the pot. The pots in pot-limit games, however, usually offer the caller odds of 2:1 or, sometimes, 3:1. This significant difference in pot odds between the two forms of poker necessitates different playing strategies.

I question the wisdom of capping the pot before the flop in small stake limit Hold'em and Omaha because of the large pot odds your opponents are getting. On the other hand, a pre-flop raise, in pot-limit poker, may deter your opponents from trying to outdraw you after the flop. When your cards connect with the flop, threaten their entire chipstacks by firing a full pot bet at them with more money still to be wagered in the next round of betting!

Position assumes paramount importance in pot-limit poker. A full-sized pot bet can constitute a large proportion of the money you have in front of you in a raised pot. The bet in the subsequent rounds of betting may force you to commit all of your chips. The outcome of your decision to take such a risk will be that much better when you have to act after your opponents. Knowing who made the bet and from what position, who called and how many players are acting after you, enables you to make the correct fold/call/raise; in a raised pot, I prefer to act after the raiser.

3. Implied odds

I am surprised at the number of poker players who still do not understand the concept of implied odds. Pot odds is the ratio of the size of the pot, before your call or bet, to the magnitude of your call/bet. Thus, if you bet $20 into a $100 pot you are getting 5:1 for your money. Implied odds, on the other hand, take into account the money in future betting rounds, when you are drawing to make a hand whose win-rate does not justify a call based on the existing pot odds. For example, in pot-limit, you call a pot bet of $10, when your chances of improving on the next card are 10:1 against, with at least two more rounds of betting to come. When you complete your draw, you can bet $30 on the next round of betting followed by a $90 pot bet at the showdown. Thus, your $10 call has earned $140, thereby giving you 14:1 for your money on a 10:1 against gamble.

Implied odds, therefore, favour the caller because calls with negative mathematical expectations can be converted into profitable gambles.

You must appreciate, however, that implied odds convert calls with negative expectations to profitable ventures if and only if the following conditions are met:

(1) Your opponent will call your bets when you complete your draw. Weak loose players increase your implied odds tremendously, while skilful/tight opponents have the opposite effect.

(2) Your 'weak' opponent, and of course you, yourself, must have enough money to cover your implied odds, provided that the appropriate number of betting rounds are still to come. Thus, with one card to come, your chances of winning the pot, in pot-limit games, should not be less than 22% (about 7:2 against) and your opponent should possess about three times the bet. With two cards to come, you should not be worse than 10:1 against and the bettor's chip-tray should contain about thirteen times the bet called by you. With more than two cards to come (Seven-Card Stud) you can venture into a 25:1 against gamble when your rival has about thirty times the bet.

(3) The strength of your drawing hand is concealed. Hands with exposed strength have little, if any, implied odds. For example, in Seven-Card Stud, it is more profitable to gamble with a pair in the hole rather than a split pair (only one of the pair's cards is in the hole).

The second condition has further implications of which you should be aware. Your opponent should have between three to thirty times the bet you called. Your speculation in the implied odds zone, therefore, will be successful if the size of the bet you call is relatively small. For example, three times $10 is $30, but three times $100 is $300. Likewise, ten times $10 is $100, whereas ten times $100 is $1,000. Hence your implied odds are weak when the magnitude of the bet you are calling constitutes a large fraction of your (or your opponent's) chipstack. This fact leads to three other important conclusions, which are particularly relevant to pot-limit poker:

(1) You should not pay for more than one round of betting in Hold'em and Omaha and two rounds in Seven-Card Stud. Therefore, you should release your hand if the card you bought does not improve your hand.

(2) If you, or your opponent, have less than the specified amount of money after the bet, you are entering the losing zone of implied odds. In the long run, you will be broke if you keep drifting into the latter zone.

(3) When you sit with the minimum buy-in, you have very little implied odds. Consequently, you should play with premium cards only and all your calls should have positive mathematical expectations. This is contrary to the accepted 'wisdom' of many loose players, who think that they have licence to gamble with their small chipstacks.

Ventures in the implied odds zones are more profitable in pot-limit than in limit games. Moreover, Seven-Card Stud offers richer rewards than Omaha and Hold'em because (1) weak players prefer this game; (2) the strength of your draw is concealed in your hole cards; and (3) the extra betting round (the seventh street) enhances the value of the implied odds.

Position is also important when you are gambling in the implied odds zone. Your odds are better if you act after your opponent. This will enable you to acquire an extra bet in limit and at least three bets in pot-limit games.

Examples of calls, which rely on implied odds, will be presented in each part of the book.

4. Winning strategies

As I said earlier, poker is a game in which money, scientific expertise and artistic flair must be used in unison. Science plays an important role in winning poker because the mathematical theory of chance, and the laws of probability, dictate the winning propensity of the hand. It is an art because knowledge of the other players' personalities and habits will enable you to make important decisions and moves for which accurate scientific recommendations do not exist.

In limit games, especially Omaha, knowledge of probabilities is, to my mind more important than the artistic flair. Limit games are usually quite loose with three or more players going to the end of the deal. More than five players will frequently see the flop. Therefore, knowing the probability of making the winning hand, together with the size of the pot compared with your contributions to it, will play a crucial role in determining the size of your bank balance. Knowledge of your opponents' personalities and playing habits becomes more important in Hold'em and Seven-Card Stud. The latter games, especially Hold'em, need an attacking playing style, because on many occasions you will have to raise and re-raise, before the showdown, with just one pair. I will discuss these concepts in more detail in later chapters.

5. Tells

Nobody can teach you the artistic side of poker because it is not an exact science. However, the mannerisms, body language and betting habits of your opponents can supply you with useful information about their hands.

The word, the tone in which it is spoken and the body language that accompanies the tone are the three basic elements of any form of oral communication. No two players will follow exactly the same behavioural patterns when they bet or call a bet. Some will sound assertive and may even overact their assertiveness when they have the best hand. Others may adopt aggressive betting styles with weak hands. I know one player who regularly says 'I bet . . . ' when he holds the best hand and another who pauses for a few seconds before he puts in a raise to a previous bet. Some will look at their money before they make a bet, while others will glance at their opponents'. There are many other 'tells' that you can associate with various players. What you must learn is whether the 'tell' is part of the player's behavioural pattern, or is a deliberate act of deception. In general you will find that average players are beautiful creatures of habit. Tells associated with skilled players should be handled more cautiously.

Tells cannot be 100% accurate. Even if they were, you cannot pin a tell on every opponent you play against. Instead, focus your attention on the loose aggressive players. See if they have particular mannerisms, which may help you to decode the mysteries of their holdings. You must not, however, use tells as an excuse to gamble with this type of opponent. Tells must be utilised, together with the other information you have, to assist you in situations where you have to make a tough decision.

You should pay particular attention to your opponents' playing styles. How often does a particular player see the flop? Does he or she know what a profitable draw is or understand the importance of position? Is he or she an aggressive or a passive player? Who plays a specific hand the same way all the time and which one of your opponents can be bluffed? Which player's playing style changes significantly when he or she starts to lose or gets outdrawn by a miracle card? Who bets on the come and which one of your opponents only bets when his or her draw is completed? You and only you can obtain reliable answers to these and other questions.

6. Bluffing

Poker is bedevilled by the myth of the bluff. The first sentence in a poker book I was reading a while ago was, 'Bluffing is the essence of poker.' Obviously the author of that book had been watching too many Hollywood Westerns.

The bluff is one of the many weapons the successful poker player utilises during a playing session. It is, however, a weapon that is used only when the combatant finds himself in a desperate position.

Most bluffs are acts of desperation. They are usually launched when a player misses his draw. Therefore, if bluffing is one of your main playing strategies, you are either investing your money in the wrong starting cards, or gambling with low percentage draws. In other words, you are doing something wrong.

The bluff is more effective in pot-limit games because the bluffer is threatening a large portion, if not all, of his opponent's chipstack. Generally speaking, the success of a bluff is determined by a blend of two or more of the following factors:

(1) *Image*: a bluff will have a greater chance of success if the bluffer is perceived as a tight player. I have taken liberties in many games, because I made my opponents think of me as the 'rock'. Whenever I make a bet, they show respect. Needless to say, a lot of the time I don't have the hand I am representing.

(2) *Opponent*: the number of players contesting the pot and their poker skills will affect the efficacy of the bluff. Do not launch a bluff against more than two opponents and reserve such moves to tight players with intermediate to low skill levels.

(3) *Position*: a bluff with outs is more effective from late position. Thus, the flop offers you a flush/straight draw and the pot is checked to you. Your bet under these circumstances is a bluff. However, you may win the pot there and then and, if you are called, you can still win when your draw is completed.

(4) *Money*: Avoid bluffing players with small chipstacks. You will not believe this. I watched one Omaha player call an all-in bet in order to 'bluff' his opponent with a flush draw, which consisted of the 'bare Ace' of the board's two suited cards! On the other hand, a bluff against a large chipstack, especially in the early stages of betting with more cards to come, could be effective because of the threat it poses. It will make the holder of that stack think about the cost of going all the way to the showdown.

The bluff is a winning strategy even in limit poker. Suppose at the end of a deal there is $100 in the pot and the next bet is $20. If you make a bet, you will be richer if your bet is called less than 80% of the time (less than four times for every five bets). If, however, it is called more than 80% of the time, then your bet is a marginal one and will be a losing one if called every time. Therefore, your bluffs will be profitable when there is a reasonable chance that your opponents will not keep you honest.

I remember an occasion where there was over $300 in the pot, and a granite player was the last one to act after the river card was turned. Everybody checked to him. The next bet was $40, which he quietly and confidently made. When nobody called his bet, he showed me his hand, which consisted of what I call 'wicky wacky woo'; he did not have the hand he represented. He had every reason to bet. The pot was offering him more than 7:1 for his money. Even if his bet were called 85% of the time, his bluff had positive expectations.

7. Golden rules

Finally, I would like to list six very important rules. If you apply them faithfully every time you play, then you will realise, as I did years ago, that poker is not a gambling game. It is an investment game in which very good returns are guaranteed by the end of the year.

<u>*Rule Number One*</u>:

The reward should *always* outweigh the risk. If you are aiming to outdraw your opponents, the pot must offer odds that exceed the odds against ending up with the winning hand. Do not get involved in contests in which you are either a small favourite or a big underdog.

Rule Number Two:

Play with good starting cards, but don't fall in love with them. If you are not happy with the flop, simply fold your cards. You must not be a 'calling machine'.

Rule Number Three:

Don't throw good money after bad. During the course of a pot, if you think your hand is beaten, accept defeat gracefully and get out.

Rule Number Four:

Don't take prisoners, but be selectively aggressive. You must not play a friendly game. Naked aggression, however, is a losing strategy in any war.

Rule Number Five:

Don't play with money you can't afford to lose, because lack of cash will affect your judgement and force you to make errors.

Rule Number Six:

Choose games that suit your playing style. Generally speaking, you should aim to play in games frequented by passive players. Resist the appeal of shoot-out games in which more than two loose aggressive players are firing their chips at their opponents, unless you can cope with the inevitable big swings in your poker bankroll.

Part Two
Four-Card Omaha

Chapter Three
Four-Card Combinations

The following four chapters are devoted to Omaha high. This chapter deals with starting cards and the next two look at the probabilities of Omaha hands and after the flop play. Finally, the fourth chapter of this part is dedicated to pot-limit Omaha.

The information and guidelines presented in the first three chapters are more suitable for limit games. However, limit and pot-limit enthusiasts should find that the discussions in these chapters complement those presented in the one related to pot-limit Omaha.

1. Starting four cards

Your choice of the four cards is the first important step in determining the returns you will gain on your investment when you play Omaha. There are over 270,000 four-card combinations in a full deck. Selecting the appropriate starting cards, therefore, may seem an awesome task. The good news is that it need not be that difficult if you follow the guidelines in this chapter. Obviously your position at the table determines which cards you should just call with and which ones you should raise with. If you hold premium cards, say, once or twice suited pair of Aces, a raise is a must from any position. However, if your cards are rags then, if you have to make the others richer, do it from late position. In a nine-handed game the first three players after the button are in early position. The next four players are in middle position and the last two are in late position.

Every four-card combination has six two-card combinations and every five-card combination has ten three-card combinations. Therefore, at the end of a dealt hand every player has a choice of 60 five-card combinations (any two of his four cards together with any three of the five board cards). This fact makes the skill of choosing the appropriate starting four cards important and gives the experienced player a significant advantage over the others.

The starting four cards can be divided into many categories. However, to make life easy, I will split them into three, namely: (1) *pairs*; (2) *wrapped cards*; and (3) *trash*.

Suited cards are extremely important especially in limit games, and paired and wrapped starting cards are frequently supported by suited cards. Consequently, the impact of flush draws on the winning potential of the starting hands will be described in the sections related to paired and wrapped starting cards.

1.1 Pairs

If you are dealt a pair, your two-card combinations will be reduced from six to four. For example, if your starting four cards are A-Q-Q-2, the two-card combinations are A-Q, A-2, Q-Q and Q-2. Thus, the number of five-card combinations available to you at the end of the deal has decreased from 60 to 40. This makes the quality and texture of the other two cards that are dealt to you with the pair very important.

There are 78 pairs in a full deck of cards. You will be dealt a pair about 30% of the time. That means that you will be dealt a specific pair, say A-A or 2-2, 2.3% of the time (30 divided by 13). Thus, in a nine-handed game about three players will have a pair. As you know, a pair will flop trips (three of a kind) about 12% of the time, which means that in a nine-handed game someone will flop trips 36% of the time (about 9:5 against). Likewise in a seven-handed game, two players will hold a pair and trips will be flopped about 25% of the time (3:1 against). Bear in mind that these figures are approximate averages, which means that in some deals no player will hold a pair and in others more than three players will hold a pair.

There is one very important concept that should be applied to the selection of playable hands, especially those containing pairs. I am referring to the frequency of flopping specific cards. For example, if you don't hold an Ace in your hand, then the flop will contain one about 20% of the time (4:1 against). That means that the flop will contain A, K, Q or J, or a combination of these cards, about 80% of the time. Even if you hold one or more of the above cards, one or more will be flopped about 60% of the time. These numbers highlight the importance of high cards, especially high pairs and suggest that caution should be exercised when you decide to gamble with low pairs.

High pairs are A-A, K-K, Q-Q, J-J and T-T (T=10). Medium pairs comprise 9-9, 8-8, 7-7 and maybe 6-6; I prefer to think of 6-6 as a low pair together with 5-5, 4-4, 3-3 and 2-2.

1.1.1 High pairs

High pairs are good money-printing machines if played properly. As with all the other pairs, the texture of the other two cards that are dealt with the pair, will dictate how the hand should be played. For example, let us compare the winning potential of the following starting cards:

Q-Q-T-9(o),
A-Q-Q-T(o) and
Q-Q-7-2(o).

The results of computer simulations suggest that Q-Q-2-7 plays best head-to-head. With two or more contestants, its win-rate falls below its break-even point. In multi-way pots, therefore, Q-Q-7-2 should be played cautiously and from late position. The hand can have potential if a Queen is flopped. This will happen about 12% of the time. However, if you decide to see the river card, then you may end up with three Queens 20% of the time. Personally, I would take this hand as far as the flop and as cheaply as possible.

Q-Q-T-9 and A-Q-Q-T are money earners in short as well as multi-handed pots and can be played from any position. In fact a raise before seeing the flop is correct, especially if the A or Q is suited.

The important thing to note is how the replacement of 7-2 by A-T or T-9 has transformed the hand from a mediocre one to a money winner; T-9 enhanced the potential of the hand to form winning straights. A-T had a similar effect, though to a lesser degree and of course the Ace increased the chances of winning with two pairs. The importance of having a Ten in the starting cards together with J or Q will be outlined later.

Out of all the pairs only K-K and Q-Q can have flops which do not offer a straight draw to your opponents. The flops are K-7-2, Q-7-2, K-8-3 and K-8-2. So, if you hold a pair of Kings and the flop is K♥-7♦-2♣, you know that men bearing gifts are knocking at your door, especially if one has a pair of Sevens in his hand and the other was betting into him with a pair of Deuces residing in his starting cards. This happened to me one night in a pot-limit game; I was at the button. Next morning I was laughing all the way to the bank. The moral of this very happy event, which sadly does not happen often enough, is that whenever the board contains 7-2, 8-2 or 8-3, then the ability of players to end up with a straight is considerably reduced.

Next, let us look at the prospects of the high pairs. Not surprisingly the simulations confirm the winning performances of Aces, Kings and Queens. Many players ask: 'What are the best supporting cards for A-A and K-K?' I carried out the appropriate computer simulations and you must consider yourself privileged to have access to the following data. The best buddies of Aces are K-K, Q-Q, J-J, T-T, 5-5 and suited J-T as well as T-9. The winning power of J-T was revealed in a two-handed contest between A-A-K-K(o) and A-A-J-T(o). The two-paired hand was only 6:5 favourite. However, A-A-J-T became the 6:5 favourite when it was double suited. Furthermore, analysis of other simulations indicate that Aces suported by unconnected King or Queen are weak.

Similarly, the best supporting cards for Kings are A-A, Q-Q, J-J and T-T as well as Q-T, J-T, A-J, A-T, A-Q and T-9. Having an Ace with the Kings is important, especially in short-handed pots.

Remember, if the supporting cards are off-suited and unconnected rags, then the big pairs are only suitable in short-handed pots. Of course, if they were suited and/or connected, you should make everybody pay extra to see the flop with you. I must point out, however, that you should not fall in love with A-A and K-K when more than three opponents pay to see the flop. If the flopped cards do not match your starting hand, your big pair is in all probability losing. Hence, don't be ashamed to discard your cards if you don't feel comfortable with the flop; you will live to win another pot later on. Many players can't throw big pairs away and as a result line their rivals' pockets with hard cash.

A pair of Jacks functions best with Q-T(s), A-K(s), A-Q(s), K-Q(s) and K-T(s). The pair also performs very well with Q-T(o), A-Q(o), A-T(o), K-Q(o), K-T(o) and T-9(o).

The best comrades of a pair of Tens are Q-J(s), A-K(s) and K-Q(s), A-Q(s) and J-9(s). The best off-suited companions for the Tens are Q-J with A-K, A-Q, K-Q, K-J and J-9 giving a good account of themselves.

J-J-9-8(o) plays best against more than three rivals, while the profit-making potential of T-T-8-7(o) does not increase as the number of opponents increases. The results of the simulations indicate that the winning potential of the latter starting cards does not vary very much as the number of opponents increases, despite the fact that their supporting cards enhance their straight potential. Their profitability is much lower than the other high pairs. But if you remember that about 60% of the time any flop will be an Ace, King, or Queen-high, then the low profitability of the latter pairs is not surprising. Thus, if an Ace, a King, or a Queen is flopped and you have not got a straight draw or trips, you should seriously consider discarding your cards. A flop with Ten being the highest card will occur about 5% of the time if you hold a pair of Tens.

To summarise, a pair of Aces, Kings, or Queens, complemented by good cards should be played aggressively. If supported by rags, they play better against one to two opponents. With more than three opponents, the pairs must be supported by connected and/or flushing cards. If not, a raise before the flop is correct if you think the number of rivals can be reduced to less than three.

A pair of Jacks with connected or flushing cards prefers more than three opponents. Tens should be played cautiously, and preferably from late position.

1.1.2 Intermediate pairs

The texture and denomination of the two cards accompanying the intermediate pair, as well as your position, should influence your willingness to see the flop. If the two cards accompanying the pair wrap it at the higher end, then the winning potential of the pair is significantly increased. Thus, J-T-9-9(o) is reasonably profitable against two to six other players and its profitability is enhanced as the number of players increases. In fact simulations on pairs of Sixes, Sevens and Eights revealed the powerful winning potential of J-T as the supporting cards. As a general rule, you will do well if you remember that, in limit games, straightening and flushing cards are money earners in multi-way pots. Playing these hands from late position gives you an extra edge over your opponents.

Intermediate pairs wrapped at their lower ends perform better in a multi-way action and consequently position will play a significant role in their potential. Thus, 9-9-8-7 is marginal against one to six opponents; against more it becomes fairly profitable, whereas 9-9-7-6 needs more than five rivals. The minimum number of opponents for 8-8-6-5 and 7-7-5-4 is six, while 6-6-4-3 requires more than eight opponents.

The inclusion of flushing capability as well as the addition of high cards (A, K, Q) to intermediate pairs improves their prospects. Thus, a pair of Nines plays best head-to-head when supported by one unsuited high card (A, K, Q). Adding another off-suited high card makes the hand play best against two opponents with a break-even point of four opponents; with more than four rivals, the winning potential of the hand becomes negative. This is a common feature of four-card combinations with one or two unsuited high cards: they perform better in short-handed pots.

However, when the high cards are suited, as in A-Q-9-9(s), the hand does slightly better. It performs well against seven opponents, but it is marginal against three to six opponents. This is because the hand relies heavily on the following three winning combinations:

(1) *Trip Nines*: Intermediate trips are winning cards in short-handed pots. However, they are vulnerable in multi-way action. Many loose players, holding over pairs (higher pairs) will pay to see the turn and the river cards in order to outdraw you with higher trips. Even if you flop top trips, your cards may already be losing to a straight. When you think about it, there are few safe top trip flops for a pair of Nines (9-2-3, 9-2-4, 9-2-5, 9-3-5, 9-3-6, 9-4-6 . . . etc.). Even the latter flops may offer your opponents straight and flush draws; two or three cards of the same suit will be flopped over 50% of the time. The situation is even worse for the lower pairs (8-8, 7-7, 6-6).

Generally speaking, as the denomination of the highest card on the flop decreases, the probability of flopping a pair increases. For example, if you hold a pair of Sixes and the flop is Six-high, then the probability of a pair appearing on the flop is high, because only Fives, Fours, Threes, or Deuces can accompany the Six. Therefore, the chances of flopping a full house on those occasions are increased. The bad news is the odds for these happy events are over 100:1 against.

(2) *Two pairs*: You will flop top two pairs (Aces and Queens) only 2% of the time (49:1 against). Moreover, the winning potential of this flopped hand is affected by the number of opponents willing to see the river card (fifth card). For example, flopped two pairs Aces and Queens will win the pot for you less than 50% of the time against six to eight contestants; against four or less opponents their win-rate is well over 50%. Therefore, two pair Aces are winners in short-handed-pots. If your starting cards are A-9-9-3(s) and you flop top and bottom two pairs, such as Aces and Threes, your hand may not hold its own even against two to three opponents, and, with more, its chances of winning are pretty small. I hope that this short discourse has proved to you that the overall winning rate of two pairs in limit Omaha is not enormous; only high-ranking top two pairs such as Aces or Kings deserve the investment of your capital.

(3) *Flush*: Starting cards capable of flopping Ace-high flush or Ace-high flush draws are favourites in limit games. They combine the winning potential of high cards (against few opponents) as well as the nut flush draw (multi-way action). With a King or a Queen, however, the win-rate of the hand is marginal even if it is suited. For example, K-9-9-X(s) is very marginal and should be played from late position. You must think very hard before you invest your hard-earned money on a flop that presents you with a Queen-high flush draw.

Of course, flopping full house (less than 1% of the time) is another winning possibility. However, if the rank of the flopped pair is higher than yours and more than one player calls your bet, you could be throwing good money away.

To summarise, intermediate pairs should be (1) wrapped at their higher end by their supporting cards; and (2) played as cheaply as possible and from late position. Those wrapped at the lower end require at least six opponents. Cards with Ace-high flush potential are desirable in short-handed pots. Pairs accompanied by off-suited high cards favour less than four opponents. Therefore, with such starting cards you should raise if you think several players at the table are not prepared to pay an extra bet to see the flop. The latter playing strategy is more suitable for pot-limit rather than limit games.

1.1.3 Small pairs

Small pairs must be viewed with great caution. If you have to gamble with them, please do it from very late position, preferably with Ace-high flushing cards holding their hands. Having off-suited high cards with a small pair may look good but in fact these combinations are fatal, especially in limit games. Even with wrapped cards you should consider trashing the hand most of the time.

1.1.4 Two pairs

Your starting four cards will consist of two pairs about 1% of the time. When you have twice paired starting cards, the two-card combinations available to you will decrease from six to three. Consequently, at the end of the deal, you will have only 30 poker hands to choose from, while most of your competitors are spoilt for choice between their 60 combinations. Many players love two paired starting cards, because they argue that the flop will match their cards about 25% of the time. However, they forget that in limit games, with many players paying to see the flop, trips, especially small ones, will be regularly outdrawn. Therefore, the two pairs should consist of high cards, preferably connected and suited, in which case a raise is called for. For example, 9♣-9♦-T♣-T♦ won 42% of the pots in a two-handed combat with a pair of Aces, whereas K♣-K♦-2♣-2♦ was fortunate only 38% of the time. Thus, having high-ranking suited and connected pairs constitutes a strong starting hand.

1.2 Wrapped cards

You have seen the word 'wrap' so many times so far that it is about time I offered you a definition. Wrapped hands comprise sequential cards with or without gaps. For example, J-T-9-8 is one without a gap and J-9-8-7 is one with one gap at the high end. 9-8-5-4 is another sequence with two gaps, the 6 and the 7.

The main attraction of wrap hands in four-card Omaha is their ability to flop large draws. For example, you hold J-T-9-6 and the flop is 8-7-3. When you see a flop like this, you know somebody up there loves you, because there are no fewer than 16 cards which you can hit on the turn or the river (four 5s, three Js, three 9s, three Ts, and three 6s) to give you the nut straight. If you are dealt wrapped cards, you will flop a straight about 2-3% of the time (30:1 against). The flop will also give you eight or more card draws over 15% of the time (11:2 against).

It is impossible to cover all the possible wrap hands that will be dealt to you as your starting four cards. To make the task easy, I will split them into three categories, namely:

- Four connected cards;
- Three connected cards;
- Two connected cards.

1.2.1 Four connected cards

Four connected cards with zero gap (no gap) such as Q-J-T-9, J-T-9-8 . . . etc, are of course more desirable than those with gaps. The results of several computer simulations, on a number of off-suited four-card sequences with zero gap, are presented below.

K-Q-J-T and Q-J-T-9 gave the best results. They performed well in short-handed pots, because of their high denominations, and competed even better in multi-way pots due to their ability to form big and therefore winning straights. Q-J-T-9 won slightly more pots than K-Q-J-T against seven opponents because the King blocks the high end of the straight to a larger degree than the Queen. For example, the King can form only two straights, A-K-Q-J-T and K-Q-J-T-9, whereas the Queen can have A-K-Q-J-T, K-Q-J-T-9 as well as Q-J-T-9-8.

If the latter two starting hands are dealt to you, you should go on the offensive from any position, with a raise, especially if the cards are suited.

Although J-T-9-8 did not play well head-to-head, it performed well against more than two opponents. I would play the hand every time it was dealt to me. The hand T-9-8-7 had its break-even point against three rivals. Similarly, 9-8-7-6 and 8-7-6-5 should be played against more than five opponents. With these hands, position is important because, even if a wrap or a straight is flopped, somebody may end up with a better hand. For example, if you are holding 8-7-6-5 and the flop is T-9-6, many of your rivals may be very interested in the flop. If the turn card is higher than a Seven, you could be losing to a higher straight. However, flops containing the lower end of their sequence offer these starting hands wonderful opportunities to prove their winning potential. Thus, if you are the happy owner of 9-8-7-6 and the dealer flops off-suited K-5-4, you are entitled to launch an offensive against your opponents using your thirteen-card draw as your weapon. The latter starting hands will produce positive return on investment in limit games in which multi-way action is the norm. You must therefore see the flop with these cards.

With gapped connected cards, the position of the gap, the number of gaps and obviously the quality of the cards dictate how the hand should be played. Sequences with one gap are more desirable than those with two. It is also preferable to have the gap at the lower end of the sequence, so that if the missing card is flopped, your wrap stretches over the high end of the straight. Thus, Q-J-T-8 is a better starting hand than Q-T-9-8. However, Q-T-9-8 is better than Q-J-T-7, because the latter has two gaps between the Ten and the Seven. Against, two to three opponents, the position and size of the hole in the sequence is not as important as the high card value of the starting cards. The importance of high cards in short-handed pots seems to surface every time.

When you hold a two-gapped hand, an off-suited flop comprising the missing two cards will give you a twenty-card draw. For example, you have K-Q-9-8 and the flop is J-T-5. You have four Aces, four Sevens, three Kings, three Queens as well as three Eights and three Nines. This is one of the flops you dream about. Note, however, only 14 out of the 20 cards will furnish you with the nut hand; although a King or a Queen will give you a straight, another player may hold a better one.

1.2.2 Three connected cards

Three connected cards will be dealt with either a high or a low card and the hand may be suited or unsuited. I will deal with these situations separately.

1.2.2.1 High card

The computer simulations suggest that having an Ace or a King as the fourth card produces the same effect. A-Q-J-T seems to be the most profitable combination. The hand plays well against any number of opponents and should therefore be played aggressively from any position. Despite its impressive high-card contents, A-K-Q-J is not superior to A-Q-J-T in multi-handed pots, due to the presence of the Ace and the King and the absence of the Ten. Both of these factors impede the ability of the cards to form straights. In fact A-K-J-T or A-J-T-9 performed better than A-K-Q-J in multi-way pots.

Having a Ten in wrapped hands is important for one simple reason. You cannot have a straight that does not contain either a Five or a Ten. Therefore, if you don't have a Ten in your hand, one will have to be flopped, which is an event that occurs about 20% of the time. Moreover, if that crucial card is missing from your starting cards, then a flop without a Ten will only offer you an eight-card draw to the straight (open-ended or up and down). Thus, big straight draws, with more than eight cards working for you after the flop, are more likely if a Ten is either supporting your starting cards or is flopped.

If you have three connected cards and the fourth card is two gaps away from the lowest rank in the sequence, a flop that contains the missing ranks offers you the best wrap draw. For example, you have A-K-Q-9 and the flop is J-T-4, or you hold Q-J-T-7 and the dealer flops 9-8-4. Now you have a 16-card draw to the best straight, which is the highest draw you can have to the best straight. If you flop a good flush draw as well as the wrap with the first hand, you know someone up there loves you! Unfortunately these happy occasions take place about 2% of the time. When the fourth card is more than two gaps away, as in A-K-Q-8, then the hand cannot flop more than a thirteen-card wrap.

A-T-9-8(o) is relatively marginal and, as expected, yields better results against several players. A-9-8-7(o) plays best against three rivals and does not function well against more. This is a feature shared by all cards capable of producing only middle and small straights. That is why A-7-6-5(o) is a loser in all situations. Thus, these starting cards must be played with caution; from late position and preferably endowed with an Ace or a King flush draw.

The winning potential of all of these hands will be significantly increased if the Ace or the King is suited. Even the A-7-6-5(s) will be transformed from a hopeless loser, when unsuited, to a winner. But remember, the cards will line your pocket with dollars with the right flop; if unfavourable cards are flopped, trash the hand quickly. It is the size of the pots you win, rather than their number that makes you a big winner in any poker game. If the flop presents you with a good hand or a large draw, make the pot big by raising. If it does not match your cards, then do not hesitate to do the honourable thing.

1.2.2.2 Low card

The results of computer simulations on off-suited three connected cards accompanied by a Deuce show the following:

(a) A-K-Q-2 holds itself only in short-handed pots.

(b) Q-J-T-2 breaks even against three opponents, and yields fairly good returns against six to seven other players.

(c) The rest of the starting cards are either losers or marginal. Therefore, K-Q-J-2(o) and J-T-9-2(o), should be played from late position and T-9-8-2 should be trashed; it is an underdog.

The results clearly demonstrate the superior winning potential of the sequence Q-J-T. When this sequence is supported by an Ace, King, Nine and even an Eight, suited or otherwise, then you must launch an offensive against your rivals

If the cards are suited, then as you would expect, their winning potential will be enhanced. I love holding flushing cards in limit games, because they will transform a mediocre hand into a cash winner if played properly. In multi-way action, as is frequently the case in limit games, if the winning hand is a straight, the money in the pot will be shared about 10% of the time because more than one player will hold the same straight. However, with flushes, you either win or lose the whole pot. Therefore, the size of the contributions that flushing cards will make to your bank balance will be governed by the way you play them. This very important point will be elucidated in the next section.

1.2.3 Two connected cards

Let us consider the most favourable situation for these starting hands. Suppose you were dealt one of the following hands: A-K-5-6, A-Q-5-6 or A-J-5-6, off-suited, or suited. How should what I call two Texas Hold'em hands combined in one be played?

In pot-limit structured games, I would be extremely reluctant to get involved with these hands from early position even if the Ace was suited (see Chapter Six).

The off-suited cards are all losers in many-handed limit or pot-limit games, with the A-K-5-6 being the only hand that does marginally well against one to two opponents. The bad performance of the above starting cards, especially in limit games, is due to the fact that a relatively large fraction of their win-rates is dominated by the low winning potential of two pairs. Therefore, if you decide to gamble with cards comprising two good, but off-suited Hold'em hands, please do it from late position and muck them quickly if the first three board cards are unfavourable. Again, if the field of contestants can be reduced to three or less before the flop by a raise, then you may consider that course of action, although I doubt the efficacy of this move in limit games because they are frequently packed with loose players. When the above starting cards are supported by an Ace or King suited combinations, their performance changes significantly in limit games. I do not think that I need to discuss the advantage of the Ace-suited combination. Let us look at the prospects of the King-suited starting cards.

The King-suited hand plays well against many rivals. However, it can still lose the pot if one of the other players holds the Ace-high flush; the probability that one opponent holds a suited Ace if you are dealt a similarly suited King is about 3%. Hence, even against five contestants going to the river, your King-high flush will win the pot over 80% of the time. Therefore, when you complete the King-high flush at the turn and one player comes betting into you, a call is not wrong, especially if you are the last person to act. Whether you should raise or fold depends on the action at the flop. If you had the flush draw at the flop and several players paid to see the turn card, a flat call to keep the bettor honest is enough; consider folding if the bettor is a rock. However, if the turn card gave you the flush draw and at the river the flush was completed, that is, you backdoored the flush, then a raise is not wrong unless you knew that the bettor was a solid player who only bets with the nut hand. In the latter situation you would have to exercise your judgement as to whether you should discard or flat call.

A Queen-high flush is marginal against more than two opponents, unless it is backdoored. Therefore, if the flop offers you such a draw, do not be ashamed to refuse the invitation to throw more money in the pot in multi-way action. You could be drawing dead. But, if you flopped, say, top two pairs, and the turn card gave you a flush draw as well as your two pairs, an all-out war against the other callers is the order of the day. What I am trying to say is this. Queen-high (or lower) flushes are marginal in multi-handed pots, therefore, they should be supporting your other cards that match the flop. I would rather backdoor such flushes. However, against one or two opponents I may invest my money in them if the pot odds are correct. That is why position is very important when you decide to gamble with such cards.

The performances of Jack-high suited combinations, such as A-J-5-6, are very marginal. Their winning potential starts to decline against more than two players. I repeat again, do not invest your money in Jack-high flushes or flush draws. A-J-5-6 (J-suited), or similar hands, are dogs.

Sometimes double-suited starting cards will be dealt to you. Naturally they are superior to single-suited cards, but the same guidelines must be applied to them. Flushing cards are very important. They can make the difference between winning or losing on the day. They are a big asset in limit games, if properly exploited, but can turn into a big albatross when overplayed in both limit and pot-limit games.

1.3 Trash hands

Trash hands include the rest. As the title says, they should be trashed!

1.4 Summary

I hope that you have realised by now that a premium hand is one that can be played against any number of opponents. Therefore, the hand must contain high cards and flushing/straightening capability.

Chapter Four
Probabilities and Odds

No one is big enough to enforce the laws of probability on the day but the laws will impose themselves in the long run.

The above statement should be written on tablets of stone. Nobody can violate the laws of probability over a long period of time and those who are stupid enough to challenge them constantly make sizeable contributions to the bank accounts of the skilful poker player. If you insist on walking on water, you must sink.

As I said before, limit Omaha is mostly a game of probabilities. Knowledge of your opponents' personalities and, subsequently, their style of play will definitely add to your winnings. However, that is not something you can learn by reading a book. The latter skill can be gained only by many hours of playing poker, during which, you must observe and remember the habits and mannerisms of the skilled as well as the not so skilled players. When you strike the correct balance between the science and the art, then you can think of yourself as a very good poker player.

To be successful in Omaha, especially limit games, you must concentrate on the scientific aspect of the game first. If most of your calls and bets are designed to yield positive cash returns, then nothing can stop you from being a winner in the long run.

Before I explain probability and odds, I want to go back to the first part of the first sentence in the chapter. It states that nobody is big enough to enforce the laws of probability on the day. Veteran players will confirm the validity of this statement. If you give them half a chance, they will spend hours reciting horror poker stories about big pots which they should have won, but did not, because Crazy John or Jack the Greek got a miracle card on the river. You will end up with an earache as well as a headache. I could tell you such stories too, but I can also tell a hundred more stories in which Mad Tom or Joe the Pump sent me laughing all the way to my bank.

You will certainly get days on which the cards are teasing you and, no matter how well you play, you cannot win. Do not despair, because such days are generally few and far between if you play well. When someone gets a miracle card and outdraws you, do not lose your cool. If such an event upsets you, go and answer the call of nature. Just cool down and forget what happened. All that matters in poker is that you are playing correctly. If you do that, you can only be a winner at the end of the year.

1. Probability and odds

The flop may present you with many and, frequently, no chances of winning the pot. When it does offer you opportunities, you must decide whether to take or refuse such offerings. Your decisions must be made after a fairly accurate, but relatively quick, mental evaluation of the profitability of seeing the turn, or the turn as well as the river cards. This task can be achieved only if you know how the probability of ending up with the best hand compares with the ratio between the sum of money in the final pot and your total contribution to the pot.

Probability and odds are different, but related methods of assessing the chances that a specific favourable event will take place, as in the completion of a specific poker hand. For example, if the turn card gives you a nut flush draw, the probability that the river card will complete the flush can be calculated as follows. You have seen eight of the fifty-two cards in the deck, four in your hand and the four board cards, which leaves $52 - 8 = 44$ cards unaccounted for. Out of these 44 cards only nine will complete your flush. Thus, the probability of making the hand at the river is $9 \div 44 \cong 0.2$.

Usually probabilities have values of less than one, but I prefer to quote them as percentages by multiplying their values by 100. So, in the above example, the flush will be completed 20% of the time.

Therefore, to work out the chances of having the best hand by the time the next card is turned, you simply divide the number of cards (normally referred to as outs) which will accomplish that effect, by the number of the remaining cards in the deck.

Probabilities can easily be converted to odds. You simply subtract the probability, expressed as a percentage, from 100 and divide the result by the probability. Therefore, the odds against making the flush in the example given above are, $(100 - 20) \div 20 = 4$; the result of the calculation is stated as follows. The odds against making the flush are 4:1 against, which means, out of every five times you make that specific play, you will succeed once.

Before I discuss a very simple method for estimating probabilities after the flop, I would like to go back to the concept of positive mathematical expectations (see Chapter Two) and its use to determine the profitability of after-the-flop draws.

2. Profitable draws

Every time you decide to contribute money to the pot after the flop, you must be certain that the returns on your investment outweigh the risk you are taking. The good news is that kind of risk analysis can be done within seconds.

Let us take the example of the flush draw on the turn and assume that it will cost you \$20 to see the fifth card. All you have to do is multiply the total amount of money in the pot, including the cost of your proposed call, by the probability of completing the flush. If the answer is larger than the cost, \$20, then your investment will produce positive returns in the long-term. Therefore, if you are going to call the above bet, the total money in the pot must be equal to, or preferably more than \$100 (\$100 × 0.2 = \$20). If it is, say, \$80, then, \$80 × 0.2 = \$16, which means that in the long run a loss of \$4 is incurred by you for every \$20 you put in the pot. With \$100 you will break even, although you may end up winning if your subsequent bet is called when you complete your draw. However, if the pot contains, say, \$120, then \$120 × 0.2 = \$24. Therefore, you will make a long-term average profit of at least \$4 for every \$20 you invest in the pot. That amounts to a return of at least 20%. Where else can you get such a return on investment, without having to commit vast amounts of funds, except in poker?

On some occasions, when there are players who have to act after you and the result of the multiplication is slightly lower than the bet, a call is correct if you think the other players' calls will make up the difference.

If you are not drawing for the nut hand, say in the above example you have a King-high flush draw, then the product of multiplying the probability by the size of the pot *must* be bigger than the bet, because you could be drawing dead. In the case of a Queen-flush draw, I suggest that you think very hard. Attempt the draw only if it is backdoored, with the multiplication product being much higher than the bet, unless you have another hand to complement the draw.

Some players prefer to use odds instead of probability. The profitability of a draw can be determined as follows. Let us again take the example of the flush draw at the fourth card. As you know, the odds against completing the flush are 4:1 against. Therefore, the pot odds, that is the result of dividing the existing money in the pot, which in this case should not include your contribution, by the amount of the bet, must be equal to or more than the odds against completing your hand. So, for example, if there is $80, or more in the pot before you commit your money and the bet is $20, then the pot is offering odds of four to one. Since your odds are 4:1 against, then a call is correct and becomes profitable if the pot odds are larger than four to one. Again, if you are going for the second- or third-best hand, King or Queen-high flush, then the pot odds must be at least five to one. Refer to Chapter Two for another way of using odds to calculate the break-even size of the pot.

3. Probabilities of Omaha hands

The flop may present you with one or more possible draws. The first thing you should do is to identify which draw (and indeed on occasions there may be several) is the most likely winner. Then you count the number of outs that will complete your hand. Once the number of outs is identified, the probability calculation becomes a simple task of mental multiplication. You simply divide the number of outs by the number of the remaining cards in the deck. Mathematically speaking, this is equivalent to multiplying the number of outs by one divided by the remaining cards in the deck. Since the number of the unseen cards is 45 and 44 on the flop and the turn respectively, and since one divided by 45 or 44 is approximately 0.022 (2.2%), the probability of a draw can reliably be estimated by multiplying the number of outs by 2.2. Thus, a nine-card draw to the flush will be successful $2.2 \times 9 = 20\%$ of the time on the turn of the next board card. I am going to call 2.2 the *probability coefficient* or PC. To estimate the overall probability for going from the flop to the river, you multiply the number of cards that are working for you by 4. Thus, the *overall probability coefficient*, OPC, is 4.

To save time Table 1 gives the estimated probabilities, listed as percentages, on the turn or the river cards, for hands with draws of four to fifteen outs. I have rounded the estimated figures to the nearest numbers. For the sake of comparison, the correctly calculated probabilities are also listed.

Outs	Estimated	Calculated for turn	Calculated for river
4	9	8.8	9
5	11	11	11.5
6	13	13.2	13.6
7	15	15.5	15.9
8	18	17.6	18.2
9	20	20	20.5
10	22	22	22.7
11	24	24	25
12	26	26.4	27.3
13	29	29	29
14	31	31	31.8
15	33	33	34.1

***Table 1**: Comparison of estimated and correct probabilities for the turn and river cards*

Table 2 presents the overall, estimated and calculated probabilities, listed as percentages for going from the flop to the river. The Overall Probability Coefficient (OPC) used in the table is 4.

Outs	Estimated probability	Calculated probability
4	16	17.2
5	20	21.2
6	24	25.2
7	28	29
8	32	32.7
9	36	36.4
10	40	39.9
11	44	43.3
12	48	46.7
13	52	49.9
14	56	53
15	60	56.1

***Table 2**: Estimated and calculated overall probabilities*

The agreement between the estimated and the calculated figures is within 4% to 8%. This means that the PC can give you a very reliable estimate of your chances of winning the pot. Thus, all you have to do after seeing the flop is to follow the steps outlined below:

(1) If you flop the best hand, attack. When outdrawn on the turn, count your outs, then use steps 2 and 3. If you flop a draw, count your outs, then use steps 2 and 3.

(2) Multiply the outs by the probability coefficient to get a reliable estimate of the probability of, or odds against, completing your draw.

(3) Multiply the probability by the size of the pot and make sure you are investing your money in draws with positive mathematical expectations.

Let us assume that your starting hand is J♣-J♦-T♥-9♥ and the flop is J♠-8♠-6♦. You should be very happy with this flop. You have top trips, which by itself may win the pot, especially if two blanks are dealt on the turn and the river. You also have the potential to end up with a full house, or a straight if either a Queen or a Seven is dealt. Let us now count the number of cards that are working for you. On the turn you have six to complete the house (three Eights, three Sixes), J♥ to improve to four of a kind and six to give you the straight (Q♥, Q♦, Q♣, 7♥, 7♦, 7♣). Notice I allocated six cards for the straight instead of eight because you do not want to see the Seven or the Queen of spades due to the presence of J♠ and 8♠ on the board.

Therefore, you have a grand sum of 13 cards working for you. Obviously you will make it expensive for your opponents to see the fourth card.

Let us assume that the fourth card is 3♠ and one of the players comes out betting. Now you do not have the best hand, but you have ten outs working for you (one Jack, three Threes, three Eights and, three Sixes). The chances of completing your hand on the river are $10 \times 2.2 = 22\%$ (roughly 7:2 against). If the product of multiplying the total amount of money in the pot by 0.22 is equal to or more than the bet, you are almost obliged to call; if not, nobody will think the worst of you should you decide to discard your cards gracefully.

I recommend caution when drawing for the full house against a made flush, as in the above example. If two or more players call the bet, you must put at least one of them, on either lower trips and/or two pairs. Your outs can therefore be less than eight, in which case your chances of improving the trip Jacks are reduced to less than 16% (roughly 11:2 against).

The above example illustrates one very important after the flop strategy that I think should be adopted in Omaha. Because the turn card may increase or decrease your outs, the probability of winning the pot should be worked out on a card-by-card basis in order to arrive at a realistic estimate of the return on your investment. The overall probability of improving your hand after the flop should be used in your calculations only if you have little money left and decide to go all in. That is why the probability coefficient (PC = 2.2) is very important. It enables one to calculate the win-rate, as the deal progresses, within seconds.

4. Backdoor hands

Let us assume you were dealt A♠-Q♥-J♣-T♠. Naturally, you raise before the flop whatever your position is, and the flop is A♥-Q♣-5♠. You have top two pairs (four outs) together with a middle-pin (gut-shot) King for top straight (four outs), as well as the possibility of making a backdoor spade flush if the turn and the river cards are both spades. You probably have the best hand on the flop, plus, your overall probability of improving is more than 8 × 4 = 32%, because of the backdoor flush. The probability for both the turn and the river cards to be spades is about 4.5%, thereby increasing the overall winning probability of the hand to about 37%.

As you can see, backdoor flushes, and indeed straights, slightly enhance your chances of ending up with the winning hand. The ability to backdoor a winner is therefore a slight asset and should be thought of only as a support for an already made hand. For example, if the turn card in the above example is a spade, or even better, the King of spades, you have your opponents strangled.

5. Implied odds

Many players confuse big pots with value. The pot has value only when it offers the right odds, irrespective of its size. The reward must outweigh the risk. For example, in a $20–$40 game you flopped top two pairs and the turn card gave one of your rivals a flush. Naturally he comes out betting. If the pot contains $200, thereby offering odds of five to one, you should not call the bet because the odds against completing your hand with only one card to come are just over ten to one. A call is correct, however, if the following conditions are met:

(1) the pot odds are about 9:1;

(2) at least one opponent will call your bet if you make your full house.

The above example illustrates the meaning of implied odds. While pot odds tell you the odds the pot is currently offering, implied odds take future betting into account. You should make this play mostly against calling-machines. Refer to Chapter Two for a more detailed discussion of implied odds.

I hope that by now you understand why I think Omaha is an investment game rather than a gambling one. As long as you play well and make value bets and calls, your money will look after itself. Sometimes you will be outdrawn by calling-machines whose sole mission in life is to defy the laws of probabilities, but I promise that in the long run they will pay you back with interest. Although the amount of money you win by the end of the year is a measure of your success, on the day, money is just a tool you employ with the other tools (skills) of the trade.

Just apply the correct disciplines: that is the secret weapon of winners. Discipline, pure and simple.

Chapter Five
The Flop

1. Anatomy of the flop

No book can cover this topic with justice. There are more than 17,000 possible flops and it would take a lifetime to consider all the situations that may arise. Consequently, I will devote this chapter to a simplistic discussion of the flop, followed by analysing the winning chances of flopped pairs, two pairs, trips, flush draws and finally straight draws.

The following facts are commonly known by the skilled Omaha players:

(1) The flop will contain a pair, like 2-2, or, Q-Q, 17% of the time. If it does not contain a pair, the board may be paired on the turn and by the end of the deal about 20% and 40% of the time respectively.

(2) If you hold, say, a Queen, two Queens will be flopped about 0.7% of the time and only one will appear about 17% of the time. Therefore, you will flop split trips about 2.8% of the time and split pairs over 50% of the time.

(3) Two or three suited cards will be flopped about 55% of the time. By card four, the board will have at least two cards of the same suit over 80% of the time and by the end of the deal there will be three cards of the same suit about 30% of the time.

(4) If your starting hand contains two or three suited cards, you will flop a flush draw about 12% and 10% of the time respectively and a flush just under 1%.

(5) Unpaired flops will offer you a made straight about 3% of the time. In multi-handed contests you or your opponents will have a draw to a straight nearly 100% of the time; only K-7-2, Q-7-2, K-8-2 and K-8-3 are the exceptions that prove the rule!

(6) Unpaired flops will also give you two pairs about 10% of the time.

(7) If you hold a pair, the flop will offer you trips just under 12% of the time.

In the light of the above facts it should not take a genius to conclude that, depending on its texture and composition, the flop can be a gold mine on one extreme or the elusive gold pot at the end of a rainbow, the path to which is a minefield.

Every one can recognise a good flop. What separates the men from the boys is the ability to identify the dangers of certain draws and to reassess the winning potential of the hand as the turn card enhances, or downgrades, the probability of hitting the right river card. To do this, you will have to work out the probability of ending up with the nut hand as the deal progresses from the flop to the river. Your calculations should be focused on the nut hand *only*. When you draw for the second-best hand, your decision must be guided by your knowledge of the contestants' playing and betting habits.

Remember that I said poker is an investment game that depends on science and art. The scientific skills consist of agility in simple mental arithmetic; the artistic skills are more difficult to acquire because they are heavily dependent on your ability to observe and take note of your opponents' character and how that influences their playing strategies. If you hate your money, I recommend drawing for the third- or fourth-best hand on the flop, especially in multi-handed pots.

The break-even point after the flop is determined by multiplying the sum of money in the pot by the probability of ending up with the best hand. If the result is equal to or more than your contribution to the pot after the flop, then you will be a winner. If it is lower, you will incur a loss in the long run.

2. Analysis of specific hands

The flop will offer you the following possibilities:

(1) pairs and two pairs;
(2) trips or full house;
(3) a flush or a draw to a flush;
(4) straight or a draw to a straight.

Let us discuss the above possibilities.

2.1 Pairs and two pairs

2.1.1 Pairs

You will flop a split pair over 50% of the time. Therefore, knowing how to evaluate the prospects of your cards after the flop determines the size of your bank balance. The winning potential of just pocket or split pairs is not worth discussing in limit games, in which multi-way action is prevalent. An investment in a pair should be considered only when it is supported by good flush and/or straight draws:

(1) Split pairs after the flop are better than pocket pairs. For example, your hand is Q♥-Q♠-X-X and your opponent has A♣-A♦-X-X. If the flop is J♥-7♦-3♣, you are nearly 4:1 against winning the pot. However, if you flop a split pair of a lower rank to that of your opponent, then you are only 13:7 against (nearly 2:1). Thus, if you hold Q♥-J♠-8♣-2♠ against A-A-X-X and the flop is J♣-7♥-3♦, the hand with the higher pair is only 13:7 favourite.

(2) Low split pair with a six-card draw to the straight is nearly evens against a higher pocket pair.

Hand	Win-rate	Flop
K♠-Q♠-J♥-6♣	49.5	J♦-T♣-5♥
A♥-A♠-X-X	50.5	

Note that the K-Q-J-6 has only six outs to make the straight, two Aces and four Nines. In addition, it has eleven other cards that may help it beat the pair of Aces (two Jacks for the trips, as well as three Kings, three Queens and three Sixes to make two pairs). However, it is not the favourite, because the hand holding the pair of Aces can still win the pot on the river card if the pair of Jacks makes two pairs on the turn. In a five-handed contest the first hand becomes the favourite, having a win-rate of 31%, whereas the pair of Aces will acquire only 18% of the pots.

(3) Low split pair with an eight-card draw to the straight is the favourite over a flopped top pair.

Hand	Win-rate	Flop
Q♥-J♥-T♥-4♠	52	K♦-J♣-5♠
K♥-Q♠-7♣-6♥	48	

Let us analyse the fortunes of the two hands in more detail. The first hand has 16 outs working hard to beat the two Kings. However, if the turn card is:

(1) *A Four*: the pair of Kings can still win the pot with four Eights, four Threes, three Fives, two Kings and two Queens, as well as three Sevens and three Sixes. In fact the pair of Kings will get the first player's money 52% of the time on the turn of the river card. As you can see, in this case, the pair of Kings can win the pot with a backdoor straight.

(2) *A Ten*: then the pair of Kings can share the pot if the river card is an Ace or a Nine. In fact the pot will be shared about 10%

of the time on the turn of the river card. Furthermore, the holder of the split pair of Kings will be pleased if the fifth board card is a King, a Queen, a Seven, a Six or a Five.

(3) *An Ace or a Nine*: the two contestants will share the pot if the fifth card is a Ten. That is why the pair of Jacks is only 13:12 favourite despite the 16 outs willing it to prevail over the split pair of Kings. I selected this example in order to emphasise the following points: (a) straights will not scoop the pot every time they are completed; (b) you should watch out for backdoor straights and flushes if the board contains two connected/suited cards on the flop or the turn.

My advice to you is to invest money in a split pair backed by an eight-card draw to the straight, in a jammed pot, only if you have the top pair and are drawing to the best straight. I would rather have a good flush draw supporting my pair.

(4) A split pair with a flush draw is the favourite against a pocket pair of Aces.

Hand	Win-rate	Flop
K♦-J♣-6♦-3♣	56	J♠-7♦-2♦
A♠-A♥-X-X	44	

The pair of Aces is the 11:9 underdog. That is why I prefer to have a good flush draw as a back-up to my split pair. I do not have to worry about backdoor straights and I will not share the money in the pot if the draw to the flush is completed. With the same flop, the win-rate of the pocket pair of Aces declines to a meagre 18% in a five-handed contest. The win-rate of the first hand becomes 36.6%.

The above examples illustrate the dangers of falling in love with hands whose only assets after the flop are big pairs when there are possible flush or straight draws. The mortality rate of unsupported big pairs is fairly high, especially in multi-handed contests.

(5) A big pocket pair with a flush draw is odds on against a flopped two pairs.

Hand	Win-rate	Flop
A♥-A♣-6♣-7♠	53	K♦-T♣-5♣
K♥-T♥-8♠-2♠	47	

In a five–handed contest the pair of Aces wins 40% of the time, whereas the hand with Kings up gets 30% of the pots. Against flopped three pairs, the pair of Aces with a flush draw wins 42% of the pots in two-handed contests and 37% of the time in five-handed pots. Even against trips, in a two-handed encounter, the pair of Aces backed by a flush draw will acquire about 33% of the pots.

2.1.2 Two pairs

In late position you were dealt A♥-A♦-4♦-3♣ in a \$10–\$20 game. Naturally you raise. The dealer flops K♣-8♠-6♥, and the small blind, who is holding K♠-8♥-7♣-2♦, bets \$10. In a head-to-head situation you will win the pot 29% of the time, but if two other players call, your chances of winning the pot are reduced to 16.5%. If the flop contains one diamond, giving you the capability of making a backdoor flush, your win-rate against one, two, three and four opponents will be 32%, 24.5%, 20% and 16.5% respectively. Thus, in a head-to-head contest you will either break even or make a small profit, but in a multi-way action your big pair is not doing well. If the turn card does not grant you a good draw, trash your hand.

Throughout this discussion two pairs refers to split pairs; you hold A-J-T-8 and the flop is A-J-4. Top two pairs were discussed in Chapter Three. You will flop them about 2% of the time and, as you should know by now, the probability of filling the house on the turn is 9% (10:1 against) and the overall probability is 16% (roughly 11:2 against).

Flopping Aces and Jacks is much better than flopping Aces and

Nines, because the chances of being outdrawn by an opponent are reduced. When you flop top two pairs, try to reduce the number of opponents. You should raise any bettor in order to find out whether you have the best hand on the flop; a re-raise could mean that your rival has trips, a fact you would like to know at the cheap betting round. Moreover, your raise may enable you to get a free card at the more expensive round of betting.

With top and bottom two pairs (the flop is A-Q-7 and you hold A-J-9-7) your money may be in jeopardy. I would like other outs supporting my hand.

Playing the bottom two pairs is a losing strategy and, in the majority of cases, a costly one. If you decide to gamble, you must have several other outs that can win the pot.

Generally Aces-up have win-rates of about 50% in four-handed pots. Two pairs with Kings-up win about 45% of the pots in four-handed contests and Jacks-up are fortunate about 30% of the time under similar circumstances. Let us look at some more examples:

(1) Top split pair with a flush draw against flopped top two pairs.

		Win-rate	**Flop**
Your hand	A♠-Q♣-7♠-5♣	50	A♣-8♣-3♦
Opponent's hand	A♥-9♥-8♠-2♦	50	

As you can see, you are evens against flopped two pairs. If you replace the 7♠ by any King to give yourself two overcards over the 8♣, you will be the favourite.

(2) Two pairs against a flush draw is about 17:10 favourite.

		Win-rate	**Flop**
Your hand	A♣-K♠-9♠-6♣	37	J♦-4♣-3♣
Opponent's hand	K♥-Q♦-J♥-4♥	63	

Generally, in a head-to-head contest, you need 15 outs to be the favourite against flopped top two pairs. Your opponent's hand can still improve by the river card if one of your 15 outs is dealt on the turn. A flush draw with a middle-pin draw is nearly evens against two pairs.

(3) Top two pairs is 13:12 favourite against a thirteen-card draw to the straight.

		Win-rate	**Flop**
Your hand	A♥-5♥-4♣-2♦	48	K♣-6♦-3♠
Opponent's hand	A♣-K♦-6♠-8♥	52	

You have three Fives, three Fours and three Deuces as well as four Sevens to make the straight.

(4) A flush draw supported by an eight-card straight draw is evens against two pairs.

		Win-rate	**Flop**
Your hand	A♣-6♣-5♦-8♥	50	J♦-4♣-3♣
Opponent's hand	A♠-J♥-4♥-9♠	50	

An eight-card draw to the straight has a win-rate of 33% against the two-paired hand.

2.2 Trips

You will flop trips 12% of the time when a pair is dealt to you. The probabilities of improving the trips on the turn and the river are 15% (11:2 against) and 22% (7:2 against) respectively. The overall probability is 35% (9:5 against).

Split trips will be flopped 2.8% of the time and the chances of improving the hand on both the turn and the river are the same, 22%, because the number of outs (ten) is the same in both cases.

Trips are very good hands to flop. In a head-to-head contest your opponent will need at least 17 outs to be evens against you. They may win the pot for you even if they do not improve. Their overall chances of improvement are pretty good. If they are outdrawn on the turn, the pot odds, in limit games, are still favourable and a call to see the fifth board card is correct in most cases. But trips can cost a lot of money and aggravation if you do not play them intelligently. Let us look at some examples.

2.2.1 Hidden trips

When you flop intermediate trips (Nines, Eights . . .) against more than four opponents, you should never slow play them. A reduction in the number of rivals going to the river is essential. For example, you hold A♣-T♥-9♣-9♦ and the flop is 9♠-8♥-4♦. Nearly every turn card you can think of poses a threat to your hand (except the Deuce and the Three). You can't allow contestants to have a shot for a middle-pin or an overpair cheaply. Moreover, you want to increase the size of the pot so that if the turn card is unfavourable, the pot odds justify a call to see the river card. If the turn card is higher than Nine, say, Q♣, and one of the contestants in early position bets into you, the effect of the following possibilities on the winning potential of your trips must influence your decision to invest in the river card:

(1) He has a made straight with the J-T. If there are players waiting to act after you, prepare yourself for a re-raise because one or more may have made the same straight. Thus, the river card may cost you two bets instead of one.

(2) The Queen of clubs may have given the bettor top set or two pairs. If your opponent has three Queens you need to hit one of the remaining Nines (nearly 20:1 against). On the other hand your opponent will need the 20:1 against miracle if the turn card has given him two-pair Queens. In any case, you do not want the river card to be another Queen. As a result your outs are reduced to seven instead of ten (one Nine, three Eights and three Fours) and your chances of ending with the best hand are diminished to 15% (11:2 against).

Of course, had the turn card been lower than nine, say, 7♣, a call to see the river card is a must.

Let us take another example. You are in late position holding A♣-Q♣-Q♠-5♥ and the flop is Q♦-T♦-7♦. Now you have flopped top trips again, but someone in early position bets his made flush and more than two players call his bet. Should you call the bet? At least one of the callers, and most likely more, has lower trips and/or two pairs. Therefore, your chances of winning the pot have diminished significantly. You may have only four outs, giving you an overall probability of 16% (roughly 11:2 against). In a $20–$40 game it will cost you at least $60 and therefore the pot should contain at least $390 at the end of the deal if you want to break even in the long run when you take part in such action. Personally, I would discard my cards and wait for a more favourable investment opportunity.

If you flop the second-best possible trips, you had better find out where you stand in the cheap round of betting. For example, you hold J♠-J♣-T♥-8♦ and the flop is Q♠-J♦-6♣. In early position you should bet without any hesitation and in late position you should raise. If you are re-raised by an opponent, he may have better trips, top two pairs, or a big straight draw. This is where your knowledge of your opponents' playing and betting habits becomes important. But, if your bet is called on the flop and a re-raise is thrown at you when a blank card is dealt on the turn, then your trips are most likely beaten, in which case you are drawing dead.

When you flop bottom trips, your money could be at risk throughout the deal. Let us say you were dealt 9♠-9♣-8♥-7♣ and the flop is Q♥-J♠-9♦. Even if you have the best hand on the flop (which I doubt), the turn and the river cards must both be blanks; note that any Ten, which will give you the lowest straight, is not an event you should be looking forward to. Your only chance of winning the pot is if a pair lower than Nines is dealt on the fourth and the fifth cards. Even then you may be losing to a house of Queens or Jacks. My advice in this situation is to look at the flop and say to yourself, 'So far the pot has cost me one bet only and I do not want to get involved anymore.' Bottom trips are a liability most of the time unless you are in a short-handed pot.

2.2.2 Split trips

With split trips the high card content of your starting hand, as well as the size of the third flopped card and your position, should dictate your course of action. Thus, if the first three cards on the board are 7♥-7♠-J♣ and you hold T♦-9♦-8♠-7♣ and you are the first to act, you should bet. You are basically asking the other players whether you possess the best hand or not. When your bet is raised, you are entitled to assume that the answer is no, in which case *you should discard your cards*, especially if another contestant flat calls the re-raise. You have not got a card higher than the Ten and in all probability with more than two opponents somebody has the house of Jacks. However, if you are holding A♥-Q♠-T♥-7♣, and the flop is T♣-T♦-6♠, your response to that answer may be different if the pot odds are favourable. In late position, you should obviously bet if everybody checks to you but when an opponent bets before you, then you must raise; you have nine outs to win or share the pot.

Against a skilful opponent you must exercise caution if you do not flop the full house in these situations. I remember a hand that cost me more than it should have. I was in late position holding A♣-K♦-Q♣-T♠ and the flop was K♠-K♥-J♦. A good player came out betting and I raised him. He called my raise. The turn card was the T♦ which gave me a house of Kings over Tens. He checked and I duly made a bet. He flat called. The fifth card was a blank. He checked again and of course I happily made another bet, which he raised. By then there was so much money in the pot I had to call his raise. Needless to say, he showed me A♠-K♣-J♠-9♦. He did not re-raise my original raise because he knew that only three cards (three Queens) could take the pot away from him and as you know the overall probability for that to happen is 12% (15:2 against). I should have checked on the river card because I had the second-best hand.

2.3 Flushes

As I have said before, flush draws are my favourite. The probability of completing the flush on the turn or the river cards is 20% (4:1 against) and in limit games the pot usually offers better odds. When the flop offers a flush draw only, do not take part in the action unless you are aiming for the Ace and sometimes the King-high flush. Lower flush draws must not be your only targets; they may win the pot if you backdoor them.

Frequently one or two of the cards to complete the flush must be discounted because they may improve your opponents' hands. I will explain this in the following example.

Suppose you held K♠-J♠-T♥-4♦ and a rock raised before the flop. The raise was called by five contestants including yourself. You know the rock must be holding two Aces, otherwise he would not have raised from early position. The dealer flops A♠-6♠-5♣ and the raiser comes out betting. What are your chances of winning the pot with the flush draw? Since you know the rock is betting with trip Aces, your outs on the turn are in fact eight not nine, because the Five of spades will complete the house of Aces. Even if the turn card gives you a flush, the rock still has a 22% chance of winning the pot on the river. That means you should reduce your eight outs for the turn by roughly 20%. If the turn card is a blank, say, 9♦, your outs on the river are seven, because the 9♠ and the 5♠ will give the rock the best hand. Thus, you are 11:2 against on both the turn and river.

To make life easy for yourself, when you put one of your opponents on trips and you are drawing for the nut flush, assume that you have seven outs working for you on the turn and the river. Your decision to call his bet, therefore, must be guided by how the probability of completing the flush draw compares with the pot odds. Your overall chance of winning is in fact about 28% (5:2 against); this was confirmed by a computer simulation whose results will be presented in the section concerned with straights.

The table below shows the results of a number of computer simulations on K♠-J♠-T♥-4♦. The hand was played against seven to three opponents sharing A♠-6♠-5♣ as the flop.

Starting cards: K♠-J♠-T♥-4♦
Flop: A♠-6♠-5♣

Number of opponents	Win-rate
7	28.0
6	30.0
5	31.5
4	33.5
3	35.6

***Table 1**: The % win-rate of flush draws*

The table reveals that the number of outs for a flush draw against seven opponents is seven (28 ÷ 4 = 7), not nine, because almost certainly at least one or two would have flopped two pairs and/or trips. As the number of opponents decreases, the chances of flopping trips and two pairs diminish; thus against five or four, the win-rate of the flush draw increases to numbers compatible with eight outs. Against three rivals the number of outs becomes nine.

In general, it is sound practice to assume that the flush draw has seven outs when more than four opponents are competing to win the pot. I recommend seven for the turn card to allow for losing to a full house if the fifth card pairs the board and seven for the river card. With three or less, it is usually safe to assume the usual nine outs. Of course, if you put one of your rivals on trips, then the flush draw has seven outs no matter how many players are contesting the pot.

If you use seven outs to calculate the win-rate of the flush draw on the turn and the river, the probability of completing the flush on both the turn and the river is roughly 16% (11:2 against). Thus, if your chance to win depends mainly on the draw, at least two and preferably more players should be in the pot to get the maximum value for your hand. Of course, if the board is paired on the turn or the river, you must review your position.

2.4 Straights

Again, I shall restrict this section to the circumstances in which the number of outs of the straight draws, presented to you by the flop, should be reduced. Let us look at some examples.

Your starting cards are Q♦-J♠-T♥-9♦ and the flop is A♣-K♣-3♥. To the unskilled player you have flopped a nine-card draw to the top straight (three Queens, three Jacks and three Tens). The truth is you have flopped a six-card draw because you do not really want to see Q♣, J♣, or T♣ on either the turn or the river. If you hit the straight on the turn, you may still lose the pot to the flush 20% of the time, or to a full house 22% of the time. These facts reduce the overall probability of ending up with the best hand if you get the desired turn card. If the turn card does not give you the straight, then you will be victorious after the fifth card 13% of the time (about 13:2 against). Therefore, the above flop is not as good as many Omaha players think it is. It has an overall win-rate of about 17%. This is confirmed by the computer simulation described in the next paragraph.

The following three sets of specific starting cards and flop were dealt to three players.

Player 1:	A♥-A♦-6♦-6♠	
Player 2:	Q♦-J♠-T♥-9♦	Flop: A♣-K♣-3♥
Player 3:	8♦-8♣-7♣-7♠	

Thus, the flop gave Player 1 top trips, Player 2 a six-card draw to the best straight and Player 3 a flush draw (I chose an 8-high flush draw for convenience). The fourth and fifth cards were dealt over 10,000 times and the average win-rate of each contestant was recorded. The results of the simulations are listed below.

Player	**Flopped hand**	**Win-rate**
1	Trips	55.5
2	Straight draw	16.5
3	Flush draw	28.0

The flush draw had a win-rate of 28%. The straight draw against trips and a flush draw, however, managed a win-rate of only 16.5%.

I also performed two different computer simulations which were designed to measure the win-rate of Player 2 (Q♦-J♠-T♥-9♦) against six to two opponents holding randomly dealt starting cards. The first set of simulations had the flop A♣-K♣-3♥ as in the above example. The second set, however, had a flop which contained K♠ instead of K♣. Thus, the second simulations did not present a flush draw to any of the contestants, thereby giving Player 2 nine outs for the top straight. The results are presented in Table 2.

No. of opponents	Flop is A♣-K♣-3♥	Flop is A♣-K♠-3♥
6	16.0	26.0
5	18.0	27.5
4	20.7	28.0
3	23.0	30.0
2	28.0	34.0

Table 2: *The % win-rate of* Q♦-J♠-T♥-9♦

Even with second flop, which did not include a flush draw on the flop, the win-rate of Player 2 was less than 36% (4 × 9 outs) though the win-rate approached its correct value against two opponents. The reason for this abnormality is the same as in the flush draw. If the turn card gives you the top straight, you could still lose the pot to a full house on the river.

If you flop a straight, you may still lose the pot. For example, you have K♥-J♠-9♠-8♣ and the flop is A♣-Q♦-T♥. Against five opponents the overall win-rate of the flopped straight is about 52%, and the pot will be shared with at least one of your opponents about 20% of the time. If you change the flopped T♥ with the T♦, the straight's win-rate shrinks to 37%. Again the pot will be shared about 20% of the time the straight holds its grounds.

Guess who is the favourite when a flopped top straight is challenged by trips and a flush draw? The player holding the trips will win the booty just under 40% of the time, whereas the one defending the straight will celebrate about 32% of the pots. The flush draw will be fortunate about 28% of the time. Note that the win-rate of the flush draw is nearly as good as that of the made straight.

I am not against straights. They are good money earners but are fairly vulnerable, especially if there is a possible flush draw on the flop. The moral of the story is, 'Straights have a high mortality rate in loose multi-handed games.' I prefer flushes in such games; a flopped Ace-high flush will sweep the money over 70% of the time, in a six-handed pot, whereas the flopped straight may scoop less than 35% of the pots.

Chapter Six
Pot-Limit Omaha

1. Starting Hands

As I said in Chapter Two, the difference between pot-limit and limit games is the ratio of the pot odds to the size of the bet on the specific betting round. The pots on the flop offer the contestants large odds in limit games, whereas the caller will not get more than 3 to 1 for his/her money in pot-limit games. As a result, position must play a major role in the selection of starting hands in pot-limit Omaha. Premium hands can be played from any position and marginal hands must be played only in unraised pots and from late positions.

1.1 Wrapped Hands

The value of many hands may change in raised pots. Thus, "premium" starting cards like A-Q-J-T(s) and K-Q-J-T(s) become fairly marginal if the raiser has two Aces or two Kings. On the other hand, starting cards like 4-5-6-7(s) and 6-7-8-9(s), which are marginal in limit games, can be money winners in pot-limit. There are two reasons for this change in the profitability of the latter starting hands:

(1) The flop will match the hand about 25% of the time. When the flop does not offer the starting cards a good draw and or a made hand, they can be trashed. However, the pre-flop raiser may be very reluctant to fold his big pair on the many occasions the dealer flops 5-5-6, 3-5-8, 9-6-5, 6-6-9...etc.

(2) The hand can be protected by firing a full pot bet when the flop matches the wrapped cards; in limit games this advantage is not available.

Remember, when you play pot-limit, you are gambling with your money on a card by card basis. Therefore, when the flop gives you a draw, make sure you are not throwing your hard earned money in the losing zones of odds. I will explain this very important point in the section dedicated to after flop play.

1.2 Raised Pots

Next, I want to discuss the criteria for selecting paired, suited and sequential starting hands against a pair of Aces. The value of all "premium hands" declines dramatically in doubly raised pots when the raiser is announcing that two Aces are in his possession.

Most players believe that two-paired hands, like 7-7-6-6 or sequential cards of medium rank, such as 9-8-7-6, are the best defensive cards against the pair of Aces in all-in pots. Others question the wisdom of gambling with paired hands. The Santa Clauses of the Poker circuit are convinced that any random four cards, especially those that are lumbered with an Ace or "blessed" with low cards, are suitable for going all-in against a pair of Aces. I hope to unravel the confusion that surrounds this subject in the following discussion that is based on the results of thousands of computer simulations in which a large number of starting hands tried their luck against A♥A♠-x-x; the dealt Aces will be suited over 70% of the time. X-X-X-X(♥) designates once-suited cards in ♥ and X-X-X-X(♥, ♠) signifies twice-suited starting cards in ♥ and ♠. X-X-X-X(o) represents off-suited hands.

Let us look at the facts for 2-handed and 3-handed contests.

Two-handed all-in pots: - Doubly suited sequential (wrapped) hands like J-T-9-8 (♣,♦), T-9-8-7 (♣,♦), T-J-9-6(♣,♦), T-J-9-5(♣,♦), 9-8-7-6(♣,♦), 7-6-5-4(♣,♦)…etc will win nine out of every twenty pots. If the above hands are suited once, they will become the 6 to 4 underdogs. K-Q-J-T(♣,♦) and Q-J-T-9(♣,♦) are slightly worse than 13 to 10 against and slightly better than 8 to 5 against when suited once. 5-4-3-2(♣,♦) is a bit better than 6 to 4 against.

The performance of three connected cards carrying a dangler depends, as expected, on the ranks of the connected cards. A-K-Q-6(♣,♦) is the worst because it lives in the 9 to 5 against region. K-Q-J-6 is 6 to 4 against when suited twice and about 9 to 5 against if suited once. Doubly suited J-T-9-4, T-9-8-3 and 9-8-7-2 are slightly better than 13 to 10 against and if the gap between the dangler and the third lowest rank of the hand is two, as in 9-8-7-4 and T-9-8-5, the hands will win nearly 9 pots in every twenty (win-rate = 44%).

Starting hands such as J-T-6-5 (♣-♦), J-T-5-4 (♣-♦), Q-T-6-5 (♣-♦), J-T-9-5(♣-♦), J-T-9-4(♣-♦), T-9-5-6(♣-♦) and Q-J-6-5(♣-♦) are nearly 11: 9 against if you allow them to see the five board cards. Doubly suited K-Q-6-5, Q-J-5-4, T-9-5-4, and T-9-4-3 wander in the 13:10 against zone. J-T-3-2 (♣-♦) is 7:5 against while K-J-3-2(♣-♦) and K-Q-3-2(♣-♦) are just better than 8 :5 against(win-rate = 39%).

Hands that contain an Ace, even if they are doubly suited are, at best, 7 to 5 against. For example, A♣-T♣-Q♦-J♦ and A♣-T♣-K♦-J♦ are about 8 to 5 against A♥A♠-x-x.

A♣-T♣-9♦-J♦ is about 6 to 4 against a hand with a pair of Aces while A♣-T♣-9♦-8♦ and A♣-8♣-7♦-6♦ hover around the 7 to 5 against region and A♣-2♣-3♦-5♦ is, at best, just over 2 to 1 against!

Two-paired hands such as T-T-9-9, 9-9-8-8, 8-8-7-7, 7-7-6-6…etc are 11 to 9 against when suited twice and 6 to 4 against when suited once. K-K-Q-Q(♣,♦), K-K-J-J(♣,♦) and K-K-T-T(♣,♦) are 7 to 5 against, however, the hands will win only 5 out of 13 pots when they are suited once. Q-Q-J-J(♣,♦) and Q-Q-T-T(♣,♦) are 13 to 10 against while Q-Q-J-J(♣) and Q-Q-T-T(♣) are just over 8 to 5 against. Doubly suited small two paired hands like 2-2-3-3 and 2-2-4-4 are 6 to 4 against, 3-3-4-4 is 7 to 5 the underdog. Note that doubly suited, but unconnected, two-paired hands like T-T-5-5(♣,♦) and J-J-6-6(♣,♦) are just over 8 to 5 against.

K-K-Q-J(♣,♦) and K-K-J-T(♣,♦) live in the 6 to 4 against domain; when suited once , the hands prefer the 9 to 5 against region. Doubly suited paired-hands like Q-Q-J-T(♣,♦), J-J-T-9 (♣,♦), 7-7-9-8(♣,♦), Q-Q-J-T (♣,♦) and 9-9-J-T (♣,♦) are the 7 to 5 underdogs in head-to-head contests against a pair of Aces; if suited once the latter hands will make their owner happy 5 out of every 13 times. J-J-K-Q (o) is about 7 to 3 against while J-J-T-9 (o) and 7-7-9-8(o) are just over 2 to 1 against!

3-3-4-5(♣,♦) and 2-2-4-5(♣,♦) are 6 to 4 against while 2-2-3-4(♣,♦)

is about 8 to 5 the underdog. If suited once these hands become very marginal and if they are unsuited they will spell disaster for their unfortunate owner.

Doubly suited pairs supported by rags do not perform well against Aces. For example, K-K-8-3(♣, ♦) and K-K-A-7(♣, ♦) are slightly worse than 2 to 1 against and J-J-6-3(♣, ♦) and Q-Q-6-3(♣, ♦) are just over 9 to 5 against. J-J-5-4(♣, ♦), K-K-7-6(♣, ♦) and Q-Q-5-4(♣, ♦) are about 8 to 5 against.

Finally, I performed a couple of simulations to satisfy the curiosity of the Santa Clauses of the Poker world. A starting hand like K-J-7-3 is 6 to 4 the underdog if it is suited twice, 9 to 5 against when suited once and worse than 2 to 1 if it challenges the Aces when it is unsuited. Moreover, A-K-6-7 (♣, ♦) is 8 to 5 the underdog, A-K-7-6(♣) is 2 to 1 against and A-K-7-6(o) is a mere 7 to 3 against!

Thus doubly suited wrapped or two-paired cards, of medium rank, are the best defensive starting cards against the big pair in two-handed all-in contests because they are about 11 to 9 against. Most of the other starting cards are about 13 to 10 against or worst. There are two main reasons why doubly suited wrapped hands prefer to see five cards. (a) Their ability to make a straight increases from about 5% on the flop to about 17% on the river. (b) Their ability to make a flush rises from 2% on the flop to about 16% on the river. However, it should be noted that starting hands that contain K-Q and 2-3 two-card combinations perform slightly worse than the other hands of their group.

Therefore, if you are not getting at least 11 to 9 for your money your all-in gamble with doubly suited wrapped or two-paired cards, of medium rank is not profitable. Once or twice suited paired hands are better than 9 to 5 against and can, therefore, be profitable if the pot odds are at least 2 to 1. However, the gamble has positive mathematical expectations if you raise and the holder of the Aces sets you all-in. Alternatively, if you are in late position, you can set yourself all-in by re-raising the holder of the "bullet" after few callers have called the pre-flop raise. In both situations you are getting at least 2 to 1 for your money when the odds against your cards are better than 9 to 5. Remember however, your hand should not be lumbered with an Ace or a Deuce, and must be suited at least once.

Three-handed all-in pots: - The selected cards were played against A♥A♠-x-x and another randomly dealt hand. A♣-K♣-Q♦-J♦ and 2♣-3♣-4♦-5♦ produced the worst results. Even 3♣-4♣-5♦-6♦ gives a better account of itself than A♣-K♣-Q♦-J♦; the latter hands were 2 to 1 against. Doubly suited starting cards like A♣-T♣-K♦-J♦, A♣-T♣-9♦-J♦, A♣-T♣-Q♦-J♦...etc, are just over 2 to 1 against (9 to 5 against). Their fortunes decline to 5 to 2 against if they are suited once. A♣-2♣-3♦-4♦ and A♣-2♣-4♦-5♦ as well as once suited A♣-8♣-7♦-6♠ can manage only 2 out of every seven pots. Again starting hands that are holding an Ace are not very profitable in all-in pots against the "bullets". K-Q-J-T, Q-J-T-9, J-T-9-8, T-9-8-7 and 9-7-8-6 are 8 to 5 against when suited twice and 9 to 5 against when suited once.

Doubly suited gapped hands like K♣-Q♣-J♦-9♦, J♣-T♣-7♦-6♦, J♣-T♣-5♦-6♦, J♣-T♣-5♦-4♦, K♣-Q♣-6♦-5♦, J♣-9♣-6♦-5♦, Q♣-J♣-6♦-5♦ and Q♣-T♣-6♦-5♦ are marginal because they hover around the 9 to 5 against region; these hands are not capable of winning one out of every three pots if they are suited once. T♣-9♦-5♣-4♦ is just better than 2 to 1 against while J♦-T♦-3♣-2♣ and K♦-Q♦-3♣-2♣ have win-rates of 32.6% and 31.5% respectively.

It is interesting to note that J♣-T♣-5♦-6♦, J♣-T♣-5♦-4♦ and Q♣-T♣-6♦-5♦ are as good as A♣-T♣-K♦-J♦, A♣-T♣-9♦-J♦, A♦-T♦-Q♣-J♣ and perform better than A♦-K♦-Q♣-J♣. Generally speaking, when doubly suited, the former hands stand up well in all-in pots because they like to see five cards. However, they are pretty poor hands in raised pots if you intend only to see the flop.

Doubly suited high pairs , supported by cards which wrap their lower end, perform reasonably well in 3-handed all-in pots against Aces. For example, J-J-T-9(♣, ♦), Q-Q-J-T(♣, ♦), T-T-9-8(♣, ♦) and K-K-J-T(♣, ♦) are just under 8 to 5 against; when suited once, however, the hands just about break-even. Doubly suited high pairs wrapped at their higher end, like Q-Q-K-J(♣, ♦), J-J-K-Q(♣, ♦), K-K-Q-J(♣, ♦), as well as wrapped medium pairs, such as 9-9-8-7(♣, ♦), 8-8-T-9(♣, ♦), 7-7-8-9(♣, ♦), 6-6-7-8(♣, ♦) and 5-5-6-7(♣, ♦) are very marginal because they will win only 5 out of every 14 pots, therefore, they must not be gambled with when suited once. 4-4-5-6(♣,♦) has a meagre win-rate of 33.6%, making it the 2 to 1 underdog.

Doubly suited two-paired hands like J-J-Q-Q(♣,♦), T-T-9-9(♣,♦), J-J-T-T(♣,♦), K-K-J-J(♣,♦)…7-7-6-6(♣,♦) live in the 8 to 5 against region and just about break-even when suited once. However, doubly suited two-paired hands like K-K-6-6(♣,♦), T-T-6-6(♣,♦), T-T-5-5(♣,♦) and 4-4-2-2(♣,♦) should be avoided because, at best, they are 2 to 1 against. When suited once, the hands will acquire 2 out of 5 pots in three handed contests against a pair of Aces.

Thus, your hand must be doubly suited and all of your cards should be "talking" to each other when you decide to go all-in against Aces in 3-handed pots. You should avoid gambling with:

(1) Singly suited pairs.

(2) Two-paired hands whose pair ranks are not adjacent, however, if the ranks are connected and if you feel lucky, you can take a gamble if the hand is suited once. Make sure you steer away from 3-3-4-4(♣,♦) and 2-2-3-3(♣,♦).

(3) Singly suited sequential cards, especially those that are burdened by an Ace.

On very rare occasions you will find yourself sandwiched between two players engaged in a raising war because each one of them is staring at a pair of Aces. Under these circumstances nearly all doubly suited starting hands are profitable if all the money is in the centre of the table before the flop. For example, K-J-6-3(♣,♦) will win 37% of the pots. The worst hands are T-T-5-5(o), K-K-8-8(o), K-K-7-7(o)…etc; even K-K-Q-Q(o) is just slightly better than 2 to 1 against(win-rate = 34.3%)! The best defensive hands, boasting win-rates of 45%(11 to 9 against), are doubly suited T-T-J-J, T-T-9-9…6-6-5-5; 4-4-3-3(♣,♦) and 2-2-3-3(♣,♦) are about 6 to 4 against while K-K-Q-Q(♣,♦) and Q-Q-J-J(♣,♦) are nearly 7 to 5 against(win-rate = 41.5%). Doubly suited paired hands of high denominations, such as K-K-Q-J and J-J-K-Q have win-rates of about 37%, therefore, they are very marginal if suited once. Q-Q-J-

T(♣,♦) is 8 to 5 against while Q-Q-J-T(♣) is slightly better than 9 to 5 against(win-rate=35.5). J-J-T-Q(♣,♦)...5-5-6-7(♣,♦) are in the 6 to 4 against region (win-rates = 39.5% to 41%) and 3-3-4-5(♣,♦) as well as 2-2-3-4(♣,♦) are about 9 to 5 against. K-Q-J-T and Q-J-T-9 are 6 to 4 against when doubly suited and just over 9 to 5 against when suited once. J-T-9-8(♣,♦), T-9-8-7(♣,♦)…7-6-5-4(♣,♦) will make you rich just over 7 out of every 12 pots; when singly suited the latter hands are nearly 6 to 4 against. Off-suited sequential hands such as T-9-8-7…7-6-5-4 hover between the 9 to 5 against and 8 to 5 against zones. Three sequential cards with a dangler, such as K-Q-J-6(♣,♦) and Q-J-T-5(♣,♦) frequent the 8 to 5 against region; when suited once they just about break even. On the other hand, J-T-9-4, T-9-8-3, and 9-8-7-2 are slightly better than 6 to 4 against when doubly suited and just worse than 8 to 5 against when suited once; Q-T-8-4(♣,♦) is nearly 6 to 4 against (win-rate = 39.9%). Again, it is interesting to note that J-T-5-4, K-Q-6-5, Q-J-6-5 and J-9-5-4 are a bit better than 6 to 4 against if suited twice and slightly better than 9 to 5 against when suited once. K-Q-3-2(♣,♦) resides in the 9 to 5 against region and J-T-3-2(♣,♦) is slightly worse than 8 to 5 against(win-rate = 37.5%), therefore, gambles with once suited K-Q-3-2(♣) and J-T-3-2(♣) should be avoided. Q-7-3-2(♣,♦) has a win-rate of 31.9% while Q-T-8-3(♣,♦) will win 38% of the pots.

Note that all of the tested starting cards' win-rates fell in the range 30% to 45% in a head-up contest against two Aces. Therefore, you should avoid getting involved in doubly raised pots unless you are getting at least 2 to 1 for your money and there is no more betting after the flop.

All of the above results reveal that hands comprising a pair of Aces are, at best, 2:1 favourite against most starting cards. Therefore a pair of Aces performs best in short-handed pots which may be brought about by pre-flop raises. The efficacy of a pre-flop raise in reducing the field of opponents contending the pot against you will be influenced by your position and the size of the raise as well as the quality of your opponents. A raise from early position is the least effective way of discouraging your opponents from seeing the flop, especially if some of them are loose players. Thus you should flat call most of the time when you are in early position and consider a re-raise on the occasions one of the players obliges you with a raise. If, however, you think that more than two players will call your re-raise, then I recommend that you suppress your aggression because of your bad position.

When in late position you can raise or re-raise with two Aces. Again do not re-raise in a loose game unless you feel that the pot will be two or three-handed. In fact, slow playing a big pair can be very profitable in loose games.

There are two other important conditions for re-raising with Aces:

(a) The hand must be suited.

(b) The pair should be supported by connected cards led by a Jack or a lower rank, such as J-T, T-9, 9-8...5-4.

This will enable you to win the pot with a flush or a straight. I do not recommend a re-raise with an A-A-K-6(s), A-A-Q-3(s)...etc, unless you think that the pot will be 2-handed by doing so.

The following 3-handed contests illustrate the importance of the above conditions.

Example 1: - Re-raise with off-suited Aces

Hand	Win-Rate
A♦-A♥-9♣-8♠	32
Q♣-Q♦-K♥-T♣	33
6♠-5♠-4♦-3♥	35

The results of the above example are startling. The off-suited Aces is an underdog and the wrapped, once suited, hand is the favourite. I must emphasise the importance of having the flush making ability in the wrapped hand; without the flushing potential the hand will be the underdog.

Example 2: - Re-raise with suited Aces

Hand	Win-Rate
A♦-A♥-9♣-8♥	37
Q♣-Q♦-K♠-T♣	31
6♠-5♠-4♦-3♥	33

Now the Aces are the favourites and the Queens are the underdogs. Despite that, the win-rate of the big pair is a meagre 37%. Note that the wrapped and suited hand will break-even.

Example 3: - Re-raise with A♦-A♥-K♣-8♥

Hand	Win-Rate
A♦-A♥-K♣-8♥	33
Q♣-Q♦-9♠-T♣	34
6♠-5♠-4♦-3♥	33

In this example the Queens wrapped at their lower end become the small favourites while the other two hands linger in the break-even region. The results of other simulations suggest that starting hands in which the supporting cards engulf a pair of Queens, Jacks and Tens at their lower end perform better against Aces than those which wrap their higher end. Thus J-J-T-9 is better than J-J-K-Q and Q-Q-T-9 is superior to Q-Q-K-T.

1.3 "Hold'em Hands"

Many players overrate Ace-high suited cards like A♣-Q♦-6♣-5♥, A♣-T♦-7♥-4♣, A♦-9♦-4♣-2♠..etc. My experience with such "Hold'em" hands in pot-limit Omaha indicates that (a) they are fairly good in short-handed games and (b) they should be played as cheaply as possible and from late position in multi-handed games.

Your chances of flopping a made hand do not amount to more than 7% with the latter starting cards; you will flop a flush 0.8% of the time and trips or top two pairs about 4% and 2% of the time respectively.

Therefore you are more likely to find yourself with a draw rather than a made hand on the flop. Thus, late position and cheap entry fee to the flop should be reserved for hands whose main claim to fame is the possession of suited Ace in pot-limit Omaha. If I am more likely to flop a draw, I would like to act after my opponents and when my cards have a 7% chance of flopping a made hand, I do not want to invest more than 7% of my money in the flop.

I have seen many players call a raise or even a double raise with A♥-5♥-J♣-4♦ from early position, bet their flopped flush draw after which they get raised and proceed to lose all of their chips. Ace suited starting hands may be suitable for limit games because the post-flop pot odds will justify a gamble with a flush draw. In pot-limit Omaha, however, you may end up getting just over 1 to 1 for your money on a 9:5 against gamble; you will be a perpetual visitor to the "Poker Hospital" if you keep taking such gambles.

2. Beyond The Flop

Before I give a detailed analysis of after flop play in pot-limit Omaha, I would like to discuss the relevance of implied odds to the game.

I think that implied odds in pot-limit Omaha are fairly weak. The reason for this is simply because the concealment factor, which is crucial to their success, is missing. Thus if the flop consists of two ♣ and the turn card is another ♣, there is a very good chance that somebody has completed his/her draw. Likewise, if you bet your flopped nut flush and are called by one or two opponents, you do not want to see the board paired on the turn or the river. There will, however, be few occasions when the strength of your hand is hidden against either weak loose or average and greedy opponents who try to get cute. The following examples, which were two pots played by me, exemplify the occasions I am referring to.

Example 4: - Your strength is hidden against a loose opponent

One day I was discussing the implied odds of Ace-suited small pairs with my friend Stewart Reuben, the co-author of Pot-Limit & No-Limit Poker. A week later I found myself involved in the following pot. I was the big blind in an un-raised pot. My starting cards were A♣-6♣-2♦-2♥. The dealer flopped J♦-7♣-2♣ and I bet the pot. Fred, who was a loose player, raised my bet; both of us had more than 40 times his raise resting in our chips-trays. I put Fred on three Jacks or Sevens, which made me 4:1 against on a card by card basis and just over 7:3 against if I decided to go all the way; not a profitable situation in a head-to-head contest. However, I knew that Fred would never release his trips if the turn card was the 2♠ or one of the eight ♣s working for me. Therefore I promptly called his raise, intending to give up the pot if the fourth board card did not improve my hand. The dealer then turned the 4♣. Since I had three deuces, Fred had 7 instead of 10 outs working for him with one card to come. I, therefore, decided to lure him into the pot by making a half-pot bet. I was offering him 3 to 1 for his money when I was sure that he was, at best, 5:1 against winning the pot. To cut a long story short, he fell into the trap and the river card was the case Deuce! It was like taking candy from a baby.

Example 5: - Your strength is hidden against a greedy and "cute" player

This was another pot in which I was involved. Again I was the big blind in an un-raised pot with A♦-J♦-J♣-2♣. The flop was 3♠-2♠-2♥. The small blind, who was a loose and weak player, bet the pot and I raised. Tommy, who was a good player, flat called my raise. The small blind also called my raise! Now I knew that Tommy had flopped full house of Threes over Twos and I was, therefore, ready to muck my cards. Then the dealer turned the J♥ to give me a better full house. Both the small blind, who had 6♥-5♥-4♠-2♦, and I checked, Tommy bet, the small blind called and I raised. To my surprise they both called my full pot bet when the river card was the 5♦.Tommy got very greedy on the flop. He gave me a free card and started spending the money he had not earned yet instead of re-raising me. He should have known that he would not get more money from me unless I outdrew him with an overpair. On the other hand, Tommy was guaranteed to get the small blind's money because he was the type of player who would not release flopped trips. I was about 20:1 against on the flop and I got more than twenty times my investment in the flop.

Now let us go back to the subject of after flop play. The correct way of playing your hand after the flop will be dictated by your position, the skill level of your opponents, as well as the relevance of the flop to your cards and the size of your chipstack. Generally speaking, you will have one of the following possibilities after the flop:

(1) Draw - The flop may present you with a draw to the flush or the straight.

(2) Made Hand - You may have two pairs, trips, flush, straight...etc. On several occasions your made hand will be supported by a flush or a straight draw.

(3) Nothing.

Let us look at the first two possibilities in more detail.

2.1 Draw

I will classify drawing hands into three groups. The groups are categorised according to the number of outs needed to end up with the best hand. Thus the first group has 7 to 9 cards working in its favour, the second enjoys the support of 10 to 14 outs and the holder of the last group is in the happy position of having 15 or more cards willing to win the pot for him/her.

2.1.1 Seven to nine outs

Your hand belongs to this group, when you flop a flush or a straight draw against trips or two pairs. Flopped trips against a made flush or straight also fall into this category. Under these circumstances your position, the size of your chipstack as well as that of your opponents and the number of players contesting the pot must play a major role in your decision to gamble after the flop.

Let us first consider the situation when the flop is offering you a draw to the flush/straight. You must avoid head-to-head contests with the latter draws, especially from early position because, on a card by card basis, your fortunes range from 11:2 to about 4:1 against. Furthermore, it is highly unlikely that your opponent will call your bet when you complete your, say, flush draw on the turn. On the other hand, if you miss your draw on the turn, your opponent will put you on the flush draw and can consequently bluff you out of the pot with almost anything. The only way your gamble produces positive returns is if you are sure that, when you capture the correct turn card, your bets on the turn and the river will be called by the flop bettor. Bearing in mind that you may lose the pot on the river if your opponent outdraws you, your mathematical expectations are pathetic if your bet on the river is not called when your rival misses his/her draw. All of this assumes that you and your opponent have more than 6 times the flop bet. If neither of you has that much, you are playing in the losing zone of the implied odds.

In a 3-handed pot you may decide to go all-in if you have one full pot bet or less. Now you will be getting just over 2 to 1 for your money on a 5:2 or 2:1 against gamble. As you can see, even under these conditions your adventure is practically a break-even one. That is why I think calling with "Hold'em" hands is bad for your bank balance. You should steer away from marginal investments. Save your money for the more profitable draws.

Next, let us look at the more alluring situations when you flop trips against a made straight/flush. Against a made flush, you must release your cards because, if the board is paired, only a very bad opponent will pay you. The fortunes of trips against a flopped straight are, to my mind, worse. The following example should clarify the reasons for avoiding gambles against flopped straights.

Example 6: - Trips against flopped straight

As you should know by now, flopped trips will end up with a full house 35% of the time. On a card by card basis, the board will be paired about 16% of the time (about 11:2 against) on the turn of the fourth card and about 22% of the time (7:2 against) when you go from the turn to the river. However, when the flop comprises two or more connected cards, there is a high probability that some of the outs needed to pair the board are residing in the bettor's hand. For example, you raised with A-K-J-J and Sue came out betting when the dealer flopped J-8-7. If she called your raise with T-9, what do you think her other two cards were? She could have called with A-T-9-8(s), A-T-9-7(s), K-T-9-8(s), Q-T-9-8, T-9-8-7... etc or even J-T-9-8. You should, therefore, reduce the number of outs working for you by at least one. If another player called her bet, then you should consider the possibility that two or more of your outs are duplicated in your opponents' hands. Now you would be just under 7:3 against winning the pot by the river and, at best, about 7:1 against on the turn of the fourth card. You just have not got the correct odds on a card by card basis.

Flopped trips with the possibility of a backdoor flush are, at best, very marginal against a made straight; the holder of the trips is about 6:4 against winning the pot. Thus, when you have one full pot bet left and decide to transfer your chips to the centre of the table, you are getting 5 to 4 on a 6:4 against gamble. I do not know about you, I prefer to save my money for draws with much better mathematical expectations.

If, on the other hand, the flop offers you trips as well as a draw to the flush, you must put Sue under pressure (see Example 10). Now you are 9:5 the favourite if you decide to go all the way to the river and on a card by card basis, you are getting 2 to 1 for your money on a 6:4 against gamble!

2.1.2 Ten to fourteen outs

This group enjoys the support of 10 to 14 outs. In 2-handed pots, their overall chances of winning the money range from about 8:5 against to nearly evens and on a card by card basis they are roughly 7:3 to 7:2 against. Example 7 is a pot in which a flush supported by a middle-pin (gut-shot) to the straight is trying to outdraw three Jacks with 11 outs (eight §s and three Five's). Example 8 represents a contest between flopped two pairs and a 13-card draw to the straight, while Example 9 shows the win-rate of a flopped flush as well as a straight draw (13 to 14 outs) against trips.

Example 7: - Flush draw with a middle-pin against trips

Q♠-J♠-J♥-2♥ = 63 Flop J♦-4♣-3♣

A♣-6♣-7♦-9♥ = 37

On a card by card basis, the drawing hand is slightly better than 3:1 against.

Example 8: - 13-Card wrap against two pairs

A♣-K♥-8♠-6♠ = 52 Flop K♣-6♦-3♥
A♠-5♦-4♠-2♣ = 48

Note that **only 7** outs give the wrapped hand the nut straight. If the fourth board card is a 4 or a 5, the best straight is 7-high. Therefore, the latter hand can cost its holder dearly in multi-handed pots. When you invest your money in a draw, make sure that all of your outs give you the best hand. Against three Kings, the 13-card wrap has an overall win-rate of about 40%.

Example 9: - Trips against a flush and a straight draw

A♣-6♣-8♦-5♥ = 42 Flop J♦-4♣-3♣
K♥-J♥-J♠-Q♠ = 58

Thus, if you have less than three times the flop bet, all your chips should be shoved into the pot in examples 7, 8, and 9. When you possess more than that, flat call the flop bet. If the turn card does not improve your hand trash your cards because you will be about 3:1 (11 outs), 7:3 (13 outs) and 2:1 (14 outs) against winning the pot on the river. When you, however, complete your draw on the turn, fire your chips at the pot or if the turn card improves your draw by, say, offering you a flush draw as well as the straight draw, you may decide to call the next bet. With more than 13 outs, you are hovering around the break-even zone on a card by card basis. Therefore the choice is yours.

In multi-handed pots, seeing the fourth board card is a must and if the board is not paired on the turn, paying the fee to swim the river may not be a bad idea. I must, however, emphasise the pitfalls of the draw in Example 8 again. Avoid the glamour of this pseudo 13-card draw, especially in multi-handed contests.

Example 10:- 12-Card Wrap analysis

I flopped a 12-card wrap and called a bet from David who was the big blind. My hand was A-A-Q-T and the flop was off-suited K-J-2. Against one player with three Kings or three Jacks, I was 5/2 (29%) against on a card-by-card basis and 8 to 5 (38%) against if I decided to see the river card. If David had two-pairs Kings and Jacks, the contest between him and me would have been nearly evens; I would have won the pot 45% of the time even if I had A-Q-T-x. The only other hands David could have had were Q-T-9-x, in which case I would have won about 69% and shared about 10% of the pots, or A-Q-T-x, in which case we would have shared the booty. Against two players, one looking at a pair of Kings in his hand and the other holding a pair of Jacks, I would have won 39% of the pots. The player admiring his set of Jacks would have been lucky to win more than 7% of the pots and the set of Kings would have been happy about 54% of the time. On the other hand, if David was betting with A-Q-T-x and the third player had trips, I would have won 29% while David would enjoy 32% of the pots. However, since we would have shared 28% of the pots, I would have scooped only 1% of the pots. Even if David was betting with only Q-T-x-x, I would have scooped 14% and shared about 19% of the pots. Therefore, my flat call was wrong. I should have raised David's flop bet since he could have trashed his cards on the flop. Moreover, attempting to keep the contest 2-handed, by raising any bet on the flop, would have been the correct playing strategy for my hand. I would be hoping that my flop raise would put the fear of God into anyone with middle or bottom trips (to improve my chances if David had Two Pairs) as well as players who would destroy the value of my 12-card draw because they wanted to punt with their draws to "my straight". A player with middle or bottom trips who decides to take his chances against the set of Kings and me could be doing me a great favour; in a 3-handed contest, I would complete my draw on the turn 30% of the time and with two cards to come my win-rate would be a respectable 39%. I would, however, get on my knees and pray that the third contestant in the pot was not drawing for the straight.

You can flat call if your draw is 14-card or higher. Now you are better than 2/1 against on a card-by-card basis. In fact it is not wrong to raise on the flop provided your action sets you or your opponent all-in. If you have lots of money, then I think playing on a card-by-card basis may be wiser. You will save money, 16% of the time, when the board is paired on the turn, or if the value of your draw shrinks significantly by a possible flush draw from the turn to the river.

In all the examples discussed above you must muck your cards if the board is paired on the turn.

2.1.3 Fifteen or more outs

As I said before you need 15 outs against two pairs and 17 outs against trips. Thus, when your draw falls into this wonderful, but rare, category you are playing in the winning zone of Poker. Flops that furnish your starting cards with trips as well as a flush/straight draw and big wraps, with or without draws to the flush, do not grow on trees.

Example 11:- Trips with a flush draw against a made straight

A♣-J♣-J♦-K♠ = 60   Flop   J♠-8♣-7♣
T♥-9♥-7♦-8♦ = 40

The three Jacks supported by the nut flush draw is the clear favourite despite the fact that two of the cards needed to pair the board (7♦-8♦) are wasted in the other hand. If none of the board cards are duplicated, the three Jacks will line its holder's pockets with his/her opponents' money 65% of the time. When you flop such a big draw, you must put your opponents under extreme pressure from any position by betting in early position and raising anybody who dares you into firing your chips at the centre of the table. If you miss your draw on the turn, you are still getting 2 to 1 for your money on a 6:4 against gamble.

If I had the made hand in this example, I would be very reluctant to get involved, despite the presence of the 7♦-8♦ in my hand. I know the high fatality rate of made straights against flush and full house draws.

Example 12: - 16-Card wrap against trips

Let us assume that you were sitting to the immediate right of the button and your starting hand was Q♣-J♠-T♠-7♥. A player in early position raised the pot and you called together with three other players. The dealer then turned the 9♦-8♥-2♣, offering you a 16-card draw to the straight. The small blind, representing either three Nines or Eights, bets the pot. The other players, including the raiser, passed and it was your turn to act. Let us first look at the prospects of your draw against three Nines.

9♥-9♣-X-X = 55   Flop   9♦-8♥-2♣
Q♣-J♠-T♠-7♥ = 45

You are 11:9 against winning the pot by the river and about 8:5 against on a card by card basis (win-rate on a card by card = 38%). Therefore your response to the raiser's bet must depend on the size of your chipstack and that of your opponent. If either of you has less than three times the flop bet, then it is correct to raise the pot. On the other hand, if both of you have more than four times the flop bet, you should flat call the bets on the flop and the turn. The latter course of action is correct because you are better than 2:1 against on a card by card basis while the pot is offering you 2 to 1 for your money.

Nearly all the players I know would escalate the action by raising the bettor on the flop and try to go all-in under the above circumstances. In my humble opinion they are wrong. They are murdering their money because they are practically getting 1 to 1 for their money on an 11:9 against gamble. Even if the bettor has two pairs Nines and Eights, your 16-card draw makes you a slight favourite, in which case your gamble would be pretty marginal. Many of them argue that the bettor may be forced to fold his cards if he held the second or the third best trips; I can count the players who refuse to call a raise, with the second best trips or top two pairs, on my fingers.

The only time a raise is correct is when you flop top split pair supported by a 13-card wrap. Thus if your starting cards were Q♣-J♠-T♠-9♠, then you should be more inclined to raise the flop bet; the bettor would more likely have three Eights or top two pairs, in which case you are almost guaranteed a check on the turn and if he sets you all-in, you are still about 6:4 against winning. If, on the other hand, your opponent does not re-raise and checks when the fourth board card is a blank, you should accept the free card. However, when any Queen, Jack or Ten hits the board on the turn, you have the best straight as well as the top two pairs, in which case your next bet should be about a third of the pot; now your opponent has either only 4 outs or is drawing dead! I would put in a full pot bet if I knew that my opponent would not release his second best trips or his imaginary top two pairs.

Example 13: - More than 17-card draw against trips

Many years ago I was involved in a pot very similar to the one described below. I called a raise from the button with K♣-J♥-9♠-8♣. The dealer flopped Q♥-T♠-7♦. This flop was magical as far as I was concerned. The small blind bet the pot and I, bloated with excitement, raised with my 20-card wrap. The small blind re-raised and I subsequently went all-in. The turn card was the 9♣ and then disaster struck when the dealer paired the board with the 7♥. My opponent won the pot with a house of Tens!

I cursed my luck and conceded the pot. Of course I had no right to blame lady luck because I played badly. I had a 20-card wrap, although only 14 cards gave me the best straight, whereas my opponent had only 7 outs on the turn and possibly less than 10 outs on the river. I was, therefore, in a much better position to improve on a card by card basis (11:9 against), whereas my overall chances of winning the pot by the river were slightly better than evens. To put it in plain English, my mathematical expectations on a card by card basis were much better. However, my raise on the flop gave my opponent the chance to set me all-in, thereby neutralising the advantage my draw enjoyed over his trips. In fact the fourth board card completed my straight. Had I not escalated the action on the flop, I would have been able to win the money there and then by firing a full pot bet. My raise on the flop was also wrong because I could have saved myself money the 16% of the time the turn card pairs the board.

You can see from all the above examples that calling, rather than raising, on the flop when you and your opponent have lots of chips is the correct playing strategy on most occasions. When you add to that the amount of money you save by not calling the turn bet when the board is paired, you should conclude that this strategy has better mathematical expectations, even when you have a 20-card draw.

For completeness sake, I will give you the following data on 20-card draws:

> (1) Two pairs is the 7:5 underdog against a 20-card wrap. The wrapped hand has an overall win-rate of 58%.

(2) When the 20-card wrap is supported by a flush draw, its win-rate against trips is 58%.

(3) The wrap is 7:3 against in a contest against trips supported by a flush draw. Avoid these gambles if you like your money.

2.3 Made Hand

Made hands on the flop can be straights, flushes and full houses as well as top pairs, top two pairs and trips. I cannot recommend a universal post-flop playing strategy for each of the latter hands. The reason for the lack of this highly desirable but non-existent strategy should be very obvious to you by now. Your decisions after the flop must be governed by the appropriate blend of the following factors:

(a) Your position
(b) The texture of the flop and its relationship to your starting cards
(c) The status of the pot, was there a pre-flop raise?
(d) The size of your chipstack as well as that of your opponents
(e) The number of players who paid the entry fee to the flop
(f) The proficiency of your opponents

I will present the various playing strategies that I have developed during the past ten years in the following sections. I do not claim that they are the best. But I can tell you that my wife and her two cats as well as our two sons have been able to maintain the high standard of living they enjoyed before I became a professional poker player.

2.3.1 Straights

Remember the high death rate of flopped straights when two of the flopped cards are suited. A hand that flopped just a low to middle straight has a fairly short-lived glory in multi-handed pots. Thus if you start with **T-9-8-6** and an opponent, in early position, bets when the dealer flops **J-8-7**, you have every reason to get worried especially if two of the board cards belong to the same suit. My advice, for what it is worth, is to count your losses and aim your cards at the nearest dustbin. At best you will invest all of your chips in order to share a small pot and over 50% of the time you will curse your bad luck for getting outdrawn on the turn or the river!! However if the flop is off-suited **7-5-4**, then you are entitled to attack the pot from any position.

Straights supported by trips and/or flush draws are wonderful in multi-handed pots.

2.3.2 Flushes

Resist the temptation to protect anything lower than a King-high flush in raised or multi-handed contests, especially from early position. In late position, you may be entitled to bet with Queen-high flush if the pot is checked to you. However, be prepared to release your cards if you get raised by one of your opponents.

2.3.3 Trips

The rank of your flopped trips and the composition of the first three board cards must influence your post-flop playing strategy. Thus if the flop consists of three unconnected and off-suited cards like J-6-2, you must bet your three Jacks or three sixes; I am assuming that you do not invest your money, before the flop, with a pair of Deuces. In a raised pot you must bet your second best trips from early position in order to find out where you stand. The following example, which describes a pot in which I was a spectator, is relevant.

Example 14:-Trips against trips

Tony, holding 8-7-6-6, decided to raise from the small blind. His pre-flop raise was called by Ram, who was on the button, and two other players. The dealer flopped off-suited Q-6-3. Tony bet the pot and Ram flat called. Now alarm bells started ringing in Tony's head. What could Ram be calling the flop bet with, in a raised pot, when the first three cards are so far apart? Tony decided that his opponent was slow playing top trips and he subsequently checked when the dealer turned another rag. Ram also checked. The river card was the case 6. Tony checked again, Ram bet the pot, Tony raised and Ram went all-in. Ram proudly showed the two Queens in his hand and his face dropped when Tony produced the case two Sixes! Ram was extremely unklucky, however, he should not have given a good player like Tony two free cards. Ram should have raised the flop bet and attacked the pot on the turn against any player. A bad player holding 3-3-x-x or Q-6-x-x would definitely send Ram laughing all the way to his bank.

I do not believe in giving free cards in pot-limit structured games, unless I have my opponents locked in a bone crusher or it is mathematically correct to do so. Thus, if the flop consisted of two suited and connected cards, I would bet my top trips, from early position, if there were less than three times my bet in my chip-tray and check if I had more. In late position, I would bet if the pot were checked to me and flat call or raise any bet depending on the size of my chipstack as well as that of the bettor. For example, if the flop was J♦-T♣-5♣ and I had J♥-J♦-X-X, I would raise if I, or the bettor, had less than a full pot bet left. However, if our chip-trays were racked-up with chips, a flat call would be my most probable response to a bet from one of my opponents. Under these circumstances, the mathematical expectations of a flat call are better than those of a raise because:

(1) although I had the best hand on the flop, many cards left in the deck could make my trips worthless on the turn. A flat call would save me at least three flop bets if the bettor completed his draw on the turn.

(2) if the turn card were a blank, I would bet when everybody checked or raise when given the opportunity to do so. Now I would be forcing my opponents to gamble when their draws are at the weakest stage of the contest with only one card to come.

(3) if the turn card paired the board, the bettor may feel obliged to launch a bluff against me. Thus my flat call may entice my opponents into throwing their money in my direction.

If your starting cards were J♥-J♦-X♣-X♣ and the dealer flopped J♦-T♣-5♣, you should be more inclined to escalate the action from any position because your X♣-X♣ are defenders against the flush draw; they may even win the money in short-handed pots especially if one of them was, say, Q-high. Naturally you would come out shooting if your starting cards were J♥-J♦-K♣-Q♣ or A♣-J♥-J♦-X♣

I do not like gambling with flopped bottom trips, **especially in raised pots**.

Next, let us consider your fortunes on the several occasions you flop split trips. Let us assume that you were the button and called a **pre-flop raise** with A♦-J♣-J♥-3♦. The dealer flopped T♥-3♠-3♣ and the player at the big blind bet the pot. Alarm bells should start ringing in your head. What do you think the big blind called the pre-flop raise with? He could have gambled with either:

(1) 3-4-5-6, A-3-4-5, 3-5-6-7,etc, in which case the two Jacks in your hand are a liability; your opponent could fill his house with nine outs whereas only five are working for you. What is more, you may share the pot if the turn card is an Ace.

(2) or, more likely, T-T-X-X, in which case you need to capture one of three miracle cards.

Thus, when you flop split trips, the presence of a pair amongst your starting cards can put you at a great disadvantage. Do not forget that if your bet in the above example were called by a third player, you would most likely be looking at full house of Tens. Since we are discussing paired flops, you should know that if you do not have one of the remaining two cards of that rank in your hand, the probability that they may be in the possession of another player is 15%. Thus the odds against an opponent having trips are about 11:2 against in a 2-handed pot, 7:3 against in a 3-handed contest, 6:4 against in a 4-handed pot and in a five-handed pot it is odds on that one of your rivals cannot wait to attack the pot.

2.3.4 Pairs and two pairs

I have already discussed the play pairs and two pairs extensively in Chapter Five. Although the chapter was dedicated to limit games, your gambles with pairs and two pairs, split or otherwise, after the flop must be influenced by the same criteria. Your pairs must be supported by straight or preferably flush draws and you would rather bet with top two pairs. In short-handed pots or games, pairs and two pairs may win the pot at the showdown. You should be able to reduce the number of players contesting the pot against you by using the advantage of your position. The following pot, in which I was an active participant, will show you what I mean.

I was at the button and called a raise with K-9-9-6(s). The dealer flopped off-suited 8-7-3. Tony, who was on the immediate left of the big blind, came out firing. The raiser called. I decided to raise the pot because I put the raiser on a big pocket pair and I wanted to eliminate him from the contest in order to give my 9-9 a better chance of winning the money for me. If Tony had flopped two pairs, I could win the pot with a better two pairs or a straight and if he had trips, I could still win the pot with my straight draw or maybe trip Nines. As expected Tony called my raise and the player with the big pair folded his cards. The turn card was a blank. Tony checked and so did I. The river card was another 3 and I won the pot with two pairs Nines and Threes.

2.4 Nothing

Do not entertain the thought of going for a backdoor flush or straight, just fold your cards gracefully and observe how your opponents play their hands.

I could write many other pages on pot-limit Omaha and still will not be able to cover the subject with justice. I hope, however, that this chapter has shown you the thrill of the game.

Part Three
Texas Hold'em

Chapter Seven
Probability – Odds

1. Introduction

Poker is a game of money, probabilities and personalities. The required balance between the scientific and the psychological skills depends on the type of game and the skill level of the opponents. Hold'em is a game that demands a good understanding of probabilities as well as the behavioural patterns of other players.

You will have a choice of 21 possible poker hands by the end of the deal in Hold'em, whereas in Omaha you are spoiled for choice with 60. Therefore, the chances of being outdrawn in Hold'em are less than they are in Omaha. Thus, one pair frequently ends up as the winning hand in Hold'em. Because of this, Hold'em is a game that requires aggressive betting in order to minimise the number of opponents competing with you for the pot. It is a game which requires selective aggression. It is not a game for timid and passive players.

There will be many occasions on which you should raise before the flop. There are many good reasons for raising before the flop. If you are holding premium cards, like A-A, A-K(s), K-K . . . etc, then a raise may reduce the number of opponents contesting the pot. In middle to late position you should raise sometimes with medium-strength hands in order to eliminate the number of players who have to act after you. Thus, the raise may buy the advantage of position for you. Furthermore, many players will check to the raiser after the flop, thereby increasing your chances of getting a free card on the flop.

Position is very important in Hold'em. In a 10-handed game, the first three players after the button hold early position. The next four players are in middle position and the last three, including the button, enjoy the privilege of late position. In general, you should play premium cards in early position; marginal cards, however, should be played from late position only.

I will deal with probabilities of Hold'em hands in the next section. Chapter Eight is concerned with the winning potentials of nearly all the possible starting hands in unraised as well as raised pots. A more detailed account of after-flop play is then presented in Chapter Nine and finally a brief discussion of pot-limit Hold'em is given in Chapter Ten. In addition chapters Seventeen and Eighteen are dedicated to on-line no-limit Hold'em tournaments.

2. Probabilities of Hold'em hands

At the risk of boring you, I am going to repeat my favourite sentence. No one is big enough to enforce the laws of probability on the day but the laws will impose themselves in the long run. If you invest your money in high percentage starting cards before the flop, and can differentiate between post-flop gambles of positive and negative mathematical expectations, then you have gone a long way along the road to becoming a winner. In the long run, identifying and subsequently avoiding draws/gambles with negative mathematical expectations is equivalent to winning big pots, especially in pot-limit games. Therefore, you need to have a quick reliable method for estimating the probability of ending up with the winning hand at the showdown. To do so, I recommend that you employ the concept of probability coefficient (PC) which was described in Chapter Four.

When the flop presents you with one or more possible draws, you should count the number of cards (outs) that will complete your draw. Then you multiply that number by the probability coefficient. For Hold'em, the value of the probability coefficient (PC), on a card-by-card basis, is 2.2. Similarly, the overall probability coefficient (OPC) for completing your draw from the flop to the fifth board card is 4 for up to nine outs, and 3.8 if you have ten or more outs working for you.

Thus, if you have six outs, the probability that you will hit one of them on either the turn or the river is $6 \times 2.2 = 13.2\%$, and when you flop an eight-card draw, you will complete your draw $4 \times 8 = 32\%$ of the time if you call all the way to the river. If you flop a fifteen-card draw (as in open-ended straight flush), then you are entitled to be very pleased with yourself because you will complete your draw $3.8 \times 15 = 57\%$ of the time; the correct probability for completing a fifteen-card draw is 54.1%.

Thus, the probability of improving a hand after the flop can be estimated very quickly. If you decide to see one card only, you simply multiply your outs by 2.2 and, on the occasions you decide to go all the way, multiply your outs by either 4 or 3.8.

If the flop, or the turn card, offers you a draw, you must decide whether the offer is profitable in the long run. Again, this can be done fairly quickly once you have worked out the probability of making your hand. You simply multiply the probability by the total size of the pot, including your contributions. If the result is larger than the total cost of your proposed contributions to the pot, your draw is a profitable one. When the product of the multiplication is less than your investment in the pot, then you are losing money. You will break even if the result of the multiplication is the same.

Let us look at some examples to illustrate the concept of profitable draws in Hold'em. In a \$10–\$20 game, you raise in late position holding K♣-T♣. The players at the button and the small blind call your raise. The dealer flops A♣-Q♦-8♣ and the small blind, with A-7(o), bets \$10. The pot has \$80. The flop is offering you a twelve-card draw (nine clubs to complete the flush plus three Jacks to end up with the best straight). With one card to come, your hand will connect $12 \times 2.2 \cong 26\%$ of the time and if you go all the way to the river you will be triumphant $3.8 \times 12 \cong 45\%$ of the time. Let us look at your options, assuming the player at the button will not call the bet:

(1) If you just call all the way to the river, it will cost you \$30 and the pot will contain \$130 as the last round of betting commences. Now $\$130 \times (45 \div 100) = \$58.5$. That means that in the long run, every time you call all the way under the above conditions you will make a net profit of at least \$28.5 because the bettor may call your bet on the river when you complete your draw, especially if you hit the middle-pin Jack. Your return on investment is therefore at least 95%.

(2) If you raise the small blind's bet on the flop and bet again on the fourth street, the total size of the pot will be \$150. Since $\$150 \times (45 \div 100) = \$67.5$, you will make a net profit of \$27.5 because you have increased your contributions to the pot to \$40.

(3) If you raise the small blind's bet on the flop you may buy yourself a free card on the expensive round of betting. In this case you will make a net profit of at least \$29.5 when you catch one of your outs at the river.

Thus, on balance, the raise may give you a mathematical advantage. Furthermore, you may win the pot there and then if your opponent decides to discard their hand.

If the flop in the above example were A♦-Q♠-8♥, you have only four outs (four Jacks) for a top straight. In this case you will complete the draw $4 \times 4 = 16\%$ of the time. Since $\$130 \times (16 \div 100) \cong \$20$, you will lose, in the long run, approximately \$10 every time you call all the way to the river. Even if your opponent calls your bet when you complete your hand on the river, you will lose more than \$5 ($\$150 \times (16 \div 100) = \$24$).

If you flop a draw to the nut flush, you will complete the flush nearly 20% of the time on the turn and 35% of the time if you go all the way to the river. Therefore, in the above example, if the flop is A♣-8♣-5♦, you will make a profit of at least \$15 every time you play the hand to the bitter end. However, nine-card draws are marginal in unraised two-handed pots.

Generally speaking, the following guidelines should be followed in limit games (see Chapter Ten for the corresponding guidelines for pot-limit games):

(1) If the flop furnishes you with ten or more outs, you must go all the way to the river irrespective of the number of opponents.

(2) In two-handed unraised pots, draws based on less than nine outs produce negative returns on investment.

(3) In multi-handed raised pots, draws based on more than six outs are profitable.

I must point out that the above guidelines should be applied intelligently. You must never chase the money which you have contributed to the pot. That money does not belong to you any more. Your calculations of profitable draws must be based on the impending rather than the past betting.

You may find it easier to deal with odds rather than probabilities. It is quite easy to convert one into the other. You simply subtract the probability, expressed as a percentage, from 100 and divide the result by the probability. For example, the chances of completing a straight draw with one and two cards to come are $2.2 \times 8 \cong 18\%$ and $4 \times 8 = 32\%$ respectively. Therefore, the corresponding odds against making the straight are:

(1) One card to come: $(100 - 18) \div 18 \cong 9{:}2$ against.
(2) Two cards to come: $(100 - 32) \div 32 \cong 2{:}1$ against.

Thus, the straight draw is about 9:2 against with one card to come and 2:1 against with two cards to come. Similarly, a flush draw is 4:1 against with one card to come and approximately 9:5 against with two cards to come.

A draw is profitable if the pot odds are higher than the odds against the completion of your hand. Pot odds are defined as the size of the pot, excluding your projected input, divided by the cost of your call. Therefore, if the size of the pot is \$70 and the next call or bet will cost you \$10, the pot is offering you odds of 7:1. Your investment in the pot will produce positive returns if the odds against making your hand are less than 7:1 (the projected win-rate should be more than 12.5%). To make life easy for you I will list the drawing odds for Hold'em in the following table.

	Probability		**Odds (x:1 against)**	
Outs	One Card	Two Cards	One Card	Two Cards
2	4.4	8	21.7	11.5
3	6.6	12	14.2	7.3
4	8.8	16	10.4	5.2
5	11	20	8.1	4.0
6	13.2	24	6.6	3.1 (≅3:1 against)
7	15.4	28	5.5	2.6 (≅5:2 against)
8	18	32	4.5	2.1
9	19.8	36	4.0	1.8 (≅9:5 against)
10	22	38	3.5	1.6 (≅8:5 against)

	Probability		Odds (x:1 against)	
Outs	One Card	Two Cards	One Card	Two Cards
11	24.2	41.8	3.1	1.4 (≅7:5 against)
12	26.4	45.6	2.8	1.2 (≅11:9 against)
14	30.8	53.2	2.2	0.9

***Table 1**: Drawing odds and probabilities for Hold'em*

Note that if you have more than 13 outs you may be the favourite because the odds against completing your draw are less than one. I used PC and OPC to calculate the probabilities in the above table. The difference between the values listed in the table and the correct probabilities is less than 5%. Even if you use 4 for OPC throughout the table, the error is less than 10%. This is an error you should be happy to live with.

3. Backdoor flush/straight

Suited starting cards will be dealt to you about 23.5% of the time. The flop will consist of three and two cards of your suit 0.83% (118:1 against) and about 11% of the time respectively. Sometimes the first three communal cards will have only one card with a similar suit to yours. For example, your starting hand is J♦-T♦ and the dealer flops Q♦-6♣-5♠. The probability that you will end up with a flush by the end of the deal is less than 5%. In fact you will backdoor the flush about 4.2% of the time (23:1 against). The probability of backdooring a straight is also about 4.2%.

Chapter Eight
Starting Hands

The following analyses of starting cards, particularly of raised pots, are more relevant to limit games. Chapter Ten is dedicated to pot-limit. Most of the information in this chapter, however, complements that presented in Chapter Ten and should enhance the skills of both limit and pot-limit enthusiasts.

1. Pairs

Every pair in a full deck of cards can be dealt in six ways. For example, a pair of Kings may be dealt as K♣- K♥, K♠-K♦, K♠-K♣, K♠-K♥, K♥-K♦ and K♦-K♣. Therefore, there are 78 (13 × 6) pocket pairs in a full deck. Since a 52 card deck contains 1,326 two-card combinations, a pair will be dealt to you about 6% of the time. The probability that a specific pair, like A-A, or 2-2, is dealt to any player is roughly 0.5%. Consequently, in a 10-handed game someone will hold a pocket pair of Aces 5% of the time (19:1 against).

With a pocket pair, you will flop trips 11.5% of the time (about 15:2 against). If you do not flop trips and decide to see the river card, the board will offer them to you 20% of the time (4:1 against).

Pairs can be divided into the following three categories:

(1) Large	A-A, K-K, Q-Q, J-J, T-T
(2) Intermediate	9-9, 8-8, 7-7, 6-6
(3) Small	5-5,4-4, 3-3, 2-2

1.1 Large pairs

The computer analyses reveal that the return on investments of all the high pairs does not improve when more than four opponents are contesting the pot. High pairs, therefore, should be played against not more than four contestants. For example, a pocket pair of Queens will win about 45% and 38% of the pots respectively against four and five opponents. Thus, assuming that the pair is the winning hand by the end of the deal and that no one calls the subsequent bet, the pair of Queens will produce roughly the same long-term net profit per dollar invested in five- as well as six-handed pots. Similarly, a pair of Tens will generate the same net profit in four-, five- and six-handed contests. The same trends are exhibited by K-K and J-J.

The flop will contain an Ace or a King 40% of the time. It will be at least Queen-high 55% of the time, and a Jack, or a card of higher a denomination will be flopped over 65% of the time. Therefore, if you hold a pocket pair of Tens, you should raise in order to eliminate those who are limping in with Q-7, K-5, . . . etc. With big pairs the field of opponents must be reduced. You must raise and re-raise with A-A, K-K and Q-Q (see Chapter Ten for a more detailed discussion of pocket Queens). If you can't reduce the number of opponents to four or less, then your course of action after the flop must depend on its composition as well as the quality of players who have called your raise. The important thing to remember is not to fall in love with your big pair after the flop.

1.2 Intermediate pairs

Intermediate pairs play best against two to three opponents; with more, their performance degrades a little but starts to improve again against more than six opponents. Again, the reason for this can be found if you consider the frequency of flopping specific cards. Table 1 lists the frequency of dealing an Ace-high, King-high . . . Six-high flop when you have or don't have a card of that rank.

Card	You have	You don't have
A	16.5%	21.7%
K	13.8%	18.3 %
Q	11.5%	15.2%
J	9.3%	12.4%
T	7.5%	10%
9	5.7%	7.6%
8	4.3%	5.7%
7	3.0%	4.0%
6	2.0%	2.7%

Table 1*: Frequency of flopping a specific card as the high card*

The table reveals, for example, that a flop with a Nine being the highest card will appear less than 8% of the time (12:1 against), and a Six-high one will be flopped less than 3% of the time! No wonder these pocket pairs prefer short-handed pots. Personally, I would raise with 9-9 from middle position and entertain the idea of a raise in late position with 8-8. In early position, I would limp in with 7-7 and 6-6. If the flop matched my hand, then I would declare war.

1.3 Small pairs

Small pairs play best against more than five opponents. The break-even point for a pair of Deuces and Threes is about six opponents. Therefore, small pairs should be played as cheaply as possible from late position and, if the first three community cards are not favourable, they should be trashed.

2. Other two-card combinations

There are 1,326 starting Hold'em hands. Generally you will be dealt any two suited cards about 24% of the time (3:1 against); A-K(s) will be dealt to you 0.3% of the time (331:1 against). The probability of having two suited as well as connected cards with maximum stretch is about 2%. Suited cards will make a flush 6.5% of the time (about 14:1 against) when played all the way to the river, while off-suited combinations will end up with a flush only 2% of the time (49:1 against).

Off-suited connected cards with maximum stretch, such as 6-7 or J-T, will be dealt 6.3% of the time. You obviously want your connected cards to have maximum stretch because they have a better chance of making a straight. For example, Q-J can make only three straights, whereas J-T, T-9, 9-8, 8-7, 7-6 and 5-6 will form four straights.

2.1 Ace-high cards

You will be dealt an Ace about 15% of the time (11:2 against) and the probability that another appears on the flop is about 16%. If an Ace is dealt to you, another player will have one of the remaining three 12% of the time. This implies that in a head-to-head contest, the other player is at least 7:1 against having an Ace. Table 2 lists the chances of an Ace being dealt to other players, when you have been dealt one, in a two-to eight-handed game. The numbers are rounded to the nearest figure.

Number of opponents	Probability
1	12%
2	23%
3	32%
4	42%
5	50%
6	57%
7	64%

***Table 2**: Probability of other opponents holding an Ace as well as you*

Therefore, with five or more opponents there is a better than even chance that one of them will have an Ace as well as you. Table 2a lists the (approximate) probability that an opponent has an Ace-high hand with a kicker whose rank is higher than yours in two-, five- and eight-handed games.

You hold	Two-handed	Five-handed	Eight-handed
A-K	0	0	0
A-Q	1.0%	4.0%	7.0%
A-J	2.0%	8.0%	13.0%
A-T	3.0%	11.0%	19.0%
A-9	4.0%	15.0%	24.0%
A-8	5.0%	18.0%	30.0%
A-7	6.0%	22.0%	35.0%
A-6	7.0%	25.0%	39.0%
A-5	8.0%	28.0%	44.0%
A-4	9.0%	31.0%	48.0%

***Table 2a**: Probability that an opponent has Ace-high hand with a better kicker than yours*

The results in Table 2a reveal the importance of having a kicker of a high denomination in multi-handed games. In fact if you have A-2 in an eight-handed game, there is better than an even chance that one of your opponents has an Ace with a better kicker (see the Appendix).

Off-suited A-2 and A-3 perform best in head-to-head pots. Against more opponents, their profitability declines. I refuse to invest my cash in these pocket cards in many-handed pots. A-6(o) and A-7(o) follow the same trend, although their winning potential is higher than the former two pocket cards. A-5(o) achieves slightly better results than A-7(o) and A-6(o) against more than six opponents due to its ability to make straights. Remember, a straight must include either a Five or a Ten. All the same, A-5(o) does not like to be played against more than two opponents.

The computer simulations indicate that suited A-5 achieves similar results to A-7(s), while A-6(s) and A-4(s) yield slightly inferior results to the latter starting cards.

A-2(s) and A-3(s) do not perform that badly. All of the above suited cards, however, prefer multi-way action. Consequently, if the pot were raised, I would call reluctantly from late position only if four other opponents were taking part in the action and pray to hit either a flush or a draw to the flush. When I flop an Ace, then I would like to have either a flush draw or my kicker on the board. I would, of course, prefer to see two cards matching my kicker's ranks flopped.

A-9(o) and A-8(o) play best against one to three opponents, while A-Q(o), A-J(o) and A-T(o) don't like more than five to six opponents. With A-Q(o) and A-J(o) I would raise if two players have limped in before me and flat call if more have stated their intention to see the flop. I reserve late position of A-T(o) and I am prepared to muck the hand if a player raised from early position. The subject of raised pots will be dealt with later.

Suited A-Q, A-J and A-T produce similar results against one to two opponents. Against more, their performances diverge, with A-Q yielding better returns; with the latter hands a raise from any position is correct. With A-9(s) I may raise in late position.

Of course, if I am dealt suited A-K, I go on the offensive. The advantage of these pocket cards lies in their ability to generate big pots when either the A or the K is flopped; you will flop top pair or better 32% of the time.

Furthermore, the flop will furnish you with a flush draw nearly 11% of the time. Therefore, about 40% of the time the first three communal cards will make you happy. You must not, however, overplay the A-K(s) against more than two opponents when the flop does not match them; in a head-to-head contest, you must bet on the flop even if it does not match your cards.

If you flop an Ace, the probability of ending with the best hand at the end of the deal is heavily influenced by the denomination of your kicker, as well as the composition of the board cards. For example, you hold A♣-K♣, or, A♣-8♣ and the flop is A♦-9♠-4♥. Your win-rates by the end of the deal are listed in Table 3.

Flop: A♦-9♠-4♥

Number of opponents	**A♣-8♣**	**A♣-K♣**
1	87.4	89
2	75	79
3	65	71.5
4	57.5	63.2
5	50	57
6	43	51
7	38	44.2

***Table 3**: The % win-rate of* A♣-K♣ *and* A♣-8♣

Not surprisingly, A♣-K♣ yields better results. However, the win-rates of both hands decrease significantly as the number of players competing for the pot increases. Since the break-even returns of your cards after the flop are governed by the product of multiplying their win-rate by the total amount of money in the pot, you must discourage as many opponents as possible from seeing the river card.

If the flop is A♦-9♠-4♦ and one player is holding J♦-T♦, the win-rate of the suited A-K, in a head-to-head contest, drops from 89% (8:1 favourite) to 62.5% (better than 8:5 favourite).

Let us consider two other scenarios. A granite player, in early position, raises with A♣-K♦ and you have a brainstorm and decide to call his raise with A♦-8♦. The dealer flops A♥-9♥-4♠. You have a kicker problem. In fact you are in great trouble because you have only three outs (three

Eights) and subsequently your chances of ending up victorious at the end of the deal are as little as 12% (about 15:2 against). Therefore, whenever your opponent flops a top pair with you, and your kicker is lower than his, your money is in great jeopardy.

Now, let us reverse the situation and assume that you raise with A♣-K♦. Only one player, holding 9♠-8♠, calls your raise. The dealer flops A♥-9♣-8♦. The first three cards on the board have given you top pair and, of course, you bet. Your rival raises your bet. You must put the raiser on two pairs, trips or an open-ended straight draw. In this case the raiser has two pairs Nines and Eights. Your overall chances of winning the pot by the end of the deal are 25% (3:1 against); your outs are three Kings and two Aces, which amount to about 20% (4 × 5), together with the possibility of being dealt a running pair on the turn and the river, which is an event that will happen approximately 5% of the time. In a \$10–\$20 game it will cost you another \$30 to go to the river. Consequently, your call will be correct only if the projected size of the pot at the end of the deal is more than \$120.

2.1.1 Raised pots

Generally, if a contestant raises from an early position, then it is highly likely that his pocket cards are very good (A-K(s), A-Q(s) or a big pair like Q-Q, K-K . . . etc). A raise coming from middle position may include these cards as well as J-T(s), Q-T(s), K-T(s), 8-8 . . . etc. Let us assume that an opponent in early position decides to raise before the flop and you hold either A-K(s) or A-T(s). Consider the following three scenarios:

(1) raiser holds Q-Q;
(2) raiser holds A-K(s);
(3) raiser holds 9-9.

Let us first consider the case of suited A-K or A-T against a pocket pair of Queens.

A-K(s) wins 47% of the pots in head-to-head contests. With more than two opponents its profitability is very good. A-T(s), on the other hand, reaches its break-even win-rate in three-handed pots and becomes profitable in four- or more-handed contests. Therefore, the latter pocket cards need more than two other contestants against Q-Q.

A-T(s) attains its break-even win-rate in five-handed pots if the raiser has A-K(s). Even if more opponents are involved, its winning potential is not that impressive. Therefore, you should resist the glamour of suited A-T if the pot is raised by a solid opponent from early position; you must muck the hand in a doubly raised pot.

When the raiser holds a pair of Nines, both A-K(s) and A-T(s) have about 48% chance (about 11:10 against) of winning the money by the end of the deal in a head-to-head pot. However, they yield positive returns in three-handed pots.

The results of the analyses of raised pots suggest that if you hold A-K(s) you can re-raise from any position. With suited A-J, A-T and maybe A-9, you need at least two other callers. When your kicker is lower than Nine, you should think very hard before you invest your money in raised pots; get involved only from late position and with at least four other callers. With suited A-Q, you can't just call; either re-raise or discard. If the pot is re-raised by another opponent, you should consider discarding all of the above starting cards, except, maybe, A-K. I should point out that A-K(s) is about 8:1 against in a contest with a pocket pair of Aces.

Of course, the raiser does not hold Q-Q, A-K(s), or 9-9 all the time. Some players may raise with 5-6(s) in late position. This is why your knowledge of the other players' betting strategies is important.

2.2 King-high cards

King-high cards will be dealt to you about 15% of the time, in which case a flop with the King being the highest card is an event that will occur about 14% of the time.

Off-suited K-2 to K-7 are bad news. Call with these cards, especially from early position, only on the days you feel like throwing your money away. Even if you flop top pair, you may not feel inclined to act because of the low kicker. In unraised pots, the gods may forgive you if you play K-7 and maybe K-6 against one to two rivals from late position. Suited King-high cards with low kickers should be played very cautiously, preferably against many opponents and from late position.

K-9(o) is fairly marginal and performs best in two-handed contests.

Off-suited K-Q, K-J and K-T play best against five contestants and are best played from middle or preferably late position, where a raise may be justified if less than three opponents have limped in. The inclusion of the flush capability significantly enhances the performance of K-Q(s), K-J(s) and K-T(s), especially in multi-handed pots. I would consider a raise with these cards in late position.

2.2.1 Raised pots

Let us assume that the raiser has the following cards:

(1) pair of Aces;
(2) pair of Queens;
(3) a pair whose denomination is lower than the King's kicker;
(4) A-K(s);
(5) Ace-high with a kicker higher than that of the King;
(6) Ace-high with a lower kicker than that of the King.

Table 4 lists the win-rates of K-J(s) against A-A, Q-Q and 8-8; the bracketed numbers in the last column of the table are the break-even win-rates of each contest.

Number of opponents	A-A	Q-Q	8-8
1	18.3	32.0	49.0 (50)
2	17.4	27.7	41.6 (33.3)
3	16.8	26.0	36.4 (25)
4	15.7	23.4	31.0 (20)

Table 4*: The % win-rate of K-J(s) against A-A, Q-Q and 8-8+*

The results clearly show that in a head-to-head contest against a pair of Aces, K-J(s) is at best 9:2 against, which means that it is a 24-carat underdog. Against a pair of Queens, K-J(s) is worse than 2:1 the underdog in head-to-head pots, and just about breaks even in four-handed contests. On the other hand, K-J(s) performs well against 8-8. It is nearly evens in two-handed contests, winning 49% of the pots (about 11:10 against), and exceeds its break-even win-rate in multi-handed pots. K-T(s) produces roughly similar results to K-J(s) and the performance of K-Q(s) is slightly better. For example, against Q-Q in a head-to-head pot, K-Q(s) has a win-rate of 35% (about 9:5 against); in three and four-handed pots, the cards will win 31% and 28.3% of the time respectively.

Table 5 lists the win-rates of K-Q(s) in pots raised by a player holding A-K(s).

Number of opponents	**% win-rate of K-Q(s)**	**Break-even win-rate**
1	29.0	50.0
2	26.4	33.3
3	23.5	25.0
4	20.6	20.0

Table 5*: The % win-rate of K-Q(s) against A-K(s)*

In general, if your opponent holds your highest card with a better kicker, then he is normally better than 2:1 favourite to win the pot in a head-to-head contest.

The results of the computer simulations recorded in the above table indicate conclusively that, against A-K(s), suited K-Q requires at least four opponents before it hits its break-even win-rate. Suited K-J and K-T perform similarly. For example, the win-rate of K-T(s) in a five-handed pot, against A-K(s), is 20.7%, which is very similar to that of K-Q(s). However, against A-Q(s) the situation changes. The results of two separate simulations designed to test K-Q(s) and K-T(s) respectively against A-Q(s) are listed in Table 6.

Number of opponents	**K-Q(s)**	**K-T(s)**
1	28.0	39.5
2	26.6	34.4
3	23.2	31.0
4	21.6	27.0

Table 6*: The % win-rates of K-Q(s) and K-T(s) against A-Q(s)*

Obviously in this case, K-T produces much better results, because if you hold K-Q, you do not want to see a Queen on the flop. As a general rule, in head-to-head situations, the player holding the card with the highest denomination normally wins about 60% of the pots (6:4 favourite), provided both competitors are holding suited but completely different cards, as in the case of A-Q against K-T or A-T(s) against K-Q(s).

The results of all the simulations I have performed seem to indicate that in a raised pot you need at least two other opponents to call when you are holding K-Q(s) or lower suited kickers supporting the King. Generally speaking, it is not advisable to call a raise if your cards are not suited.

Personally, if I have to call a raise with King-high cards, I would rather call with K-T(s) than with K-Q(s) especially if the raiser is a rock player. The win-rates of K-T(s) are fairly similar to those of K-Q(s) against A-K(s), A-5(s), A-A, Q-Q and 8-8. However, K-T(s) performs better if the raiser has A-Q(s). I don't expect rocks to raise with A-T(s) from early position. Again, here is another example of how your knowledge of the raiser's playing strategy before the flop will help your game. Generally, I would rather raise with the above cards than call a raise.

If the King's kicker is lower than Nine, then it must be of the same suit as that of the King and more than three other players must call the raise before you. In a head-to-head situation, your call will not be very profitable. Even if you have better cards than those of the raiser, your win-rate will be fairly marginal.

2.3 Queen-high cards

You will be dealt a Queen in your starting hand about 15% of the time and on those occasions you will see a Queen-high flop about 11.5% of the time.

The profitability of off-suited Q-2, Q-3, Q-4, Q-5, Q-6 and Q-7 against more than one opponent is pathetic. Adding flush capability to the latter cards alters their achievement. Suited Q-2, Q-3, Q-4, Q-5, Q-6 and Q-7 should be played only against more than four opponents and from late position. In raised pots you need at least five rivals in order to get the maximum value for the flushing potential of the cards. Bear in mind, however, you will not end up with the nut flush.

Q-8(o) and Q-9(o) play best against one to two other players. Q-T(o), Q-J(o), K-Q(o) and A-Q(o) do well in multi-way action because of the high value of their kickers as well as their ability to make straights. You may raise with A-Q(o) but should flat call, from late position, with Q-T(o) and Q-J(o); it is not advisable to call with off-suited K-Q, Q-J . . . etc from early position. I will deal with the attainments of Q-J(o) and Q-T(o) in raised pots later. Again, the addition of flushing capacity has a significant effect on the profitability of the hands. An occasional raise, from late position, with suited Q-J and Q-T is correct. With A-Q(s) you must raise.

2.3.1 Raised pots

Assume that the raiser, in early position, has the following cards:

(1) pair of Aces;
(2) a pair with a denomination that is lower than that of the Queen, but higher than the kicker that is dealt with the Queen, such as J-J;
(3) a pair whose denomination is lower than the Queen and its kicker, such as 8-8;
(4) A-K(s) or A-Q(s);
(5) Ace-high with a lower kicker than that of the Queen, like A-5(s).

The results of three separate simulations in which Q-T(s) was played against A-A, J-J and 8-8 are recorded in Table 7. Again, the bracketed numbers represent the break-even win-rates of Q-T(s).

No. of opponents	A-A	J-J	8-8
1	20.0 (50)	32.9 (50)	49.0 (50)
2	18.9 (33.3)	29.4 (33.3)	41.1 (33.3)
3	18.2 (25)	25.4 (25)	34.8 (25)

***Table 7**: The % win-rates of Q-T(s) against A-A, J-J and 8-8*

You should expect the performance of Q-T(s) against K-K to be the same as that against A-A. Therefore, against A-A or K-K, suited Queen-high cards, indeed any pocket cards, will require well over five other callers before they yield profit. Against a pocket pair of Jacks, Q-T(s) needs at least three opponents and even then the hand is hovering around its break-even win-rate. When the raiser's pair is lower than the Queen and its kicker, a head-to-head contest can go either way because both hands have an almost even chance of winning the pot.

Table 8 lists the win-rates of Q-T(s) against A-K(s):

Number of opponents	% win-rate of Q-T(s)	Break-even win-rate
1	37.3	50.0
2	33.2	33.3
3	29.0	25
4	26.1	20.0

***Table 8**: The % win-rates of Q-T(s) against A-K(s)*

As you can see, in head-to-head contests, Q-T(s) is about 8:5 against winning the battles with A-K(s) and hovers around its break-even win-rates in three-handed pots; Q-T(s) becomes profitable in four-handed pots.

The performance of suited Q-J is marginally better than that of Q-T(s) and consequently the same conclusions apply. I am not suggesting that you should not get involved in raised pots with these cards. Play them as far as the flop. In a head-to-head pot against A-K(s), the first three communal cards will give you top pair or better (Queen or Jack/T) nearly 22% of the time. If the probabilities of flopping a flush or a straight are included, you are about 3:1 against to flop the best hand. Armed with these facts, your decision to call must be dictated by the size of the pot at the flop.

The results for Q-7(s) against A-K(s) or A-5(s) are presented in Table 9; bracketed numbers are the break-even win-rates:

Number of opponents	A-K (s)	A-5 (s)
1	34.8 (50)	41.0 (50)
2	29.0 (33.3)	33.1 (33.3)
3	24.7 (25)	27.9 (25)
4	21.6 (20)	23.5 (20)

***Table 9**: The % win-rate of Q-7(s) against A-K(s) and A-5(s)*

The results demonstrate the very marginal performance of suited Queen-high cards with low kickers. They must have at least four opponents before they can yield positive cash flow against A-K(s).

2.3.2 After the flop

As I pointed out earlier, if your starting cards are Queen-high, the flop will offer you top pair 11.5% of the time. Again, your winning potential will be governed by the texture of the flop, the quality of your kicker and the number of opponents competing against you.

Let us assume that you hold Q♦-T♦ and the following three sets of communal cards have been dealt:

Q♠-7♣-4♥
Q♠-7♦-4♦
Q♥-7♣-4♥
Q♥-J♣-9♠

The first flop gives you top pair, with a possible straight draw against you. The second flop is sweet because you have top pair as well as a flush draw. The third flop is not so kind to you because of the presence of the heart-flush draw. Finally, the fourth flop presents you with top pair and an open-ended straight draw. Table 10 lists your expected win-rates against one to four opponents.

No. of opponents	Q♠-7♣-4♥	Q♠-7♦-4♦	Q♥-7♣-4♥	Q♥-J♣-9♠
4	50.8	65.4	44.5	58.9
3	57.1	71.6	53.0	66.3
2	69.6	79.1	65.2	74.8
1	82.4	88.9	80.0	86.4

***Table 10**: The effect of the texture of Queen-high flops on the % win-rate of* Q♦-T♦

Clearly, the second and fourth flops are the most favourable and the third flop is the most threatening to your top pair, especially if more than three opponents are contesting the pot. The results also reveal that when you flop top pair you must eliminate the number of contestants in order to enhance your chances of winning the pot. Roughly, for every player you eliminate, your expectation of ending up with the winning hand increases by about 10%.

Let us consider the situations where you flop the second-best pair with Q♦-T♦. Your opponent holds a pair of Aces and the flop is either Q♠-7♦-4♦ or Q♠-7♣-4♥. In the former case, you are slightly ahead of your opponent because of the flush draw that is available to you. Your win-rate is about 51%. In the latter situation, however, you are the clear underdog because the odds against you are 4 to 1; you have only five outs, giving you an overall win-rate of about 19%. Very similar results are obtained if your opponent holds A-K and the flop is A-Q-4.

2.4 Jack-high cards

Your starting cards will contain a Jack 15% of the time. When you hold a Jack, the flop will be Jack-high about 9.5% of the time.

I do not think I need to waste your time discussing off-suited J-2 . . . J-7. Even when the cards are suited, their winning potentials are still fairly marginal. J-8(o) and J-9(o) are fairly marginal against more than two contestants. The remainder play well against any number of opponents. Don't forget that these recommendations apply to unraised pots and late position. Never call with the above cards from early position.

Surprise, surprise! J-8(s) and J-9(s) perform well in many-handed pots. Suited A-J, K-J, Q-J and J-T are positional raising cards.

2.4.1 Raised pots

The attainments of A-J(s), K-J(s) and Q-J(s) in raised pots were discussed earlier. Therefore, analysis of raised pots in this section will be restricted to the fortunes of J-T(s). Again, I have assumed that the raiser holds A-A, A-K(s), 8-8 or A-5(s). The results of the four separate computer simulations are presented in Table 11.

Number of opponents	A-A	A-K(s)	8-8	A-5(s)
1	21.7	38.0	49.5	46.5
2	20.4	33.2	40.9	39.0
3	19.3	30.1	33.9	32.3
4	18.2	26.5	26.9	28.9

Table 11: *The % win-rates of J-T(s) against A-A, A-K(s), 8-8 and A-5(s)*

Comparison of the win-rates of J-T(s) with those of K-Q(s), K-J(s), Q-J(s) and Q-T(s), in head-to-head contests against the raiser, reveals its slightly superior winning potential. For example, against a pair of Aces, K-Q(s) and Q-T(s) have win-rates of 18.3% and 20% respectively, whereas J-T(s) registers a win-rate of 21.7%. Against A-K(s) it produces much better results than K-Q(s). The results in the above table suggest that J-T(s) plays best against more than two opponents in almost all of its contests, except those in which one contestant holds a pocket pair of Queens, Kings or Aces. Against these pocket pairs, J-T(s) needs our sympathy. Therefore, I would call a raise with suited J-T. The cards combine high card value with the potential for forming straights and flushes.

Table 12 shows the results of contests between off-suited J-T and A-Q.

Number of opponents	% win-rate of J-T(o)
1	37.0 (50)
2	31.6 (33.3)
3	28.0 (25)
4	24.7 (20)

Table 12: *A-Q(o) against J-T(o); bracketed numbers are the break-even win-rates*

Unsuited J-T needs more than two opponents in these situations.

2.4.2 After the flop

Let us consider flops where you have top pair. If you are holding J♠-T♠, a Jack-high flop will contain suited and/or connected cards over 70% of the time. Therefore, your top pair has to survive flush and/or straight draws. Let us look at two-handed contests first.

The first three board cards are J♦-6♥-5♣. You bet your top pair and only one player calls with 7♥-8♦. Your rival can make the straight about 33% of the time. He or she may also get lucky and end up with two pairs or trips by hitting two miracle cards on the turn and the river; thank God the latter event will happen only about 1% of the time. Thus, you will win the contest 66% of the time.

With a flush draw against you, the situation is different. Normally your overall win-rate is about 65% because the flush will be completed 35% of the time (about 9:5 against) with two cards to come. However, if your opponent has two overcards as well as the flush draw, then he or she is the favourite. For example, the other contestant is dealt A♥-K♥ and the flop is J♦-6♥-5♥. Now you are about 11:9 against with two cards to come, because out of the remaining cards in the deck, 15 are unfavourable to you (three Kings, three Aces and nine ♥s). If the turn card is an Ace, you are 900 miles behind because you now have only three outs. Your expected win-rate on the turn of the river card has diminished to 6.6% (3 × 2.2). Therefore, when there is a flush draw against you, be alert and watch out for overcards on the turn and the river. Many players call with suited Ace, King and Queen-high cards.

When you flop second-best pair, your overall win-rate will be influenced by the composition of the first three communal cards and, to a lesser degree, by the denomination of your kicker. If, for example, the flop is K♠-J♦-6♠ and one opponent holding K♣-8♣ bets, of course you must call or even raise the bet with your J♠-T♠. The dealer has rewarded you with 14 outs to win the pot on either the turn or the river. You will win the pot on the turn over 30% of the time (14 × 2.2) and your overall win-rate is nearly 52%. These odds are perfect in limit games. However, in the absence of the flush draw, you have only five outs. With these meagre outs you will win the pot on the turn 11% of the time and your overall win-rate is only 20%. Even if you had an Ace as your Jack's kicker, you are still miles behind the player who flopped the pair of Kings. Don't fall in love with your Ace kicker when you flop the second-best pair.

On the unfortunate occasions when you are sharing top pair with a rival who has a higher kicker, you should trash your hand because you are worse than 7:1 against.

2.5 Ten-high cards

The first three communal cards will be Ten-high 9% of the time. When you hold a Ten, the flop will be T-high 7% of the time.

Trash T-6(o) and even T-7(o). T-8(o) is fairly marginal even against six opponents. As you would expect, only J-T(o) is worth considering. However, you must play off-suited J-T and J-9 from late position only.

If you hate your money, play suited T-2 . . . T-5. Suited T-6 and T-7 are very marginal and T-8(s), T-9(s) and J-T(s) are playable. In late position I would entertain the idea of raising an unraised pot with T-9(s) or J-T(s).

2.5.1 Raised pots

The achievements of K-T(s), Q-T(s) and J-T(s) in raised pots were dealt with in previous sections. It turns out that J-T(s) produces the best results against A-A, A-K and A-Q. The question is how would T-9(s) and T-8(s) fare in raised pots? Their performance should be slightly inferior to that of J-T(s). However, this may be a misleading answer because many players call raises with J-T, Q-T, A-T and K-T. Therefore, I would avoid calling raised pots with T-9 and T-8 unless there are more than four callers before me. Then I would like to see a flop that will give me top pair with a flush and/or a straight draw, but I would settle for a flush or a straight draw provided the pot offers me the correct odds. I would rather raise with T-9(s), preferably from late position, than call a raise in early or middle position. Late position should be reserved for T-8(s) at all times.

2.5.2 After the flop

As I pointed out before, if you hold a Ten, the flop will be T-high 7.5% of the time. The flop will also contain two/three connected cards nearly 50% of the time, two/three suited cards over 50% of the time and a pair lower than T about 25% of the time. Again, the flopped top pair will be threatened by flushes and flush draws, straights or draws to the straight, as well as trips and full houses.

I have dealt with flush and straight draws against flopped pairs in previous sections. Let us consider flops that include pairs whose denominations are lower than the top card on the board. Suppose you were dealt T♥-9♥ and the flop is T♦-5♣-5♠. What is the probability that one of your opponents has flopped trips? Well, this can be calculated fairly easily and the answer turns out to be approximately 8%, or nearly 12:1 against. With two, three and four opponents the corresponding probabilities are about 16%, 25% and 36%. Therefore, even with four opponents, it is nearly 2:1 against that one player has flopped trips. Thus, you must bet your top pair. If you get raised, it is highly unlikely that the raiser has trips, because an opponent with trips on the flop will want to slow play the hand (sometimes you should bet flopped split trips because of that). The threat to your top pair in this case may come from your opponent's higher kicker or a pocket pair higher than the Ten. The latter situation is more likely in raised pots. Of course, your rival may be trying to steal the pot from you. How you should respond to the raise depends on your assessment of the raiser's playing habits. I am sorry I keep repeating this phrase but in Hold'em the artistic skills are important. I would be more inclined to give the raiser the benefit of the doubt.

2.6 Nine-high cards

A Nine-high flop will be dealt 7.6% of the time. When one of your starting cards is a Nine, the flop will be Nine-high 6% of the time.

The results of the computer simulations suggest that 9-8(o) and 9-7(o) produce reasonable expectations against more than five opponents and, when suited, they are worth the investment against four opponents. Needless to say, late position must be allocated to them.

Q-9(s), J-9(s) and T-9(s) produce very similar results against three or more contestants. K-9(s)'s performance is slightly better and obviously A-9(s) yields the best results.

2.7 Eight-high cards and lower

The results of the computer simulations for 8-7(o), 8-6(o), 8-5(o), 7-6(o), 7-5(o) and 6-5(o) clearly indicate that you should avoid playing these cards. 8-7(o) is very marginal even against seven opponents. If you have to throw your money away, please do it from late position. Adding flushing capability to the above starting cards improves their performance. 8-7(s) produces the best results. Its winning potential against five or more rivals is respectable. 8-6(s), 8-5(s), 7-6(s) and 7-5(s) are marginal against seven opponents. You should reserve late position for all of the latter hands.

When the first three communal cards are 8, 7 or 6-high, a pair will be flopped 30%, 35% and 42% of the time respectively and two or three connected cards will appear about 60% of the time. When you hold these cards, you are hoping to flop a good straight draw or a pair with a straight and/or a flush draw. That is why these cards require many contestants in the pot; their winning potential is heavily dependent on their ability to flop reasonable draws. However, you may prefer to flop straight rather than flush draws with these cards. If the flop offers you a draw to the flush and more than two players decide to go all the way, how sure are you that you will end up with the winning hand when your draw is completed?

Sometimes you should raise, from late position only, when you are dealt 9-8, 8-7 . . . etc in order to introduce an element of confusion into your opponents' minds. If you do not vary your play, your opponents will be able to read your cards and consequently make the correct decisions when they are involved in pots against you.

2.8 Summary of raised pots

Finally, I would like to summarise the results of simulations of raised pots in this section.

2.8.1 Head-to-head contests

2.8.1.1 Pairs

If the rank of the raiser's pair is higher than both of the suited pocket cards held by the caller, the pair is nearly 4:1 favourite. For example, the raiser holds A-A and the caller has Q-J(s). Interestingly, the results of the computer simulations of head-to-head contests against a pair of Aces reveal that the lower the value of the caller's cards, the better are his or her chances of winning the pot. Thus, 8-7(s) will win 23.6% of the pots, whereas the win-rates of K-J(s), Q-J(s), J-T(s), T-9(s) and 9-8(s) are 18.3%, 19.9%, 21.7%, 23.2% and 23.4% respectively. The reason for this seemingly odd result is fairly simple. With 8-7 and 9-8 the raiser's Aces cannot make a straight if the Eight, Nine and Seven, or their combinations, are flopped. However, don't be misled by the above results because the Aces are still miles ahead.

Similarly, if the caller has a lower pair than the raiser, then the raiser is nearly 4:1 the favourite. For example, A-A has a win-rate of 80% in a contest with 8-8.

When the raiser has a pair whose value is lower than only one of the caller's cards, such as Q-Q against K-J(s), then the former player is the 2:1 favourite. However, if both of the caller's cards are of a higher denomination than the raiser's pair, then the contest is nearly evens. For example, 8-8 wins 51% of the pots when played against K-Q(s) or Q-T(s).

2.8.1.2 Two-card combinations

If the rank of both of your cards is lower than the raiser's, you will lose the pot about 60% of the time in two-handed contests. For example, suited Q-J, J-T, T-9, 9-8 and 8-7 will win 37%, 38%, 39%, 38.5% and 40% of the pots respectively against A-K(s). Again, note that cards with low denominations, such as 8-9 and 8-7, perform slightly better than Q-J and J-T in head-to-head encounters with A-K(s).

If the raiser holds your high card but has a higher kicker than yours, then you are the 5:2 underdog. For example, A-K(s) will win about 72% of the pots in two-handed contests with K-Q(s).

When the rank of your high card is lower than your opponent's, but you hold a kicker of a higher denomination—for example, you are playing J-T(s) or Q-T(s) against A-5(s)—you will lose the pot about 55% of the time. Moreover, if your cards don't have a straight potential, then you are the 6:4 underdog as in A-5(s) against Q-7(s).

In nearly all the examples discussed in this section the flop will be favourable to the caller about 25% of the time. Thus, if you call with, say, J-T(s) and the raiser holds A-K(s), the odds that the flop will offer you one or more of your card ranks, without an Ace or a King, as well as a completed straight or a flush, are about 3:1 against. Furthermore, you will flop a draw to a flush or a straight just over 20% of the time.

In conclusion, two-handed contests are not favourable to the caller in limit games. The odds against the caller range from the very large (4:1) to the nearly evens. I don't want to invest my money under these conditions.

2.8.2 Many-handed pots

If the lowest denomination of your cards is Ten, then you need more than two other callers before you can approach your break-even win-rate. When your highest card rank is Ten or lower, more than three other callers are needed.

The results of the computer simulations reported in this section should be used as guidelines. The raiser does not have A-K(s), or a pair of Aces all the time. You must take into account the raiser's position and betting habits as well as proficiency before you decide whether you should call, discard, or even re-raise. This is another illustration of the importance of position as well as knowledge of your opponents' betting strategies in Hold'em.

Chapter Nine
The Flop And Beyond

1. Anatomy of the flop

There are 19,600 Hold'em flops. Since I don't intend to spend the rest of my life writing this chapter, I'll restrict myself to a simple discourse on the texture and composition of the flop, followed by a brief analysis of the winning potential of pairs, two pairs and trips as well as flush and straight draws.

At the risk of repeating myself, I'll list the statistical facts which accurately describe the composition of most flops:

(1) The flop will be Ace or King-high 40% of the time.

(2) The flop will contain at least one of your cards 32% of the time. For example, if you hold a Jack, one of the remaining three will appear on the flop about 15% of the time and, on your lucky days, two Jacks will be flopped 1% of the time. You will also flop split two pairs 2% of the time.

(3) The first three community cards will contain a pair, whose rank does not match your cards, 17% of the time. When a pair is flopped, the probability that one player holds one of the remaining two cards of that denomination is about 7%. Therefore, if four players pay to see the flop, one of them will have trips about 30% of the time.

(4) If the flop does not contain a pair, it will be paired about 40% of the time by the end of the deal.

(5) Two or three cards of the same suit will be flopped about 55% of the time.

(6) If you hold two suited cards, the flop will offer you a flush 0.83% of the time and a draw to the flush about 11% of the time.

(7) Two connected cards will be flopped 34% of the time.

(8) If your starting cards are connected and have maximum stretch, like J-T or 6-5, you will flop an open-ended straight draw about 10% of the time and a straight 1.3% of the time. Cards with limited stretch, like Q-J, will flop an eight-card draw to the straight about 6% of the time.

The other important data that you should remember are the frequency of flopping specific cards. You should revisit Table1 in Chapter Eight for this information. As the high card rank of the flop changes, the threats posed or indeed the opportunities offered to your cards vary. Generally speaking, as the denomination of the highest card on the flop decreases:

(1) the frequency of flopping suited cards decreases and, consequently, flushes and draws to the flush are less likely;

(2) the frequency of dealing connected cards increases, thereby enhancing the probability of flopping straights or straight draws as well as two pairs;

(3) pairs are dealt more frequently. In this case the threat or delight of full houses, trips and two pairs increases.

The following discussions of after-flop play should be of interest to both limit and pot-limit enthusiasts. Although the analyses are related to limit playing strategies, most of the examples consist of two-handed contests, the results of which must be important to the pot-limit player.

2. Analysis of specific hands

The flop will present every player the following possibilities:

(1) pairs and two pairs;
(2) trips or full houses;
(3) straight or a draw to the straight;
(4) flush or a draw to the flush;
(5) sweet nothing.

Of course, if you flop sweet nothing, you should spend the time watching your opponents play their hands, in order to acquire as much information as possible about their playing habits. You should also attempt to put the contestants on hands in order to sharpen your skills in reading cards.

2.1 Pairs and two pairs

The profitability of flopped top pairs was dealt with briefly in the previous chapter. The subject will be examined in more detail in this section.

The win-rates of pairs in Hold'em are reasonably good. For example, if you flop top pair of A, K, Q or J, you will be the clear favourite most of the time in a head-to-head contest. Against four opponents your win-rate will depend on the rank of your pair and its kicker, as well as the composition of the flop. But in general, Aces will win about 60% of the pots, Queens will gain about 50% of the pots and the Jacks' win-rate will hover round the 40% mark. The win-rate of your pair will increase by about 10% for every opponent you manage to eliminate after the flop. That is why it is essential to narrow the field of opposition when you flop top pair.

2.1.1 Split pair

As I said earlier, the win-rate of your top pair will depend on the composition of the flop. Let us look at some examples. Assume you raised with A♣-K♠ and the dealer turned one of the following flops:

(1) A♦-7♣-3♥
(2) A♦-9♣-8♥
(3) A♦-T♥-2♥
(4) K♣-Q♦-J♥
(5) A♠-T♠-9♠

Each flop gives you top pair, but your win-rate at the end of the deal will vary significantly with the flop and the number of players contesting the pot. Let us consider the above flops one by one.

(1) You have A♣-K♠ Flop A♦-7♣-3♥
This is the best flop you can hope for. You have the top pair with the top kicker. There is no flush draw and it is unlikely that you will lose to a straight. Your bet on the flop will be called by an opponent who has either an Ace-high hand with a lower kicker or the second-best pair. If the caller has the top pair but the rank of his kicker is lower than yours, then you will win the pot about 88% of the time, because only three cards in the remaining deck will work against you. Against an opponent holding the second-best pair, your win-rate will be about 80%; in this case the caller must get lucky and hit one of his or her five outs. Therefore, you don't want to see another Seven on the turn. If you get action from more than one opponent, then you should be more cautious. If your bet on the turn of the fourth board card is raised, then you are probably looking at either two pairs or trips; what else can your opponent be raising with? Against two pairs your win-rate on the turn of the river card will be about 13% (about 13:2 against) and against trips you might as well whistle in the wind. Your best course of action is to give your opponent the benefit of the doubt. Discard your cards. The raise on the more expensive round of betting is the clue in these situations.

(2) You have A♣-K♠ Flop A♦-9♣-8♥
This flop offers your rivals a draw to the straight. Subsequently, your bet on the flop may be called by more than one opponent.

Assuming that your opponents called your raise with cards such as suited Q-J, J-T, 9-8, 8-7 and 7-6, the danger cards on the turn and the river are Q, T, 7, 5, 9 and 8. The first four may complete the straight draw and the last two may give one of your opponents trips or full house. In a head-to-head contest against a straight draw, the overall win-rate of the top pair is 64%. Since many players will call a raise with 9-8, one of your opponents may have flopped two pairs, in which case your overall win-rate collapses to 25%. (You have only five outs plus the possibility of turning a running pair on the fourth and fifth board cards.)

Again, if the dealer turns a blank card on the fourth street and your bet is raised, you may be looking at two pairs or trips. Some players may raise your bet on the flop if they have top pair with a lower kicker or an eight-card draw to the straight. They are basically aiming to get a free card on the more expensive round of betting. It is *unlikely* that an opponent who has flopped trips or two pairs will raise your bet on the cheap round of betting, although some may do just that in order to confuse you; raising with flopped trips in these situations is not wrong because many players are reluctant to release a flopped top pair. Again, this is an example of how important your understanding of that opponent's playing style is. In general you should re-raise without any hesitation. If you get raised again, then in all probability your question has been answered and a graceful retreat may be the appropriate course of action.

(3) You have A♣-K♠ Flop A♦-T♥-2♥

Your top pair may be competing against a flush draw, second-best pair, as well as top pair with a flush draw. As you should know by now, the flush draw will be completed 20% of the time (4:1 against) on either the turn or the river. The overall probability of hitting the flush is 35%. Therefore, your overall win-rate in a head-to-head contest against a flush draw is about 65%; the flush draw is 9:5 against. If your opponent calls your raise with, say, A♥-J♥, your win-rate will be reduced to about 54% because there are 12 cards in the remaining deck that are working for your rival; your opponent's overall win-rate is 12 × 3.8 = 45.6% (about 11:9 against) and about 25% (2.2 × 12) on either the turn or the river. In this case it is quite correct for your opponent to put you under pressure by raising your bet on the flop. Therefore, the danger cards that you don't want to see are any heart, the Ten and possibly any Three or Five. The latter two cards will complete the straight for players who have called your raise with suited 4-5(s) or 3-4(s). Again, one of your opponents may have had a brainstorm and called your raise with A-T.

(4) You have A♣-K♠ Flop K♣-Q♦-J♥

This is one of the worst flops for your top pair. Many players will play raised pots with K-Q, K-J, Q-J, K-T, Q-T and J-T. You *don't* want to see the Ace on the turn because it may complete the straight for one of your opponents. The best fourth board card you can hope for is the Ten. The second-best alternative is a small running pair on the turn and the river. You should bet on the flop in order to find out where you stand, but don't be ashamed to discard your top pair if an opponent raises your bet. The raise can't come from a player holding K-9, although a player holding K-T may try to put you under pressure.

(5) You have A♣-K♠ Flop A♠-T♠-9♠

This is a good flop for you. You have top pair with the nut flush draw. In a head-to-head contest your top pair may be the winning hand. Even if your opponent has flopped two pairs, your chances of winning by the end of the deal are good. For example, if the other player holds T-9, you still have 14 outs to beat him with, giving you an overall win-rate of just over 50% (14 × 3.8 = 53.2%). If more than two players call your bet after the flop, it is likely that one of them has flopped trips, two pairs, or the flush. Against trips or an already made flush you have seven outs, which presents you with an overall win-rate of 28% (5:2 against).

2.1.2 Pocket pair

You will be dealt a pocket pair about 6% of the time. As I have said before, every Hold'em player can select his final poker hand out of the 21 available five-card combinations. However, if you were dealt a pair, then the number of five-card combinations at your 'disposal' by the end of the deal is reduced to 16. Furthermore, you will flop trips about 12% of the time only; that means that the odds against having trips on the flop are roughly 15:2 against. Translated into simple English, your pocket pair will catch trips or better on the flop roughly once in eight times. Therefore, the rank of the pair and the number of opponents who have paid to see the first three board cards will influence its win-rate significantly.

As a rule of thumb, small pairs require more than five opponents in order to produce reasonably positive cash returns. If the flop does not offer the elusive trips, don't hesitate to discard your pocket pair because the odds against seeing one of the remaining two cards of that rank are prohibitive. The chances of getting trips on the turn or the river are 4.4% (2.2 × 2). That means the odds against your hand are about 22:1 against. Even if six opponents are contesting the pot, you are getting about 12:1 for your money on a 22:1 against longshot. Bearing in mind that the bet on the turn is double the size of that on the flop, you must agree that only players who enjoy the thrill of losing will go for such ridiculous odds.

Another trap you should watch out for is when you have a pocket overpair to a flop that contains two suited or two connected cards. For example, you have 6♣-6♦ and the flop is 5♥-3♥-2♣. In this case the last card you want to see is a Six, because the 6♥ will complete the flush and the 6♠ may complete the straight. When a Six is dealt on the turn, you must proceed cautiously. If someone bets, you must call and, if the river card does not fill the house for you, your subsequent action must depend on your judgement as to whether the bettor has a better hand than yours.

Big pairs, on the other hand, play better against fewer opponents. K-K, Q-Q, J-J and T-T do well against one to four opponents. The optimum number of contestants for the above large pairs is about four. Therefore, you should try to thin out the field of opponents by raising before the flop. If the highest card on the flop is of a lower denomination than your pocket pair, you should attack. This is especially true if you hold a pair of Tens or Jacks. With these pocket pairs you don't want to give your opponents the opportunity to hit an overcard on the turn or the river. When the flop contains an overcard, it does not necessarily mean that your pocket pair is beaten. If the pot is checked to you, you should bet without hesitation and, if your bet is called, you have to use your judgement as to whether the caller has a draw or the top pair.

If the flop contains a pair, your course of action should depend on the rank of the flopped pair, as well as the number of opponents and whether the pot was raised before the flop or not. For example, you hold A-A and the flop is J-3-3. In this case you can go ahead and bet your hand even against four opponents; the chances that one of them has flopped trips is less than 35%. It is unlikely that your raise before the flop was called by J-3, K-3 . . . etc, although some players may call with A-3(s) and 4-3(s). However, if the flopped pair is Kings, Queens, or Jacks, then you should be more careful. Many players will see the flop with K-Q, K-T, K-J, Q-J, Q-T and J-T. In a head-to-head contest I would still bet if the pot were checked to me.

2.1.3 Two pairs

You will flop split two pairs 2% of the time and the overall probability of making a full house by the end of the deal is 16% (4 × 4). In four- or more-handed pots you must try to reduce the number of opponents contesting the pot when you flop two pairs. However, in a head-to-head contest you can afford to be slightly generous. For example, you have 9♣-8♣ and the first three community cards are A♦-9♠-8♥. You are the 3:1 favourite to win the pot against an opponent who has flopped top pair. You should wait till the turn before you raise the top pair's bet. I would make such a play only against skilled players because you may not get more money from them if you raise their bet on the flop. Against average or unskilled players, you should raise the bet on the flop. Such players will be very reluctant to abandon their top pair and are more inclined to give you action all the way to the end of the deal. Notice I used 'should' rather than 'must' because you must not play the same way all the time. If your response to a specific situation is the same all the time, you will not get much action from your opponents when the flop matches your cards because they will put you on a hand. I always say, 'Variety is the spice of life.' Vary your playing style in order to confuse your opponents.

Let us introduce a small twist to the foregoing example. Assume you have A♥-K♥ and your opponent has 9♣-8♣. The flop is A♦-9♥-8♥. Now you have flopped a good draw against your opponent's two pairs. There are 14 cards in the remaining deck working for you. In fact the contest is evenly balanced because both you and your opponent have a win-rate of 50%. Even if your opponent had A♣-9♣ instead of 9♣-8♣, your win-rate will be about 46% because you still have twelve outs to beat the two pairs (12 × 3.8 = 45.6%). In these situations you must go all the way to the river card.

A flush draw will win about 34% of the time in a head-to-head contest against two pairs.

2.2 Trips

When you hold a pocket pair and flop trips your hand will be difficult to read, especially if you flop second- or third-best trips. For example, your starting hand is 8♣-8♥ and the flop is A♦-8♠-4♣. With such a flop you may end up healthy but definitely wealthy against the unlucky contestant who has flopped the top pair. Whether or not you should slow play the hand depends on the skill level of your opponent. Against an experienced player you should slow play your trips on the flop and change gear on the more expensive rounds of betting. However, with a novice proudly holding and betting the top pair, you should play the trips aggressively. Notice, I say you should, rather than you must, again.

Let us take another example. You have T♣-T♠ and the flop is T♥-4♣-2♦. Now it will not be wrong to slow play the hand on the flop in the hope that the fourth board card will furnish one or two opponents with a pair or a draw to some kind of a hand. Then you obviously change gears and start your attack in the more expensive round of betting.

If, however, the flop has a flush or a straight draw, you should play your trips fast. Players who are trying to outdraw you must pay a heavy penalty for entertaining such hostile thoughts. Flopped sets will improve to full house or better 33.4% of the time. On a card-by-card basis, they will improve on either the turn or the river about 15% (11:2 against) and 22% (7:2 against) of the time respectively.

When you flop split trips, you would like their rank to be lower than that of the third board card. For example, you were dealt 9♦-8♦ in late position and called a raise from a player who you suspect has A-K(s). The dealer flops K♥-8♣-8♠ and the raiser bets. You should raise the bet for the following reasons:

(1) if the raiser is a good player, I doubt if you could get more money out of him/her on the more expensive rounds, unless he/she has flopped trips as well;

(2) average and inexperienced players will find it very difficult to release a hand consisting of top pair supported by an Ace kicker, especially if they raised before the flop.

Generally speaking, as the denomination of the pair on the board gets higher, it is more likely that two players have flopped split trips, since many players will call with A, K, Q, J and T-high cards. Flopped trips of these high cards should be played fast because you don't want to give your rivals free cards for, say, straight or flush draws. For example, if the board consists of T♣-Q♦-Q♣, you must bet your trips and force those who are stupid enough to want to go for the flush and straight draws, in the presence of a large pair on the board, pay for their sins.

Finally, split flopped trips will improve to a full house or better, by the end of the deal, about 40% of the time. On a card-by-card basis, they will improve on either the turn or the river about 22% (7:2 against) of the time.

2.3 Straights

Connected cards with zero gap and maximum stretch, such as J-T, will flop a straight 1.3% of the time and an eight-card draw to a straight (open-ended) about 10% of the time. Once-gapped connectors, such as 7-5, will flop a straight about 1% of the time and an open-ended draw to the straight about 6% of the time; the corresponding figures for two-gapped connectors are roughly 0.7% and 3% respectively. Connected cards that do not have maximum stretch, such as Q-J, will flop a straight about 1% of the time and an eight-card draw to the straight 6% of the time.

A flopped open-ended straight draw will be completed on either the turn or the river 17.6% of the time (about 9:2 against). The draw will be completed 32% of the time if you decide to go all the way from the flop to the river.

Let us consider some examples in a $10–$20 game:

(1) Your starting cards are J♣-T♦ and the flop is 9♣-8♦-4♥. The dealer has offered you a reasonably big draw. You have eight cards to complete the straight as well as three Jacks and three Tens for a top pair. Therefore, you have a fourteen-card draw on the flop. In a head-to-head contest against, say, A-9, you are the favourite because your overall chances of improving are just over 50%; you will hit one of these cards nearly 31% of the time on the turn or the river cards. However, in many-handed pots, you should be careful if the dealer turns a Jack or a Ten on the subsequent rounds of betting, because these ranks may have completed the straight for one of the contestants.

(2) You are at the button holding 9♣-8♣. A solid player at the small blind raises with K♣-K♠. The raise is called by the big blind as well as two other contestants and consequently you decide to see the flop. The dealer flops 9♥-7♠-6♦ and the raiser bets $10. The other players discard their hands and it is your turn to act. You know now that the raiser must have a high pocket pair because a bet into such a flop is reckless, especially when there are four opponents waiting to act. The

small blind is asking a simple question: 'Have I got the best hand on the flop?' You have flopped a thirteen-card draw. Your overall chances of winning the pot are better than 45% and you will catch the right card on either the turn or the river just over 28% of the time. Therefore, your answer to the small blind's question must be a raise. The raise is a must for the following reasons:

(a) you may win the pot there and then if the bettor decides to retreat (unlikely);

(b) even if your raise is called, you will almost certainly get a free card on the turn, in which case you have saved a bet on the more expensive round of betting.

Sometimes you should continue your attack even when the turn card does not improve your hand, especially when the pot odds are bigger than the odds against improving your hand. If you don't hit the appropriate card by the river, then you can bet again against a good player but check to an amateur, who you know will not discard the big pair. You will not win the pot every time but, when you connect, you will gain very good returns on your investment. This is the secret of winning in limit games: play the odds correctly.

(3) If you flop an open-ended straight draw against an opponent who has flopped two pairs, your overall win-rate, in a two-handed pot, is only 33%. In this case your long-term net profit will be about $3 (for every $50 investment) if you call all the way to the river and your bet is called by your opponent every time you complete the straight. Since it is highly unlikely that your bet will be called every time you make the straight, your eight-card draw in this case is very marginal.

Generally, straight draws perform better in multi-handed pots. However, there are some flops in which the straight draws should be played cautiously, and sometimes the temptation to go for the draw must be resisted. The following examples are designed to point out these flops.

(4) The overall win-rate of the straight draw against trips is about 26% (not 32%) because even if the straight is completed on the turn it can still lose about 22% of the time on the river. It is therefore not advisable to play for the straight draw when there is a big pair on the board, because many players will see the flop with high cards.

(5) If the flop offers somebody a flush draw, the number of outs for the open-ended straight draw is reduced to six. Therefore, the overall win-rate of the straight draw will be about 25% (3:1 against).

(6) If the flop contains a big pair as well as a draw for the flush and the straight, the overall win-rate of the straight draw is diminished to about 17%. For example, if you play 6♠-5♠, J♥-8♥ and K♣-Q♦ against each other with a flop which consists of J♠-J♦-T♠, the respective hands will have the following win-rates:

6♠-5♠	26
J♥-8♥	57
K♣-Q♦	17

I would definitely discard my straight draw with a flop as dangerous as the one above.

(7) A gut-shot draw to the straight has only four outs. For example, you raise with A♠-K♦ and an opponent calls your raise with 4♥-3♥. The first three community cards are A♦-7♣-6♠. In this example your opponent has flopped a four-card draw (four Fives) to the straight. The overall win-rate of such a draw is 16%. In fact, your opponent's overall win-rate is about

18% (9:2 against) because a pair of Fours, Threes or even Three and Four may be dealt also on the turn and river. Consequently, gut-shot (some players call them middle-pin) draws are not profitable. They are, however, favourable if they support other draws, such as two overcards, because the overall win-rate of the hand will increase to 36% (about 9:5 against).

2.4 Flushes

If you hold suited cards, the flop will present you with a completed flush 0.83% of the time and a draw to the flush 10.9% of the time. The probability of completing the flush draw on the turn of either the fourth or fifth card is about 20% (4:1 against) and the overall probability if you go all the way from the flop to the river is 35% (9:5 against). The flop will also contain a card of the same suit as the one you are holding about 42% of the time, giving you a 4% chance of backdooring a flush (24:1 against).

The following examples illustrate the profit-producing capacity of most flush draws:

(1) A flush draw with two overcards has a better than even chance to win the pot against a flopped top pair. For example, when A♥-K♥ was played against T♠-7♠ with a flop consisting of 7♥-5♥-2♣, the recorded win-rates of the hands were:

A♥-K♥	54
T♠-7♠	46

The suited A-K has flopped a fifteen-card draw consisting of nine hearts as well as three Aces and three Kings. Whenever you flop such a good draw, you must play your hand very aggressively.

(2) When you flop second-best pair with a flush draw, you are again the favourite to win the pot because you have a fourteen-card draw. For example, a loose player raises the pot with A♣-A♠ and you decide to see the flop with K♥-T♥ when another contestant, holding 8♠-7♠, calls the raise. The dealer

turns the following three community cards, K♣-6♥-5♥. The recorded win-rates of the respective hands, at the end of a computer simulation of over 10,000 runs, were:

K♥-T♥	48.3
A♣-A♠	31.1
8♠-7♠	20.6

The measured win-rate of K♥-T♥ is slightly below its theoretical value (51.2%) because, even if you hit the Ten or the King on the turn, your opponents can outdraw you; a two-handed contest between the pair of Aces and the suited K-T with the same flop is evenly balanced because both hands have a 50% chance of winning the pot.

(3) If you flop the third-best pair with a flush draw, you are again the favourite to win the pot. For example, if A♣-5♣, K♠-9♠ and 8♥-7♥ are played against each other with a flop which consists of A♥-K♥-8♦, their win-rates will be:

A♣-5♣	36.6
K♠-9♠	13.0
8♥-7♥	50.4

(4) As you know, if on the flop you share top pair with another opponent but have a lower kicker, you are in trouble because there are only three possible outs to win the pot for you. However, if your top pair is supported by a flush draw, then you have a 45% chance of winning the pot.

The above examples illustrate the profit-generating capacity of flopped pairs supported by flush draws. Unfortunately the flop will furnish you with these very good draws just under 2% of the time. Therefore, you must play your hand fast and furiously whenever these favourable opportunities present themselves.

Flush draws supported by straight draws are also very good. The following examples demonstrate the winning capacity of these favourable draws.

(5) The flush draw supported by a straight draw is the odds-on favourite against a flopped two pairs. For example, J♥-T♥ has a win-rate of just over 50% in a two-handed pot against 9♣-8♣ when the flop is 9♥-8♦-2♥. In a three-handed pot against an opponent holding a pair of Aces and another with flopped two pairs, the suited J-T is still the clear favourite, boasting a win-rate of just over 50%.

(6) Even against flopped trips, the flush draw supported by a straight draw has a reasonable expectation. For example, J♦-T♦ will win 40% of the pots in a head-to-head contest against 9♣-9♥ when the dealer flops 9♦-8♥-2♦. You must, however, remember that a flush draw, not supported by a straight draw, has only seven outs against flopped trips, giving it a win-rate of about 28%. The draw is, therefore, not profitable in two-handed pots. In these situations the flush draw will generate positive returns only if there are more than two opponents in the pot. You must, therefore, be very cautious when a paired flop presents you with a flush draw. If the pair's rank is high, it is not wrong to refuse the draw to the flush.

Against a made straight the flush draw has an overall win-rate of 36%. Again, you will need at least two opponents in the pot to yield positive returns on your investment.

Chapter Ten
Pot-Limit Hold'em

To be on the winning side in pot-limit Hold'em you must choose your starting hands very carefully, taking position and the size of your chips into account, especially in raised pots. Moreover, to extract the full benefits of position, you need to have enough money in your chip-tray. Having a large chipstack will also enable you to harvest the fruits of implied odds, which are one of the important factors of winning in pot-limit games.

1. Starting cards

1.1 Unpaired starting cards

You should avoid calling with marginal hands, such as suited or otherwise J-T, T-9, 8-7 . . . etc, from early position. If you call and somebody in a later position raises the pot, count your losses and fold your cards. If you do not trash your cards in these situations, you will most likely find yourself playing for a draw when you are out of position; I can guarantee that you will spend most of your time convalescing in the 'Poker Hospital' if you continue to see the flop with suited/off-suited connectors from early position and, if you do so when there has been a pre-flop raise, you might as well book a permanent bed there. The only time a call with these cards is correct is when you are playing against passive opponents and you do not expect the pot to be raised, or if you are near or on the button and your pre-flop gamble does not cost more than 5% of your chips; you will flop a made hand such as split trips, two pairs or flush/straight about 5% of the time with connected cards.

Off-suited A-high and K-high cards, such as A-J, A-T, K-Q, K-J and K-T become marginal in pot-limit Hold'em. Therefore, I would be more inclined to gamble with such starting cards from late position. Even when suited, these hands can be trouble in raised pots, although I would perhaps call a raise with them if I had position on the raiser. You must appreciate, however, that it is no good having position relative to the raiser when you are out of position against the other callers. For example, when you are the big blind, resist the urge to gamble by flat calling a raise from the small blind, if other players are waiting to act after you. Either re-raise or fold.

Many players overrate suited A-T, K-Q, K-J . . . etc, especially when they flop the top pair. I remember the following pot. David, who is an inexperienced Hold'em player, was at the button with K♠-J♠. He raised the pot and got called by the small blind, who is a tight but experienced player, and two fairly loose passive players. The dealer flopped J♦-6♣-3♣ and the small blind bet the pot. The other two players called the bet and it was David's turn to act with his top pair supported by a King kicker. To my surprise, David called and raised the pot! The small blind as well as the other two players could not wait to go all-in. The next two communal cards were the 8♣ and the Q♦ respectively. At the showdown the small blind won the pot with his A♣-Q♣. The other two players had off-suited 5-4 and A-J! I will never understand why David got busy after the flop. When the small blind's flop bet was called by two other players, surely he should have realised that his top pair supported by the King kicker was not good enough? When the flop is full of rags, as in this example, and three players are fighting to win the pot, your top pair should be assigned to the garbage bin.

I do not usually raise from early position with A-K(s) or A-Q(s). Slow playing these premium cards in early position has proved to be much more profitable for the following reasons:

(1) Over 40% of the time I will flop either a top pair or better or a flush draw with two overcards. When the flop furnishes me with the top pair, or better, few of my opponents will believe that I have the hand I am representing because I did not elevate the pre-flop action. Moreover, when I flop the nut flush draw with two overcards, I fancy my chances against any number of players.

(2) I can re-raise anybody who dares me to do so. Again, I fancy my chances with A-K(s) in head-to-head contests.

In late position, however, I usually escalate the action with suited A-K, A-

Q and sometimes A-J or K-Q.

On the other hand, I would like to have good position when I call with suited A-T, A-9, A-8 . . . A-2. I might even raise with A-T or A-9 if only one opponent limped in before me. However, I would resist the urge to raise when more than two players have shown their readiness to gamble. I would also be very reluctant to call a raise with suited A-X from early position: late position must be reserved for these starting hands in raised pots.

1.2 Pairs

Pocket pairs are more profitable in pot-limit than in limit Hold'em because a concealed set is worth a lot of money, especially in raised pots. To put it another way, the potential of implied odds associated with pocket pairs, especially small ones, is enormous in pot-limit Hold'em.

I would want to see the flop with a pocket pair of Deuces, Threes . . . Nines, as cheaply as possible, although I may contemplate a pre-flop raise with a pair of Nines from late position. Since the probability of flopping trips or better, when you hold a pair, is about 12% (roughly 15:2 against), you should not invest more than 10% of your chipstack on the latter pocket pairs before the flop.

With higher-ranking pocket pairs, you should make your opponents pay more to see the flop and, if you were fortunate enough to be dealt a pair of Aces or Kings, you should re-raise anybody who tries to bully you. Don't forget, big pairs like short-handed pots.

A pocket pair of Queens needs special attention in pot-limit games. You must put in a pre-flop raise with this starting hand. When a solid player re-raises you, my advice is to count your losses and fold. You must put your opponent on either A-A or K-K, in which case you are 9:2 against, or A-K, in which case you are about 11:10 favourite. Since there are 12 ways your opponent can have A-A or K-K and another 16 ways he can be dealt A-K, you are effectively 16:12 against winning the pot. That is why I very rarely flat call a raise with my pocket pair of Queens. I either re-raise, in order to find out where I stand, or fold if I think that the raiser is the type of player who raises only with A-A, K-K, or A-K.

The following pot should demonstrate the cost of falling in love with pocket Queens. Chris, who is a very tight passive player, raised from the button and Shereen, who was the big blind, flat called the raise with her pocket Queens. The dealer turned J-4-3 after which Shereen bet half the pot. Chris raised and Shereen pondered for about a minute and then went all-in. Chris called Shereen's re-raise without any hesitation. At the showdown Shereen declared her Queens and Chris won the pot with pocket Kings. Shereen made two unforgivable mistakes. The first one was to call a raise from a very tight passive player before the flop. She should have put Chris on either Aces or Kings, even though he was about 99:1 against having them. In pot-limit, knowledge of your opponents' playing habits is, on many occasions, more important than understanding the statistics of starting hands. In any case, 99:1 against does not mean that Chris could not have Aces or Kings. It means that he will have them once in every hundred hands. It also means that a tight passive player has them when he raises before the flop. Shereen's second mistake was to call Chris's raise after the flop. She should have known that if her opponent was declaring that he could beat a pair of Jacks, her pocket Queens must be a big underdog.

2. Beyond the flop

After the flop you may have (1) a draw, (2) a made hand or (3) nothing.

2.1 Draw

Draws can be subdivided according to their number of outs.

2.1.1 3 to 5 outs

When two players flop top pair, the rank of each contestant's kicker plays a crucial part in determining the winner. For example, Player A has A-J and Player B decides to gamble with his suited A-7 when the flop is A-8-2. Player B is a big underdog (more than 14:1 against on a card-by-card basis) because he has only three outs (three Sevens) with which he may win the pot. Even if he gets lucky on the turn, the final size of the pot must be more than 29 times the flop bet and Player A must, therefore, have more than 13 times his flop bet. The only way Player B can make the final pot size that big is if he acts after his opponent and he is sure that Player A will call a raise when the fourth board card is a Seven. If these very harsh requirements are not met, Player B is playing in the losing zone of the implied odds. Bear in mind, although Player A will be about 13:2 against when his opponent gets the lucky turn card, he can still win the pot on the river with his six outs (three Eights and three Jacks). Therefore, you must fold your cards if you think that you have a kicker problem.

Nearly all the players I know will call a bet on the flop when they have the second- or even the third-best pair. The following example will show you when it is correct to undertake such risky gambles.

Example 1: Top pair against second-best pair

Let us assume that you are on the button with Q-8(s) and were allowed to see the flop, which was K-8-3, cheaply. Roy, who is just after the big blind, bets the pot and everybody else folds. Now it is your turn to act. Should you gamble against him?

Let us assume that Roy has flopped top pair. You have, therefore, five outs working in your favour, which makes you about 8:1 against on a card-by-card basis and 4:1 against if you go all the way. Since you are playing for the implied odds, you must not buy more than one card. Your gamble, however, will be very unprofitable in the following situations:

(1) Roy does not have more than seven times his initial bet resting in his tray.

(2) Roy will not call your bet or raise when the fourth board card is a Queen or an Eight.

(3) Roy's King is supported by a Queen, in which case your gamble will turn into a nightmare. I have seen many players lose their entire chipstacks because they undertook a punt with their second or third pair, which was supported by a card their opponents were likely to have. With a flop like K-8-3, I prefer to gamble with 8-7 rather than Q-8.

Example 2: Top pair against a gut-shot to the straight

Let us say the flop is A-9-3 and you have 5-4(s). A player representing a split pair of Aces bets and now it is your turn to act. Since you intend to buy only one card for your 10:1 against gamble (you can win the pot only with four Deuces), your adventure into the implied odds will be profitable if, and only if, your opponent has more than nine times the flop bet left in their chip-tray.

2.1.2 6 to 9 outs

Now you are likely to have a straight or a flush draw with no overcards. You must avoid head-to-head contests with such draws, especially when you are out of position. This warning applies particularly to flush draws. Against loose players, however, you can buy the turn card only. If you complete your flush draw, you should check on the turn and bet at the river. This way you may make a slight profit or just break even.

Straight draws, on the other hand, have better implied odds. If you have position on an opponent who bets the flop, you can call and put in a sub-pot raise. I have found this playing strategy to be very profitable because I may win the pot there and then, especially if the flop consists of two connected cards of medium rank. Thus, if the flop is K-7-8 and I have T-9, I am prepared to call and raise. Now I am relying on my image as a 'granite' player and hope that my opponent will fold his cards because I have declared that I have a better hand than his. If my raise is called, I am almost guaranteed a free card on the turn. I adopt a similar strategy when the flop is something like K-8-5 and I have 7-6 protected by good position; I can make these moves against my opponents because I know that they are more likely to have flopped a pair rather than two pairs or better. You must appreciate, however, that this strategy produces better results against passive players, especially those with lots of chips sleeping in their trays.

There are times when the straight draw loses its value. This happens when the concealment factor of the draw is missing. For example, you have J-6(s) and the flop is T-9-8. Now if the turn card is a Seven or a Queen, you will get called only if your opponent has a Jack-X or maybe K-J, in which case you may lose if the board at the showdown is something like Q-T-9-8-7. Naturally, I expect you to refuse the draw when the board is paired.

2.1.3 10 to 15 outs

Generally speaking, a fifteen-card draw will consist of a flush draw (9 outs) supported by an open-ended straight draw (6 outs) or a flush draw with two overcards.

Example 3: Fifteen-card draw against top pair

Player A: A♣-K♣ = 43%   Flop: A♥-8♥-7♦
Player B: T♥-9♥ = 57%

Example 4: Fifteen-card draw against two pairs

Player A: A♣-8♣ = 50%   Flop: A♥-8♥-7♦
Player B: T♥-9♥ = 50%

Example 5: Fifteen-card draw against trips

Player A: A♣-A♦ = 60%   Flop: A♥-8♥-7♦
Player B: T♥-9♥ = 40%

Player A is about 13:10 against in Example 3, evens in Example 4 and 6:4 favourite in Example 5. On the other hand, Player B is nearly 2:1 against on a card-by-card basis. Therefore, Player B can either flat call all the way to the river or escalate the action at the flop in Examples 3 and 4. His final decision must be influenced by the size of his chipstack as well as that of his opponent's, his position and the skill level of Player A.

When Player B has position, he should raise the flop bet with his fifteen-card draw. Player A's response should be as follows:

(1) If he has more than a full pot bet left in front of him, he should flat call the raise and bet the pot when the fourth card is a blank.

This course of action is mathematically better because, if he re-raises, Player B would be getting fantastic value with two cards to come. It is better to attack your opponent at the weakest point of his draw, which is on the turn of the last card.

(2) If he has less than a full pot bet left in his chip-tray, he should set himself all-in.

When Player B is out of position, he has several options, all of which can be costly. He could flat call all the way when he has lots of chips and go all-in with little chips. Alternatively, he could come out betting on the flop, hoping to be set all-in by one of his opponents. A check-raise is another alternative that I prefer with a medium-sized chipstack (about 13 times the flop bet).

Example 6: Flush draw with a gut-shot to the straight against top pair

Player A: A♣-Q♣ = 52%   Flop: A♥-8♥-6♦
Player B: T♥-9♥ = 48%

Player B has 12 outs (nine ♥s and three Sevens). He is 3:1 against on a card-by-card basis and 11:10 against with two cards to come; the three Sevens enhance his implied odds. Therefore, if he has less than ten times the flop bet, he should try to go all-in and, if he has more, he should flat call and hope that the fourth board card is a Seven, except the 7♥. If the turn card is a ♥, he can bet half the pot in order to lure his opponent into calling, or check and bet the pot at the river. In my experience the latter betting strategy is more profitable than the former one because your opponents would be more inclined to put you on a bluff since you did not bet your made flush at the turn. On the other hand, if Player B missed his draw at the turn, he should count his losses and fold his cards; he is 3:1 against with one card to come. Of course, Player A could also check on the turn, in which case Player B should be happy to receive the free card to the river.

2.2 Made hand

A made hand can be just a pair. In Hold'em, you and your opponents are more likely to flop a pair, than two pairs, trips . . . etc. Therefore, the way you handle your flopped pairs will have a significant effect on your hourly rate. That is why pot-limit Hold'em is not a game for passive players or those who do not appreciate the importance of position. The game is more suitable for aggressive players who place a lot of emphasis on the playing habits of their opponents and understand the effect of position on the value of their draws/hands.

I have given many examples in which the win-rates of most of the made hands you are likely to encounter were discussed thoroughly. Therefore, I do not feel that I should bore you with more of the same. Instead I will re-emphasise some important concepts in pot-limit games:

(1) Always attack your opponents at the weakest point of their draws. Generally speaking, that point is on the turn of the fifth board card. Sometimes you can afford to give your opponents a free card on the flop because the chances of being outdrawn in Hold'em are pretty small on a card-by-card basis. For example, you raise from the button with a pocket pair of Queens and the flop is Q♥-8♥-4♣. The player at the big blind bets $50 and it is your turn to act. Since you have top trips, you must put the big blind on one of the following hands:

(a) a draw to the flush with possibly one or two overcards or a flush as well as a straight draw;
(b) middle or low trips;
(c) bottom two pairs.

Now you must resist the urge to raise; flat call the bet, especially if your opponent has more than $150 waiting to join your money. Flat calling is better because you will save yourself $150 on the 17 out of 100 occasions the big blind completes his flush draw. Furthermore, if you set your opponent all-in on the flop, you will be giving him the opportunity to see two cards instead of just one, thereby practically doubling his chances to outdraw you. On the other hand, if the big blind has trips or two pairs, why do you want to give him the opportunity to fold his cards? Just give him the rope to hang himself and attack when the turn card is a blank. Now your opponent is drawing dead.

(2) You must not give a good player a free card if you can help it. For example, you have 7-6 and the flop is K-6-6. When an experienced player bets the pot, you should raise because if he has two pairs Kings and Sixes he will almost certainly check and fold if you bet on the turn, unless another King hits the board. Why give such an opponent a free card?

The following pot is another example of the cost of trying to get clever with experienced opponents. Mark raised with his pocket pair of Aces from the small blind and Victor called with a pocket pair of Sixes. The flop was Q-9-4. Mark checked and Victor made a sub-pot bet. Mark decided to slow play his big pair by flat calling the bet. Of course, alarm bells started ringing in Victor's ears. Mark checked again on the turn as did Victor. Then disaster struck on the turn of the fifth board card, which was the 6♥. Mark bet the pot and naturally Victor went all-in! Mark lost over £400 instead of winning about £50. He should have raised Victor's flop bet.

One final point about pairs. It is much better to flop a split pair than to have a pocket pair of the same rank. For example, against an opponent who has pocket Kings, it is better to have Q-J and flop a Jack rather than have J-J and flop T-8-2. In the latter case you have only two Jacks working for you, whereas in the former situation three Queens as well as the two Jacks are acting in your favour.

2.3 Nothing

Save your money for a better flop. It is as simple as that.

Part Four
Seven-Card Stud

Chapter Eleven
Seven-Card Stud

1. Introduction

The following five chapters present the reader with a scientifically developed playing strategy for Seven-Card Stud. Each chapter is dedicated to a specified group of starting hands, followed by a detailed analysis of their win-rates under the most common conditions encountered in the game.

Seven-Card Stud is a game that requires several skills. You need to know the playing habits of your opponents and the probability of ending up with the winning hand. But in order to be able to estimate the probability of having the winning hand, you must remember as many of the discarded cards as possible. Therefore, the three essential skills of the game, besides money, are knowledge of *people*, *probabilities* and good *memory*.

1.1 People

The game attracts loose passive and tight passive players. Furthermore, players who have just started playing poker are more likely to gamble at the Seven-Card Stud tables. Therefore, I find the game very profitable despite the fact that it is one of the most complicated, but interesting, forms of poker.

You will acquire the money of the weak opponents who will gamble with their small pairs, all the way to the showdown, against your premium cards. You will also enjoy the rewards of drawing against their big pairs, which they will defend come what may. However, you should resist the temptation of drawing against the tight aggressive opponents because they will not pay you when your draw is successful. The mathematical expectations of your draws against this sort of opponent are poor, especially in the pot-limit form of the game.

1.2 Probabilities

It is difficult to acquire a quick and fairly accurate estimate of the win-rate of your hand/draw in Seven-Card Stud for the following reasons.

(1) The number of seen/discarded cards at any stage of the game depends on how many players are contesting the pot.

(2) Each contestant has their board and hole cards. The win-rate of a draw, therefore, is not the same as the probability of completing it. For example, at the sixth street, with, say, 16 cards accounted for, you have a flush draw against your opponent's two pairs. You will complete your draw 25% ($9 \div (52 - 16) = 0.25$) of the time. However, your opponent will fill his house 11% ($4 \div (52 - 16) = 0.11$) of the time. Therefore, your win-rate is not 25% but 25% multiplied by the probability that your opponent will not fill his house. Hence, you will win 22% ($0.25 \times (1 - 0.11) = 0.22$) of the pots if you decide to see the seventh card. Against more than one opponent, you will have to take into account the other players' chances of winning the pot as well. However, on many occasions you do not know the exact strength of your opponents' hands because you cannot see their hole cards.

You can adopt the concept of *probability coefficient* (see Chapter Four) to acquire a quick rough estimate of your chances. In Omaha and Hold'em, the number of seen cards is known because the board cards are shared by every player. In Seven-Card Stud, however, the number of seen cards will depend on the number of players in the pot. Generally speaking, you can assume that the number of seen cards by:

(1) the fourth street is about 12 to 14;
(2) the fifth street is about 14 to 16;
(3) the sixth street is about 18 to 20.

You can, therefore, assume that the PC for the fourth and fifth streets is

2.5 and that for the sixth street is 3. Remember, these are numbers you use to estimate your chances of capturing one of your outs on the turn of the next card. For example, your flush draw, in the fifth street, will be completed in the sixth street $9 \times 2.5 = 22.5\%$ of the time. Similarly, your two pairs will catch one of its four cards $4 \times 2.5 = 10\%$ of the time on a card-by-card basis.

Alternatively, you could rely on your memory, after reading the various examples presented in the following chapters.

1.3 Implied odds

I must point out the potential of implied odds in the pot-limit form of the game. Consider what happens to the size of the pot, in a two-handed contest, as the betting progresses from the third to the seventh street, if one player bets the full size of the pot at every round of betting. On the third street the pot has three units. The pot increases to 9 units by the end of the second round of betting. Fifth street betting produces a pot containing 27 units. Finally, by the end of the sixth and seventh rounds of betting the pot has 81 and 243 units respectively. Therefore, the first bet of one unit, say, $5, can potentially win (1) 5 units after one round of betting, (2) 14 units with two rounds of betting to come, (3) 41 units by the end of the third round of betting and (4) 122 units at the end of the betting of the seventh street. You can imagine the size of the pots in three-handed contests!

Thus, you can buy one card on a 10:1 against shot at the fifth street because, if you capture the desired card in the sixth street, you will get at least 13:1 for your money by the end of the subsequent two rounds of betting. With three rounds of betting to come, you can take a 20:1 against gamble and win 41 units, provided you catch the miracle card on the next street.

The implied odds, in limit Stud games, enhance the value of your draws against your opponents because the size of the bet is doubled at the fifth, sixth and seventh streets. Therefore, you are sometimes entitled to gamble up to the fifth street. If you have not captured the desired card by the fifth street, you should release your cards.

Remember that good players, exposed strength and bad position reduce the value of your implied odds (see Chapter Two). Your hole cards can increase the potential benefits accrued by implied odds because they help to hide the strength of your hand. I will illustrate this point in the following chapters.

1.4 Memory

In Omaha and Hold'em, knowledge of your opponents' playing styles and the probability of ending up with the best hand are all you need to be a winning player. When you play Seven-Card Stud, however, you require a third skill. If you remember which cards were discarded, you can read your opponents' hands more accurately. Furthermore, if you combine your card reading skills with your ability to remember or roughly estimate the win-rate of your hand/draw under the prevailing circumstances, you should be able to manipulate your opponents and force them to make mistakes. If you can control your opponents in this manner, you must end up as a big winner in the game.

For example, you raise with a pair of Queens and a skilled player calls your raise with the 7♣. Now if two Sevens were among the discarded cards, you know your opponent is calling with one of the following hands:

(1) Three straightening cards: In this case you should pay attention to how many 8s, 9s, Ts, 4s and 5s are discarded.

(2) Three flushing cards: Now you should also count how many ♣ suited cards were discarded by the other players. If three or more cards of that suit were mucked by the other players, you may dismiss the possibility that your opponent has flushing cards.

(3) A hidden pair: Since your opponent did not re-raise your bet, you may assume that he has not got A-A or K-K. Bear in mind, however, that some players may choose to attack you with the latter cards during the later rounds of betting. You

> may also be able to eliminate some of the pairs by remembering the ranks of the discards. For example, if two Tens were discarded, then you can assume that (a) your opponent has not got a pair of Tens in the hole; (b) it is highly unlikely that he/she has straightening cards. Therefore, you can assume that you are waging war against flushing cards which may include either the A♣ and/or the K♣.

Personally, I cannot remember all the discarded cards during the play of a pot. But I make a point of remembering the discarded upcards on the third street and some of the subsequently dealt cards, including their suits, that are relevant to me and my opponents. I pay particular attention to the number of discarded Aces, Tens and Fives; as you must know by now, you can't make a straight without a Five or a Ten. I also found that reciting the discards silently, three at a time, helps me to remember more cards. You should try to find the way that suits you.

Reading your opponents' hands is, in the main, a process of logical elimination backed by the knowledge of their skill levels. Most of the time, the discarded/seen cards will enable you to rule out many hands which your opponents may want to represent. But your conclusions will be reliable only after taking into account your opponents' mastery of the game. The following hand, which was played in a pot-limit game, illustrates the importance of combining the three skills: people, probability and memory, during the play of a hand. Hole cards will be underlined throughout the rest of the book.

Alex (for Aces), showing the A♣, raised the bring-in bet. Ken (for Kings) called with the ?-? K♦ and Sev (for Sevens), having the 7♣-T♥-7♥, decided to gamble with his intermediate pair; both Ken and Sev were reasonably good players. The K♣, K♠ and the J♠ were among the discarded cards.

Ken received the case K♥, Sev captured the 7♠ and Alex got the 5♦ in the fourth street. Ken bet £20 and Sev, knowing that Ken did not have trips, flat called. Alex folded his hand because he knew that Sev must have three Sevens. At the fifth street Ken caught the J♥ and Sev got the 9♣. Ken bet £25 and Sev called again. Now the hands looked as follows:

Ken	?-?-K♦-K♥-J♥
Sev	7♣-T♥-7♥-7♠-9♣

Ken's sixth street card was the 2♦ while Sev received the T♦. Ken checked and Sev, armed with his full house, bet £100. Ken flat called and checked again after looking at his seventh card. Sev bet £200. Now Ken called the £200 bet and set himself all-in with another £240. At the showdown Ken won the pot with a full house of Jacks over Kings.

There are several lessons that should be learned from the aforementioned pot. Let me explain where Sev went wrong. When he captured the third Seven in the fourth street, greed got the better of him. It clouded his judgement. He thought he might get more money if he flat called Ken's bet at the fourth street. He should have known, however, that Ken put him on trips and would call his subsequent bets only when he could beat three Sevens. I will never understand why Sev offered Ken a free card in the fourth street. The second dreadful mistake committed by Sev was calling Ken's bet on card five. If Sev had paused just for a second, he would have realised that Ken's £25 bet was even more appalling than his flat call at the fourth street. By betting on card five, Ken was giving Sev a reason to abandon his trips; he should have checked and handed Sev a rope to hang himself with.

Sev's third mistake was to bet in the sixth street, after receiving the executioner's rope from his opponent. Of course, his last bet, £200, was the worst act of folly because Ken would call and set himself all-in, in the seventh street, only if he could beat full house of Sevens. After losing his money, Sev said to me: 'I did not think that Ken had a house because two Kings and a Jack were discarded.'

Sev's basic mistake was to allow the discards to persuade him to fall in love with the three Sevens. He ignored the fact that Ken, who was a fairly good player, would not bet in the fifth street armed with just two pairs. Sev did not utilise the other skills, people and probability, to his advantage. Now you know why I think that Seven-Card Stud is the most complicated poker game. The game requires a considerable amount of skill, yet it attracts weak passive players! Good Stud players have a licence to print money.

2. Starting cards

The most important decision you have to make when you play Seven-Card Stud is whether to fold your starting hand or call/raise the bring-in bet. If you cannot take the correct course of action on the third street, your chances of ending up as a winner are somewhat slim.

The number of three-card combinations that can be dealt from a 52-card deck is 22,100. It is, therefore, advisable to classify starting cards into the following groups:

(1) pairs;
(2) flushing cards;
(3) straightening cards;
(4) trips (wire-ups);
(5) others.

I performed computer simulations on three-card combinations which represented each group best. Each selected hand was played at least 10,000 times, against one to six opponents who were dealt random starting cards. The results were then analysed, using the break-even win-rate as the main criterion for deciding which three-card combinations were worthy of the investment.

I also played specific starting cards, selected from each group, against one or two opponents who were allocated a wide range of starting cards. Every player was given a blank card in each subsequent round of betting and the remaining cards were then dealt randomly with all contestants playing their hands to the seventh street. At the conclusion of each simulation, the win-rate of the selected hand, in the relevant street, was recorded. The results of the above simulations will be presented in a table similar to the one below.

Hand	Third street	Fourth street	Fifth street	Sixth street
Q♣-6♦-Q♥	64%	67% (4♠)	71% (9♦)	76% (2♣)
8♣-5♦-8♠	36%	33% (3♥)	29% (T♠)	24% (J♥)

***Table 1**: Win-rate of* Q♣-6♦-Q♥ *against* 8♣-5♦-8♠

Thus, the pair of Queens is 9 to 5 favourite at the beginning of the contest. In every subsequent street, I gave each hand a blank card, shown in brackets under the relevant street, after which the pot was played to the seventh street more than 10,000 times. For example, the pair of Queens was 2:1 favourite, in the fourth street, when they got the 4♠ while the pair of Eights received the 3♥. The fifth street cards were the 9♦ and the T♠ making the big pair 7:3 favourite at that street. By following this procedure, the win-rates of the pair of Queens, against the smaller pair, were determined fairly quickly at every stage of the contest.

The following chapters will be devoted to a comprehensive analysis of the results of the computer simulations performed on each of the above groups.

Chapter Twelve
Pairs

1. Third street

You will be dealt a pair about 17% of the time. By card seven your dealt pair will improve about 65% of the time to one of the hands shown in the table below.

Final hand	**Probability**
Four of a kind	0.5%
Full house	7.50%
Three of a kind	10%
Two pairs	42%
Straight	about 4%
Flush	about 3%

***Table 1**: The probability of improvement of a dealt pair by card seven*

I must emphasise that the figures in the above table do not represent the winning probability of the dealt pair. For example, if your starting hand consists of a pair of Jacks, you will end up with two pairs 42% of the time. But two pairs of Jacks may be losing to better hands held by other players.

The following factors will influence the winning potential of a pair:

(1) The rank of the pair and its kicker.

(2) The number of cards needed to improve your hand which have been discarded by the other players.

(3) Whether the pair is split or concealed. A pair in the hole has tremendous implied odds.

(4) Your position in the table. If you are in late position, the

probability of seeing the fourth street cheaply is high. This is particularly important when your pair is of a low rank.

1.1 The rank

Pairs can be classified into high and others. Tens, Jacks, Queens, Kings and Aces are premium pairs, although a pair of Tens may be thought of as a borderline case.

In limit games you must reduce the number of opponents contending the pot, against your premium pair, by raising on card three whenever it is possible to do so. You should not limp in with your pair, allowing others to see the fourth street cheaply. There are, however, exceptions to the above tactic, which are dictated by the rank of your pair and your position. If you are in early to middle position and there are at least two other players behind you, whose upcards are of higher denomination than your pair, you are obliged to flat call the bring-in bet. For example, you have a pair of Jacks and are second to act after the bring-in bet, but there are players with a King and an Ace waiting to act. In this situation you must flat call because you do not want to be re-raised.

A popular move by players in late position, showing high-ranking cards, is to try to steal the ante. They raise the bring-in bet and, if they do not succeed, they check on the next round of betting. Let us say that you were dealt a pair of split Tens and a player, showing an Ace, raised. If you have position on the raiser, you must bet in the fourth street when the pot is checked to you. If the raiser has to act after you, you can still bet on card four when he receives a blank card. If he flat calls, you may put him on a small pair with an Ace kicker or, maybe, a flush draw. If he, on the other hand, raises your bet on the fourth street, you may assume that he has a bigger pair than yours. You must subsequently discard your pair of Tens.

If your pair is concealed, you must not go beyond the fifth street if you think you are up against a higher pair. On a card-by-card basis, you will capture the 'mystery' card about 5% of the time (19:1 against) and you are 10:1 against having trips by the fifth street, assuming that at least 12 cards are accounted for.

Thus, whenever possible, raise with your premium pair. But you must use discretion when you do not have the top pair. I would be very reluctant to call a double raise if I thought that I held the second-best pair. Generally speaking, the value of your premium pair increases when two cards of the same higher rank are held by other opponents. An example of this would be if you held a pair of Jacks and there are a couple of Aces on the board of two different players.

When you have Aces, whether split or hidden, you must raise from any position. A big pair plays best in two-handed pots and its winning potential diminishes in multi-handed contests.

With the other pairs, Nines to Deuces, the rank of the kicker becomes very important. As you will see later, these pairs perform best with the support of an Ace or a King; the King kicker is strong only if the highest card on your opponents' boards is of a lower denomination. On a card-by-card basis, your hand will improve about 12% of the time (7:1 against) and you will have trips or two pairs Aces, or Kings, about 23% of the time (7:2 against) by the fifth street. If, however, one of your pair cards is among the discards, you should trash your hand unless your Ace or King kickers are live.

When you hold a small pair and one of your opponents raised on card three, call only when your kicker has a higher rank than that of the raiser's upcard.

In pot-limit games you should basically adopt a similar playing strategy to the one described above when you are dealt a premium pair. However, you must not call a raise if you think the raiser has a higher pair than yours. If you raise and get re-raised by somebody showing a rag, but with a large chipstack, do not hesitate to fold; the pot has cost you a little bit, why commit the rest of your money? If the re-raiser, however, has one pot-sized bet or less left in front of him, you may be more inclined to call because you are getting 2:1 for your money and you may be slightly better than 2:1 against winning the pot.

When you have a split pair of Aces and a player showing a King raises the pot, you must re-raise. Why give your opponent a free passage to the fourth street? Your rival will call your next bet only when you have been outdrawn. If your pair is concealed, you can flat call if you think that the pot will be two-handed and raise/check-raise in the fourth street.

Other pairs, Deuces to Nines, should be played as cheaply as possible until you make trips. I would take a raise with a small pair in the hole, but I would not go beyond the fourth street if I had not caught the mystery card by then.

1.2 Kickers (sidecards)

The kicker has a significant effect on the overall performance of most small pairs. The win-rates of Aces and Kings, however, are independent of their sidecards, although the latter pair produces its best results with an Ace as its sidecard and gives a good account of itself when supported by a Nine, Ten, Jack or Queen because of the possibility of making straights.

Queens perform best when supported by an Ace, but their winning potential is still good even when supported by low denomination kickers. Again, their second-best performance is produced with the 9, T, J and K kickers, due to the ability of these cards to make straights.

Jacks, Tens and Nines perform best with an Ace kicker. Again, these pairs produce their second-best results when supported by kickers of adjacent but higher ranks because of their straight-making potential.

Sixes, Sevens and Eights need to be supported by either (1) Ace, King or a Queen or (2) straightening kickers. Thus, the win-rates of 6-6-8, 6-6-9, 6-6-T and 6-6-J are nearly the same. Similar results were produced by 7-7 and 8-8. All the above pairs produced their best results when an Ace was their comrade.

Pairs of Fives, Fours, Threes and Deuces perform best when supported by an Ace or a King. They also like the effect of straight-forming kickers on their win-rates. For example, 5-5-6 yields slightly better results than 5-5-T and performs as well as 5-5-J. Similarly, 4-4-5 is nearly as good as 4-4-J. Deuces should be played with an Ace or a King.

If two of the cards in your starting hand are suited, the win-rate of the hand increases by about 6%. For example, in a four-handed simulation, A♠-2♣-2♦ had a win-rate of 32.5%, whereas A♣-2♣-2♦ registered a win-rate of 34.5%. Although small, the improvement in the win-rate gives an added advantage.

In pot-limit Stud, the skill levels of your opponents and the size of their chipstacks are as important as the rank of your pairs' sidecards! Weak opponents will make you happy and strong players will make you work very hard.

1.3 Summary

(1) All the pairs prefer an Ace as their companion.

(2) The performance of Aces is independent of the rank of their sidecard.

(3) Kings and Queens produce their second-best results with straight-forming kickers.

(4) Jacks, Tens and Nines are slightly more dependent on the denominations of their kickers. Again, the latter pairs prefer companions with straight-forming potentials.

(5) The remaining pairs should preferably be played with A, K, or Q. Pairs with kickers whose denominations are higher by one or two ranks are marginal and should be considered suitable only if the required cards, including the remaining cards of that pair, are live.

(6) Having two suited cards with your pair improves your chances of winning.

2. Fourth street and beyond

This section will deal with the win-rates of selected pairs in two- and three-handed contests with other pairs. First, let us look at a number of two-handed encounters.

2.1 Two-handed pots

Let us say you were dealt a pair of Kings or Queens and your opponent challenges you with a smaller pair. You are clearly the favourite in this situation. Your win-rate will depend on the following factors:

(1) the rank of your opponent's kicker relative to your pair;

(2) how many of your opponent's pair/kicker cards and yours have been discarded;

(3) whether your opponent's hand has the potential of making a straight or a flush on the later streets.

Now let us look at some of the more common situations you will come across when you play Seven-Card Stud. First, consider the standard case where your opponent's hand consists of a lower pair. Furthermore, your rival's kicker is of a lower denomination than your pair. The results of a number of simulations are presented below. The listed win-rates, under the streets, are based on the assumption that none of the contestants has improved his hand by that round of betting and thereafter every player goes as far as the showdown.

Hand	Third street	Fourth street	Fifth street	Sixth street
Q♣-Q♦-6♥	64	67	71	76
8♣-8♦-5♠	36	33	29	24

The small pair is 9:5 against in the third street. Its fortunes decline as the contest progresses to the higher streets. Thus, the small pair is 2:1 against at the fourth street, 7:3 against on card five and 3:1 against on the turn of the river card.

The next set of results details the prospects of a pair of Queens against a pair of Aces.

Hand	Third street	Fourth street	Fifth street	Sixth street
A♦-2♠-A♥	66.5	67.5	71	76
Q♣-5♠-Q♦	33.5	32.3	29	24

The pair of Aces starts the contest as the 2:1 favourite, but its win-rates at the later rounds of betting are the same as those of the Queens in the previous table.

Table 2 shows the effect of the number of discarded kickers of the big pair (A-A) on its performance against the smaller pair (Q-Q), assuming all the Queens' cards are live.

Hand	Discarded kickers	Third street	Fourth street	Fifth street	Sixth street
A-A	0	66.5	67.5	71	76
	1	64	66	69	74.5
	2	61	64	67	73
	3	58	62	64.5	71.5
A♣ discarded		62	65	67.5	73.5

***Table 2**: Effect of A-A discarded kickers on its performance against Q-Q*

The data in the above table reveal that the big pair's prospects are reduced by about 3% for every discarded kicker. On the other hand, when one of the remaining two Aces is discarded, the big pair's win-rate declines by about 5%. Effectively two discarded kickers are equivalent to having one Ace missing.

The performance of the small pair when one of its pair cards has been discarded is presented below.

Hand	Third street	Fourth street	Fifth street	Sixth street
A♦-2♠-A♥	71	72	74	77
Q♣-5♠-Q♦ (Q♥ discarded)	29	28	26	23

It is clear that the lower pair will suffer more if one of its remaining two cards has been discarded. It endures a decline of about 13% in its fortunes while the win-rate of the high pair decreases by about 4%. For example, the win-rate of the pair of Queens is reduced from 32% to 28% in the fourth street. Furthermore, the win-rate of the 'little' challenger decreases by about 6% for every discarded kicker. Thus, the smaller pair is more sensitive to discards than the bigger pair.

The following results present the prospects of the smaller pair supported by three flushing/straightening cards; the low pair is still carrying a low kicker unless otherwise stated.

Hand	Fourth street	Fifth street	Sixth street
High pair	59	65	76
Low pair + Three to the flush	41	35	24

Hand	Fourth street	Fifth street	Sixth street
High pair	51.5	62.5	76
Low pair + Three to the flush + Three to the straight	48.5	37.5	24

The small pair with three flushing and/or three straightening cards is 6:4 against or nearly evens at the fourth street. But it is always 3:1 against in the sixth street, if it has not captured an improving card in the previous rounds.

When the small pair's kicker is of a higher rank than that of the big pair, its win-rate increases by about 15% in the fourth and fifth streets.

Hand	Fourth street	Fifth street	Sixth street
K♥-2♣-K♦	61	66.2	74
A♠-7♣-7♦	39	33.8	26

Thus, the winning potential of the small pair is enhanced by the Ace kicker; it is now 6:4 against in the fourth street and 2:1 against in the fifth street. Moreover, if one of the big pair's ranks is among the discards, the smaller pair becomes about 7:5 against in the fourth street, 8:5 against by card five and 7:3 against by the sixth street.

Hand	Third street	Fourth street	Fifth street	Sixth street
K♥-2♣-K♦ (K♠ discarded)	52	57	62	71
A♠-7♣-7♦	48	43	38	29

It should be noted that the win-rate of the big pair decreases significantly in multi-handed pots. For example, a pair of Aces will win 46% of the pots in three-handed contests with smaller pairs as shown below.

Hand	Third street	Fourth street	Fifth street	Sixth street
A♣-2♦-A♥	46	48	55	59
J♣-8♠-J♠	30	29	24	22
4♠-7♥-4♦	24	23	21	19

All the above results clearly show that it is unprofitable to go all the way to the river card with a small pair. It also leads one to the following logical conclusion: big pairs like A-A, K-K and maybe Q-Q should, generally, be played fast and furious, preferably against one opponent. This conclusion is certainly correct in limit games where the amount of money you can win/lose is restricted by the limit bets. However, in a pot-limit game this may not be the case. You may have to shovel all your chips by the end of the deal. Since the size of your chipstack varies from hand-to-hand or even from day-to-day, you may find that these big pairs can cost a lot of money. For example, you may earn £100 on each of the nine times you are supposed to win the pot but lose £200 on each of the five pots your rival is entitled to.

In pot-limit, big pairs usually win small pots but can cost their holder a lot of money. It is best to vary the way you play them. Sometimes limp in with them and attack the pot in the fourth street when the size of the bet is larger than that in the third street. At other times attack the pot in third street. But whatever course of action you decide to take, try to limit the amount of money you invest in them unless your hand improves by card five.

Next, let us look at the situations described above in more detail. First, I will discuss the probability of making trips/two pairs by the smaller pair and its effect on the mathematical expectations of the little contender. Then similar analyses of small pairs, with Ace kickers or three flushing cards contesting pots with bigger pairs will finally be presented. Face-down cards (hole cards) will be underlined throughout the following analyses.

Example 1: The % win-rate of big pair against small pair with a low kicker

Hand	Third street	Fourth street	Fifth street	Sixth street
<u>Q♣-6♥</u>-Q♦	64	67	71	76
<u>8♣-5♠</u>-8♦	36	33	29	24

Let us go back to the contest between a pair of Queens and a pair of Eights whose kicker is of a lower rank than that of the Queen. As you know, the small pair is 9:5 against in the third street. Its fortunes decline as the contest progresses to the higher streets. Thus, the smaller pair becomes 2:1 against at the fourth street, 7:3 against at card five and 3:1 against on the turn of the river card. You love pot-limit players who gamble with their small pairs to the river. They hate their money because they are getting one to one for their money with odds of, at best, just under 2:1 against.

The probability of improvement of each hand, on a card-by-card basis, will be discussed next.

2.1.1 Fourth street

Assume that you raised on third street when the dealer gave you <u>Q♣-6♥</u>-Q♦. Only John, holding <u>8♣-5♠</u>-8♦, calls your bet. Let us also assume that none of the seen discards included the cards needed by you and your rival. Each one of you will hit trips or two pairs 4% and 6% of the time on the turn of the fourth card. That means that out of every

100 hands only John will improve to trips or two pairs about 10% of the time (9:1 against) on the fourth street. If both of you pair your door cards, John will be about 7:2 against; I am assuming he is sensible and would not contemplate such a gamble, especially in a pot-limit game.

Let us study your opponent's opportunities to make money if he is the only player who gets the miracle cards on the fourth street (21:1 against).

Player	**Hand**	**% win-rate**
You (pair)	Q♣-6♥-Q♦-4♠	11.2
John (trips)	8♣-5♠-8♦-8♥	88.8

When the dealer pairs John's first upcard, you should give up the fight on most occasions because your big pair is 8:1 against. The exceptions to this rule are twofold:

(1) John may be the type of opponent who gambles with three flushing/straightening cards against a big pair.

(2) The discards may suggest otherwise—for instance, two Eights were discarded.

Furthermore, only John will have two pairs about 6% of the time. But he will lose 2.5 out of the 6 times in a hundred the dealer gives him, say, the 5♥ because you can still win about 45% of pots if you decide to gamble against his two pairs ($6 \times 0.55 \cong 3.5$)

Player	**Hand**	**% win-rate**
You (pair)	Q♣-6♥-Q♦-4♠	45
John (two pairs)	8♣-5♠-8♦-5♥	55

Thus, if John's hand is the only one which improves on the fourth street, he should expect to win about 7.5% (3.5 + 4) of the pots (≅12:1 against).

2.1.2 Fifth street

If your opponent loves his hand and decides to see the fifth card with you, then both of you will make trips or two pairs about 9% and 20% of the time respectively. Therefore, John will be the only player with trips about 8% of the time (13:2 against) in the fifth street; you will be worse than 12:1 against when he captures the third Eight.

Player	**Hand**	**% win-rate**
You (pair)	Q♣-6♥-Q♦-4♠-9♦	7.5
John (trips)	8♣-5♠-8♦-3♥-8♥	92.5

He will also make two pairs, while you will receive blanks, 13% of the time by the fifth street. But since you will win 42% of the pots when you decide to gamble against his two pairs, he will win 7.5 ($13 \times 0.58 \cong 7.5$) out of the 13 pots.

Player	**Hand**	**% win-rate**
You (pair)	Q♣-6♥-Q♦-4♠-9♦	42
John (two pairs)	8♣-5♠-8♦-3♥-3♣	58

Therefore, John will win about 15% of the pots (11:2 against), when only his hand receives improving cards by the fifth street.

In limit games the mathematical expectations of the smaller pair are not good enough despite the larger pot odds the caller is getting. Many players think that going as far as the fifth street is justified because it will cost them two minimum bets only. However, a simple mathematical analysis of the situation suggests that John's adventure will cost him even when you decide to gamble against his trip Eights. Let us look at the figures again. In every 100 pots, only John's hand will improve 21 times by the fifth street. But he will lose at least 6 out of the 21 pots in which he makes either two pairs or trips. Therefore, out of every 100 times he gives you a spin, he will win about 120 minimum bets (15 wins × 8 bets = 120 bets) and lose more than 194 ((6 losses × 6 bets) + (79 losses × 2 bets) = 194 bets). The figures speak for themselves. John will lose the equivalent of 0.74 of a minimum bet every time he gambles to the fifth street.

As regards pot-limit poker, the above analysis proves the futility of gambling with small pairs in pot-limit Seven-Card Stud. The mathematical expectations of the small pair are very poor. The best way to play a small pair with a bad kicker against a higher pair is when your pair is in the hole. Now if your opponent has 25 times as many chips as the value of the bet on third street you must go for it, especially if you know that your opponent will not trash his big pair.

The following hand, which was played in the £100 game at the Victoria Casino in London, will illustrate the potential of hidden pairs against bad players; the game was a 9-handed one in which every player anted £1.

Mike, who is a loose player, had £1,500 in front of him. He was dealt A♣-J♦-A♥. Having the high card, he started the pot by betting £10. Kevin, who is a good but moderately tight player, called the bet with K♥-K♠-6♣; he had £1,000 worth of chips stacked in front of him. The dealer dealt the 7♠ to Mike and the K♦ to Kevin. Mike bet £30 and Kevin called and raised £90.The raise was called by Mike! The dealer then gave the J♠ to Mike and the T♣ to Kevin. Now Mike had two pairs Aces and Jacks. He was living in a blessed state of oblivion; he did not realise that he was 9:2 against if Kevin had a set of Kings. Mike bet £270 and Kevin went all-in. They both hit blanks on the next two cards and Kevin celebrated a very nice pot.

Mike made two crucial mistakes in this pot. First, he did not worry about Kevin's hand. All he could think of was his two Aces. I bet he said to himself, 'I have got two Aces glued to my palms and I'm going to close my eyes and allow my hands to do the talking.' This is what I call a state of 'OBLIVION'. Second, he should have realised that Kevin knew he was challenging two Aces. There was no way Kevin would re-raise in the fourth street, thereby placing all of his £1,000 at jeopardy, unless he could beat Aces-up. On the other hand, Kevin knew that if he struck gold on the fourth street, Mike would not trash his big pair.

The moral of the story is: if you have a small pair in the hole, call for one card only. If you don't make trips by the fourth street, release your hand, because you do not have the appropriate odds unless you and your opponent have money worth at least 30 times the next bet.

Do not get involved in a raised pot if one of your pair cards is among the discards. However, I would buy one card to see the fourth street if the pot is not raised. When I capture the last card of my pair, I am going to get more than 40:1 for my money because many players, who are unfortunate enough to pair their high hole cards, will give me the needed action. On one occasion I was last one to act when the dealer gave me 8-7-8; one of the remaining Eights was discarded by another player. My fourth card was the last Eight in the deck while another player paired the Ace he had in the hole. To cut a long story short, I was handsomely rewarded! At the showdown my opponent said, 'I did not put you on trips because I thought you were aware of the discards.' He did not realise that it cost me only the bring-in bet to call on third street, but because one of the Eights was discarded, I am likely to get more than 40 times that amount when my door card is paired.

I hope that by now you have understood the following very important concept in pot-limit. Most of the time you are going for the implied odds and, therefore, the absolute size of the bet you call is not the important factor. What is important is the relative size of the bet in relation to (1) the money you and your opponent have and (2) the probability of capturing the winning card in the next round of betting.

Example 2: Small two pairs against a big pair

This example looks at the prospects of the big pair when the smaller pair makes two pairs at the fourth, fifth and sixth streets. Consider the following scenario. The dealer gives you Q♣-6♥-Q♦ in a 9-handed game. You raise and Cliff, with 8♣-5♠-8♦, calls together with one player showing the A♥ and another player with an irrelevant upcard. On the fourth street Cliff captures the 5♥, you get the 4♠ and the other players hit blank cards. The player with the A♥ checks. You bet, and the other two players fold their hands when Cliff calls and raises your bet. Now you are facing the most difficult situation in Seven-Card Stud. You are at the fourth street facing a raise from a player showing 8♦-5♥.

My response in this case would be to try to guess the relevance of the 5♥ to his hole cards. Cliff could have one of the following two-card combinations in the hole:

(1) A *pair of Aces or Kings* in which case he will be 2:1 favourite. Since one Ace was discarded, there are only three Aces left in

the deck and consequently there are only three combinations of A-A and six combinations of K-K which could have been dealt as Cliff's hole cards (see the Appendix). I would discount this possibility because he did not re-raise in the third street.

(2) 7-*6* to give him an eight-card draw to the straight and a better than an even chance of winning the pot if he goes all the way to the river. Since you have the 6♥, there are only twelve two-card combinations of 7-6 (three Sixes × four Sevens).

(3) *8-5* to give him two pairs, in which case he is 11:9 favourite. There are 9 possible combinations of 8-5 (three Fives × three Eights).

(4) *Three Eights or Fives,* in which case he is 8:1 favourite and you might as well whistle in the wind. There are six two-card combinations that can make this disaster real. However, since most players will not raise on card four with such a holding, in a head-to-head contest, I would discount this possibility.

Therefore, out of the 21 probable two-card combinations that Cliff is likely to have, you are about 5:4 against. As a result of the above analysis I would be inclined to get involved. I would, however, resist the temptation of a gamble if I thought that Cliff was the type of player who likes to slow play a pair of Aces or Kings in the hole.

If you decide to take a shot at the pot, your subsequent actions should be governed by whether you think Cliff has two pairs or an open-ended straight draw. The case of straight draws against pairs will be dealt with in the chapter related to straights. Let us consider your options if you think that Cliff has Eights and Fives.

Player	**Hand**	**% win-rate**
You	Q♣-6♥-Q♦-4♠	45
Cliff	8♣-5♠-8♦-5♥	55

The above simulation reveals that Cliff's win-rate is 55% when he has small two pairs in the fourth street. Even if the dealer does not improve your hand by the fifth card, his small two pairs will win 58% of the pots and, if you do not hit the appropriate card in the sixth street, Cliff's win-rate will be 70%.

Thus, assuming that both contestants' cards are live, your fortunes will decline as follows:

Fourth street till end of deal	11:9 against
Fifth street till end of deal	7:5 against
Sixth street till end of deal	7:3 against

Now let us look at the effect of the discards on your winning potential, assuming that your fifth and sixth cards are the 9♣ and the 2♣ respectively. The results are listed in the table shown below.

Hand	Discards	Fourth street	Fifth street	Sixth street
(1) Q♣-6♥-Q♦-4♠	0	45	42 (9♣)	30.5 (2♣)
(2)	Q♥	41	39	30.5
(3)	Q♥+6♣	37	36.7	29.2
(4)	6♣+4♥	38	36.7	28.8
(5)	Q♥+Q♠	36.5	36	29
(6)	6♣+4♥+9♦	35.5	33.5	27
(7)	8♠	49	47	32
(8)	8♠+Q♥	45	44	30
(9)	8♠+5♦	54	47	38

Table 3: *Effect of discards on the % win-rate of a big pair against small two pairs* (8♣-5♠-8♦-5♥)

The results of the computer simulations reveal that:

(1) the Queens' performance is at its worst with three discarded kickers (Table 3, hand 6) or two Queens (hand 5);

(2) the Queens are the favourite when two (hand 9) and nearly evens when one (hand 7) of the small two pairs' cards are missing.

Now let us analyse your prospects on the next three rounds of betting, assuming that Cliff has made two pairs on each of the following betting rounds.

2.1.3 Fourth street

Allowing for Cliff's chances of filling his house, your prospects on a card-by-card basis are roughly 4:1 against by the fifth street.

In pot-limit, you are playing for the implied odds when you gamble under the above conditions. You are, therefore, entitled to re-raise him if the size of his/your chipstack is less than four times his raise. By doing so you may win the pot there and then. Even if Cliff decides to take you on, your re-raise is not that bad because you are getting about 5 to 4 for your money on a 11:9 against gamble.

If both of you have more than five times the fourth-street bet, your options are restricted because (1) you are out of position relative to your opponent who should fire a full pot bet whenever you do not pair your board in the fifth and sixth streets; and (2) if you decide to re-raise Cliff, you will be committing all your money on a draw which has negative and/or marginal mathematical expectations. It is more advisable to give up the pot. If Cliff bets the pot on the next two rounds of betting, your implied odds will generate profit only if he has more than 15 times his fourth street bet. Furthermore, Cliff may not call your bet when you pair one of your upcards because he will be at least 5:1 the underdog, as shown below.

Player	Hand	% win-rate
You (two pairs)	Q♣-6♥-Q♦-4♠-4♣	83
Cliff (two pairs)	8♣-5♠-8♦-5♥-J♥	17
You (trips)	Q♣-6♥-Q♦-4♠-Q♥	88
Cliff (two pairs)	8♣-5♠-8♦-5♥-J♥	12

An important criterion for successful gambles based on implied odds is concealment of strength. Thus, if you pair one of your upcards (Q or 4) on card five, Cliff should trash his cards immediately. The best card for your hand is the one that pairs your kicker in the hole; the odds against catching one of the remaining three Sixes are about 12:1 against on a card-by-card basis.

On the other hand, if Cliff is the type of player who (1) would check all the way to the river when you call his raise or (2) would call your bet when the dealer pairs your board, then you should buy the fifth card.

I do not recommend relying on two pairs when you decide to challenge a big pair with a small pair supported by a low kicker. You will never know whether you have the winning hand because you cannot see your opponent's hole card. I once saw a hand contested between two good players, each of whom had about $600 in front of him. Player B made two small pairs in the fourth street and bet $10. Player A, holding only two Aces, called and raised $30. Player B had to fold. At best he was 11:9 favourite but he could be 13:2 the underdog if A had Aces-up. Since he had invested only $10, he correctly reasoned that risking all his stack to defend the $10 would be foolish.

If you happen to make small two pairs on the fourth street, by pairing your hole card, you should raise anyone who bets, for the following reasons:

(1) you will get rid of opponents holding marginal hands, thereby reducing the number of players contesting the pot (the fewer opponents you play small two pairs against, the better are your chances of winning the pot);

(2) you will more likely than not get a free card on the next round of betting because you do not have the high board cards, unless you make a full house.

In a limit game it is going to cost you five minimum bets (one minimum bet in the fourth street and two maximum bets in the subsequent rounds of betting) to see the river card. Since (1) you are 11:9 against on card four and not worse than 5:2 against in the sixth street (see Table 3) and (2) the pot odds in a raised pot, which was multi-handed at the third street, are usually better than 4:1, you must call all the way. Even in multi-handed unraised pots, the caller is usually getting at least 4:1 for his money, on a card-by-card basis, up to the fifth street. If Cliff pairs one of his first two upcards, or has four flushing/straightening cards by the sixth street, give up the fight.

2.1.4 Fifth street

Assume that Cliff was dealt the 3♥ and you got the 4♠ in the fourth street. You bet the pot and only Cliff calls. He then makes his two pairs in the fifth street and you hit a blank card such as the 9♣. Now the hands look as follows:

Player	Hand	% win-rate
Cliff	8♣-5♠-8♦-3♥-3♦	58
You	Q♣-6♥-Q♦-4♠-9♣	42

If playing pot-limit, when Cliff bets, say, $30, the size of his remaining chipstack should influence your subsequent course of action. If you think that he will bet the pot on the sixth street when you hit a blank card like the 2♣, it will cost you $120 to see the river card. Bearing in mind that your win-rate is about 42%, you must set yourself all-in when you have less than 2.5 times his $30 bet. If both of you have between $100 and $70, you should consider trashing your cards. For example, if you have $100, you will lose $5,800 (58 × $100), and win $5,460 ((his $100 + $30 already in the pot) × 42), every 100 times you commit such a folly. If both of you have more than $200, you should put in a sub-pot raise. By doing so, you would accomplish one of two things. Cliff may decide to release his cards, in which case you would win the pot. Or, he may decide to call your raise with the intention of checking in the sixth street. Now, when the dealer pairs your hole sidecard (12:1 against), or one of your board cards (20% of the time), you can bet the pot again. If, on the other hand, you do not catch an improving card in the sixth street, you can check the pot and get a free card when Cliff hands the initiative to you. This type of play does not cost you any more because you were going to call Cliff's sixth-street bet anyway.

In a limit game you should raise Cliff's fifth-street bet. Again, he may call (very likely) and check in the next round of betting. Note that your raise would not increase the cost of seeing the river card, but, you would have gained an extra bet when you improve in the sixth or the seventh streets.

2.1.5 Sixth street

When only Cliff improves in the sixth street, your win-rate is about 29%. Therefore, if you decide to buy the river card you will make a profit on your gamble if he has more than half the sixth-street bet left in front of him.

If you make your hand, you must bet. I just do not understand those players who call when they are drawing to a hand and do not bet when their draw is completed, especially after the seventh card. You are forfeiting the implied odds by just calling and checking. If this is your intended course of action, you should not call the bet because on most occasions it is the implied odds that will make the draw profitable.

Throughout the foregoing analysis I was assuming that Cliff's cards were live. If one or two of his paired cards were discarded (Table 3, hands 7 and 9), then you must raise when he bets and bet if he checks, at any stage of the contest.

Example 3: High pair against a low pair with an Ace kicker

Let us assume that you were dealt a pair of Sevens with an Ace kicker. Kate, showing the K♦, raises the bring-in bet declaring that she has a pair of Kings. You decide to call and all the other players fold their cards. Furthermore, let us assume that both of you have live cards. Now let us look at your prospects.

Hand	Third street	Fourth street	Fifth street	Sixth street
K♥-2♣-K♦	57	61 (T♠)	66.2	74
A♠-7♣-7♦	43	39 (J♥)	33.8	26

Assuming neither you nor your opponent improves up to the sixth street, you are 7:5 the underdog in the third street. Furthermore, your fortunes get worse as you proceed down to the sixth street. You are 6:4 against in the fourth street, 2:1 against in the fifth street and 3:1 the underdog by card six.

Now let us look at your chances in more detail; I will approximate all the figures to the nearest number to make the calculations easier to follow. You need to hit one of five cards, two Sevens and three Aces, to be practically sure of winning the pot. The approximate probability of hitting one of the latter five cards is as follows:

Fourth street	12%
Fifth street	24%

Bearing in mind that Kate can also make trips 4% and 8% of the time on cards four and five, only you will be fortunate about 11 times every 100 hands (about 8:1 against) you play to card four. Similarly, only you will be dealt the desired cards at the fifth street about 22 out of 100 times (about 7:2 against).

If this is a limit game, it will cost you at least two minimum bets to see the fifth card. In a two-handed raised pot, the pot odds are not very favourable. If you think that Kate is the type of player who feels very loyal to her Kings when you capture a Seven or an Ace, then go ahead and pay the entry fee for the fifth street. When you do not catch your cards by the fifth street, you will be 2:1 against if you decide to go all the way, and it will cost you two maximum bets (four minimum bets) to see the river card; on a card-by-card basis you are about 7:1 against. You may, therefore, feel obligated to give Kate a spin after persuading yourself that your win-rate justifies your gamble. In fact, at that stage, your gamble is correct, but fairly marginal.

The most important consideration in this case in a pot-limit game is the level of Kate's expertise in Seven-Card Stud. If she is a high-calibre adversary, I would not waste my money in a heads-up contest with her, simply because it is highly unlikely that I would be paid if I caught an Ace or a Seven. If she is a loose aggressive opponent, then I would definitely contend the pot with her (1) up to the fourth street, if there is at least nine times the value of her raise residing in her chip-tray, and (2) up to the fifth street when she has more than 18 times the third street bet/raise; it would cost me four third-street bets to see card five.

If Kate is a loose passive player, I would expect to see the river card fairly cheaply after the fifth street. I would, therefore, be more inclined to go as far as card five irrespective of the contents of her chip-tray.

For completeness sake the next set of results outline the projected win-rates of your hand when you catch an Ace or a Seven on card four or five.

Player	**Hand**	**% win-rate**
You	A♠-7♣-7♦-A♥	79
Kate	K♥-2♣-K♦-2♠	21
You	A♠-7♣-7♦-6♣-A♥	84
Kate	K♥-2♣-K♦-8♠-2♠	16

Thus, Aces-up are 4:1 favourite, in the fourth street, and better than 5:1 favourite, in the fifth street, against Kings-up. Furthermore, Aces-up are 7:1 and 10:1 favourite against a pair of Kings on cards four and five respectively (see below).

Player	**Hand**	**% win-rate**
You (Aces-up)	A♠-7♣-7♦-A♥	87.5
Kate	K♥-2♣-K♦-8♠	12.5
You (Aces-up)	A♠-7♣-7♦-6♣-A♥	91
Kate	K♥-2♣-K♦-8♠-9♠	9
You (trips)	A♠-7♣-7♦-6♣-7♥	85
Kate (Kings-up)	K♥-2♣-K♦-8♠-2♠	15
You (trips)	A♠-7♣-7♦-6♣-7♥	92.5
Kate (pair)	K♥-2♣-K♦-8♠-9♠	7.5

Example 4: High pair against a small pair with three flushing cards

Let us assume that by card four you are contesting the pot, armed with 9♣-5♠-9♠-3♠, against Ben, who has A♣-4♦-A♦-6♥. What are the chances of your small pair with the three flushing cards against a pair of Aces if you buy one card?

Player	Hand	% win-rate
Ben (pair)	A♣-4♦-A♦-6♥	57.5
You (pair + 3F)	9♣-5♠-9♠-3♠	42.5

Ben will not pair his door card while the small pair will get the fourth spade about 25% of the time. Furthermore, you will make trips about 5% and two pairs about 12% of the time while Ben is lumbered with blanks up to the fifth street. Thus, you may be contesting the pot, in the fifth street, with the following hands more than 40% of the time.

Player	Hand	% win -rate	Odds against
You (pair 9s + 4F)	9♣-5♠-9♠-3♠-K♠	58.5	
Ben (pair As)	A♣-4♦-A♦-6♥-T♥	41.5	7:5
You (pair + 4F)	9♣-5♠-9♠-3♠-K♠	39	6:4
Ben (two pairs)	A♣-4♦-A♦-6♥-4♣	61	
You (two pairs + 3F)	9♣-5♠-9♠-3♠-3♣	61	
Ben (pair)	A♣-4♦-A♦-6♥-T♥	39	6:4
You (trips)	9♣-5♠-9♠-3♠-9♥	90	
Ben (pair)	A♣-4♦-A♦-6♥-T♥	10	9:1
You (trips)	9♣-5♠-9♠-3♠-9♥	82	
Ben (two pairs)	A♣-4♦-A♦-6♥-4♥	18	9:2

Assuming that you will give up the pot when Ben pairs his A♦, you will be pleased on about 24 out of the 45 times you improve in the fifth street.

The above analysis shows that a small pair with three flushing cards, in the fourth street, is as good as, if not better than, one with an Ace kicker. You should buy the fifth street card with a pair supported by three flushing cards in limit games. In pot-limit games, you can gamble provided the cost is not very high because you may still be playing with a draw even if you improve in the fifth street. If you receive a blank, give up the fight in both limit and pot-limit.

2.2 Three-handed pots

Example 5: Big pair against two smaller pairs

The purpose of this example is to show how big pairs should be played in multi-handed contests. Let us assume that Alex (for Aces), showing the A♣-2♦-A♥, raised and was called by Jack (for a pair of Jacks) with J♣-8♠-J♠ and Florence (for a pair of 4s); Florence had 4♠-7♥-4♦. The fortunes of each hand in this contest are shown as follows:

Hand	Third street	Fourth street	Fifth street	Sixth street
A♣-2♦-A♥ (Alex)	46	48	55	59
J♣-8♠-J♠ (Jack)	30	29	24	22
4♠-7♥-4♦ (Florence)	24	23	21	19

The obvious question that is demanding an answer is 'What is Florence doing in this pot?' She is clearly building up the pot for Alex. Let us next look at the prospects of each hand when either Florence or Jack pairs her/his hole sidecard in the fourth street while Alex gets a blank like the 9♠.

2.2.1 Case A: Only Florence improves to two pairs on card four

This situation will occur about 5% of the time. The % win-rate of each hand is presented below.

Hand	Fourth street	Fifth street	Sixth street
A♣-2♦-A♥-9♠ (Alex)	38	41	33
J♣-8♠-J♠-3♦ (Jack)	25	25	24
4♠-7♥-4♦-7♠ (Florence)	37	34	43

As you can see, Alex is the favourite in the fourth and fifth streets despite Florence's improvement. Therefore, he should bet on card four and, when Florence raises his bet, he should re-raise in order to force Jack out of the pot. Jack would be duty bound to release his pair, thereby allowing Alex to play his pair of Aces in a two-handed pot against Florence's two pairs.

2.2.2 Case B: Only Jack improves to two pairs on card four

If Jack is the only contestant who catches an improving card in the fourth street, the % win-rates of each player are presented below.

Hand	Fifth street	Sixth street
A♣-2♦-A♥-9♠ (Alex)	38	36
J♣-8♠-J♠-8♦ (Jack)	49	55
4♠-7♥-4♦-T♠ (Florence)	13	9

Again, Alex's main concern is to end up in a two-handed pot because his big pair's chances would improve in a head-up contest against two pairs. He should, therefore, bet and re-raise Jack's raise in order to persuade

Florence to trash her small pair.

The fourth-street playing strategy described in this example is recommended for both limit and pot-limit games. When you have a big pair, you must reduce the number of opponents contesting the pot, whenever possible, in the fourth and/or fifth street.

More examples related to the play of pairs will be given in the following chapters.

Chapter Thirteen
Flushes

1. Third street

Your first three cards will have the same suit 5% of the time. The chances of completing the flush by card seven, assuming you have seen seven other cards besides yours (eight-handed game), will depend on the number of cards of that suit dealt to your opponents. Table 1 below shows how the probability of completing the flush is affected by seen/discarded cards of your suit (the figures are approximate).

Seen flush cards	**Fifth street**	**Sixth street**	**Seventh street**
0	5%	13%	23%
1	4%	11%	20%
2	3.5%	9%	16%
3	2.5%	7%	12%
4	2%	5%	10%

Table 1*: Effect of seen cards of your suit on the probability of completing a flush by the seventh street*

As you can see, your chances of ending up with a flush decrease by 20% to 30% for every card of your suit that is discarded or kept by your rivals.

The fourth street card will offer you a flush draw 24% of the time if none of the cards of your suit were dealt out. With 1, 2, 3 and 4 of the cards dealt to the other players, you will have a four-card flush draw approximately 21%, 19%, 17% and 14% of the time. This illustrates the importance of playing high-ranking suited cards, especially when more than two of the cards of your suit are possessed or discarded by the other players; although you will not complete your flush the majority of the time, you may end up winning the pot with two pairs or even a high pair. Low-ranking suited cards should be played as cheaply as possible, at least till you have a flush draw. Furthermore, the discarded/seen cards should not include many of your cards' ranks. For example, if the dealer gives you 8♣-4♣-2♣, you do not want to see many Eights, Fours and Deuces among the discarded/seen cards.

2. Fourth street and beyond

If the dealer offers you a flush draw on the fourth street, your initial marginal hand has been transformed into a powerful one. The table below lists the approximate overall, as well as the street-by-street, probability of completing the flush draw, assuming 12 (fourth street) cards have been seen; the seen cards include 0,1, 2, 3 and 4 of your flush cards.

Seen flush cards	Fifth street	Sixth street	Seventh street
0	22%	40%	55%
1	20%	37%	53%
2	17%	33%	49%
3	15%	28%	41%
4	12%	24%	35%

***Table 2**: Effect of seen flush cards on the probability of completing the flush draw from the fourth street*

The figures in the above table are approximate because the number of the seen/discarded cards will depend on the number of players contesting the pot. Your overall chances of being flushed with success, therefore, decrease by about 10% for every seen card of your suit. Thus, if more than three of your flushing cards are seen, the winning potential of your hand declines by more than 30%.

That is why high-ranking suited cards are more desirable than low-ranking ones because you may also win the pot with two pairs or even a pair. For example, if you have a four to the flush in the fourth street, you may end up with a pair as well as four to the flush on the turn of the fifth card because 12 of the remaining cards in the deck will give you a pair. Thus, your flushing hand will improve about 52% of the time on the turn of the fifth street card, 22% to complete the flush and another 30% of the time one of the flushing cards will be paired. A pair with four flushing cards on the fifth street is nearly 6 to 4 favourite against a higher pair. In fact a big pair with four flushing cards is about 2:1 favourite against a hand with two pairs of lower denominations.

The next section of this chapter covers the most common situations that you may encounter when you decide to draw for the flush or play against opponents gambling against you with their flush draws. However, the difficult question is whether your opponent has a flush draw when two of their upcards belong to the same suit. The answer will depend on your knowledge of your rival's playing habits. Do they:

(1) Call a raise on card three with three suited cards?
(2) Raise on card three with three suited cards?
(3) Try to get the draw as cheaply as possible or go to war on the fourth street?
(4) Play an aggressive or a passive game?

Other questions like the number of discarded/seen cards of the suit and indeed have they read this book come to mind.

You have to make a judgement based on your knowledge of your rivals' playing strategies and skill levels. You must not, however, second guess yourself and think that you are playing against a flush draw every time one of your opponents is showing two suited cards.

The following two-handed pot illustrates the point I am trying to make. On card four, Fred, who is a fairly loose and weak player, bet the pot with 8♣-T♠. Kate, a very passive and a fairly tight player, raised Fred's bet. Her upcards were 2♥-5♥. Fred put Kate on a flush draw and decided to gamble with his pair of Tens; his hole cards were T♣-K♠. Now Kate cannot be on a flush or a straight draw. She is a very passive player who would rather play her draw as cheaply as possible. Kate would not raise with two pairs (5-2-2-5) or a big pair in the hole. Therefore, she must have three Fives or three Deuces. As far as I was concerned she might as well turn her hole cards up. In fact she had three Deuces!

Thus, two suited upcards could represent a range of hands. However, for the sake of simplicity, I am going to assume that two suited upcards indicate a flush draw in the following examples.

3. Flush draws

3.1 Two-handed pots

Example 1: Big pair against four to the flush

You have K♣-Q♣-8♣-7♣ and Tim has A♦-6♦-A♠-J♥ in the fourth street. Tim bets the pot. How do you play your hand in a limit and pot-limit game?

In the former case, pot odds justify a gamble all the way to the river (see Table 3). However, watch out for your money when your opponent pairs their door card.

As regards pot-limit, let us assume that by card four you have seen 12 cards. Table 3 details the win-rates of four flushing cards against a pair of Aces, assuming that 1 ,2, 3 and 4 of your suit cards have been seen and neither of the competing hands has improved on the fifth or the sixth streets.

Hand	Seen flush cards	Fourth street	Fifth street	Sixth street
K♣-Q♣-8♣-7♣	None	60%	47%	26%
	2♣	56%	45%	24%
	2♣,T♣	52%	41%	21%
	2♣,3♣,T♣	47%	36%	18%
	2♣,3♣,T♣,J♣	42%	31%	15%

Table 3: *Win-rates of flush draws against* A♦-6♦-A♠-J♥

The above results vividly demonstrate the power of the flush draw. It is the clear favourite (6 to 4) in the fourth street and nearly evens on card five. However, if the hand does not improve by the sixth street, it becomes very weak (ranges from 3:1 to 11:2 against). The table also demonstrates the importance of the number of the seen flushing cards on the win-rate of the flush draw. When you decide to go for the flush draw, make sure that you have seen no more than three of your suit cards. If you see some of your suit cards among the discards, your hand should contain high-ranking cards. Note that the weakest point of your draw is at the sixth street.

So now we know that you have a powerful *draw* against Tim. I have highlighted the word *draw* because you do not have a made hand. Therefore, the correct playing strategy will be influenced by the following factors:

(1) the size of Tim's and your chipstack;
(2) Tim's level of expertise;
(3) the number of discarded clubs.

The first two factors are very important. If you or Tim have less than ten times the size of the fourth-street bet, you should raise and hope that Tim will set you in. This is the correct strategy because even if you do not improve by card five you are, at worst, 9:5 against provided Tim's hand does not improve on the fifth street. Therefore, you are betting for value. If, however, both of you have large chipstacks, your playing strategy must be dictated by Tim's proficiency in Seven-Card Stud:

(1) *Weak opponent*: first, let us assume that he is a weak and passive opponent who will not release a pair of Aces and thinks that odds and probabilities are words in a nursery rhyme. Now your money could be in jeopardy, because you are drawing to make a hand. This is the downside. However, you know that (a) you will get paid handsomely if you complete your draw, and (b) he will make your draw cheap. Because the chances of improving your draw are quite good on the fifth and the sixth streets, you should persevere and call his subsequent bets. This is the correct strategy against an opponent who will pay you when you complete your draw.

(2) *Loose aggressive opponent*: if Tim is a loose and aggressive opponent, he may decide to make your draw very expensive when you get blank cards on the fifth and sixth streets. Now you have to decide whether you want to gamble beyond the fifth street; if you call his pot-sized bet at the fifth street, you will most likely have to pay to see the river card.

(3) *An experienced player*: if Tim is an experienced player, you can follow a range of different tactics against him. If you raise his fourth-street bet, he may put you on a flush draw and decide to gamble against you. He should then check, or make a small sub-pot bet, on the fifth street and attack your money in the sixth street when your chances of winning the pot are about 4:1 against.

However, you can adopt two alternative playing tactics against Tim. You should call his fourth street bet. If he checks or makes a small bet in the fifth street, when you get a blank card, you could either (1) check or flat call his bet because you are still nearly evens, or (2) put in a sub-pot bet/raise. By raising his bet you have introduced an element of deception in your play. Tim may now put you on trips and release his hand, in which case you will win the pot. If he calls your raise, you will almost certainly get a free card in the sixth street. Therefore, a bet/raise on the fifth street will offer the best of both worlds. You may win the pot there and then or you may get a free card at the weakest point of your draw.

If I had Tim's hand, I would be very reluctant to escalate the size of the pot, especially if the dealer gave you a face card in the fifth street. A paired four to the flush in the fifth street is a strong hand against a pair of Aces or even two pair of Aces. The following tables detail the win-rates of paired flush draws against higher pairs as well as two pairs of higher denominations.

Hand	Seen flush cards	Fifth street	Sixth street
K♣-Q♣-8♣-7♣-Q♥	None	63%	50%
	T♣	60%	48%
	T♣,2♣	57%	45%
	T♣,9♣,2♣	54%	42%
	T♣,9♣,3♣,2♣	50%	40%

Table 4: The win-rates of paired flushing cards against A♦-6♦-A♠-J♥-4♥

Now you see why I do not like playing against flush draws when my opponent has a large chipstack. On the turn of the fifth card the draw will be paired 30% of the time. Going from the fifth to the sixth street, the flush draw will be paired about 40% of the time. In both cases the draw will be either the favourite or nearly evens. Even with three of the flushing cards accounted for, the draw is odds on at the fifth street and only 7:5 against at the sixth street.

Next, let us see how the four to the flush performs against two pairs. First, I will consider unpaired draws.

Hand	Seen flush cards	Fourth street	Fifth street	Sixth street
K♣-Q♣-8♣-7♣	0	41%	35%	22%
	2	36%	30%	18%

***Table 5**: The win-rate of a flush draw against* A♦-6♦-A♥-6♠

Now the flush draw is not as mighty but it is still best to attack it in the sixth street.

Against Aces-up, the paired flush draw will win 37% and 26% of the pots in the fifth and sixth streets respectively.

To summarise: if both players are deep in money, the hand should be played as cheaply as possible by the player holding a big pair. If you decide to attack your opponent's flush draw, make sure you do so in the sixth street.

Example 2: Two pairs against four to the flush in the sixth street

Let us consider the situation in Example 1 a bit further. Tim makes a small bet in the fifth street when the dealer gives him the 4♥ (Tim's hand A♦-6♦-A♠-J♥-4♥) and you decide to flat call his bet after receiving a blank card (your hand K♣-Q♣-8♣-7♣-5♦). There is $100 in the pot. The dealer then pairs Tim's 4♥ with the 4♠ and you get another blank card. Now Tim, armed with two pairs, bets $100. Should you call this bet and if so under what conditions will your call be correct, assuming that you have seen 16 cards?

Most pot-limit players will disapprove and may even accuse you of having more money than sense if you gamble against two pairs Aces with only a flush draw at the sixth street. Is their criticism justified? With one card to come, your implied odds are 5:1 if you make a pot-sized bet when your flush draw is completed. Therefore, your call may look correct if the probability of making your flush is about 18%. However, Tim will make the dreaded full house about 11% of the time, in which case you will incur a self-inflicted loss when your draw is completed. If the latter factor is taken into account, your call will be correct when:

(1) the probability of making the flush is 22% (roughly 7:2 against); you must have at least eight outs working for you;

(2) your opponent has more than 2.3 times the sixth-street bet ($230).

This of course assumes that Tim will oblige you by calling your bet gracefully. Most players will call the river bet with two pairs (especially Aces-up). Some players may make a small bet on the river in order to stop you from making a pot bet when you hit your card. Do not be intimidated by such ploys. You must bet the pot in order to make your draw profitable.

Example 3: Four to the flush with a pair against two pairs

The following example was a hand I played against a mediocre player whom I will call Billy. My first three cards were <u>A♦-Q♦</u>-5♦. Billy raised the bring-in bet with his <u>K♠-7♥</u>-K♥ and I decided to give him a spin because of the Ace with my three suited cards. The dealer gave me the 4♦ and Billy got the 8♠. Billy bet the pot and of course

I could not wait to call his bet. Now I had Ace-high four to the flush against a pair of Kings, which put me in a very favourable position.

The next set of results shows the win-rates of Ace-high flush draws against a pair of Kings.

Hand	Seen flush cards	Fourth street	Fifth street	Sixth street
A♦-Q♦-5♦-4♦	None	65%	56%	32%
	T♦	61%	52%	32%
	J♦,T♦	57%	47%	26%
	J♦,T♦,6♦	52%	44%	24%

***Table 6**: Win-rate of Ace-high flush draw against* K♠-7♥-K♥-8♠

Again, it is clear that the Ace-high flush draw is very profitable against a pair of Kings up to the fifth street. After that it is about 3:1 against. (An Ace-King flush draw, with two of the suit cards seen, against a pair of Queens, is better than 6:4 favourite in the fourth street, nearly 11:10 favourite in the fifth street and 8:5 against on the turn of card seven.) If you find yourself in the unfortunate position of having to play against a flush draw, with overcards to your pair, you should pay attention to the following:

(1) The number of discarded flush cards.

(2) How many of your pair cards have been discarded. Your pair cards should be livelier than your other cards because, if you make trips, the win-rate of the flush draw decreases significantly.

(3) Whether the dealer has paired the flush draw or not. A flush draw supported by a pair is another powerful hand I do not like playing against, even if I am armed with a pair of Aces (see Table 4).

The poker gods decided to play a dirty trick on Billy at the fifth street. The dealer paired his board with the 8♣ and I was offered the exquisite A♣.

Billy entered the 'Oblivion Zone' with his two pairs of Kings and Eights. Common sense went out of the window and he fired his chips at the pot. I decided to set myself all-in even though I put him on two pairs. The next table shows why I did so; I am assuming that two cards of the flush suit have been seen/discarded.

Hand	Fifth street	Sixth street
A♦-Q♦-5♦-4♦-A♣	61%	52%
K♠-7♥-K♥-8♠-8♣	39%	48%

Table 7*: Win-rate of a pair of Aces supported by four flushing cards against K-7-K-8-8*

As you can see, the flush draw is about 11:10 favourite even at the sixth street. The river card paired my 5♥ and I won the pot. Billy then said: 'I thought you were a good player. How could you commit all your chips when you knew you were behind?'

Where did he think I went wrong? If the dealer had paired my Q♦ instead of the A♦, I would still have won the pot about 45% of the time when I went all-in at the fifth street. Even without an overcard, which in this example was the Ace, the win-rate of two Queens with four flushing cards against his Kings and Eights would have been about 40%. Therefore, my bet at the fifth street was profitable because it had positive mathematical expectations against two paired hands. Obviously Billy has not read this book.

Example 4: Two pairs against a made flush

Your first three cards are A♦-6♦-A♥. The dealer gives you the 6♠ and John gets the 7♣ on top of his K♣-Q♣-8♣. You bet the pot and John calls your bet. On card five, your opponent captures the lucky 2♣ and you get lumbered with the 9♥.

Let us look at the fortunes of two pairs of Aces and Sixes against a made flush on card five when 14 cards are accounted for. If you decide to see the river card, your chances of winning the pot are about 22% (7:2

against). On a card-by-card basis you are about 9:1 against. You should, therefore, trash your hand if you have more than the pot bet on the fifth street and call when your chipstack amounts to less than two-thirds the bet.

You may ask, 'But how do I know whether John has a flush?' I do not want to bore you with the mathematics of this case but, if you consider all the possible two-card combinations that John can have in the hole, you will realise that you are nearly evens or a big underdog in 95 out of the 112 possible situations. Why do you want to risk your money under these appalling circumstances? Trust me and discard your cards.

Example 5: Trips against a flush draw

Your first three cards consist of three Tens followed by the Q♦ on the fourth street. The pot is checked to you and you make a small bet. Tom, showing 8♣-9♣, is the only caller. Table 9 shows the win-rates of trips against a flush draw, assuming that 12 cards have been seen by the fourth street.

Hand	**Seen flush cards**	**Fourth street**	**Fifth street**	**Sixth street**
A♣-3♣-8♣-9♣	0	33%	27%	19%
	4♣	30%	24%	17%
	4♣, 6♣	28%	22%	15%

Table 8: *Win-rate of a flush draw against* T♦-T♥-T♠-Q♦

With none of the suit cards seen, the trips are 2:1 favourite at the fourth street. On the fifth and sixth streets you are 5:2 and 4:1 favourite respectively. This assumes that neither you nor Tom have improved by the sixth card. Even if Tom catches the A♦ at the fifth street, the reduction in your win-rates is minor. Now he is 2:1 and 7:2 against on the turn of the sixth and river cards respectively. Tom's only chance against your trips is when he captures another ♣ card on either the fifth or the sixth street (about 4:1 against), while you receive blanks. The following table sets out the win-rate of his made flush against trips.

Hand	**Fifth street**	**Sixth street**
A♣-3♣-8♣-9♣-J♣	60%	71%
T♦-T♥-T♠-Q♦-2♥	40%	29%

***Table 9**: Win-rate of a made flush against trips*

Thus, if Tim outdraws you in either the fifth street or the sixth streets, you will be 6:4 and 5:2 against respectively. See the relevant example in Chapter Fifteen for the correct response to this catastrophe.

Example 6: Straight flush draw against two pairs

I actually played this hand against a colleague whom I will call Mustafa. My first three cards were T♠-8♠-9♠. Colin, showing the A♣, raised and Mustafa and yours truly called. Mustafa, who is a loose and relatively aggressive player, had the Q♦ as his upcard. The dealer gave Colin the 6♠ and Mustafa the K♣. I captured the 7♠ which gave me a draw to the straight flush on card four. Colin made a small bet and Mustafa raised. I flat called the raise, hoping that Colin would also call. However, the player representing the two Aces made a very sensible decision. He did not call.

Now before I go further, I am going to give you the 'facts of life' of the straight-flush draw on card four. The next table lists the approximate win-rates of the draw against a pair, two pairs and trips, assuming 14 cards are accounted for by the fourth street.

Hand	**Fourth street**	**Fifth street**	**Sixth street**
Pair	80%	70%	44%
Two pairs	60%	57%	40%
Trips	50%	45%	33%

***Table 10**: Win-rates of straight-flush draws against pairs, two pairs and trips*

The numbers in the columns represent win-rates of the draw. As you can see, the fortunes of the straight-flush draw are gigantic against a pair and very good against two pairs or trips. When Mustafa raised, I decided he must have two pairs rather than trips. However, even if he had trips, I was happy to contend the pot with him as long as the dealer did not pair his upcards by the sixth street. The dealer turned the 7♥ beside my 7♠ and Mustafa got the 5♣. I bet the pot and Mustafa went all-in. I won the pot by catching the 2♠ on the seventh street.

Table 11 summarises the prospects of flush draws against pairs, two pairs and trips in two-handed pots.

Unpaired draws' win-rate

Opponent's hand	Fourth street	Fifth street	Sixth street
Big pair	60%	47%	26%
Two pairs	41%	35%	22%
Trips	33%	27%	20%

Paired draws' win-rate

Opponent's hand	Fifth street	Sixth street
Big pair	63%	50%
Two pairs	40%	30%
Trips	32%	23%

***Table 11**: Summary table of flush draws*

3.2 Three-handed pots

The previous section dealt with two-handed pots. However, many of the pots you may get involved in will be three-handed. Since it is difficult to construct more than three-handed pots effectively, this section will be devoted to the analysis of the most likely situations a flush draw will have to contend with in three-handed contests.

Example 7: Flush draw against pairs

On several occasions you will find yourself drawing to a flush against two other opponents, each holding a pair. Let us assume that none of your four flushing cards is of a higher rank than your opponents' pairs. Let us further assume that two of your suit cards are among the six discarded cards.

Table 12 illustrates the winning potential of your draw under the above circumstances.

Hand	Fourth street	Fifth street	Sixth street
2♣-6♣-8♣-J♣	46%	38%	22%
A♦-K♦-A♥-4♠	34%	43%	60%
Q♥-5♥-Q♦-7♠	20%	19%	18%

***Table 12**: Win-rates of flush draws against pairs in three-handed pots*

The data reveal that you are in a very healthy position in the fourth street.

If you are playing limit poker, wild horses should not be able to drag you out of the pot. You must at least see the fifth card and should not raise because you want as many callers as possible to make your draw profitable. If your hand does not improve by the fifth street and you are determined to see the river, make sure that the pot contains more than 4 times the fifth-street bet.

In pot-limit you must raise if you are the last one to act with less than 13 times the fourth street bet. If the player with the pair of Queens must act after you, then you should allow him to waste his money because you are going to raise or bet the pot on card five when neither of your opponents improves. In the fifth street you are better than 2:1 against. Now you can raise the bettor if you or he have less than 5 times the fifth-street bet. If you have more than that in your chipstack, you can put in a sub-pot raise. This course of action may again give you a free card at the sixth street when your draw is vulnerable.

You may say: 'Your recommendations are reckless. You are asking your readers to shovel all their money by card five on a flush draw.' However, my recommendations are confined to the instances where the value of your chipstack is less than 5 times the fifth-street bet. Now you are betting for value even if your opponent responds to your challenge. Plus, you may win the pot there and then, especially if you are perceived as a rock player. Believe me, rock players have the equity of the bluff and the semi-bluff working in their favour. Furthermore, your bet has positive mathematical expectations. If you have more than 5 times the bet, then you should vary your play. You can either flat call or inject a small raise.

Next, let us reverse the situation and give you the pair of Queens. Table 12 shows that you are worse than 4:1 against throughout the deal. Furthermore, you alone will improve about 10% of the time on card five. In limit games you will break even if you pick up 25 times the bet on the fourth street. This will seldom be the case. Trust me and trash your hand. If you decide to be foolish and go all the way, in pot-limit, make sure that one of your rivals has at least 80 times the bet on the fourth street. A better course of action, with a large chipstack, is to fold your hand in the fourth street.

Now look at the case when one of the paired hands improves to two pairs on the turn of the fifth card. The first case will consider the fortunes of the pair of Aces pairing its second upcard. The hands are:

Hand	**Win-rate**
2♣-6♣-8♣-J♣-3♥	29%
A♦-K♦-A♥-4♠-4♥	63%
Q♥-5♥-Q♦-7♠-T♠	8%

For limit games, a profitable fifth-street flush draw against two pairs of Aces must be able to win a pot which contains at least 7 times the bet on that street.

In pot-limit, your opponent with the Aces-up must have more than seven and a half times the fifth-street pot bet to render your draw to the flush profitable. In fact, if you have less than the pot bet, you must call. When the value of your chipstack falls in between the above ranges (1 to 7.5), your call will have negative mathematical expectations. You must, therefore, trash your hand because the pot is going to be two-handed.

The player with the pair of Queens had better send their money to me instead of calling the fifth-street bet. I would certainly make better use of the wasted chips.

On a few occasions the dealer will pair the Queens' second upcard in the fifth street.

Hand	Fifth street	Sixth street
Q♥-5♥-Q♦-7♠-7♦	43%	54%
2♣-6♣-8♣-J♣-3♥	29%	19%
A♦-K♦-A♥-4♠-9♥	28%	27%

Now the two pairs Queens looks much better. Although the probability of improving the flush draw is still about 30%, the player holding the pair of Aces may call the fifth- and the sixth- street bets. In limit games you will have to see the river card, providing none of your opponents captures improving cards on the sixth street. For pot-limit games, you should give up the fight. If you decide to gamble, both of your opponents should have more than 4.5 times the fifth-street bet.

Example 8: Flush draw against a straight draw and a pair

This is another common situation that occurs in Seven-Card Stud. I will assume that the pot was raised in the third street. Let us further stipulate that all the pair's and straight's draw cards are live and that two of the suit cards are among the discards. Table 13 shows the state of play at the fourth street.

Hand	Fourth street	Fifth street	Sixth street
2♣-6♣-8♣-J♣	46%	37%	21%
A♦-K♦-A♥-4♠	25%	34%	59%
J♠-8♦-9♦-T♥	29%	29%	20%

Table 13*: Win-rate of flush draw against a straight draw and a pair*

The data in the foregoing table prove the vulnerability of the pair of Aces against two eight/nine-card draws in the fourth street. The player defending the Aces is 3:1 against. If you are that player, then you are carrying a heavy burden. Alarm bells should start ringing in your head when your opponents are showing suited and connected upcards in the fourth street. A check is correct. The dealer will improve one or both of your opponents in the fifth street over 80% of the time. I am not crazy about suited and connected upcards in raised pots. I just hate playing against them armed with only a pair. Even at the fifth street the pair is not the favourite, assuming that none of the contenders has improved. Again, a check is in order. In fact, a check at the sixth street is not wrong either. The pot has cost you one bet only. Save your hard-earned money for more favourable situations. This advice applies to limit and pot-limit games.

Now, let us look at Aces win-rates when the fifth-street card pairs the 4♠.

Hand	Fifth street	Sixth street
A♦-K♦-A♥-4♠-4♥	50%	63%
2♣-6♣-8♣-J♣-3♦	30%	19%
J♠-8♦-9♦-T♥-5♥	20%	18%

***Table 14**: Win-rate of Aces-up against a flush and a straight draw*

In limit games, I would definitely trash the straight draw. The draw is 4 and 5:1 against as we enter the more expensive rounds of betting. As for the flush draw, it would be profitable against two pairs of Aces if you can win a pot that contains at least 7 times the fifth-street bet.

In pot-limit, the pot will almost certainly be two-handed after the player with the Aces-up bets the pot. If the holder of the flush draw decides to gamble, his opponent must have more than seven and a half times the fifth-street pot bet to render his draw to the flush profitable. In fact, the holder of the flush draw should muck his cards in the fifth street. If the dealer pairs the A♥ in the fifth street, the win-rates of the flush draw are 24% and 16% at the fifth and sixth streets respectively; the straight draw will be 6:1 against on each of the above streets. Therefore, you must run for your money. Muck your cards.

Chapter Fourteen
Straights

1. Third street

Your first three cards will be part of a straight about 18% of the time. However, you will be dealt three sequential cards, such as T-9-8, about 2.3% of the time. Three to a straight starting hands, such as J-T-9, end up with a straight about 20% of the time. Gapped straight cards (broken straight), like J-T-8, will make a straight about 14% of the time and three random cards will end up with a straight roughly 5% of the time.

Say you start with Q-J-T in an eight-handed game: the fourth street card will be one of the primary cards, a K or a 9, to give you an open-ended draw about 19% of the time, assuming that none of the latter ranks were among the seen cards. You will subsequently catch one of your secondary straight cards (A or 8) about 43% of the time.

Many players overrate three straight cards. A straight draw is not unlike a flush draw, except that it produces a weaker hand when completed. Therefore, when you play these starting cards, make sure of the following:

(1) Less than two of both of your primary and secondary cards must be among the seen cards if the highest-ranking card in your hand is lower than Queen-high.

(2) Your starting hand is King or Queen-high. High-ranking straightening cards can win the pot for you with pairs or two pairs; any four random cards will make two pairs about 23% of the time by card seven.

With lower-ranking cards, such as T-9-8, you should have at least two of the cards suited and as few Ts, 9s and 8s among the discards as possible. Position is another important factor with low-ranking straightening hands. Generally, you want to see the fourth card without having to call a raise from a player acting after you.

1.1 Starting cards

Straightening hands are best grouped according to their highest-ranking card:

(1) K-high: K-Q-J, K-Q-T and K-J-T are good starting hands. I prefer K-J-T to K-Q-T in a multi-handed pot. K-Q-9, K-J-9 and K-T-9 are marginal starting cards. Their main strength is the ownership of a K-high card. I would like to have at least two of the cards belonging to the same suit when I decide to commit my money with the last three hands.

(2) Q-high: Q-J-T is the best three to a straight starting hand; it performs better than K-Q-J in multi-handed pots. Analyses of the other Q-high hands suggest that:

  (a) Q-T-9 should be preferred to Q-J-9;
  (b) Q-T-8, Q-9-8 and Q-J-8 are marginal. In good position, I may gamble with these cards when two of them are suited.

(3) J-high: J-T-9 is obviously the best. The rest are marginal or bad news.

(4) T-high and lower: as you would expect, T-9-8 is marginal. Again, I would like two of the cards to be suited. 9-8-7, 8-7-6 . . . and 4-3-2 are very marginal.

Having position as well as making sure that all your primary and secondary cards are live should be your chief concern with hands which are lower than Q-high.

2. Fourth street and beyond

If the fourth-street card gives you an open-ended straight draw, your chances of winning the pot increase considerably. The next table lists the approximate overall as well as the street-by-street probability of completing the straight draw, assuming 12 (fourth street) cards have been seen; the seen cards include 0, 1 and 2 of your secondary straight card.

Seen secondary cards	Fifth street	Sixth street	Seventh street
0	19%	35%	49%
1	18%	32%	45%
2	15%	28%	40%

***Table 1**: The probability of completing the straight draw from the fourth street*

Since the seen/discarded cards may be more than 12, 14 and 16 on the respective streets, the numbers in the above table are approximate and should be used as a guideline. Furthermore, the figures do not represent the win-rates of the draw because the win-rate of a straight draw depends on the texture of its opponents' cards. However, the figures indicate that the probability of completing the straight declines by about 10% for every seen secondary card.

If you have an open-ended straight draw on fourth street, the fifth card will pair one of your cards about 30% of the time. Therefore, your hand will improve 50% of the time on the turn of the fifth-street card because you will either complete your straight (about 20%) or end up with a pair and an open-ended straight draw. That is why high-ranking straightening cards have a better winning potential than low-ranking ones; you may win the hand with a pair, two pairs or trips as well as the straight.

The remainder of this chapter will assess the win-rates of straight draws against a range of hands in two and three-handed pots.

3. Open-ended straight draws

3.1 Two-handed pots

Example 1: Straight draw against a pair of Aces

Let us first consider the win-rate of a straight draw against a pair of Aces. You raise the bring-in bet with the A♥ and only Fred, who is a skilled player, calls your raise. Let us assume that Fred's upcard is the J♦ and his hole cards are the 9♣-T♠. You get the 6♠ and Fred catches the Q♥ in the fourth street. What should he do after your fourth-street bet?

Fred must be aware of the winning potential of his hand against a pair of Aces before he can adopt the appropriate playing/betting strategy. The next table shows the win-rates of his draw against your hand, assuming that neither you nor Fred improve on the respective streets.

Hand	Seen secondary cards	Fourth street	Fifth street	Sixth street
9♣-T♠-J♦-Q♥	0	55	45	23
	1	51	41	20
	2	48	36	18

***Table 2**: The % win-rates of an open-ended straight against A♣-2♦-A♥-6♠*

The above results demonstrate the winning power of the straight draw against a pair. It is the favourite (11:9) on fourth street and nearly evens on the fifth card. However, if the hand does not improve by the sixth street, it becomes very weak (ranges from 7:2 to 9:2 against). The table also demonstrates the importance of the number of seen secondary cards on the win-rate of the straight draw. When you decide to go for the draw, make sure that you have seen no more than two of your secondary cards. Therefore, Fred must call your fourth-street bet in limit and pot-limit games.

Let us consider Fred's best course of action when neither of your hands is improved in the fifth and the sixth streets.

Let us consider a $10-$20 limit game. It will cost Fred $20 to buy card six and another $20 to see the river card. On a card-by-card basis, Fred will complete his straight draw about 21% of the time. Therefore, he should call your bets all the way if the projected size of the pot is over $100. When two of his secondary cards are out, the pot must have more than $110. However, if your hand is the only one that improves to two pairs, Fred's win-rates on the fifth and sixth streets will decline to 33% (2:1 against) and 20% (4:1 against) respectively if all his straight cards are live; with two of his straight cards among the discards, he will be about 3:1 against in the fifth street and 11:2 against in the sixth street. Therefore, the projected size of the pot by the end of the deal must be over $150 if Fred wants to make profitable gambles.

In a pot-limit game the sixth street card will improve Fred's hand over 50% of the time. Therefore, he should buy one more card in pot-limit games. If the dealer does not complete his straight or pair one of his cards, he may buy the river card provided (1) you have more than twice the sixth-street pot bet and (2) he is sure that you will call his bet when he completes his straight. However, if you improve to two pairs in the sixth street, Fred should muck his hand unless all his secondary cards are live and you have more than three times the sixth-street bet in your chip-tray. He is basically playing for the implied odds on the sixth street.

Next, let us consider the situation when the dealer improves Fred's hand in the fifth street.

Example 2: Pair and an open-ended straight draw against two Aces

The dealer gives Fred the 9♠ and you get the 7♣. Now the hands in the fifth street are:

You	A♣-2♦-A♥-6♠-7♣
Fred	9♣-T♠-J♦-Q♥-9♠

Does Fred have the straight? I do not think so, for the following reasons: I said, earlier on, that he is a skilled player. Since your raise was representing a pair of Aces, Fred is not going to call with K-T-J and certainly not with T-8-J. He knows the chances of capturing a Queen on the fourth street are about 10:1 against. Furthermore, even if he gets the Queen, two of his secondary straight cards (your two Aces) are missing. Had Fred been a loose/weak opponent, then the 9♠ may be one of the cards you do not want to see on his board.

When he called your fourth-street bet, I would rule out the possibility that he had 9-9 in the hole because most skilled players would buy only one card in this situation. His most likely hole cards are 9-T or T-J, to give him a pair with four to the straight, or J-Q. Of course, J-J or Q-Q are other possibilities, in which case you are the 8:1 underdog.

Let us suppose that the 9♠ has given Fred the most likely hand, namely a pair with an open-ended straight draw. The next set of results reveals Fred's win-rate against your pair of Aces.

Hand	**Seen secondary cards**	**Fifth street**	**Sixth street**
9♣-T♠-J♦-Q♥-9♠	0	61	48
	2	54	42

***Table 3**: The % win-rate of a pair with an open-ended straight draw against* A♣-2♦-A♥-6♠-7♣

Now Fred is the favourite. In fact his three connected upcards look dangerous. Even if you do not put him on the straight, you must read him for a pair with an open-ended straight draw. Your best course of action is to check the pot to him. If he bets, you may call in limit games; personally, I would be very reluctant to call the bet armed with only a pair of Aces in pot-limit. Likewise Fred must call or even raise your bet when you decide to gamble.

However, if you pair your Deuce or the Six when Fred gets the 9♠, your overall win-rate will be 61% if all his secondary straight cards are live; with two of them missing, Fred is 2:1 against. Under these more favourable circumstances, I will now describe what your betting strategy should be.

In pot-limit you should make a small bet in the fifth street. In the sixth street, where he would be about 3:1 against (4:1 against if two of his secondary straight cards are among the discards), you should fire a full pot bet at him.

If it is a limit game, bet in the fifth and the sixth streets if Fred's board does not improve and check when the river card does not fill your two pairs. If he bets when you check, you have to keep him honest.

The next example deals with the situation when Fred completes his straight draw by card five.

Example 3: Fred completes his straight draw

On the 20 out of 100 occasions on which Fred completes his straight draw in the fifth street, your pair will be 12:1 against winning the pot. You must be ready to trash your cards when Fred bets. If the dealer improves your hand on the fifth street to either two pairs or trips, Fred's win-rates will be 80% and 60% respectively.

Since the win-rate of two pairs on a card-by-card basis is about 10%, you really must give up the fight and allow Fred to take the pot when he captures either a King or an Eight and you receive a Six or a Deuce. You may argue that the implied odds must justify a gamble against Fred under the above circumstances.

Let us assess your real implied odds in this situation by looking at the respective hands in the fifth street, assuming that you have paired either the Six (hand a) or the Deuce (hand b).

Fred's hand	9♣-T♠-J♦-Q♥-K♣
Your hands	(a) A♣-2♦-A♥-6♠-6♦
	(b) A♣-2♦-A♥-6♠-2♣

If the first hand catches one of the remaining Aces or Sixes in the sixth street, it is highly unlikely that your subsequent bet will be called by Fred. He must assume that you have a full house. Therefore, you may have implied odds only when your hole card is paired (hand b).

Next, let us consider the implied odds in pot-limit games. Since the overall win-rate of two pairs against a made straight is 20%, and Fred is going to fire a pot-sized bet at you in the sixth street, he must have more than 16 times the fifth-street bet in front of him if your call to the river is to yield positive returns; if Fred has less than 14 times the fifth-street bet, you will find yourself playing in the losing zone of the implied odds. Furthermore, when the river card fills your hand, you should not win more than 16 fifth-street bets because Fred should deprive you of the equity of the bluff by not betting on the river card if the pot is checked to him. Therefore, the implied odds will not be profitable in this situation and you will subsequently be wasting your money when you call Fred's bet all the way to the seventh street.

If you decide to buy only the sixth-street card, you may fill your house 10% of the time. Consequently, Fred must have more than eight times his fifth-street bet in his chip-tray. If he has less than that amount, you are playing in the losing zone of the implied odds.

In limit games, it will cost you two fifth-street bets to see the river card. Since your win-rate is 20%, you must pick up a pot which contains more than 10 times the fifth-street bet in order to make your call profitable. If the projected size of the pot is less than 10 times the fifth-street bet, you will be in the losing zone of poker.

When you get one of the remaining Aces at the same time Fred completes his straight, you may check-raise him if he has about twice the fifth-street bet in front of him. You are about 5:2 against on a card-by-card basis and your hand will be filled 40% of the time by the seventh street, as indicated by the results in Table 4.

Hand	Fifth street	Sixth street
9♣-T♠-J♦-Q♥-K♣	60%	72%
A♣-2♦-A♥-6♠-A♠	40%	28%

Table 4*: Win-rate of a made straight against trips*

Example 4: Straight draws against flush draws

I have always been under the impression that a straight draw is a big underdog to a flush draw. Let us test the validity of my impression. Table 5 lists the results of a two-handed contest between an open-ended straight draw and a four to the flush.

Hand	Fourth street	Fifth street	Sixth street
A♣-6♣-7♣-2♣	60%	59%	56%
9♦-T♦-J♥-Q♠	40%	41%	44%

Table 5*: Straight draws against flush draws*

The results in the above table indicate that the flush draw is the favourite. However, the straight draw is only 6:4 against. Furthermore, if the straight draw is paired in the fifth street, it becomes 11:10 favourite. The only time the straight draw is a big underdog is when all of its cards are of lower denominations than its rival's. Then the flush draw is about 7:3 favourite at the fourth street and nearly 2:1 on in the remaining betting rounds.

You are more likely to get paid by your opponents when you make a straight rather than a flush simply because a flush, before card seven, is easier to read. When your board consists of three connected cards, you may have a straight, a draw to the straight or two pairs. But when three of your upcards belong to the same suit, your opponents will be reluctant to contend the pot. Therefore, the implied odds of straight draws are higher than those of flush draws.

Despite all of the above, I will stick to my earlier impression and avoid playing a straight draw against a flush draw.

3.2 Three-handed pots

Example 5: Straight draw against pairs

Imagine the following fairly common scenario. You have been playing for about two hours and you have not come across a decent starting hand. Then the dealer gives you 8♣-6♦-7♦. You scan the other upcards and conclude that all your cards are live. Mad Mark, who is a loose aggressive player, raises with the A♦. His hole cards are A♣-K♠. Simple Simon, who is a loose passive player, calls with Q♠-2♥-Q♦. You decide to see the fourth-street card with your fairly marginal hand.

Mad Mark gets the 3♥, Simple Simon receives the 9♣ and you capture the darling 5♥. Table 6 shows your projected win-rates assuming that none of the contestants' hands improve in the fifth and sixth streets.

Hand	Fourth street	Fifth street	Sixth street
A♣-K♠-A♦-3♥ (Mark)	33%	43%	61%
Q♠-2♥-Q♦-9♣ (Simon)	23%	20%	18%
8♣-6♦-7♦-5♥ (You)	44%	37%	21%

***Table 6**: Win-rate of a straight draw in three-handed pots*

As you can see, your marginal hand has been transformed into a powerful one in the fourth street despite the loss of the 9♣ to Simple Simon. What is more, the hand is being played against two loose players, one of whom is bound to pay you when you make the straight. Simon will not release his two ladies; he is married to them!

In a limit game you will capture either a 4 or a 9 in the fifth street 18% of the time, after which you will be the 10:1 favourite. Even if you do not improve on the turn of the next card, you are about 8:5 against in the fifth street and slightly better than 4:1 against in the sixth. If you take your implied odds into account, the pot is offering you very good returns even at your draw's weakest point, which is the sixth street. Therefore, you must see the river card in limit games. Alternatively, you can follow the fifth-street betting strategy described below.

In pot-limit you should call the fourth-street bet. I do not think you should raise at this stage because Mad Mark may put you on a straight draw or two pairs and re-raise in order to get rid of Simon. However, you are going to set yourself all-in when Simon calls Mark's fifth-street bet irrespective of the card you receive on that street. Now Simon is going to feel duty bound to go all the way because he has put a lot of money in the pot; he is not going to divorce his ladies!

If you cannot go all-in in the fifth street, you can make a sub-pot raise. Your sub-pot raise will accomplish two things. You have introduced an element of deception into your game and confused the aggressive bettor into thinking that you have a better hand than he has. Therefore, Mad Mark may either fold (unlikely) or (more likely) feel obliged to check in the sixth street. Thus, he will pass the initiative to the rock (you) at the weakest point of the straight draw (if your draw is not completed by then you will get a free river card). However, on the 20 out of 100 occasions your draw is finished, you have built a nice, juicy pot for yourself. Now you can put in a decent-sized bet or another sub-pot bet, depending on the texture of your opponents' upcards and the amount of money in their chip-trays.

Do not try to bluff them if you do not complete the straight. This ill-advised move has cost me on several occasions.

I am assuming that neither of your opponents has paired his door card in the fifth street; one or both of your opponents will have trips 10% of the time in the fifth street. Moreover, both of them will pair their second upcards (3s and 9s) at the same time about 1% of the time. When that happens, you should give up the fight because your chances of winning the pot will diminish to about 20%. In fact, you will be 7:2 against and in pot-limit that is not healthy, even against two opponents.

Before I leave this example, I would like to discuss a very common mistake made by many poker players. Let me assume that Simple Simon is a fairly reasonable player like most of my colleagues. Where did he go wrong? His call on card three was questionable, but should he buy the fifth-street card? The answer to that question depends upon which fifth-street card will win the pot for him and what his chances are of capturing that card. If he puts Mad Mark on a pair of Aces, which he should do (otherwise why did he not re-raise in the third street?) then Simon wants to catch one of the remaining two Queens, in the fifth street, while you and Mad Mark are burdened with blanks. But this fortunate event will take place about 3.5% of the time (27:1 against). Furthermore, if he gets lucky and hits the elusive third Queen, even Mad Mark may give up the fight for the pot.

You may ask why have I ignored Simon's chances of winning the pot with two pairs. He will make the hand, while you and Mad Mark hit blank cards in the fifth street, 10% of the time and, even then, his win-rate will be 44% (11:9 against) against two opponents. By the way, under these circumstances, you must call Simple Simon's subsequent bet because (1) you will win the pot 28% of the time (5:2 against) if you pay for the next two cards and (2) Simon's passive playing style will most likely prevail and inhibit him from firing a pot-sized bet, if any, in the sixth street.

You just cannot escape from the fact that, in both limit and pot-limit games, Simon's two Queens do not have the correct implied odds after the fourth street. This is why I called him Simple Simon. I know he is going to gamble all the way to the river and sink.

Example 6: A pair and open-ended straight draw in three-handed pots

Let us take the latter case a bit further. Suppose you get the 8♠ in the fifth street while Mark and Simon are dealt the J♥ and 5♦. Now you are in a very good position to attack the pot. Table 7 reveals your chances of ending up with their money.

Hand	Fifth street	Sixth street
8♣-6♦-7♦-5♥-8♠ (You)	47%	38%
A♣-K♠-A♦-3♥-J♥ (Mark)	35%	44%
Q♠-2♥-Q♦-9♣-5♦ (Simon)	18%	18%

***Table 7**: Win-rate of a straight draw with a pair in three-handed pots*

Mad Mark will almost certainly check because your board looks dangerous. He should realise that you do not have a straight because that implies that you called the initial card three raise with either 4-6-7 or 6-9-7. Had you been a loose player, then anything is possible. Nevertheless, he should put you on at least a pair and an open-ended straight and that is dangerous enough in the fifth street.

You, however, do not need to have the straight. Your hand is powerful and you should fire your chips at the centre of the table with the confidence of a player who has a made hand. You will hit the straight or capture one of the remaining 8s 25% of the time (3:1 against) in the sixth street—the two remaining 8s increase your implied odds against weak and non-thinking players because when the dealer pairs the 8♠, your opponents may put you on two pairs. Hence, you should bet half the pot in order to entice them into believing that their pairs have a good chance against your imaginary 'two pairs', whereas your trips are 10:1 favourite.

Even if you do not catch the latter cards you are about 8:5 against winning the pot with one card to come while the pot odds are better than 2:1. Surely you cannot ask for a better chance to make money, especially when the pot is checked again and you get a free river card?

Example 7: A pair and three to the straight in three-handed pots

A large proportion of Seven-Card Stud players like to buy the fifth-street card armed with only three to the straight. I think they are wasting their money most of the time. I would risk my money with such holdings on the days the 'devil is inside me' and only when I had live high-ranking hole cards.

When you, however, have a pair and three to the straight, you should pay the entry fee for the fifth street if your secondary straight and pair cards are live. The following example is related to this type of hand.

Again, let us go back to Mad Mark and Simple Simon. Let us suppose that you receive the 8♠ instead of the 5♥ in the fourth street. The hands with their respective overall win-rates by the river are listed below.

Mad Mark	A♣-K♠-A♦-3♥	42%
Simple Simon	Q♠-2♥-Q♦-9♣	26%
You	8♣-6♦-7♦-8♠	32%

The fifth card will pair your 8♠ or give you an open-ended straight, while both of your opponents receive blanks 20% of the time. Therefore, you can call Mad Mark's fourth-street bet. I have dealt with the situation when the next dealt card gives you an open-ended straight in Example 6. Let us consider the case when you pair the 8♠.

The two remaining 8s do wonders for your implied odds in the fifth street. When you get lucky and capture one of them, your opponents may assume that you have two pairs rather than trips. Of course, in limit games, you are going to be paid handsomely and you should bet till the end.

In pot-limit, you should encourage Mark and Simon to believe that you have two pairs by making a sub-pot bet. You can afford to do that—just look at your win-rates when you capture the 8♥ while Mad Mark and Simple Simon get the J♥ and the 5♥ respectively.

	Fifth street	**Sixth street**
A♣-K♠-A♦-3♥-J♥ (Mark)	9%	5%
Q♠-2♥-Q♦-9♣-5♥ (Simon)	7%	4%
8♣-6♦-7♦-8♠-8♥ (You)	84%	91%

You can be more generous in the sixth street, where you are 10:1 favourite, by making another, say, half-pot bet.

Sometimes the fifth card will pair either the 7♦ or the 6♦. If you have two pairs against two higher paired hands, your win-rate is nearly half that of the three 8s.

	Fifth street	**Sixth street**
A♣-K♠-A♦-3♥-J♥ (Mark)	37%	30%
Q♠-2♥-Q♦-9♣-5♥ (Simon)	23%	25%
8♣-6♦-7♦-8♠-6♥ (You)	40%	45%

In a limit game you want to discourage both your opponents or at least Simple Simon from seeing the river card. Therefore, you should raise Mad Mark's fifth-street bet and bet again if the sixth-street card does not pair your opponents' upcards. You must, however, trash your cards if either of your rivals' hands improves.

In a pot-limit game, again, you should raise Mad Mark's fifth-street bet. This time, however, you must fire a full-sized pot bet. If you get raised, trash your cards. Mad Mark should check to you in the sixth street after which you must place another big bet in order to discourage at least Simon from seeing the river card. Discard your cards when either of them improves on card six and do not bet again if the pot is checked to you at the river.

Example 8: Gut-shot straight draws

There will be many occasions when you will have a four-card draw (gut-shot or middle-pin) to the straight on card four. The way you play such hands depends on how lively the cards you need are and whether you have overcards. Let us assume that none of the four cards needed to complete your straight is among the discards. If you have no overcard to your opponent's pair, the state of affairs in the fourth street is shown in Table 8.

Hand	Fifth street	Sixth street
A♣-8♣-A♦-9♥ (opponent)	64%	74%
2♦-6♥-4♥-3♠ (you)	36%	26%

***Table 8**: Win-rates of a gut-shot draw against a pair*

As you can see, you are about 9:5 against; with one overcard you will be 11:9 against. Therefore, you can take the fifth card both in limit and un-raised pot-limit games; if the fifth card does not improve your hand, forget the pot. Your chances of winning the pot, however, will improve considerably when the fifth card pairs one of your upcards, as shown in Table 9.

Hand	Fifth street	Sixth street
A♣-8♣-A♦-9♥-2♥ (opponent)	54%	65%
2♦-6♥-4♥-3♠-6♣(you)	46%	35%

***Table 9**: Win-rates of a pair with a gut-shot draw in the fifth street*

Hence, when your opponent bets in the fifth street, you can either call or raise the bet. This will force the player with the pair of Aces to check after the sixth card, thereby allowing you to see the river card without having to call another bet. This betting strategy will not save you money in limit games, neither will it cost more, as you were going to call the sixth-street bet. It will, however, enable you to take the initiative. When the river card pairs one of your other cards, declare your two pairs if your opponent checks the pot to you. Obviously you will bet or raise if you complete your straight draw.

I remember that one day I lost a pot in which my opponent went for the gut-shot draw against my three Sevens in a pot-limit game. He got lucky and completed his straight in the fifth street. Although I was about 5:1 favourite if we went to the river, his one-card gamble against me was correct. He knew the fifth-street card would complete his straight 10% of the time. Since I had more than 13 times my fourth-street bet in my chipstack, he reasoned that his implied odds would justify a gamble against me. I do not think, however, that he knew he was up against trips.

Chapter Fifteen
Trips

1. Third street

Your first three cards will be of the same rank 0.235% of the time (424 to 1 against). If you are wired up (have trips in the third street), you will end up with a house 32% of the time and quads (four of a kind) 8% of the time.

Most poker players tend to slow play trips, because they want to exploit this very good, but rare, starting hand and win as big a pot as possible. I, however, frequently raise with small to medium ranking wire-ups for several reasons. My opponents would not put me on three of a kind simply because most of them would not do so if they were dealt a similar hand. Hence, my action introduces an element of deception into my game. Secondly, my raise will achieve two other purposes. I am building up the size of the pot as well as enhancing my chances of ending up with the money; the win-rate of the hand increases as the number of players contesting the pot decreases.

For example, let us assume that you were dealt a wire-up of Threes. The win-rate of your hand will be reduced from over 80%, in a two-handed pot, to about 50% in a five-handed contest.

Two-handed pot

Hand	Win-rate
3-3-3	84%
A-2-A	16%

Two-handed pot

Hand	Win-rate
A-A-A	92%
K-2-K	8%

Three-handed pot

3-3-3	69%
A-4-A	15%
K♠-T♠-7♠	16%

Three-handed pot

A-A-A	78%
K♠-T♠-7♠	16%
Q-2-Q	6%

Five-handed pot	
3-3-3	51%
A-2-A	13%
5-T-5	12%
8♠-7♠-Q♠	14%
8-9-T	10%

You will be surprised at the number of times I have heard players curse their bad luck when their slow-played wire-up of Deuces or Threes lost in four- to five-handed pots. They wanted to lure many opponents into the pot so that they could be outdrawn!

I frequently slow play high-ranking wire-ups up to the fifth street when loose players are contesting the pot. I do, however, think that it is wrong to give tight aggressive opponents more than one free card. That sort of opponent would pay the entry fee for the contest only when (1) you are beaten; (2) they have a good draw against your trips.

I remember the following three-handed pot, which I played against two such players in a pot-limit game at the Victoria Casino in London. I was dealt three Nines and put in a sub-pot raise of £5. David re-raised another £15 with the 7♣. Colin, showing the 3♦, injected the pot with another raise of £30. It was my turn to act. David had £100 in his chip-tray and Colin was left with £50. I knew there was no point in flat calling the double raise because they must put me on trips if I did so and Colin would call my fourth-street bet only when he captured his mystery Ace; he had two Aces in the hole. Therefore, I decided to announce my wire-up by putting in a third raise of £70. After my third raise the pot contained £200. To my surprise, David shoved his last £100; he obviously had three Sevens. Colin could not wait to put in his last £50 after saying, 'Well I know my two Aces are behind three Sevens and three Nines but I've got value.' The total size of the pot was £350, with a side-pot of £40 that Colin could not win.

Before I discuss the 'value' of their calls, let us look at their win-rates against my three Nines.

Three-handed pot		**Two-handed pot**	
Hand	Win-rate	Hand	Win-rate
Me 9-9-9	61%	Me 9-9-9	72%
David 7-7-7	28%	David 7-7-7	28%
Colin A-A-3	11%		

Colin was 8:1 against. He was, however, gambling with £50 when the pot was offering him under 6:1 for his money. Therefore, his statement concerning the 'value' he was getting was grossly misguided. Next, let us consider the wisdom of David's call.

The win-rate of David's wire-up against my higher-ranking trips is 28% in two- or three-handed pots. He is, thus, about 5:2 against (in fact, he was 5.1 to 2 against). Consequently, his gamble against me would have been correct if the pot were offering him odds better than 2.5:1. To put it in clear English, he was gambling with his £100 in the break-even region. David's call would have yielded positive returns only if the total size of the pot was more than £350.Therefore, neither he nor Colin had 'value' in the pot after my second raise, although all the players I know would not release David's three Sevens; after all he was in the break-even region.

2. Fourth street and beyond

2.1 Two-handed pots

Example 1: Trips against a pair of a higher denomination

Table 1 lists the fortunes of, say, a pair of Aces against a wire-up of Threes, assuming that none of the hands improves in the respective betting rounds.

Hand	Third street	Fourth street	Fifth street	Sixth street
<u>3♣-3♦</u>-3♥	84%	87%	92%	96%
<u>A♦-2♥</u>-A♣	16%	13%	8%	4%

***Table 1**: Win-rate of three Threes against a pair of Aces*

The pair of Aces starts the contest as an underdog (about 5:1 against). In the fourth street, the trips are better than 13:2 the favourite and the pair of Aces becomes a bigger dog on card five (23:2 against). Finally, the trips are 24:1 favourite.

I do not want to bore you with a similar table when the trips are of a higher denomination than the challenging pair. Suffice it to point out that the higher-ranking wire-up is 23:2 favourite in the third street!

Example 2: Trips against two pairs

I was involved in the following hand on a day when the cards were teasing me. I was playing in a pot-limit game where the high card had to bring in the first bet. Since my first upcard was the A♦, I had to make the obligatory bring-in bet; my hole cards were <u>7♣-2♦</u>. Phil, who is a very good player, called with the 3♥. The dealer then gave me the A♣ and Phil got the 6♠. Naturally I made a full-sized pot bet and the alarm bells started ringing in my head when Phil flat called my fourth-street bet. Fortunately I had £30 left in my chip-tray.

My fifth-street card was the 2♣, making me Aces-up, and Phil got the J♠. I ignored the alarm bells and shovelled my remaining £30 into the centre of the table. Phil called my bet without hesitation. Now, I knew that I had walked into a wire-up and I needed to capture one of the remaining two Aces. But as Table 2 shows, that required a miracle.

	Fifth street	Sixth street
Phil's hand <u>3♣-3♦</u>-3♥-6♠-J♠	81%	91%
My hand <u>7♣-2♦</u>-A♦-A♣-2♣	19%	9%

***Table 2**: Aces-up against three Threes*

I was 4:1 against on card five and 10:1 the underdog in the sixth street. As I said earlier, the cards were teasing me that day. My seventh card was the 2♥; however, Phil filled his house with the J♥!

Wire-ups are very difficult to read and, by the time you realise your misfortune, it may be too late to turn the clock back. Generally speaking, it is unhealthy to gamble against three of a kind in limit or pot-limit games. That is why alarm bells start ringing in my head when my opponent pairs his door card.

Example 3: Trips against trips

The next table presents the win-rate of three Aces against three Sixes.

Hand	Third street	Fourth street	Fifth street	Sixth street
A-A-A	72%	73%	75%	80%
6-6-6	28%	27%	25%	20%

***Table 3**: Three Aces against three Sixes*

The lower-ranking trips are about 5:2 against in the third and fourth streets. Their chances of winning the pot decline to 25% (3:1 against) on card five and 20% (4:1 against) on card six.

If you ever find yourself with the lower-ranking wire-up, you have my sincere sympathy. If, however, you are the only one who gets lucky, by pairing one of your upcards, the higher-ranking trips' win-rates will decline to 38% (about 8:5 against) in the fifth street and 28% (5:2 against) in the sixth street.

Example 4: Trips against a flush draw

Let us suppose that you are dealt 9♣-T♦-9♥ and decide to call a raise from Lucy, who is a loose and aggressive opponent, because you think that she is trying to steal the antes. Lucy's upcard is the A♠. The dealer gives her the Q♠ and pairs your door card with the 9♦. You bet and she calls your subsequent bet.

If Lucy has (1) a pair of Aces, you are better than 13 to 2 favourite, if (2) two pairs Aces and Queens, you are about 4:1 favourite. She certainly does not have three Aces because she would not raise on card three with such a strong hand. She may have three Queens, in which case you have my sympathy, or, more likely, four to the flush.

Table 4 indicates your win-rate when Lucy is gambling with four flushing cards against your three Nines.

Hand	Fourth street	Fifth street	Sixth street
9♣-T♦-9♥-9♦ (You)	66.5%	73%	80%
6♠-8♠-A♠-Q♠ (Lucy)	33.5%	27%	20%

***Table 4**: Trips against a flush draw*

Oddly enough, the results in Table 4 suggest that she would prefer to have a flush draw rather than two pair Aces against your trips (see Table 2).

In limit, you must bet on every betting round if Lucy does not capture the fifth ♠. If she does complete her draw in the fifth or sixth street, you will have to keep her honest because the pot odds justify a punt with your trips against a made flush.

In a pot-limit game you should bet half the pot in the fifth street and fire a pot-sized bet in the sixth street. By following the above betting strategy you are committing loose Lucy to the pot, as well as enticing her to part with her money at the most vulnerable point of her draw. When she completes her draw on card five, while you have not made your full house, then a check-raise is the correct strategy if this powerful move sets Lucy all-in. Your check-raise may win the pot there and then. If she calls, you are 6:4 against and you may be getting more than that. Lucy will be 5:2 favourite when she catches the dreaded ♠ in the sixth street and the dealer has not filled your house. Therefore, your implied odds will justify your gamble against her made flush if she has more than her sixth-street bet left in her chip-tray. Of course, it would have been better for Lucy to give up the pot once you had paired your door card in the fourth street.

Generally, against made hands in the fifth street, trips will win about 40% of the pots at the showdown. If the draw against trips is completed in the sixth street, their win-rates decline to 28% (5:2 against), assuming that all their cards are live. When, however, two of the trips cards are among the discards, their chances of winning the pots decrease to 30% (7:3 against) at the fifth street and 22% (about 7:2 against) at the sixth street.

2.2 Three-handed pots

Example 5: Trips against two flush draws

Suppose, by card four, we have the three-handed contest shown in Table 5.

Hand	Fourth street	Fifth street	Sixth street
Q♣-2♠-Q♦-Q♥ (Player A)	54%	57%	68%
K♠-T♠-A♠-4♠ (Player B)	30%	27%	18%
7♥-6♥-J♥-5♥ (Player C)	16%	16%	14%

***Table 5**: Trips against two flush draws*

The higher-ranking flush draw (Player B) has similar win-rates to those of a heads-up pot against trips (see Table 4). Player C is 11:2 against, or worse, throughout the contest.

When Player B completes his draw in the fifth street, the pot will most likely be two-handed as in Example 4. However, if Player C decides to be a Simple Simon and see the river card, Player A will have to see the river cards; he has fantastic value with win-rates of 45% and 31% in the fifth and sixth streets.

Example 6: Trips against a made straight and a flush draw

Let us suppose that Player C, in Example 5, has a straight in card five. The next table shows the prospects of Players A and B.

Hand	Fifth street	Sixth street
Q♣-2♠-Q♦-Q♥-6♣ (Player A)	40%	25%
K♠-T♠-A♠-4♠-5♣ (Player B)	24%	15%
8♣-9♣-T♦-7♥-J♥ (Player C)	36%	60%

***Table 6**: Trips against a straight and a flush draw*

Note that the made straight is not the favourite at the fifth street. In pot-limit games, Player A must go all-in in the fifth street and, in limit games, he must 'swim' the river.

Example 7: Trips against Aces-up and a straight draw

This time, let us give Player B Aces-up and Player C an open-ended straight draw in the fourth street. Table 7 presents their expectations against three Queens.

Hand	Fourth street	Fifth street	Sixth street
Q♣-2♠-Q♦-Q♥ (Player A)	56%	62%	74%
A♠-3♣-A♣-3♥ (Player B)	22%	17%	10%
8♣-9♣-T♦-7♥ (Player C)	22%	21%	16%

***Table 7**: Trips against Aces-up and a straight draw*

Player B (Aces-up) has the worst prospects. The moral of the above examples is: 'Beware of paired door cards. Avoid playing against them, especially in pot-limit games.'

Chapter Sixteen
Others

1. Third street

You should stick to good starting cards in small pot-limit and limit games like \$5–\$10, \$10–\$20 and maybe \$15–\$30. Play tight and avoid gambling with borderline cards, especially in the \$5–\$10 and the \$10–\$20 levels. The higher ante structure games, however, will force you to play with starting cards which do not fall into the groups discussed in the previous chapters. If you do not do so, the antes will devour your chips/money, although you should not use this as an excuse to gamble with hands with which you can't win unless you catch miracle cards.

Generally speaking, two high cards with two to a straight/flush, such as A-K-6, A-J-9, K-Q-8 . . . etc, are playable if:

(1) you can see the fourth street cheaply (avoid raised pots because you are about 11:2 against pairing one of the two high cards at the fourth street);

(2) the high ranks, one of which is preferably in the hole, are live.

Three high cards, headed by an Ace, are even better; I may raise with A-K-Q, A-K-T, A-Q-J . . . etc, especially if the Ace was my first upcard. The latter starting cards play best in short-handed pots; the dealer will pair one of the cards about 22% of the time (7:2 against) at the fourth street.

Starting cards which consist of broken straights, such as Q-J-9, J-9-8 . . . etc, are also playable, provided that the cards that are needed to fill the gap as well as the secondary straight cards are live. Again, you should not gamble with these cards in raised pots.

All the other starting cards which don't fall under the categories discussed in this and the previous chapters should be trashed.

2. Fourth street and beyond

There is not much to say about Ace-high and King-high starting hands. If you pair the Ace or the King on card four, the hand should be played as in the examples given in Chapter Twelve. However, let us assume you started with A-K-4 and the fourth street card paired the Four. Furthermore, let us assume that you are contesting the pot with an opponent who has a pair of Queens. Thus, on card four, you have a small pair backed by two kickers whose ranks are higher than the pair held by your opponent. The data below show the results of such a contest.

Hand	Fourth street	Fifth street	Sixth street
A♣-4♣-K♥-4♦	47.5%	42%	31.5%
Q♠-6♣-Q♥-3♦	52.5%	58%	68.5%

The results show that you are 11:10 against on card four, 7:5 against by the fifth street and about 2:1 against at the sixth street. On a card-by-card basis, you will capture an Ace, a King or a Four just over 20% of the time. Therefore, you must go all the way in limit games. In pot-limit, you can go all-in on cards four or five if you have less than two full pot bets left in your chip-tray.

If your opponent has two pairs on either the fourth or the fifth street, your prospects will decline significantly, as shown below.

Hand	Fourth street	Fifth street	Sixth street
A♣-4♣-K♥-4♦	36%	31%	18%
Q♠-6♣-Q♥-6♦	64%	69%	82%

Now you are 9:5 against on card four, 7:3 against on card five and 9:2 against at the sixth street. Your gambles beyond the fifth street will become marginal in both limit and pot-limit; if one of your high cards is missing, you will win only 25% of the pots when you go from the fifth street to the river.

Part Five
Online Poker

Chapter Seventeen
Online Poker

Internet poker has become so popular that some poker sites are entertaining thousands of players from all over the world twenty-four hours a day. These sites offer their customers a wide range of high-stake (over $1000 buy-ins) and low-stake (less than $5 buy-ins) cash games as well as many tournaments. I will deal with online tournaments first then tackle on-line cash games.

1. Online Tournaments

No-limit Hold'em tournaments have become very popular in the past five years. Typically, online tournaments have small entry fees, usually $1 to $100, but hundreds of players. There are also satellites for online tournaments with buy-ins of $100 or more as well as sit and go events in which ten players pay entry fees ranging from $1 to $200.

Online poker tournaments differ in many significant ways from live events. Some of the major differences are outlined below:

(a) The absence of visual contact eliminates the possibility of using physical behavioural patterns, commonly known as tells, as a tool for decoding an opponent's action.
(b) A short time (less than a minute) is allocated to each player's action/response.
(c) The blinds increase every ten to fifteen minutes.
(d) Players are frequently moved to different tables.
(e) Action after the fourth/fifth levels becomes very aggressive. Raising or folding before the flop is the norm, whereas flat calling is the exception.
(f) More than forty hands per hour are played as opposed to about twenty hands per hour in a live tournament.

Therefore, a good on-line tournament player has to behave like a quick-action intelligent robot. His/her ability to accumulate chips will be governed by the following factors:

(a) The way he/she plays speculative hands, like suited connectors and small pairs, in the early rounds. The early rounds present players the opportunity to adopt a low-risk high-reward strategy because the size of the blinds is small relative to their chip-stacks.
(b) The tactics he/she deploys with high pairs and other hands such as A-K, A-Q…etc in the later rounds of a tournament.

The later rounds are the high-risk low-reward phase of a tournament, because of the increasing size of the blinds. Pre-flop raises aimed at stealing the blinds become a necessary ploy. This shift towards an aggressive playing strategy is essential if you want to win the tournament. However, it needs a good understanding of positional play as well as the effect of the size of your opponents' chip-stacks on their aptitude to gamble if you to decide to launch pre-flop raids on the blinds.

1.1 Tournament Playing Strategy

As I said earlier, your playing strategy must change depending on the stage of the tournament and the size of your chips-stack relative to the magnitude of the blinds. If the size of your chips-stack is less than ten times the value of the small and big blinds, you are short-stacked. If your stack is more than ten but less than twenty to twenty-five times the size of the blinds, you have a medium stack. Obviously you can consider your chip-stack to be large when its size is more than twenty-five times the sum of the small and the large blinds.

If the active players behind you are short-stacked, avoid calling with marginal hands such as suited connectors; short-stacked players are more likely to fire all their chips into the centre of the poker table. This important advice applies to all stages of the tournament.

Your chance to win the tournament relies, to a very large degree, on how well you do during the middle stages of the event.

1.1.1 Early Stage

You need to increase your chips stack by at least 50%, during this stage, so that you have an average, or better, stack when you enter the middle stage of the competition.

The value of the blinds relative to the amount of your starting chips is practically insignificant at the early stages of a tournament. Therefore the correct strategy must be based on implied odds. This means you must keep the fee for seeing the flop with suited connectors, small to medium pairs and other marginal hands as cheap as possible. When the "Poker Gods" are good to you on the flop then, you can check-raise or call and then launch an aggressive attack on the turn of the fourth board card.

Generally speaking, if you raise before the flop and catch a nice one, then bet the flop, but check-raise the turn if you think that one of your opponents will try to steal the pot were you to show weakness. If your hand after the flop is not bad, say top pair supported by a fairly good kicker, then play the hand fast. Your bets should be about one half the pot in order to avoid the mischief of Lady Luck. Always remember, betting is the best way to acquire information about your opponents' cards. If you miss the flop, trash your cards.

Therefore the early stages require a loose but sneaky playing strategy designed to accumulate chips that will allow you to 'get lucky' as well as withstand the inevitable outdraws of the middle stages of the tournament. Do not over-stretch the word loose though; pay good attention to position and the cost of seeing the flop because implied odds favour the caller only if the entry fee into the contest is cheap.

1.1.2 Middle Stage

Now is the time to accumulate chips, because the size of the blinds is large compared to the average chips-stack; it is prime blinds stealing territory. Therefore you should adopt a loose aggressive strategy with large stacks. With medium stack you should adopt the following tight-aggressive strategy:

(1) Resist the urge to call, either raise or fold. In particular, you must not call a raise unless you have K-K or better.

(2) Don't risk significant amount of your chips on very close decisions unless you are short stacked. Thus, you should avoid even-chances contests like A-K against a pair.

(3) Avoid making moves against large stacks or small stacks. However, if you are short stacked, it is better to "attack" the large stacks because they are more likely to gamble with marginal hands.

(4) Don't raise from very early position, unless you have the business, but do so if you are first to act with fewer than five players waiting to act after you.

The most important factor that impinges on your chances of getting to the final table at this stage is information about your opponents' playing strategy based on their actions and their betting styles. You should remember the hands they showed and how they played them before and after the flop. What hole cards they raised or flat called with? What was the normal size of their raise if they decided to escalate the action and would they stand a big re-raise or back down when facing resistance? Did they slow play monster hands and bet weak hands aggressively after the flop, or, vice versa?

Obviously it is impossible to gain this information about all your opponents, however, you can start by focusing your attention on the two players to your immediate left, because they act after you, and the two to your immediate right, because they may launch pre-flop raids on your blinds.

1.1.3 Final Stage

Adopt a tight-aggressive style and steal pots more often. Pay attention to position and the size of your opponents' chip-stacks. Avoid unnecessary clashes with the big stacks and attack the small stacks.

At the later stage, especially when only two are left, try to outplay your opponent after the flop. Steer clear of unnecessary all-in coups where the weaker player usually gets a 40% chance, or better, to double up. You should chip away his chips by playing small pots.

1.2 How To Play Starting Cards

Remember, you can raise with anything and as much as you like but avoid calling a raise that will consume more than 10% of your stack.

The way you play your pocket pairs, Ace-high, King-high cards and suited connectors will dictate your prospects of ending up in the money. Your starting hand selection should be governed, to a large degree, by the size of your chips-stack and the number of opponents. For example, small pairs and suited connectors are marginal cards if you have a medium stack. However, they regain their value if you are short-stacked. Similarly, K-7 (o) is a weak hand in a ten-handed table but becomes strong in a two-handed table. The table below lists the average pre-flop Hold'em starting hands against randomly dealt cards in two to four-handed games.

2-Handed	3-Handed	4-Handed
J-7	Q-4/Q-5	QT-QJ

Thus, a King-high two-card combination is better than an average hand in a four- handed game. You can attempt to steal the blinds via a pre-flop raise with K-7 in a two-handed or, on rare occasions, three-handed games at the later stages of a tournament, but I don't recommend even a simple call in a four-handed game at any stage.

I will deal with pairs first.

1.2.1 Aces

Early position: - You can either limp in or raise; the standard pre-flop raise is about three times the big blind. However, if you limp in be prepared to say "bye-bye" to your Aces if a scary flop like J-T-9, Q-J-T…etc is dealt with more than two other players in the pot. If you raise before the flop, however, you could be more specific about your opponents' hands. For example, a flop like 4-4-6 is not that frightening and even 5-6-7 might be good for your Aces if your raise were, say, in the middle stage of the tournament. Remember, limping-in always allows the blinds to see the flop with their random cards. I therefore think that a raise in early position is a better strategy, because Aces play better short-handed, (no more than two opponents - the win-rate of A-A against two other players is 66%). Moreover, you have a better chance of putting a caller on a hand.

If you raise and get re-raised, flat call if it is head-to-head and go all-in if another player calls the re-raise.

Middle and Late positions: - You must elevate the action because you don't want to give the blinds a chance to beat you cheaply with their two random cards. If a player in early position limps in, then a raise is mandatory, because your flat call will encourage other players to see the flop for value, and you will end up playing the Aces under the worst possible conditions.

Blinds: - If you are one of the blinds, a pre-flop raise is a must in order to eliminate the disadvantage of your bad position; if many callers have limped in, your raise must be substantial.

1.2.2 Kings

You must always raise and re-raise with K-K from any position because over 20% of the time the flop will be Ace-high. However, if there is a raise and a re-raise before it is your turn to act, you should consider trashing your Kings if you think that one of the active players is staring at two Aces. I must admit, it will be a very difficult lay down.

1.2.3 Queens

Do not slow play Q-Q because the flop will be Ace-high or King-high about 40% of the time- raise from any position and against any number of callers. If you get re-raised by a substantial amount during the early stages of the tournament, then a lay down is correct for the reasons outlined below.

The raiser must have A-K, K-K or A-A. Now there are 16 ways he can have A-K in which case you will win 9 pots and lose 7. The raiser can be dealt K-K in 6 ways and A-A in 6 ways; you will win 2 out of the 12 times the raiser has an over-pair. Thus, you will lose 17 times and win 11 times if you decide to protect your Q-Q. Therefore the Queens belong to the dustbin if you face a big re-raise.

1.2.4 Jacks

Jacks are vulnerable because the flop will be Ace-high, King-high or Queen-high about 60% of the time.

In the early stages of the tournament you should flat call in early position because more than 40% of the active players will have an over-pair or two over-cards to your pocket Jacks; you will be called if you raise. However, if you are the first one to act and there are fewer than five players waiting to act after you, you can bring it in with a raise- if you get re-raised big time it may be better to fold. Basically you want to hit a good flop in the early stages, cheaply, so that you can win a big pot with your Jacks.

In the later stages you can bring it in with a raise of more than four times the big blind from any position, especially if you are sitting in the last two seats before the button and are short-stacked. If there is a raise before it is your turn to act, you can flat call if the cost of seeing the flop will not make a big dent in your chips-stack or, go all-in if you or the raiser are short-stacked.

1.2.5 Tens

Treat pocket Tens like Jacks although they are more vulnerable than Jacks because they will be outranked on the flop about 70% of the time. That is why I do not think these pairs play well in raised pots in the middle/late stages. However with little chips you must go all-in.

You must always bring it in with a raise if you are the first one to act in middle position at the middle and late stages of a tournament. Your pre-flop raises with these pockets (Tens, Jacks and maybe Nines) should be more than four times the big blinds because you can't allow players with face cards to limp into the pot behind you.

1.2.6 Middle Pairs (9-9, 8-8, 7-7)

Middle pairs should be played with extreme caution. At the early stages of a tournament, these pairs will do well if you can see the flops cheaply. If you catch a good flop you attack your opponents and you trash them if you miss.

In the middle to late stages of the competition, you can raise with them from late position if you are the first one to act and there are fewer than four opponents left behind you. Generally speaking, the size of your chip-stack dictates how you play these pairs; when you are low on chips you take a stand and raise.

1.2.7 Small Pairs (6-6, 5-5, ...etc)

Trash these pairs in early position and play them in late position when there are few limpers and you have a big chip-stack. If you have an average stack avoid two-handed and three-handed contests with these baby pairs. Defend them if your stack is short.

Generally, you want cheap, preferably un-raised, flops in the early stages and avoid investing a large proportion of your chips in the middle to late stages unless the game is short-handed with less than four players waiting to act after you.

1.2.8 Other Hands

Having suited cards is a bonus rather than an essential requirement. Remember, the win-rate of suited cards is about 7% better than that of off-suited cards providing they are allowed to see all the board cards. It is a good strategy to go all-in with suited and connected cards if you are short-stacked but a losing one if you are not short-stacked.

1.2.8.1 A-K and A-Q

A-K and, to a lesser degree, A-Q can be the deciding hands in no-limit Hold'em tournaments, the ones with which you can win or lose lots of chips. They are by far the strongest unpaired hands and can be played like the high pairs. However, they play best when they are allowed to see five board cards. That is why it is better to be the raiser rather the caller with such hands. But, don't jeopardise your hard earned wealth by overplaying them after the flop.

You should raise three to five times the big blind from any position if you are staring at A-K suited or otherwise; with little chips go all-in. If somebody opens with a raise, you can flat call with lots of chips and re-raise if you are short-stacked. Facing a limper is less dangerous than calling a raiser. Thus, you must raise a limper with any A-K and flat call with A-Q (o).

A-Q is a bit more vulnerable. I recommend similar action with suited A-Q. However, I would be a bit reluctant to call a raise with off-suited A-Q in the middle to late stages of a tournament unless I'm short-stacked. On the other hand, if I think the raiser is making a move on the blinds, then my A-Q (o) are good enough to play back at him/her.

1.2.8.2 A-J and A-T

The table below shows the percentage time the hand is the best before the flop.

Hand	2-Hand	3-Hand	4-Hand	5-Hand	6-Hand	7-Hand	8-Hand
A-J	91	87	80	70	68	60	57
Out-Kick	2	3.7	6	8	9.8	11.2	12.8
A-T	90	85	78	68	64	57	53
Out-Kick	2.9	5.5	8.2	11	13.8	16.7	19
Pair	6	9.7	15.4	23.5	24.7	32.7	34.5

The heading "Out-Kick" records the percentage time an opponent has a better kicker and the last heading lists the percentage time a pocket pair is dealt to at least one player. Thus, the table indicates that the A-J is the best hand about 57% of the time if there are seven players waiting to act after you. It also reveals that one of the seven players will have A-K or A-Q about 13% of the times. Moreover, there is a 35% chance that one or more of the players are looking at a pocket pair.

The above table shows that A-J and A-T are very marginal in a full table and therefore must be played accordingly. I would trash them at a tough table and I'd limp in with them if the table I'm playing in was passive. I would not call a raise from an early position raiser in the middle stages of the tournament with A-J or A-T suited or otherwise.

I would flat call if there are few limpers before me and consider a raise with A-J (o) if I'm the first one to act with fewer than five players waiting to act; the table indicates that my A-J is the best hand about 80% of the time. I may bring it in with a raise with A-J(s) with less than six players behind me. However, A-J (o), A-T (o), A-T(s) as well as A-J(s) cannot withstand a re-raise.

1.2.8.3 A-9…A-6

The table below lists the pre-flop ranking of A-9 to A-6

Hand	**2-Hand**	**3-Hand**	**4-Hand**	**5-Hand**	**6-Hand**	**7-Hand**	**8-Hand**
A-9	89	83	75	65	61	53	49
Out-Kick	4	7.5	11.5	15	18	21.5	25
A-8	88	81.5	72	62	57	50	48
Out-Kick	5	9.5	14	18	23	26.3	31.5
A-7	87	79	70	59.6	54		
Out-Kick	6	12	17	22	27		
A-6	86	77	67	56			
Out-Kick	7	14	20	26			
Pair	6	9.7	15.4	23.5	24.7	32.7	34.5

The table reveals that weak Ace-high hands can be very dangerous because flopping the Ace can be a mixed blessing: you have flopped top pair but have a kicker problem. For example A-8 will have a kicker problem about 32% of the time in eight-handed table. The optimum flops for suited medium Ace-high cards, apart from the obvious quads or full–house, are the nut flush, two pairs, and top pair with a flush draw.

Note that A-8 is the crossover hand with Ace-high cards because there are five A-x combinations that are better (A-K, A-Q, A-J, A-T, A-9) and six that have a lower kicker (A-7, A-6, A-5, A-4, A-3, A-2).

In early positions these cards must be trashed, however in late position they can be raising hands at the later stages of a tournament. Raise if you are first to act with less than four players behind you. Avoid this move in the early stages of the tournament.

1.2.8.4 Baby Ace

Hand	2-Hand	3-Hand	4-Hand
A-5	85	75	63
Out-Kick	8	16	23
A-4	84	74	62
Out-Kick	9	17.6	25
A-3	83	72	60
Out-Kick	10	19	28
A-2	82	70	57
Out-Kick	11	22	32
Pair	6	9.7	15.4

The above table shows that Ace-baby starting cards are very marginal and can only be played aggressively in short handed tables.

1.2.8.5 K-Q, K-J, K-T, Q-J

These starting cards look very pretty, especially if suited. In reality they can be very treacherous and therefore, must be played carefully particularly at the middle stages of a tournament.

Early position: - Muck K-J and Q-J, suited or otherwise, especially in a tough table or during the middle to late stages of a tournament. K-Q should also be trashed in a tough/aggressive table. However, in a weak passive table, K-Q(s) can be a raising hand and K-Q (o) is a calling one.

Middle position: - Call with all the above hands at the early stages of a tournament. On some occasions I may start the betting by raising with K-Q and K-J. Trash Q-J (o) in the late stages but call, or escalate the action on few occasions, with K-T(s) and Q-J(s). Remember, these hands cannot withstand a re-raise.

Late position: - If there are no limpers, raise with all of the above hands to steal the blinds in the middle to late stages of a tournament. Avoid this move if you know that one, or both, players holding the blinds are mad about protecting their investments.

I would be very reluctant to call a raise with these cards in the middle stages of a tournament unless I'm short-stacked, in which case I might go all-in. In late position, I may call raises with the above starting cards at the early stages where the pots will be multi-handed and the fee to see the flop is small compared to my chip-stack.

During the middle to late stages of a tournament, you can raise the big blind when you hold the small blind position and no one has entered the pot. However, your raise must be more than five times the big blind in order to inhibit a call by the big blind which would put you at a disadvantage after the flop.

1.2.8.6 Suited Connectors (Q-T, J-T…9-8, 8-7, 7-6, 6-5)

You want to play small pots with these two-edged hands. Reserve them for the early rounds of the tournament and make sure that you have position on most of your opponents. However, if you are playing with passive players you may consider calling from any position.

Because you want to play these starting hands in small pots, resist leading the betting unless you flop at least a draw with two over-cards. If you hit two pairs or better, then the world is your oyster.

Do not play two-gapped hands and avoid playing against the blinds only, because one of them may decide to raise if you are the only caller.

2. Cash Games

There are three major differences between online and live cash games. The absence of visual contact, the short time a player is allowed to dwell before acting and the larger number of hands played per hour.

The absence of visual contact should not have a significant effect on the outcome of your playing sessions. Most poker sites provide you with the means of making notes about your opponents' playing/betting strategies. In most cases, you will find that the size and the tempo of the pre-flop and post-flop action speak volumes. Small, sometimes insignificant, bets usually indicate weakness and big bets/raises reflect strength or commitment to the pot. On few occasions some players will make very small post-flop bets with monsters. That is why you must make notes about the playing habits of your opponents.

You can make use of the fact that more hands per hour are dealt and, that a player is not allowed more than thirty seconds to consider his/her next action, by adopting the following winning strategy:

(1) Play in at least two tables. Thus, you will be dealt more than seventy hands per hour.

(2) Play only the premium hands recommended in the various chapters of this book.

Playing only premium hands in more than one table will guarantee profit in nearly every playing session. When you hit a monster hand, the many players who like to gamble with their marginal draws or losing made hands will pay you. Moreover, the large number of hands per hour will ensure that you will be dealt premium cards more frequently, per playing session, than in a cash game. However, you will have to play like an intelligent but very patient robot. If you don't catch good, you fold. Save your money for the very good hands or the very good draws and, avoid marginal situations where you have to think before you act. You can afford to steer away from trivial draws or situations where you are not certain about your winning chances because you are playing so may hands per hour.

Good luck.

Chapter Eighteen Post-Flop Strategy in No-Limit Hold'em Tournaments

Your chances of winning tournaments depends heavily on your ability to accumulate a large enough chip-stack in the early and middle stages of the competition, so that you can survive the continual increase in the size of the blinds as well as the mischief of "Lady Luck". This very important objective can be achieved if your pre-flop playing requirements, which I described in the previous chapter, and your post-flop playing proficiency, which are basically related to your capacity of reading your opponents hands, are up to the required standard.

The skill of putting your opponent on a hand is one of the most important aspects of winning Poker. However, reading your opponents starting cards is a process of educated guesses based on:

(a) Your opponents' playing habits.
(b) Their position relative to the button and the number of active players behind them.
(c) The stage of tournament.
(d) The size of their chip-stack relative to that of the blinds.
(e) The texture of flop and its effect on their post-flop action.

You must appreciate that the type of starting hands your opponents will gamble with at the early stages of tournaments are inferior to those they are prepared to contest the pots with at the later stages. At the early stages up to five players will enter most pots, including raised ones, with any suited or off-suited Ace, any suited or off-suited connected cards ranging from K-Q to 7-4 as well as any pair. However, after the fifth or sixth level of most on-line tournaments, fewer pots will be un-raised pre-flop and subsequently, most contests will be mainly two-handed. Moreover, all-in coups will be the norm rather than the exception.

1 Post-Flop Action

There are 19,600 Hold'em flops, which makes it impossible to analyse the impact of every single one on your starting cards. However, we can classify flops according to their texture. For example, you can have flops with two or three cards of the same suit as well as flops with two or three connected cards. You should find the following guidelines fairly useful:

(1) If the flop comprises two cards of the same suit, the probability that a player holds hole cards of the same suit is 5%. Thus if your starting cards, in a full table, are A♠-J♣ and the flop is J♦-9♠-3♦ then it best to assume that one of your opponents will have a flush draw about 45% of the time. This assumption will be fairly accurate at the early stages of the tournament.

(2) If the flop contains two connected cards with no gap between them, then 5% of the time a player will have an eight-card straight draw. Moreover, every active player can have a four-card draw to the straight (gut-shot or middle-pin) about 8% of the time. For example, you hold K♠-J♣ and the flop is K♦-6♠-5♣. Again, at the early stages of a tournament, it is better to multiply each of the later figures by nine to get a fair estimate of the probability that an opponent is trying to complete a straight draw. Note that the probability of a straight draw is nearly three times as large as that for a flush draw if the gut-shot draw is included.

(3) If the flop is composed of two connected cards separated by one gap, then there is a 3% chance that every player has flopped an eight-card draw to the straight. The probability of a four-card gut-shot draw is again 8%. For example, you hold A♠-J♣ and the flop is J♦-9♣-3♠.

(4) If the flop contains two connected cards separated by two gaps, then there is a 1.5% chance that every player has flopped an eight-card straight draw. The probability of a four-card

gut-shot draw is reduced to about 6% per player. For example, you hold A♠-J♣ and the flop is J♦-8♣-3♠.

(5) A flop that comprises two connected cards separated by three gaps doesn't offer any player an eight-card draw to the straight. However, a 5% chance of a gut-shot draw exists. For example, you hold Q♠-J♣ and the flop is J♦-7♣-2♠.

Flops like A-9-3, A-8-2, J-6-2…etc are good if you have flopped top pair with a good kicker. Although they will provide your opponents with four-card straight draws, it is safe to discount these draws because most players don't see the flop with off-suited 5-3, 4-2 or even 5-4; only the blinds can have the latter cards in an un-raised pot.

One of the best ways of gaining information about your opponents' hands is to bet at the flop. Their reaction to your bets will help you define their hole cards with some degree of confidence. It is not advisable to give free cards after the flop unless you think that someone will take a shot at the pot. The only other time a free card is relatively safe is when you flop three of a kind against several opponents or you flop top pair with a good kicker against one player.

At the early stages of tournaments, however, the size of the pots is small. You can therefore deploy a check-raise ploy, when you flop good against up to two active players, but you must bet if there are more than two players sitting to your left.

Let us look at some examples of post-flop playing strategy.

Example 1.1

This hand was played at the final table of a televised tournament. All the combatants were famous players with large of chip-stacks. The blinds were \$2000-\$4000. The first seven players after the big blind folded. The button made it \$12000 to play. The small blind folded and the big blind called with A♦-9♦. The flop was A♥-8♣-5♠. The big blind's bet of \$15000 was called by the pre-flop raiser. The dealer then turned the Q♠. Again the big blind bet \$30000 and the button flat called. Finally the river card paired the board with the 5♦. The big blind checked and called an all-in bet from the button player. The aggressor showed A♣-Q♣ and the big blind was knocked out of the tournament.

The big blind committed several mistakes. If he thought the button was on a steal, he should have re-raised the initial escalation to find out where he stood. His flop bet was correct, however, his opponent called the bet thereby suggesting that he has flopped top pair but with a kicker that could be of a higher rank than the 8♣. The turn card caused the big blind's demise. Now he was drawing dead. To add insult to injury, the 5♦ was the best card the big blind could hope for provided the button did not hold A-K or A-Q. Under these circumstances the pot would be shared if both players had an Ace; each would have A-A-5-5-Q at the showdown.

You must also admire the button's betting strategy. He realized that since his pre-flop bet was not re-raised, the big blind post-flop bet meant that he had an Ace with a lower kicker. His all-in bet after the river card was superb, because it represented a bluff. It is what I call a pseudo bluff because he had a hand he was pretending he didn't.

Example 1.2

This hand, which was also played at a televised tournament, is a variation of the one in Example 1.1. All six warriors at the table were again famous players with large of chip-stacks. The blinds were \$5000-\$10000. Under the gun player limped in with A♣-J♠ and the button, staring at red pocket Kings, made it \$30000 to play. The big blind, who was an aggressive player, had a brainstorm and decided to see the flop with A♠-5♠. Now the limper, tempted by the pot odds of more than three to one, called the raise. The flop was A♥-Q♣-4♠. The big blind bet \$60000. The limper called and the button cursed his luck and trashed his big pair. The turn card paired the board with the 4♣. The aggressive player realized that the only way he can lose the pot is if the limper had entered the pot with A-K or A-Q. He correctly reasoned that, with the latter hole cards and in a six-handed table, his opponent would have escalated the pre-flop action. Hence, he forced the limper to muck his A-J by going all-in.

Example 1.3

I was involved in this pot in an on-line tournament. The blinds were $50-$100. I was to the immediate right of the button, with $1300, looking at J♣-9♣. One player limped in and I decided to gamble with my suited hole cards. The button made it $200 to play. The small raise presented the other active players very attractive pot odds of at least five to one. It is an offer you can't refuse. I realized that the button could not be on a steal because he raised after two players had limped in, which meant that he had pocket Aces or Kings. Why he wanted to play his big pair in a five-handed pot I will never know. Anyway the two blinds as well as the limper and I called. The dealer flopped Q♣-6♣-2♦. The limper bet $400, I went all-in and both the button, with his red Aces, and the limper with Q♦-J♥ called. The turn card was the 7♣ followed by a blank. Thus I was allowed to treble my chip-stack after which I went on to win the tournament.

Example 1.4

This hand was played at the early stage of an on-line tournament when the blinds were $15-$30. There were four players including the small and the big blinds. The flop was A♠-8♥-3♥. The big blind bet $60 with his A♣-9♦ and the button, who had A♥-2♥ called the bet and raised $140. The question is, was the button player correct to raise? The answer is a definite yes. He has nine outs to complete the flush and three cards to end up with two-pairs. In fact if the hand is played to the river, the button's win-rate is 49%. The outcome of this pot will effectively be determined by the flip of a coin. Even if the flop were A♠-9♥-3♥, giving the big blind two pairs, and the button hole cards ranged from A♥-T♥ to A♥-K♥ then the button's win-rate would have been 45%. The important thing to note about the latter two flops is the suit of the top card. A flopped top card that it is not part of the flush draw may provide one of your opponents a top pair backed by a flush draw. However, if the flop's top rank is part of the draw, as in A♥-9♥-3♠, then another player could not have top pair supported by a flush draw.

Example 1.5

This hand was played at a six-handed table at the final stage of a tournament. None of the players at the table was short-stacked. The blinds were $2000-$4000. Under the gun player, looking at black pocket Kings, made it $10000 to play. The player at the button decided to flat call rather than raise with his red pair of Nines. Now the raiser should have known that his opponent could not have an Ace with a good kicker because in a six-handed game you can't flat call with such hole cards — a re-raise or a fold are the only correct options. However with a medium pocket pair facing a raise from a big stack, it is not wrong to delay your aggression till after the flop. The dealer dealt A♠-7♠-3♥. The A♠ scared the raiser so he checked. The button player was happy to take the free card. The turn card was the 9♠. Now the player with the pocket Kings realized his mistake. He attacked the pot hoping to take it there and then and if not he had the comfort and support of the nut flush draw with a big pair. The button raised him all-in and knocked him out of the tournament. You can't win tournaments by second guessing yourself. The player with the black pocket Kings should have bet the flop to represent a good Ace since he was the pre-flop raiser. More importantly, a flop bet would have enabled him to put his opponent on a hand.

Example 1.6

Flops that are Jack-high or lower, containing two cards belonging to the same suit, can present high-ranking suited cards with good opportunities. For example, a flop comprising T♦-5♦-2♣ gives a player with K♦-Q♦ nine cards to complete the flush as well as six over-cards, namely three Kings and three Queens. Thus he has a total of fifteen cards to beat someone with J♥-T♥ or A♥-T♥. In fact the K♦-Q♦ will win about 55% of the pots against A♥-T♥ and even against Q♥-T♥, 48% of the pots will belong to the person staring at the K♦-Q♦ in the comfort of his/her seat. At the early stages of a tournament these encounters occur fairly regularly. They are less likely to happen in raised pots at the middle or late stages of a tournament because, although suited K-Q, Q-J and J-T look pretty, they are marginal hands. Consequently, good players will avoid calling raises with suited connectors but they will happily gamble with them in un-raised pots. Some will even take the initiative and open the betting with a small raise.

Example1.7

In a full table the first eight players muck their hole cards. The small blind decides to see the flop with T♠-8♠ and the dealer turns J♣-T♦-3♣. The small blind bets half the pot to protect his middle pair. Now the big blind, with J♥-3♥, can try to represent the flush draw by injecting the pot with a small raise.

Example1.8

At the early stage of a tournament, with blinds at $10-$20, you flat call with A♣-J♠. Three other players, as well as the small blind, limp in making the pot six-handed. The dealer turns J♣-6♦-2♠ and the blinds check to you. You have flopped top pair with Ace kicker so you bet $60 and the player to your immediate left makes it $200 to play. Everyone passes and it is your turn to raise, call or fold. Let us try to assess the possible cards the raiser is acting with.

(1) He can have pocket Kings or Queens (12 ways these two cards can be dealt) in which case you will lose 80% of the time if you go all the way. Many players will slow play their pocket Aces, King and Queens at the early stages in order to win a fair amount of chips at the cheap early rounds.

(2) He can have pocket Aces (since only three Aces are left, the deck contains three combinations of pocket Aces) in which case you will lose 92% of the pots.

(3) He can have pocket Jacks; now you would need a miracle to win any pot.

(4) Another strong possibility is pocket Sixes or Deuces (six possible

combinations in the deck). Now you will win only 2% of the pots.

(5) It is also possible that he can have eight combinations of K-J, Q-J, J-T, J-9 or J-8. Thus, there are forty ways in which you will be happy with the results 86% of the time, although I cannot imagine a good player raising with J-T or worse with at least three active players waiting to act after him.

(6) Lastly, your opponent may have A-J (six combinations) where the pot will be shared.

Based on the above, your projected win-rate will be about 37%. The pot has so far cost you $80. Therefore, a fold is the correct play.

Example1.9

This hand was played in a six-handed table. The blinds were $3000-$6000. The button made it $21000 to play and the big blind decided to see the flop with his black pocket Eights. The flop was a rainbow K-8-3 (all of different suits). The big blind decided to induce a bluff by betting $10000 into a $45000 pot. True to form the button went all-in with his suited A-T and got knocked out of the tournament. The moral of the story is always think before you react to a very small post-flop bet from a player who called a pre-flop raise out of position. Sometimes the small bet could represent either a small pair or even a draw but with the above flop, the later possibilities were unlikely.

Example1.10

At the middle stage of a tournament, with the blinds at $100-$200, the first four players fold and it is your turn to act. You have $4000 and were dealt A♣-J♠. Thus, you decide to escalate the action by making it $600 to play. The player to your immediate left, possessing a chip-stack of $5000, flat calls and the rest of the players chose to be spectators. The first three board cards are J♥-3 ♣-2♦.You must not go all-in. Instead a bet of about $700 is good enough to find out where you stand. If your opponent can beat a pair of Jacks you will definitely hear from him, if not he is more likely to fold.

On the occasions your post-flop bet is called, you could be in trouble. Your opponent did not call the pre-flop raise with pocket threes, deuces or suited 5-4 at the middle stage of a tournament with four active players behind him. He either has A-J, pocket Aces or Kings. He would have re-raised with Queens, Jacks and A-K and folded or re-raised with A-Q. Don't get hypnotized by your flopped top pair and commit the mistake I made by throwing all my chips only to walk into pocket Kings.

Example1.11

I always say "you can raise with anything but you must call a raise with good cards". A pre-flop raise of at least three times the big blind at the middle to late stages of a tournament is a great way to unravel the mysteries of your opponents' cards. Only players holding good cards will dare respond under these circumstances. However, some experienced players apply the later saying in a reverse way against inexperienced/passive opponents. They call a raise with any hole cards supported by a respectable chip-stack, and they attack flops containing rags like 9♣-6♥-3♦ because they argue that such flops don't connect with the raisers' hands. Other times they will check-raise or, call the flop bet and fire a decent amount of chips after the turn card.

Example1.12

The blinds are $400-$800. Every one folds to the button who is now in a good steal position. The button makes it $1600 to play forcing the small blind to discard his cards. You are the big blind and decide to call with K♥-4♥. The flop is K♣-8♥-2♣. You must bet about $2000 to find out where you stand. Even if you flop middle pair you must bet just in case the button is trying to steal the blinds. The size of your bet is indicating that the flop has connected with your hole cards. Never give free cards under these circumstances unless you are setting up a check-raise ploy.

2. Is it a bluff?

The bluff is one of the many weapons a successful Poker player utilises during a tournament. Bluffs or semi-bluffs are effective ways of accumulating chips in the later stages, where the size of the blinds are big and future betting threatens to knock out or cripple the table's sheriff. In the early stages of tournaments however, when the size of the blinds is small and more than three players contest every pot fiercely, bluffs will be either called or answered by a raise followed by an all-in bet.

Generally speaking, a bluff will have a greater chance of success if the bluffer is perceived as a tight conservative player. The number of opponents contesting the pot, the position of the bluffer relative to the other active players and the size of the players' chip-stacks will also determine the success/failure of the bluff. Here are some general guidelines for executing profitable bluffs in tournaments:

(1) Launch your bluffs against good players. Good players are more likely to muck drawing or weak hands.

(2) Bluff players whose playing strategy is based on check and call. Such opponents can be intimidated easily because they are scared of getting knocked out of the tournament.

(3) Avoid bluffing more than two opponents unless the pot is checked to you. In two or three handed pots, the last active player can consider the pot his for the taking, on most occasions, when the pot is checked to him.

(4) Avoid launching pre-flop raids on the blinds if there are players with small chip-stacks waiting to act. These moves stand a better chance against players with medium stacks.

(5) The active player to the immediate left of the big blind and the player sitting at the button occupy the best bluffing positions. The former player's bet represents strength, because he is the first one to act, and the latter player's bet says, "gamble

with your weak hand when you are out of position against my cards which are a mystery to you", or, "gamble with your weak hand if you want to call my next big bet".

Let's look at some examples.

Example 2.1

You are at the button in the early stage of a tourney. The blinds are $15-$30. Three callers limp in before you. You call with A♣-T♦. The small blind adds his $15 to the pot and all except the small blind call the big blind's raise of $180; your A♣-T♦ is not the appropriate starting hand in this situation, a small or medium pair might have been a much better hand. However, you call because you are tempted by the pot odds of five to one. The flop is A♦-Q♠-7♥. The big blind fires $200 at the pot. The bet sounds like a weak bluff. But, you must consider the bettor's pre-flop and post-flop actions. Pre-flop, he injected the pot with a pot-sized raise against five other active players. He then made a small post-flop bet of $200 at a pot of $1080 with four opponents waiting to act. He is itching for a call or a raise because his bet is offering his opponents pot odds better than five to one. Hard as it is, you must muck your flopped top pair. However, the devil residing inside your head clouds your judgment and you decide to flat call. The turn card is 3♦. The big blind now bets $500 and again you flat call. The river card is 7♣. The big blind goes all-in and you call; your Aces and Sevens lose to a full house of Queens. You should have mucked your hand, or, saved most of your chips by forcing your opponent to define his hand with a post-flop raise.

Example 2.2

This hand was played in the middle stage of a televised tournament in which all the participants were famous players with average to large chip-stacks The big blind had 9♣-8♥, under the gun player limped in with red 9♥-9♦, and the button player, who was known for his aggressive playing style, decided to call for value with his Q♦-T♣. The small blind gambled with A♠-2♠. The flop was

K♣-9♠-5♦.

Every player checked. The turn card paired the board with the 5♣ and the big blind fired a small bet at the pot .The player with the flopped set of Nines flat called; why should he raise, he had the pot locked. The aggressive button player decided that his opponents' actions were weak and consequently, moved all his chips to the centre of the table. What a silly mistake caused by a large ego! The big blind's play for the pot was called by under the gun player when the board's low cards were paired and, at least one active player was yet to respond. What did the button player think they were playing with? Under the gun player cards must have connected with the board. He couldn't have K-K, A-A or A-K because he would have raised pre-flop and bet post-flop. Furthermore, he wouldn't have called the turn bet, if he had medium/small pocket pairs, with a board containing two over-cards and a pair. I bet our aggressive player thought that his opponents would trash their cards because they were good players. However, he should've realized that his experienced opponents would put him on speculative hands like Q♦-T♣ or J♣-T♣, because he limped in; surely he would have escalated the pre-flop action with stronger hands and made a post-flop bet with A-5…5-4. Thus, he could have found out the level of their attachment to the board by calling and injecting the pot with a pot-sized raise, rather than over betting by a disproportionate amount. The reward for his excessive action was self gratification coupled with winning a relatively small pot, but the risk was getting knocked out of the tournament. Even world famous players can live in a different world and try to be too clever for their own good.

Example 2.3

The following action happened in a seven-handed table at the middle stage of a tournament. Player A limped in with pocket red Aces and an aggressive opponent, player B, raised with 9♣-7♣. Only player A flat called; alarm bells started to ring in player B's ears because he and his opponent were deep in chips. Dealer flopped K♣-T♣-2♦. Both checked the flop and then the dealer turned the 5♦. Player A checked again and B decided to steal with a half-pot bet; A flat called again. The river card was the 2♠. Now player A bet the pot, representing a bluff, in the hope that B would call if his cards had connected with any part of the board.

Example 2.4

The blinds are $100-$200. You are sitting in the fourth position after the big blind. The first three players fold and you make it $800 to play with A♣-J♣. Only the player in the big blind, with a chip-stack of $1500, calls your raise. Now you must bet any flop because he is clearly a timid player otherwise he would have set himself all-in, with any decent hand, instead of flat calling your pre-flop raise.

Example 2.5

An aggressive player, in middle position, makes it three times the big blind to play. You are at the button with K♣-Q♣ and decide to keep him honest. All the others fold. The flop is A♦-T♠-2♣. The raiser makes an obligatory bet of one-third the pot and you call, hoping to complete your four-card draw to the straight. If the raiser checks after the turn card you can launch a semi-bluff. By betting you are representing the top pair or better and the aggressive player will most likely muck his cards. One thing you must remember, aggressive players like to steal small pots. Once the betting gets heavy they will trash their weak cards.

Example 2.6

If under the gun player opens the betting with a small raise in the later stages of a tournament, you should resist the temptation of a gamble unless you have Aces or Kings. Your opponent must have a very strong hand because he is inviting the nine active players behind him to gamble against his strong holding.

Example 2.7

The hand was played in a six-handed table. The first three players folded and the player at the button, holding K♥-9♥, decided to steal the blinds by firing a small raise at the pot. The big blind called with K♣-Q♦ and bet his flopped top pair after the dealer turned the following three community cards, Q♣-10♦-6♠. The button player called the bet hoping to see any Jack on the turn. The turn card, 3♥, did not help anyone. The first active player, for reasons I don't understand, decided to check. The button welcomed the free card. The river card was the 4♣. Again the big blind checked. Now, the initial raiser reasoned that the big blind might have flopped second or third best pair and could be forced to muck his cards if he fired a reasonably sized bet at the pot. Thus, the button player bet half the pot and the big blind quickly called the bluff. In most situations, a river bet by a player who was grateful for a free card on the turn, is a bluff especially if the river card is an absolute blank like the 4♣.

Example 2.8

This was another hand played at the same six-handed table of Example 2.7. The blinds were $1000-$2000. Again the button player, with K♥-9♥, attempted to steal the blinds with a small raise of $2000 and again the big blind defended his investment, but this time, with the 5♣-4♣. The flop was A♣-A♦-6♣. The big blind checked and the button, trying to represent a player with an Ace, made a mandatory bet of $4000. The big blind decided to gamble. The turn card was the 2♥. Now, the big blind made an inspired move; he bet $5000. The rationale for this brilliant bet was as follows. He could win the pot there and then because the bet was small enough to make the alarm bells in the button player's ears ring louder than they did when he called his flop bet. Furthermore, he wanted to deter the button player from firing a big bet if the pot was checked to him because he wanted to see the river card; the turn card improved the big blind's draw by another three outs, any three, for the straight. As expected the button cursed his luck and folded the best hand. I must admit, it would have been very difficult to read the big blind's bet.

Appendix: The Mathematics Of Probability

The fundamental formula for calculating the probability, p, that an event will happen is:

$$p = \frac{\text{Number of favourable cases}}{\text{Number of total cases}} \qquad (1)$$

where the number of total cases is the sum of favourable and the unfavourable cases.

For example, if you hold four to a flush on the flop in Hold'em, your chances of catching a fifth one on the turn are calculated as follows. You have seen five of the fifty-two cards in the deck, which means there are forty-seven unseen cards left in the deck. Of these unseen cards, nine are of the suit you hold. Therefore, your chances of completing the flush draw on the turn are nine divided by forty-seven.

The above example is very simple. Now I'll show you a standard method of calculating the number of favourable and total cases. The basic formula for these calculations is:

$$C = n! \div (r! \times (n - r)!) \qquad (2)$$

where C stands for the number of combinations in n things taken r at a time. A notation such as 5!, referred to as five factorial, is the mathematician's way of writing $5 \times 4 \times 3 \times 2 \times 1$. Let us look at some examples:

a. **How many poker hands are there in a full deck of cards?** A full deck contains fifty-two cards, therefore, $n = 52$. A poker hand consists of five cards, therefore, $r = 5$. Substituting these numbers in equation (2) gives the required result, which is:

$$\frac{(52 \times 51 \times 50 \times 49 \times 48) \times 47!}{(5 \times 4 \times 3 \times 2 \times 1) \times (52 - 5)!}$$

$$\frac{(52 \times 51 \times 50 \times 49 \times 48) \times 47!}{(5 \times 4 \times 3 \times 2 \times 1) \times 47!}$$

$$\frac{(52 \times 51 \times 50 \times 49 \times 48)}{(5 \times 4 \times 3 \times 2 \times 1)} = 2{,}598{,}960$$

b. How many ways can any pair be dealt?

There are four Aces, Kings, Queens . . . etc. in every deck, therefore, in this case n = 4 and r = 2. Substituting these numbers in equation (2):

$$\frac{(4 \times 3 \times 2 \times 1)}{(2 \times 1) \times (4 - 2)!}$$

$$\frac{4 \times 3 \times 2 \times 1}{2 \times 2} = 6$$

c. How many Hold'em hands are there in a standard deck of cards?

In this case n is 52 and r is 2, therefore, the answer is:

$$\frac{52 \times 51 \times (50!)}{2! \times (52 - 2)!} = \frac{52 \times 51}{2} = 1{,}326$$

d. What is the probability of being dealt a pair in Texas Hold'em?

There are thirteen pairs in a standard deck of cards. Example b says that a pair can be dealt in six ways, therefore, a fifty-two card deck contains 6 × 13 = 78 pairs. This represents the favourable cases in equation 1. The total number of cases was calculated in example c, thus, the answer is:

$$78 \div 1{,}326 = 0.0588$$
$$= 5.88\% \text{ of the time}$$

Similarly, it can be shown that a pair of, say, Aces will be dealt

$$(6 \div 1{,}326 = 0.0045) \times 100 = 0.45\% \text{ of the time.}$$

e. **What is the probability of having a pair in your starting Omaha hand?**
This time you must calculate the number of ways that a pair can be dealt in four cards. There are seventy-eight pairs. If the first two cards are a pair, there will be another forty-eight cards, of a different denomination, left in the deck. Therefore, the third card can be any of these unseen cards. If you want the probability of being dealt one pair only in four cards, then the fourth card must be one of forty-four, rather than the forty-seven remaining cards. For example, if the first two cards are a pair of Aces and the third card is a King, the fourth card must not be another King because you will end up with two Aces and two Kings. Thus, the number of combinations of two cards, of different ranks, which can be dealt with the pair is given by:

$$\frac{(48 \times 44)}{2!} = 1{,}056$$

Therefore, the number of ways that only one pair can be dealt in four cards is:

$$1{,}056 \times 78 = 82{,}368$$

Now the total number of four-card combinations in a standard deck is given by:

$$52! \div (4! \times (52 - 4)!) = 270{,}725$$

Hence, the probability of having a pair in four cards is:

$$(82{,}368 \div 270{,}725) = 0.304$$
$$= 30.4\%$$

f. How many flushes are there in a standard deck of cards?
Every deck contains four suits and there are thirteen cards in each suit. First, the number of flushes in every suit must be calculated. This is done by substituting n = 13 and r = 5 in equation (2).

$$\text{Number of flushes in a suit} = \frac{13!}{5! \times (13-5)!}$$
$$= \frac{13 \times 12 \times 11 \times 10 \times 9 \times 8!}{5 \times 4 \times 3 \times 2 \times 1 \times 8!}$$
$$= \frac{13 \times 12 \times 11 \times 10 \times 9}{5 \times 4 \times 3 \times 2 \times 1}$$
$$= 1{,}287$$

Thus, the total number of flushes in a deck is 1,287 × 4 = 5,148. Since each suit contains ten straight flushes, the correct number of flushes is in fact 5,148 – 40 = 5,108.

g. If you are dealt two suited cards in Hold'em, how often will the dealer flop three cards of the same suit?
Let us say you were dealt two hearts, leaving eleven cards of the suit in the remaining fifty cards. The number of combinations that three cards can be dealt out of eleven represents the favourable cases. Therefore, substituting n =11 and r = 3 in equation (2) will give the number of times that three hearts are flopped. Substituting n = 50 and r = 3 in equation (2) will give the total number of ways that three cards are dealt out of the remaining fifty; this represents the number of total cases. Substituting the number of favourable cases and the number of total cases in equation (1) gives the required result.

Probability of flopping a flush $= \dfrac{\{11! \div [3! \times (11 - 3)!]\}}{\{50! \div [3! \times (50 - 3)!]\}}$

$= \dfrac{11 \times 10 \times 9}{50 \times 49 \times 48}$

$= 0.0083 = 0.83\%$

h. What is the probability of flopping a four flush draw when your Hold'em hand consists of two suited cards? Again, you must calculate the number of three-card combinations that can contain two cards of the same suit in the remaining fifty cards. Then you divide the result by the total number of three-card combinations that exist in fifty cards. The number of favourable and total cases are calculated as follows:

Number of favourable cases $= \dfrac{11! \qquad \times (50 - 11)}{2! \times (11 - 2)!}$

Number of total cases $= 50! \div (3! \times (50 - 3)!)$

Probability of flopping a four flush draw $= \dfrac{11 \times 10 \times 39 \times 3}{50 \times 49 \times 48}$

$= 0.109$
$= 10.9\%$

You must subtract eleven from fifty because the third card that is dealt with the two suited cards must have a different suit.

i. What is the probability of flopping trips, or better, if your starting Omaha hand contains a pair?

The number of unseen cards in this case is forty-eight. Only two of these cards will give you trips on the flop, which means that the other two flop cards must come out of the remaining forty-six cards. Therefore, the number of favourable and total flops are:

$$\text{Number of favourable flops} = \frac{2 \times 46!}{2! \times (46-2)!}$$

$$\text{Number of total flops} = 48! \div (3! \times (48-3)!)$$

$$\text{Probability of flopping trips or full house} = \frac{2 \times 46 \times 45 \times 3}{48 \times 47 \times 46} = 0.119 = 11.9\%$$

Therefore, about 12% of the time you will flop trips or full house. If you want the figure for trips only, then the 45 in the numerator of the last-but-one expression should be replaced by 42.

j. What is the overall probability of completing a flopped eight-card straight draw in Hold'em?

Since the straight may be completed on the turn or the river, you must calculate the probabilities for each street. Thus, the result for the turn is $8 \div 47 = 0.170$. The probability of improving to the straight on the turn of the last card, assuming that the fourth card did not complete the straight, is:

$$(8 \div 46) \times ([47-8] \div 47) = 0.14431$$

Therefore, the overall probability is 0.170 + 0.144 = 0.314. Notice that the chances of improving on the river are multiplied by the probability that the straight was not completed on the turn card ([47 – 8] ÷ 47). This is a standard procedure that you must use whenever you want to calculate overall probabilities after the flop. Thus, if you have ten outs after the flop, the probability that the dealer will turn one of them by the river is:

$$(10 \div 47) + (10 \div 46) \text{ x } ([47\text{-}10] \div 47) = 0.384 = 38.4\%$$

The same procedure is used for calculating overall probabilities in Omaha. For example, if you have a thirteen-card draw after the flop, then the overall probability of completing your hand by the river is:

$$\begin{aligned}(13 \div 45) + (13 \div 44) \times ([45 - 13] \div 45) &= 0.499 \\ &= 49.9\%\end{aligned}$$

k. What is the probability of flopping split two pairs in Hold'em?

Let us assume that your starting Hold'em hand is Q-T(o). There are three Queens and three Tens left in the remaining fifty cards. To flop a split pair, the first three cards must be Q-T-X. The number of ways that three Queens and three Tens can combine without pairing is 3 × 3 = 9. Therefore, the number of favourable cases is:

$$3 \times 3 \times (50 - 6) = 396$$

The number of total cases is obtained by substituting n = 50 and r = 3 in equation (2). Therefore, the probability of flopping a split two pairs is:

$$\begin{aligned}396 \div 19{,}600 &= 0.02 \\ &= 2\%\end{aligned}$$

l. How many straights are there in a standard deck of cards?

Let us first consider the Ace-high straights that are composed of combinations of Aces, Kings, Queens, Jacks and Tens. The favourable cases formed from these twenty cards must not contain a pair. The calculation is carried out by multiplying the four Aces by four Kings, four Queens, four Jacks and four Tens. Thus, there are:

$$4 \times 4 \times 4 \times 4 \times 4 = 1{,}024 \text{ Ace-high straights}$$

There are the same number of King-high, Queen-high . . . Five-high straights. Thus, the total number of straights is:

$$10 \times 1{,}024 = 10{,}240$$

However, forty of the above straights will be straight flushes. Therefore, the total number of regular straights, in a fifty-two-card deck, is 10,200.

m. What are the chances of flopping a straight in Hold'em?

Let us assume that you are holding J-T. The first three cards must be one of the following three-card combinations:

A-K-Q
K-Q-9
Q-9-8
9-8-7

Each combination can be flopped in $4 \times 4 \times 4 = 64$ ways without pairing the board. Therefore, the number of favourable cases is $64 \times 4 = 256$. Thus, the probability of flopping a straight when you hold connected cards with maximum stretch is:

$$(256 \div 19{,}600) \times 100 = 1.3\%$$

n. If you hold J-T(o), what are the chances of flopping an eight-card draw to the straight?

In order to flop an open-ended draw to the straight, the first three board cards must be K-Q-X, Q-9-X, or 9-8-X.

Let us consider how many ways K-Q-X can be dealt. There are sixteen ways to deal K-Q. 'X' must not be an Ace or a Nine and it cannot be a King or a Queen if we want an unpaired flop. Therefore, out of the fifty cards in the deck before the flop, 'X' must be one of the 50 – 16 = 34 remaining cards. Thus, the number of unpaired flops that consist of K-Q-X is 16 × 34 = 544. Since there are two other possible three-card combinations capable of giving the J-T an open-ended draw to the straight, the total number of the desired unpaired flops is 544 × 3 = 1,632.

Next, we must work out the number of paired flops that will give the J-T an open-ended draw to the straight. Again, consider the case of K-Q-X. As you know, every card rank has six pairs. Therefore, there are 6 × 4 = 24 ways of flopping a pair of Kings with a Queen and similarly, there are twenty-four ways of dealing a pair of Queens with a King, giving K-Q-X a total of forty-eight paired flops.

Therefore, there are 1,632 + (3 × 48) = 1,776 ways to flop an open-ended draw to the straight with K-Q-X, Q-9-X and 9-8-X. Furthermore, another 128 flops will give the J-T an eight-card draw to the straight when the dealer flops the double-belly busters K-9-7 and A-Q-8. Thus, the grand total of the desired flops is 1,632 + (3 × 48) + 128 ¸

1,904 and the probability of flopping an eight-card draw to the straight is:

$$1{,}904 \div 19{,}600 = 9.71\%$$

o. If you hold an Ace in your Hold'em starting hand, what are the chances that another player has an Ace too?

In this case you must calculate the probability that no other player has an Ace and then subtract the result from one.

Therefore, the other player's starting hand must be dealt from the remaining $50 - 3 = 47$ cards in the deck. Thus, the number of favourable cases is:

$$(47!) \div (2! \times (47 - 2)!) = (47 \times 46) \div 2$$

The number of total cases is:

$$(50!) \div (2! \div (50 - 2)! = (50 - 49) \div 2$$

Therefore, the probability that another player holds an Ace when you have one is:

$$1 - \frac{(47 \times 46)}{(50 \times 49)} = 1 - 0.882 = 0.118 = \cong 12\%$$

p. If you hold A-Q, what is the probability that another player has A-K?

The other player's cards must be dealt from the three remaining Aces and the four Kings. Therefore, the number of favourable cases is $3 \times 4 = 12$. The number of total cases is:

$$\frac{50!}{2! \times (50 - 2)!} = \frac{50 \times 49}{2} = 1{,}225$$

Therefore, the probability that another player holds A-K if you were dealt A-Q is:

$$12 \div 1{,}225 = 0.0098 \cong 1\%$$

Similarly, if you hold A-9, it can be shown that another player will have an Ace with a better kicker than yours about 4% of the time. Therefore, in a five-handed game, one player will hold an Ace with a kicker whose rank is higher than Nine about 15% of the time. The following table shows the probability that a player holds an Ace with a higher kicker than yours in a seven-handed game. The figures are rounded off to the nearest number.

You hold	**Probability of a higher kicker**
A-K	0%
A-Q	6%
A-J	11%
A-T	16%
A-9	21%
A-8	26%
A-7	30%
A-6	34%

q. **What is the probability of having two pairs in your starting Omaha cards?**
Since every pair can be dealt in six ways, a full deck contains seventy-eight pairs. A pair of Aces will combine with another $12 \times 6 = 72$ possible pairs. A pair of Kings will combine with $11 \times 6 = 66$ lower pairs and a pair of Queens can combine with $10 \times 6 = 60$ lower pairs ... etc. Thus, the total number of two pairs is:

Aces	6×72	=	432
Kings	6×66	=	396
Queens	6×60	=	360
Jacks	6×54	=	324
Tens	6×48	=	288
Nines	6×42	=	252
Eights	6×36	=	216
Sevens	6×30	=	180
Sixes	6×24	=	144
Fives	6×18	=	108
Fours	6×12	=	72
Threes	6×6	=	36
Total	**2,808**		

Therefore, you can be dealt any of the 2,808 two pairs. This represents the favourable cases. The number of total cases is:

$$
\begin{aligned}
& 52! \div (4! \times (52 - 4) \\
= \quad & 270{,}725
\end{aligned}
$$

Therefore, the probability of having two pairs in your starting Omaha hand is:

$$
\begin{aligned}
& 2{,}808 \div 270{,}725 \\
= \quad & 0.01 \\
= \quad & 1\%
\end{aligned}
$$

As an exercise, try to calculate how many two pairs can be dealt in five cards. The answer must be 123,552.

r. What is the probability of flopping a full house if your Hold'em starting cards consist of a pair?

Let us assume that you have been dealt a pair of Aces. The flop must consist of one of the remaining two Aces as well as any of the remaining seventy-two pairs. Therefore, the number of favourable cases is $2 \times 72 = 144$. The number of total cases is 19,600. Thus, the probability of flopping a full house if you have a pair of Aces is:

$$144 \div 19{,}600 = 0.00734 \cong 0.7\%$$

If you include the possibility of flopping three cards of the same rank, you will have a full house just under 1% of the time. See if you can work out how many full houses there are in a full deck of cards. The answer is 3,744.