SHARP SPORTS BETTING

BY

STANFORD WONG

PI YEE PRESS

This book is dedicated to Bob Martin (1918-2001), Nevada's first great linesmaker. The lines he crafted for the Churchill Downs sportsbook in the 1960s became known internationally as "the Las Vegas line."

ABOUT THE AUTHOR

Stanford Wong has made a name for himself through books, newsletters, software, and the Internet. He loves to solve puzzles.

Of course he has done his share of winning at gambling games. When he was in graduate school, playing blackjack was his major source of income, and he stayed in school long enough to earn a Ph.D. from Stanford. He published his first book, *Professional Blackjack*, in 1975 while a student at Stanford.

Wong is a frequent contributor to the message boards on his website, BJ21.com, which is devoted to discussion of getting an edge at casino games.

Table of Contents

PREFACE

Early drafts of this book were posted chapter by chapter on BJ21.com. Comments made by BJ21.com's green chippers have been incorporated into the final version of the book. *Sharp Sports Betting* is a better book because of that feedback. That process allowed the book to be finished more quickly than would have been the case had draft chapters not been posted to the Internet. If you write a book of your own, I heartily recommend posting it on the Internet chapter by chapter as you are writing it.

Don Schlesinger has been most helpful in improving the manuscript.

David Matthews wrote the first draft of chapter 3, "Betting Sports on the Internet," and helped edit the whole book. That chapter was revised for the 2006 edition with the help of Goats and Eddie Dingle.

Some of the tables in this book might be images, which cannot be read as text. If you want to access those tables in a format that can be read as text, go to:

http://BJ21.com/books/SSB/tables.shtml.

LIST OF TABLES

CHAPTER 1

HOW TO PLACE BETS

Sharp Sports Betting is a tool for those interested in winning money at sports betting. This book explains the most common sports bets, what all the numbers mean, and the mathematics behind the numbers.

Sports bettors have their own lingo. If you are new to sports betting, you will appreciate the glossary at the back of the book.

The first half of the book contains general information about betting that applies to all sports. The last half of the book has information specific to the National Football League.

This book is not a get-rich-quick vehicle. If you are looking for a magic formula in which you input data and grind out numbers that will tell you who will win tomorrow's games, you might be disappointed in this book.

But if you are facing two different ways to bet the same team, you might find this book helpful in choosing the better alternative.

The advice in this book will help you find worthwhile sports bets, but don't quit your job to become a full-time sports bettor.

Where to Bet Sports

Sports betting is one of the more popular ways to gamble. In the United States, at the time of this writing, betting on sports is legal only in the sportsbooks of Nevada, in the Oregon lottery, and on Florida cruise ships once they get three miles out.

Outside of the United States, betting on sports is legal on the Internet and in many countries. It is legal in Mexico, and some Mexican sportsbooks are located within walking distance of the US border. Betting on sports enjoys the reputation of being well regulated in Great Britain and Australia.

Which Sports?

The most common way to bet football is *against the spread*. Think of the *spread* as being a handicap, the number of points that must be added to or subtracted from one team's final score to induce bettors to back both teams.

The most common terms for betting sports are -110, which means risking $110 in an attempt to win $100. You give the sportsbook $110 when you make your bet, and get a receipt with the details of your bet printed on it. If your team wins, you take that receipt back to the sportsbook and receive $210 — your own $110 and the $100 you won. If your team loses, your receipt is worthless. If your team wins but you cannot find your receipt, keep looking because without that receipt you will have difficulty getting paid.

If you walk into a sportsbook, you will see a collection of numbers that at first may make no sense to you. But with some learning, you will be able to understand what the numbers mean. With a bit of study, you will occasionally find a number that jumps out at you as being a good bet.

The area where all the numbers are displayed is called a "board," a term left over from the days when all the numbers were entered by hand on wall boards. Nowadays electronic displays are more common than actual boards.

The first thing to notice is that the display of numbers is organized by sport. Depending on the time of year, you may find a section of the board devoted to NFL football, college football, major-league baseball, NBA basketball, college basketball, golf, auto racing, and probably more.

Each sport has its own system of displaying possible bets.

Generally there will be sheets of paper available with the various possible sports bets listed on them. In the event of differences between the odds listed on the sheets of paper and on the board, the board is more current. The odds on the sheets of paper were accurate when the sheets were printed, but at best that was earlier in the day and it might have been several days ago.

The main value of the sheets is to list all the bets by their unique numbers. You bet by number. You don't say "Give me $100 on the Yankees," you say "Give me $100 on number 302" or whatever number is listed to the left of the Yankees on the sheet of paper and on the board.

Football

Look closely at the football listings and you will find a lot of information. The teams are listed in pairs, and the bottom team by convention is the home team.

One of the teams will have a small number to the right of it, such as 3 or 5.5. The other team will have a larger number listed to the right of it, such as 37 or 40.5. The smaller number is the spread and the larger number is the total. Experienced sports bettors know that, so there is no reason to label them as "spread" and "total" on the board.

As stated above, the number to the left of the team's name is the unique number assigned to that team to avoid confusion when you bet.

The number giving the spread will be next to the team that is the favorite. That number is understood to be a negative number, though to save space the board might have eliminated the negative signs.

The number giving the total will be next to the name of the underdog.

Sometimes there will be a money line listed, and sometimes there will be no money line. Usually the money line is identified somehow as the money line, perhaps with "M/L." If there is a money line listed, it generally will be off to the right of the spread and totals. Each team will have its own money line.

The most popular way to bet football is *against the spread*. When someone says he is betting the Bears, what he usually means is he is betting on the Bears to cover the spread. If the Bears are favored by four points, then a bet on the Bears means Bears -4. If the Bears win by more than four points, the bet wins. If the Bears win by fewer than four points or lose the game, then a bet on Bears -4 is a loser.

If a game falls right on the spread, backers of both teams get their money back. That happened in a big way in Super Bowl XXXIV. The Rams were favored by seven over the Titans, and the final score was Rams 23, Titans 16. Sportsbooks took in a lot of money that then had to be refunded.

Sometimes to save space, half points are shown as an apostrophe, called a *hook*. Thus Rams 5' would mean the Rams are favored by 5.5 points. A bet on Rams against the spread would be Rams -5.5.

Spreads on favorites are negative numbers. Spreads on dogs are positive numbers. If you bet on a dog against the spread, you win your bet if your team wins the game, and you also win your bet if your team loses the game but by less than the amount of the spread.

The money lines are for bets on which team will win with no points given to either team. You might see, for example, Philadelphia Eagles

+160, New York Giants -180.

There might also be numbers for betting spreads and totals for the first half of the game. If you watch the game in a sportsbook, at halftime you will be presented with spreads and totals for betting the second half.

Besides numbers for betting upcoming games, the boards sometimes also list odds for winning conference titles and division championships. You can bet on which team is going to win the next Super Bowl. These wagers, on events whose outcome may not be decided until a date considerably in the future, are called *futures* bets.

Basketball

Basketball bets are arranged similarly to football bets. Each game has the visiting team on top and the home team on the bottom. The smaller number to the right of a team name is the spread and is to the right of the favorite; the larger number is the total and is to the right of the dog.

Basketball also has money lines; they are listed to the right of the spreads and totals.

You can bet on which team is going to be the NBA Champion.

Baseball

On most games, baseball does not use spreads. On baseball you bet money lines and totals.

One thing unusual about baseball is that pitching dominates. When you bet on a baseball game, the usual procedure is for your bet to have action only if both announced starting pitchers throw at least one pitch. If either or both announced starting pitchers do not start the game, then all bets on that game have no action.

If you want your bet to have action even if there is a change in starting pitchers, then specify "action" as you are making your bet. If there is a change of a starting pitcher, the terms of your bet will be changed to whatever the sportsbook establishes for the new pitcher. Here's the way Poker Palace explains it:

In the event of pitcher(s) change prior to the start of a baseball game, money odds may be adjusted. If one scheduled pitcher starts against an unscheduled pitcher, "action" and live "one specified pitcher" wagers will be computed at the opening price established with the new pitcher.

So if you bet baseball and your team loses, check to be sure who were the starting pitchers before writing off your ticket as worthless.

If you are betting on the Internet, on the total you might see a number with an "o" or a "u" after it, for example 9.5u or 9o. If there is a u, that means the total is more likely to go under. If there is an o, that means the total is more likely to go over.

If there is no o or u attached to the total, the terms are understood to be -110 whether you bet the over or under. If there is an o, meaning over is more likely, then the terms for the over are -120 and the under is even money. If there is a u, meaning under is more likely, then the terms for the over are even money and the under is -120.

Baseball also has run lines on games in which one team is a big favorite. The run line typically adds 1.5 runs to one team or subtracts 1.5 runs from the other team. For example, if the line on the game is Padres +155, Rockies -170, the run line might be Padres +1.5 runs -110, Rockies -1.5 runs -110.

You can bet on which teams are going to be league champions, and which is going to win the World Series.

Ice Hockey

On most games, ice hockey does not use spreads. You can bet the money line, and you can bet the total. If one team is a big favorite, then the sportsbook might offer a puck line, for which the explanation is the same as for baseball's run line above.

Ice hockey totals use the same o/u system as does baseball.

Golf

For a golf tournament you typically will find a long list of names and a number by each. The number is the odds to 1 of the corresponding golfer's winning the tournament specified. If you bet $100 on a golfer being offered at 12:1 and your golfer wins the tournament, you will be able to cash your ticket for $1300, which is the $1200 you won plus your $100 bet being returned to you. If your golfer does not win the tournament, your $100 ticket is worthless.

Often down at the bottom of the list of names there will be a golfer named *Field*. "Field" is not really a golfer. Field means all the rest of the golfers except the ones who are listed individually. There will be an opportunity to bet the field only if there are more entrants in the tournament than there are individual golfers with odds listed for them. Other sports use field bets also; they are not restricted to golf.

You may also find golf matchups being offered. These are bets of one golfer against another. To win your bet, all your golfer has to do is beat the player he is matched against. Generally both golfers must tee off for your bet to have action; if one or both golfers don't make it to the first tee of the first round, then bets on that match have no action and you get your money back.

You may also find golf bets being taken on the next major, even though it might be weeks or months away.

Other Sports

Sportsbooks show odds for almost any sport on which there is interest among bettors.

Sporting events that involve two teams or individuals competing against each other, such as soccer, have a line for each team and perhaps a line on the total.

Sporting events in which there are a large number of individuals competing against one another, such as car racing and tennis, are shown on the boards in a similar manner to golf. Some individual participants are listed with odds, and all the rest of the participants are lumped together as a field. You might find matchups pitting two participants against each other.

In Nevada there generally are no bets taken on events that are decided by judges, such as figure skating or gymnastics. An exception is bets are taken on boxing. On the Internet, you can bet on almost anything.

How to Bet Sports

Odds frequently vary from sportsbook to sportsbook, so shop around. If you shop at least a dozen independent sportsbooks before making your bet at the one with the best odds, the expected value of the tickets you cash will be around two percent higher than if you simply make your bets at a random sportsbook. Two percent does not sound like much, but when your total action hits $100,000, shopping around will have earned you $2000 in expected value.

Look around for better terms. Some Las Vegas sportsbooks offer football bets at -105 during certain hours, instead of the normal -110. Being able to bet at -105 instead of -110 is worth 2.2 percent on your action. Some Internet sportsbooks also offer bargain terms at certain times.

Here is an example of the value of shopping around. During the 2000 World Series, Fremont in Las Vegas posted the next day's baseball game as Braves -122, Yanks +112. Meanwhile Plaza, just a block away, had Braves -135, Yanks +125. You could have bet the Yanks at the Plaza and the Braves at Fremont and locked in a small profit. Unfortunately you can't earn very many dollars per hour taking advantage of arbitrage opportunities in Las Vegas.

If you are making your sports bets by telephone, don't disclose which team you want until you hear the line. Say something like "What's the line on the Giants-Rams game?" rather than "What's the line on the Giants?" Say "What's the total?" rather than "What's the number for the over?" The reason is the clerk taking your call, knowing which team you favor, might move the line a half point against you.

Multiple Max Bets

Each sportsbook has different max bets on different categories of bets. For example, the max bets on totals generally are lower than the max bets on sides.

A max bet means the maximum that the sportsbook will let you bet before reconsidering the line. If you make a max bet on a prop or on an obscure game, your bet probably will cause the line to change.

If after making a max bet you stay there at the window and announce that you want to make another max bet on the same thing, you should be allowed to do but perhaps only after the line is moved against you.

If after making a max bet you walk away from the window, the line might or might not be changed. You can come back later and the line might be the same as on your first max bet, and then you can make another max bet.

Cashing Tickets

Cash each winning ticket within the time interval specified on the ticket. There is no logical reason why the value of a winning ticket should fall to zero after an arbitrary amount of time has passed, but some Las Vegas sportsbooks have refused to honor tickets not cashed within a time interval of their choosing.

Bobby Bryde on Lost Tickets

All sportsbooks have a "lost ticket" form that you can fill out. Some books make you wait thirty or sixty days after the event is over, and if no one has claimed the cash, the book pays up. That makes sense, since the book is supposed to pay the ticket anyway. Some directors can, if you are a regular customer and a ticket writer recalls selling the ticket, pay right after the event. However it's up to the director's discretion. This happens often, and occasionally to guys who rip up their tickets prior to an event being completed, thinking they've got no shot, but end up with a miracle win.

Backed Off?

This question was posted on BJ21.com:

"Does anybody get backed off from sportsbooks? Does it get to the point where a book will refuse to take any more of your action?"

It's common on the Internet; see chapter 3.

From what I've read of how Nevada sportsbooks operate, I gather that each sportsbook has its own list of people who are not allowed to bet sports. Many of the people on those lists are there due to having made huge bets while using inside information. That's the main thing sportsbooks seem to be afraid of — inside information. If a star college quarterback breaks his arm and you get the news before anyone else, you have a large positive EV betting against his team.

How frequently skillful handicappers that do not have inside information get barred I don't know; I think it does happen but is rare.

One easy but important thing you can do to minimize the possibility of having sports bets refused is be pleasant. Rude people wear out their welcome faster than nice guys. Don't be the type of person that others are looking for an excuse to kick out.

The Rest of This Book

All the most popular types of sports bets are covered in this book: betting against the spread, the money line, totals, parlays, teasers, and props.

Chapter 2 discusses money management, which is how much to bet on a particular game.

Chapter 3 is a discussion of betting sports on the Internet.

Chapter 5 is devoted entirely to handicapping, and there are handicapping hints throughout the rest of the book as well.

Several chapters are devoted to the application of mathematics to sports betting. This is my particular area of interest and expertise.

Chapters 12-17 contain material specific to betting on NFL games.

In the back of the book are appendixes used for evaluating props and a glossary of terms used in the world of sports betting. There also is a list of selected references and an index.

CHAPTER 2

MONEY MANAGEMENT

Money management comes into play only when you have an edge, when your picks are good enough to overcome the sportsbook's vig.

I'm not saying don't bet without an edge. Go ahead and bet if it brings pleasure to you, or if it enhances the enjoyment of watching the game. But in terms of what is mathematically optimal, if you have no edge then your optimal bet size is zero.

So if you want to bet on Duke and the only reason is that you graduated from Duke yourself, then go ahead and bet for fun but accept the reality that your bet cannot be justified mathematically.

MinWin

If you are like me, you probably have a *MinWin* (minimum win size) in mind when you make a bet. There is no mathematical reason for a MinWin, but nonetheless I have one. The paperwork required to keep track of every bet doesn't seem like a bother except when a bet is tiny. If the bet wins I have to cash in the ticket, and the time required to drive to the sportsbook is the same no matter what the value of the ticket. I don't want to go through the hassle of recording a bet and cashing a ticket if the amount involved is only $10.

It does not matter to me what your personal MinWin is, and likewise my personal MinWin should be no more than a matter of curiosity to you. This money-management discussion merely assumes that you have a personal MinWin.

Maybe instead of MinWin, you have a standard bet size. Maybe every time you make a bet, it's $110. If you like a game you bet $110 on it, to try to win $100, and if you don't like either side enough you don't bet the game. If that describes you, your MinWin for purposes of this chapter is $100.

The reason for focusing on a MinWin (of say $100) instead of a minimum bet size (of say $110) is to simplify the discussion of how much to bet if the terms are other than -110.

MinEdge

The important thing to keep in mind when betting sports is that mathematics justifies making a bet only when you have an edge. If you do not have the expected value in your favor, then you are better off keeping your money in your pocket.

You must have your own personal *MinEdge* (minimum-edge requirement) for making a bet. If you are leaning toward a team but do not think it is likely enough to win to justify betting to win your MinWin, then you should pass on that bet. Most sports bettors who have mentioned the subject of minimum edge on BJ21.com seem willing to wager with an edge as small as five percent. Again this is a personal decision; the important thing is that you need a MinEdge to justify a bet.

Five percent edge is not a magic number. I suggest having a MinEdge of at least 2.5 percent, but there is nothing wrong with requiring a MinEdge of greater than five percent.

You must decide what is right for you. If your personal preference is to make a few large solid bets rather than a large number of smaller bets, you might prefer a MinEdge of say ten percent on every sports bet you make. The higher your personal MinEdge for making a bet, the fewer bets you will make.

I suggest keeping careful records of all your bets so that you can look back and see how well your picks have done. The best measure of the expected value of your picks is the ratio of your net winnings to your total bets. If you really are making bets each of which has X percent MinEdge or more, then after a few hundred bets you ought to be able to add up your winnings and find that they are greater than that same X percent of your total bets.

The Argument for Flat Bets

Figuring out how much you have won or lost is easier if all your bets are identical, but that's the only justification for betting the same amount on every pick. There is no theoretical reason to restrict yourself to making the identical bet on every pick.

Of course if you have the same confidence in all the picks you make, and none of them stands out as extra special, then you might as well bet the same amount on every pick.

The Argument for Varying Bets

There are two reasons for varying your bet size. One reason is the terms of the bet; if the terms are other than -110, then your optimal bet size will be other than 1.1 times your MinWin.

The other reason you should vary your bet size is some bets are stronger than your MinEdge. You should want to bet more when you have a bigger edge.

Wanting to get even is not a valid reason for making a bigger bet. Your bet size should depend on the terms and your edge, and not how far behind or ahead you are for the weekend.

How the Terms Affect Bet Size

It's not your bet size that should be held constant; it's the dollar amount of your win.

For all bets you find that you think give you your MinEdge, your optimal bet size is whatever you must bet in order to achieve your MinWin.

If your MinWin is $100 and the terms are the standard -110, then bet $110 to try to win $100.

If your MinWin is $100 and the terms are -160, then bet $160 to try to win $100.

If your MinWin is $100 and the terms are +125, then bet $80 to try to win $100.

If your MinWin is $100 and the odds are 20:1, then bet $5 to try to win $100.

How Your Edge Affects Bet Size

If you are like me, you are constantly scrutinizing sides and totals and props, and whenever you think you have more than your MinEdge, you make a bet. Occasionally a game will come along on which you believe you have a much larger edge. The mathematics justify betting more on that pick than on picks where you have your MinEdge.

Of course you have to be right. Not right in terms of winning that particular bet, but right in terms of assessing your actual edge. The best way to be sure you really do win a high percentage of picks on which you think you have a larger edge is to keep separate track of those picks.

One caution when keeping records: Be sure you identify each larger-edge pick before the game starts. It's not fair to wait until a game has started (or is over) to decide how big an edge you thought you had on a pick. If you think you have a larger edge on a pick, write down that prediction before the game starts. Then when you review your records to see how well your larger-edge picks did, look at the results for only the picks that you wrote down as having a larger edge before the game started. You must be honest with yourself here if you really want to verify that your larger-edge picks really do win extra often. A pick that you treated as MinEdge before the game started but afterward realized had a larger edge must be counted as a MinEdge pick.

Once you have proven to yourself that your larger-edge picks perform well, then you can justify betting more on them. How much more? For one thing, keep in mind that you must be able to live with the bet. If you lose sleep worrying about a bet on a game yet to be played, you have bet too much no matter what the mathematics say. If losing a bet would change your lifestyle or be a cause for anxiety or depression or worry, then you should not bet that much no matter what the mathematics say.

Suppose that you believe you have discovered a larger-edge pick. Further suppose that any amount you might bet would be small compared to your total wealth, and that losing the bet would not bother you at all. How much should you bet?

Mathematics can come up with an answer only if you can somehow put a value on how good this pick is compared to your MinEdge.

The mathematical answer is to divide the bet size by the ratio of your edge on the larger-edge-pick to your MinEdge.

Suppose your MinEdge is five percent, and you have a pick that you think gives you a ten percent edge. Ten divided by five is two, so the optimal bet size is to bet twice as much on this pick. If your MinWin is $100 and the terms are -110, then on a double-MinEdge pick bet $220 to win $200.

If you want to learn more about optimal bet size and how it applies to gambling games, read the literature of blackjack. When blackjack players use the expression "optimal bet size," they mean sizing their bets according to the edge they have on a particular hand with respect to the size of their bankroll. Another field in which optimal bet size has been extensively researched and written about is the world of finance.

Bankroll Size

What is the size of your bankroll for the purpose of betting sports? The definition I prefer is: Your bankroll is the amount that, if lost, would put you out of the business of making bets. You might be a millionaire, but if losing $10,000 would cause you to stop betting sports, then your bankroll for the purpose of sizing sports bets is $10,000.

Simultaneous Bets

One problem faced by sports bettors is how to adjust for the risk inherent in making simultaneous bets. You should not put yourself in a situation where losing all of your bets some weekend will result in your bankroll being wiped out.

I could calculate what your bet sizes should be if you gave me enough information. I'd need to know the size of your bankroll, and I'd need information about every bet you wanted to make simultaneously. The information I would need on each bet is: 1) your edge, and 2) the terms, if any differ from the standard -110.

Normally when you are betting sports you don't draw up a complete list of intended bets before making a single bet. In fact it would not be practical to do that even if you wanted to, because some of the good bets you discover will not be there waiting for you if you intend to come back later for them. When you find a juicy situation, typically you must jump on it quickly before someone else notices it and bets it, causing the line to move against you.

Bankroll and MinEdge Determine MinWin

What is needed is a rule of thumb that you can use to choose a MinWin that makes sense in relation to your MinEdge and your bankroll.

For a MinEdge of five percent, I suggest a MinWin no larger than 1.5 percent to 2.5 percent of your bankroll. A smaller MinWin than that is okay, but a larger MinWin could be devastating if you have a horrible weekend.

If you choose a MinWin of 1.5 to 2.5 percent of your bankroll, you can make a lot of simultaneous bets before running out of cash. You seldom will be in the embarrassing position of finding a high-edge prop but being unable to exploit it due to having an empty wallet.

With a MinWin of 1.5 to 2.5 percent of your bankroll, a bad weekend can put a serious dent in your bankroll, but it won't wipe you out.

If you have a MinEdge of five percent and follow my advice on MinWin, your MinWin will be around $200 for every $10,000 in your bankroll.

Credit

The material presented in this chapter generally is called the Kelly Criterion, and credit for being the first person to publish it goes to John L. Kelly. His article is listed among the Selected References.

What Percent Winners?

Winning at sports betting means winning a good percentage of the bets you make; you do not have to win every single bet to make money betting sports. You do have to do better than guessing, because on bets against a spread you generally must risk $110 to try to win $100.

If you hit 50 percent winners on bets you make at -110, you will lose at the rate of 4.55 percent.

The break-even point for bets at -110 is to hit 52.4 percent winners.

Here's how to figure your percent edge from your win rate, assuming you make bets at -110: Multiply your percentage of winners by 1.91 (which is 21/11), and subtract 100.

If you can predict the winner 53.5 percent of the time on bets at -110, you will enjoy a two percent edge. You will be hitting at the rate that

sports-betting pro Fezzik says is often the documented success rate of sharp handicappers who play a high volume of games against pro and college sides. If you can pay a better price than -110, you can increase your edge.

If you can predict the winner 55 percent of the time on bets at -110, you will enjoy a five percent edge. According to Fezzik, such win rates are achievable in illiquid markets like overnight lines, totals, and props. You will have approximately the same edge over sportsbooks as those books enjoy over people who play random hunches at -110.

If you can hit 57 percent winners at -110, you will be making almost nine percent return on your money invested in sports bets. A few years ago 57 percent was an attainable success rate for the best of the pros, but finding great bets has gotten more difficult in recent years.

If you can hit 60 percent winners, pinch yourself because you are dreaming. You will occasionally find a bet that you believe will win with probability 60 percent, and on such a bet your edge is nearly fifteen percent.

If someone tells you he can hit 70 percent winners and you should pay him for his picks, hang onto your wallet because he's lying about the 70 percent.

Estimating Your Edge

Much of this book is devoted to figuring out whether you have an edge on a particular bet, and estimating what that edge is. Keep in mind that whatever number you come up with is only an estimate. Occasionally the linesmaker will know things that you do not know. Therefore your edge as calculated by the methods of this book is more likely to overstate your actual edge than to understate it. When you are deciding how much to bet, act as if your edge is less than the amount you have calculated.

The Big Concern

The big concern in money management is getting an edge. If you think you are good at picking winners but the truth is you would be better off throwing darts at a board, then all the discussion above about what percentage of your bankroll to bet does not apply to you. Money management is not a substitute for picking winners. If you do not pick enough winners to overcome the sportsbook's vig, then your optimal bet size is zero, period. Money management cannot win money for a handicapper who can't pick winners.

Sometimes sports bettors who go broke put the blame on poor money management. That's nonsense. If you lose your bankroll betting sports, it will be because you do not pick more than 52.4 percent winners. After you start picking winners, then money management can help you grow wealthier than if you simply made flat bets.

Sample Problems

For all of these problems, assume a MinWin of $100 and a MinEdge of five percent.

Problem 1

You think a prop meets your MinEdge and the odds are 10:1. How much should you bet?

Problem 2

You think a prop meets your MinEdge and the terms are -1200. What is your optimal bet size?

Problem 3

You have a pick that you think carries a twenty percent edge, but it's a bet that pays 5:1. What is your optimal bet size?

Problem 4

You find Minnesota at 50:1 to win the Super Bowl, and you think the odds should be less than half that, so you figure your edge is about 100 percent. That's twenty times your MinEdge. What is your optimal bet size?

Problem 5

The typical two-team parlay pays 13:5. For a MinWin of $100 and a two-team parlay that promises the MinEdge, how much should be wagered on the two-teamer?

Problem 6

The typical three-team parlay pays 6:1. For a MinWin of $100 and a three-team parlay that promises the MinEdge, how much should be wagered on the three-teamer?

Solutions to Sample Problems

These solutions assume a MinWin of $100 and a MinEdge of five percent.

Problem 1

You think a prop meets your MinEdge and the odds are 10:1. How much should you bet?

Bet 1/10 of the MinWin, or $10 to try to win $100.

Problem 2

You think a prop meets your MinEdge and the terms are -1200. What is your optimal bet size?

Mathematics justifies betting up to $1200 to try to win $100. But you don't have to bet that much if you won't be able to sleep with $1200 at risk, or won't be able to sleep after losing $1200.

Problem 3

You have a pick that you think carries a twenty percent edge, but it's a bet that pays 5:1. What is your optimal bet size?

The ratio of the bet to the win is 1/5, which says to bet 1/5 of the MinWin. Twenty percent edge is four times the MinEdge, which says bet to win four times that much. Multiplying four times 1/5 yields a bet size of 80 percent of the MinWin. Thus the optimal bet size is $80 to try to win $400.

Problem 4

You find Minnesota at 50:1 to win the Super Bowl, and you think the odds should be less than half that, so you figure your edge is about 100 percent. That's twenty times your MinEdge. What is your optimal bet size?

Multiply your MinWin by 20 to reflect your huge edge, and then divide by 50 to reflect the odds on the bet. The result is to bet an amount equal to 40 percent of your MinWin, or $40 to try to win $2000.

Problem 5

The typical two-team parlay pays 13:5. For a MinWin of $100 and a two-team parlay that promises the MinEdge, how much should be wagered on the two-teamer?

Divide your MinWin by 13/5 to reflect the odds on the bet. The answer is to bet an amount equal to 5/13 of your MinWin, or about $40 to try to win $104.

Problem 6

The typical three-team parlay pays 6:1. For a MinWin of $100 and a three-team parlay that promises the MinEdge, how much should be wagered on the three-teamer?

Divide your MinWin by 6 to reflect the odds on the bet. The answer is to bet an amount equal to 1/6 of your MinWin, or $17 to try to win $102.

CHAPTER 3

BETTING SPORTS ON THE INTERNET

The Internet has changed many things over the years including sports betting. Laws governing whether local citizens can bet on the Internet continue to evolve. This chapter is written for people who can gamble legally on the Internet.

Some Internet sportsbooks let you bet on the Academy Awards, political races, whether the stock market will go up or down, and other events that Nevada's sportsbooks don't book.

Legality of Internet Sportsbooks

Internet sportsbooks are legal in many countries. Unfortunately, the United States is not one of those countries.

Legally in the United States, sports wagers can be placed in only one of the 50 states: Nevada. Bets may not be telephoned across state lines.

The United States law that covers wagering by telephone is known as the "Wire Act."

> **Sec. 1084. Transmission of wagering information; penalties**
> (a) Whoever being engaged in the business of betting or wagering knowingly uses a wire communication facility for the transmission in interstate or foreign commerce of bets or wagers or information assisting in the placing of bets or wagers on any sporting event or contest, or for the transmission of a wire communication which entitles the recipient to receive money or credit as a result of bets or wagers, or for information assisting in the placing of bets or wagers, shall be fined under this title or imprisoned not more than two years, or both
> — The Wire Act, in **Chapter 50 of Part 1 of Title 18 of the United States Code**

I am not a lawyer, and am not going to attempt to explain the Wire Act. As is true with any law, what the Wire Act means is whatever courts decide it means, and new court decisions can modify the meaning of the Act. My whole purpose for mentioning it here is to let you know that there currently is a US law against accepting interstate or foreign sports bets by telephone. The Wire Act has been applied only to sportsbooks, and not to customers of sportsbooks.

The legality of Internet sportsbooks accepting bets from inside the United States is evolving. The major problem facing the US Congress in regulation of Internet gambling is lack of jurisdiction outside of the United States. The United States has no right to tell any other country how to conduct its internal affairs, including what to do about gambling.

The Unlawful Internet Gambling Enforcement Act (UIGEA) was signed into law on 13 October 2006 as Title VIII of the SAFE Port Act of 2006. The UIGEA affects residents of the United States by prohibiting the transfer of funds from a financial institution to an Internet gambling site.

The UIGEA has had a chilling effect on sports betting by Americans. Many Americans who previously enjoyed betting sports on the Internet stopped making those bets. Many Internet casinos and sportsbooks stopped accepting bets from people with USA addresses.

This chapter was written before the UIGEA was passed, and the UIGEA limits its value to Americans. I thought about deleting this chapter from the 2009 edition of the book, but decided to keep it in case the UIGEA is modified or repealed.

To cope with the fact that it currently is illegal for them to accept bets from all over the United States if they were operating from within the United States, Internet sportsbooks all are entirely offshore. Their computers, employees, financial transactions, and physical location are in a country or countries other than the United States. You can access their betting lines through the Internet. If you place bets with them, they consider those bets as having been made at their place of business and not at your physical location.

Nevada's sportsbooks would compete for Internet betting action if they could. Currently they do not do so because of the Wire Act and the UIGEA.

Betting Online

Different sportsbooks have different setups for placing a bet. One important thing to know is your last opportunity to correct a mistake. There will be a verification step saying something like, "Please verify that you are betting $55 to win $50 on Denver +3." Check it. Once you confirm the bet, you are locked in on it, even if it was not what you wanted.

For bets on favorites, most sites want you to type in the amount you want to win in the wager block, not the amount you will actually wager. In other words, if the odds are -110 and you want to bet $55 to win $50, normally, you will type in $50. The sportsbook's computer will automatically add the $5 and then will ask you to confirm.

Internet casinos differ in what they offer. Some of them do not even accept bets on sporting events. Others offer a wide variety of proposition bets, teasers, and parlays. If you are a member of a group that looks for worthwhile sports bets, you will occasionally learn about customer-favorable prop bets that you otherwise may have overlooked. If you want to take advantage of opportunities like that, you will want to have access to Internet sportsbooks that offer a wide range of bets.

If you decide to bet sports on the Internet, you probably will want to open accounts at several sportsbooks so as to be able to shop lines.

Even if you want to make a bet on an event that has the same line at every sportsbook, there often are differences from book to book as to terms offered. If two sportsbooks both offer your team at -3 but one book will take your bet for -105 and the other wants -110, you know which book to patronize.

Any bets you find in Nevada you also will be able to find on the Internet. In addition, on the Internet you will find some bets that are not available in Nevada. Only on the Internet will you find "betting exchanges," which offer you the opportunity to bet on anything for which you can find someone somewhere to bet against you, with the winner paying a commission that is the equivalent of making the bet at -105.

You should spend some time getting acquainted with what each particular sportsbook has to offer, so that if you get a hot tip on a certain prop bet, you will know the most likely site to find that bet. Or if you have found a good opportunity to bet a teaser, you will know which sportsbooks offer that option to you at the best terms. You will also want to know beforehand the process for making those bets at that particular sportsbook, so that you are not trying to figure it out at the last minute when you want to place your wager.

Read all the rules. On teasers, for example, generally ties push, but in a particular sportsbook ties might lose.

Bonuses

Sign-up Bonuses

Many Internet sportsbooks offer sign-up bonuses. These can be quite lucrative themselves. Competition for sports betting dollars is stiff, so the Internet sportsbooks offer these bonuses to entice you to play with them instead of their competitor. They know that a competing sportsbook is only a mouse click away.

A common bonus offer is a 20 percent bonus for deposits up to $1000. This is $200 of free money when you make a deposit of $1000 (well mostly free. There are some restrictions that I will address). You open the account and after making a $1000 deposit, your account will have $1,200 in it. These bonuses are normally for your initial deposit at that sportsbook only, and do not apply to subsequent deposits. Once you are on the sportsbook's mailing list, however, you may start to get bonus offers in your email or home mailbox.

A significant amount of bonus money can be made by opening accounts at many different sportsbooks and getting the bonus payoffs. Frequently only the first deposit receives a bonus. If you do not have enough money to receive the maximum bonus, you may want to delay opening an account at that sportsbook. For example, if you can get a 10 percent bonus on a deposit of up to $1000, and you will get a bonus on only your initial deposit, you may want to wait to sign up until you can deposit the full $1000.

A common practice of Internet sportsbooks is to require the money to be wagered a certain number of times to qualify for a bonus. The requirements can vary from one time to ten times the deposit. A common requirement is for you to make bets of at least three times the deposit. If you deposit $1000 and receive your $200 bonus, you may not cash out until you have made at least $3000 in wagers.

Another common practice is to require the money to remain in the account for a certain length of time, usually one month, to qualify for a bonus.

If you do not bet enough or do not leave your money on deposit long enough, you will not receive the bonus.

You can find out the requirements prior to depositing any money.

Do not give the impression of signing up just for the bonuses. If you win money from the sportsbook, you might be identified as a less-than-desirable customer. You don't want to also be identified as a bonus hustler. You don't want that sportsbook to refuse your future bets. Take as much bonus money as you can, but do so in a manner such that anyone scrutinizing your account will not think you are abusing the bonuses. Tips on accomplishing this are presented later in this chapter.

Referral Bonuses

Most sportsbooks will give 10 to 20 percent of your initial deposit as a bonus to someone who referred you. If you want to take advantage of this bonus but don't know anyone else who bets sports online, then visit some sports-betting-discussion sites online and make some contacts. You might be able to find someone who will split the referral bonus with you 50/50.

What happens with referral bonuses is Person X tells you about a sportsbook website. You open an account, and when they ask, "How did you hear about us?" you type in or click on "friend." You then *must* send an email to that sportsbook's customer-service department giving Person X's customer ID number for that website. If the sportsbook has a 10 percent referral bonus, which is most common, and you deposit $1000, $100 will be added to Person X's account. If the sportsbook offers both a 10 percent referral bonus and a 20 percent deposit bonus, then a total of $3000 in bonus money is given out for a $10,000 deposit. Running an Internet sportsbook must be awfully lucrative.

One problem with having a referral is that it ties you to the other person in the sportsbook's computer. People have been banned from particular sportsbooks due to winning too much money. If the person who received a bonus for referring you is subsequently banned for winning too much money, then you may find yourself unwelcome at that sportsbook as well.

Eddie Dingle says: "It's generally a good idea for professional/winning sports bettors to not worry about referrals, unless it's at a rock-solid book like The Greek."

Match-Play Bonuses

Not all bonuses are identical; you can find out the type of bonus you are to receive beforehand. Some sportsbooks offer so-called "match-play bonuses" rather than simply adding the bonus cash to your regular account. What Internet sportsbooks call a match-play bonus is money that is deposited into a account separate from your regular account. The match-play money can be wagered once only, win or lose. Winnings from match-play bets go into your regular account, and the amount wagered disappears from the match-play account. On ties, the match-play bet is returned to the match-play account to be bet again.

What Internet sportsbooks call match-play money is not the same thing as what land-based casinos call match play in that Internet sportsbooks do not require you to match the match-play money with real money.

Here's how the match-play system works at most places. Let's say you find a sportsbook that offers a 25 percent match-play bonus on a $1000 deposit. Once your deposit is made, you must wager a certain number of times your deposit (1X, 2X, 3X, 5X, etc.) and then you will receive the match-play money, which in this case would be $250. (Non-match-play bonus money is generally added *first*, but cannot be withdrawn until the required wagering is done, while match-play bonus money is not normally added until *after* you have made the required amount of wagering. This is not set in stone, however, and you should check with the sportsbook and know up-front its particular guidelines.) You now have a new "bonus" account with $250 in it and let's say that after all the wagering you did, you now have $1400 in your "real" account.

You now want to use your match-play bonus money, so you wager $110 on Green Bay +3, for example. If Green Bay covers, then your new "real account" will now have $1500 in it and your match-play account will have $140. If Green Bay does not cover, then your "real account" will remain unchanged at $1,400 but you will have lost $110 from your match-play account and will be left with the same $140 as if you had won. If Green Bay loses the game by exactly 3 points, both your "real account" and bonus account will remain unchanged at their respective $1400 and $250 amounts. (Again, these policies could vary.)

It is clear to see that match-play money bonuses are not as valuable as real-money bonuses, dollar per dollar. If one place is offering a 20 percent money bonus, and the other is offering a 20 percent match-play bonus, your profit is greater on the former.

Betting match-play money on a -110 bet makes the bonus money worth 48 cents on the dollar. The next section is a tip on how to squeeze the most value out of match-play bonus money.

You might make at least one phone call to an Internet sportsbook prior to making your first deposit. Generally you can open the account (with no funds) and then call. Ask the sportsbook what kind of bonuses are offered, and what they are worth. Get all the details and write them down. Talking to someone on the phone solidifies things for you. You can ask for and write down the name of the person you are speaking to.

Bonus For One Bet Only

You might encounter a bonus that can be bet once only. Winnings are credited to your account, but you cannot rebet the bonus. The bonus is good for one bet, win or lose, after which it disappears.

If a bonus is good for one bet only, win or lose, then you are better off using the bonus on something that pays more than even money if it wins. Of course first read the terms to be sure the amount you win is not restricted, for example to even-money payoffs.

In a casino, for example, a bet-once-only coupon is much more valuable when bet at 35:1 on one number straight up at roulette than on an even-money bet at craps or blackjack. Bet one number straight up per spin to get 92 cents of value from the average bet-once-only bonus dollar, compared to 49 cents of value at an even-money wager.

The most profitable use of a bet-once-only bonus in a sportsbook is a three-team parlay. The problem with parlays involving more than three teams is the higher vig offsets the value of a higher winning payoff. The higher vig built into futures bets, particularly long shots, is also why they are inferior to three-team parlays.

On three-team parlays with coin-flip picks, a bet-once-only bonus is worth 75% of face value. Compare that to the 48% of face value a bet-once-only bonus is worth on a straight bet to understand why I recommend three-team parlays.

Affiliate Bonuses

If you run a non-US website and would not mind displaying gambling ads on it, ads for Internet casinos and sportsbooks can be profitable. The UIGEA dried up Internet-casino ad opportunities for US websites.

Many sportsbooks offer affiliate programs; the website owner gets a percentage of the deposits or net losses of customers signing up through links on the website.

There is nothing stopping you from receiving the benefit of clicking on an ad on your own website, but Bill Haywood, author of *BeatWebCasinos.com*, cautions against it; see his words in the box above.

If you are considering betting on the Internet, read Haywood's book before you start. *BeatWebCasinos.com* explains various ways you can get an edge, explains various way you can be victimized, and lists numerous sources of information on the reliability of Internet casinos and sportsbooks.

Personally, I would not recommend that webmasters click through and play ads on their own sites, or at least not without caveats. If a casino or sportsbook is smart, it will not allow this at all because it gives the skilled player a positive EV. Even if a sportsbook allows it, it is high profile and might become one part of a series of grievances.

Webmasters at small sites should be especially careful — the number of clickthroughs may not be enough to counterbalance the insult of skilled betting. Even more important, your play will stand out more if there are only a few other players coming from your site.

Of course, this is all assuming advantage play. If you are a gambler, they'd love to have you, and some even offer to pay affiliate fees in the form of casino credits.

— Bill Haywood, author of *BeatWebCasinos.com*

Depositing Funds

You must get money to the sportsbook somehow in order to place bets. How you get money in and out is an area that is undergoing rapid change. Ask on Internet websites to find funding options. What you are looking for is called an "e-wallet."

Such businesses have come and gone. The US government has effectively pressured banks to block use of credit cards to fund online gambling. Paypal was once the e-wallet of choice for Internet gamblers, but the US government pressured Paypal out of that business. Firepay was popular for a while, and then went out of the e-wallet business.

NETeller (www.NETeller.com) is still active as of this writing. There will always be new businesses springing up to do the job.

Certain US government forms are required for large transactions. One is the Currency Transaction Report (CTR), which financial institutions (including Western Union and sportsbooks) are required to fill out and file with the IRS for transactions over $10,000 within a 24-hour period in the United States. CTRs can be accessed by federal, state, and local law enforcement agencies in the United States.

Withdrawing Funds

You may withdraw funds by having the sportsbook send you a check. Most sportsbooks will give you one free check withdrawal per month, but if you cash out more than once per month, they will charge a fee of $20 to $50. Usually the check is sent by FedEx. If you want overnight mail or some other special shipping instructions, the sportsbook will generally be able to do this, but will charge a fee.

You may withdraw funds by bank wire transfer. That will require giving the sportsbook the name of your non-US bank and your account number. The transfer will take a few days. Your bank will charge you a fee, and the sportsbook may also charge a fee.

Withdrawing funds to a NETeller account is normally free and fast. Sportsbooks that have this service can "zap" you the money quickly. You withdraw money from NETeller by receiving a check, or having money wired to your non-US bank account.

Your bank might put a hold on an Internet sportsbook check that you deposit. Holds on checks for such things as large amounts or drawn on foreign banks are standard procedure for banks, and do not indicate problems with the sportsbook.

Sportsbooks are set up to take money in, not to send it out. Check into withdrawal procedures before opening an account, and if withdrawing looks like it is going to be slow or expensive, then don't open the account in the first place.

If you try to withdraw a large sum, your account will be audited before the money is sent to you. If you are good at picking winners on sports bets, that fact might go unnoticed until your withdrawal request triggers an audit. If the audit leads the offshore sportsbook to decide you are undesirable as a customer, you still should be paid what you are owed.

Be polite and cordial in email and phone conversations with the employees of sportsbooks. Being aggressive and showing anger won't help your cause.

Sportsbooks do transfers with each other. If you are having a problem getting money sent to you, ask the sportsbook who it does transfers with. You might be able to get money transferred to another sportsbook that same day. Sportsbooks generally don't want their colleagues to know they give players a hard time on withdrawals. The downside on a transfer is the two sportsbooks might compare notes on you.

Avoid Being Pegged as Undesirable

The term "camouflage" is often used when referring to blackjack card counters who have to hide their skill at the game from the dealers, floor people, shift managers and surveillance personnel in casinos. Another term for this is "cover." Sports bettors, and even Internet sports bettors, may need to employ camouflage as well. If the Internet sportsbooks know (or determine) that you have strong handicapping skills, or that you are simply finding ways of exploiting their bonus procedures, they could revoke your ability to make bets there. Also, while most will give you your money back, let's face it, if someone is holding a few hundred or a few thousand of your dollars, you don't want that person angry with you.

One thing an Internet sportsbook examines to determine your skill level is how frequently you pass rather than bet after being quoted a line. Suckers bet the same amount on every game; sharps *cherrypick*, betting only when they think they have an edge.

Since an online sportsbook has a complete record of your betting history at that establishment, you probably won't be able to hide the fact that you are a winner. You can avoid doing anything else that would flag you as an undesirable customer. Here are some suggestions:

1. When there is a minimum amount of play required to qualify for a bonus, play more than the minimum before cashing out.

2. When you are making a large deposit to qualify for a bonus, bet at a level that looks natural for the amount you deposit. If you deposit $1000, $5 bets on sides may appear small to anyone who scrutinizes your account.

3. Don't restrict yourself to the low-vig bets. Don't exclusively bet the –105 specials or the three-team parlay that has no house edge. Make an occasional play at the standard –110.

4. Be careful about whom you use as a referral, and whom you refer. You would rather be linked to people the sportsbook views as good customers than to people who are likely to wear out their welcome.

5. Never make opposing bets to take the risk out of exploiting a bonus. Sportsbooks ought to be happy with customers who take opposing sides at -105 each, just as casinos ought to be happy with crapshooters who simultaneously bet both the pass and the don't pass. They ought to be happy, but they aren't. They like you to take risk, even if their expected win is the same whether you take risk or not.

6. When betting sports, do not get a reputation as a "leech," which to offshore sportsbooks means someone who watches a computer screen for line moves and then quickly bets those games at sportsbooks that have not yet moved their lines.

7. Do not make frequent withdrawals. One withdrawal per month looks natural, but one withdrawal per week makes you look like a troublemaker.

8. If you call in to request a line quote, and the line is such that you are not willing to make your normal bet on either team, then make a token bet on one team or the other.

A Bookmaker Speaks

I work for an Internet bookmaker. While we don't change lines for individual clients, we do alter the limits a bettor can stake on a game.

If you regularly beat us, we might allow you to bet only 5% of what a losing high roller could expect to be able to place.

We do not offer a service. We are in business; and if a business transaction is unprofitable, we cease it. Simple as that.

— Posted By Keith on TwoPlusTwo.com

Email Received by "James"

Dear James,

We have found that your luck at our Casino has surpassed our level of tolerance.

We have closed your account. We are forwarding you $410.00, not the $310.00 you requested. We will not be sending money to this name or address or bank account or IP address, that we have on file in the future.

We wish you continued success, elsewhere.

Respectfully,

Pit Boss

[Editor's note: James had wanted to leave $100 in his account.]

If You Are Pegged as a Winner

If you are lucky or good enough to win money from an offshore sportsbook, you have another problem: keeping the welcome mat out.

One of the ways an offshore sportsbook will tell you that your action no longer is welcome is to require you to call in your bets. Other customers will be able to place their bets over the Internet, but you will be required to call in.

What happens to people who are required to call in? You might be restricted to lower limits than other customers. Or you might be given two spreads on the same game. Maybe Los Angeles is supposed to be -7, but you will have a choice of Lakers -8 or their opponent +6.

You also can be harmed by being blacklisted, as was mentioned earlier. Your name might be put on a list of people who are undesirable customers.

Bettor Beware

The advantage of betting sports over other types of Internet gambling is that with sports, you can verify whether your bet won or lost. If you are playing an Internet roulette game and your bet loses, you have no way to verify that the announced winning number really was the random result of a ball rolling around a wheel. When you have a bet on Chicago to beat New York, you can watch the game yourself or read about it in your newspaper or find the result various other ways to verify whether your bet won or lost.

If you have a beef with an Internet sportsbook, your options are limited. The most cost-effective thing you can do is file a complaint with one of the online consumer watchdogs.

You are less likely to encounter problems with Internet sportsbooks that are based in countries with good regulation of them. Great Britain and Australia currently are the best.

Ponzi Schemes

In the past, some offshore sportsbooks were Ponzi schemes. They offered big bonuses to get deposits, but were slow in sending money to winners. When the amounts owed to customers got huge, the book got a bad reputation that hindered the recruiting of new customers. At that point the book simply went out of business, and the people running started a new sportsbook under a new name. Hopefully that sort of thing won't happen any more.

Inadequate Capital

Some offshore sportsbooks are undercapitalized. It's rare that a Nevada casino goes bankrupt, leaving sports bettors holding winning tickets they cannot cash. Tom's Sunset, formerly a small casino in Henderson, went bankrupt a few years ago with the result that winning paying sports tickets got paid off at something like 80 cents on the dollar. That is the exception, not the rule. If you have a winning sports ticket written by a Nevada sportsbook, you WILL get paid off. If you prefer cash, you will get hundred-dollar bills, and you will get them immediately. You may have to fill out a CTR (Currency Transaction Report) for the IRS, but you will get paid.

That's not the case with offshore sportsbooks. Some of them are undercapitalized, and will be unable to pay off everyone to whom they owe money. They may not have been set up as Ponzi schemes, but they need new infusions of customer money to pay off what they owe to existing customers, sometimes because of bonuses promised and sometimes because sports bettors have made winning bets.

You think of your deposit as being held in trust for you until you are ready to use it to make a wager. The people who run the offshore book might take a different view of your deposit — they might act as if they have already won it from you before you even make a bet! Sportsbooks that use deposits from new gamblers to pay off winners are said to be working *on the float*.

Even if the offshore book finally pays you what it owes you, you might have to wait weeks or months for your money. You might end up spending a lot of time trying to collect. Calling every day might get results eventually, but do you really want to spend part of every day calling an offshore book to ask when you will be paid?

Name Confusion

Beware of any sportsbook with a name that is similar to the name of a reputable sportsbook. For example, if there is a reputable .com book, beware of a sportsbook using the same name but with .net or .org instead of .com. A sportsbook trying to bring in customers by leeching the good name of another sportsbook probably is run by crooks.

Canceling Bets

Suppose you bet a team at -5, and then before the game starts the line moves to -7. Do you have anything to worry about other than if your team will cover? Yes, as a matter of fact you do have something else to worry about. You have to be concerned that your bet will have action. Michael Konik, in his *Telling Lies and Getting Paid*, tells on page 52 of having had such bets canceled the day before the games merely because the lines moved his way before the games started!

Hopefully, thanks to watchdog sites such as www.SportsBookReview.com, cancelling of bets should be avoidable nowadays.

Do not hedge bets based on mistakes, lest you be left holding a bet you don't want after the mistake is discovered and your bet is canceled.

That scenario will not happen to you in Nevada. If you have a ticket from a Nevada sportsbook specifying a team at +8, your ticket is valid even if the sportsbook subsequently discovers that the +8 was a mistake.

Over-Limit Bets

Another thing that can happen to you on the Internet but not in Nevada is getting shorted on an over-limit bet. In Nevada, the software in the computer will prevent a ticket writer from accepting a bet larger than allowed by the sportsbook. You might be able to make an over-limit bet, but it will be with the approval of the manager. Once that over-limit bet has been accepted, you have action for certain.

An offshore sportsbook, if it's crooked, might handle over-limit bets differently. It might go ahead and accept the bet, and only after the game is over "discover" that the bet is over the limit, and settle the wager at the max posted for that type of bet. Guess which over-limit bets are corrected to the max and which ones are allowed to stand as written?

Know the sportsbook's max bet before you wager, and don't exceed it.

Sportsbooks Sharing Information

Some offshore sportsbooks share information with one another. This can work to your detriment in two ways.

Offshore sportsbooks circulate reports of undesirable customers among themselves. If you wear out your welcome at one offshore sportsbook, you might find your action unwelcome at others. When you try to open an account at a new offshore sportsbook, you are treated as an unwelcome customer before you place your first bet.

If someone makes a huge bet at one offshore sportsbook, causing it to change its odds, other offshore sportsbooks might see the odds change and change their own odds without waiting for a bet. Sports bettors have a name for that; it's called an "air move."

Complaining About Mistreatment

Even if an organization is what it claims to be, casino or sportsbook, what's to compel it to pay you when the time comes to do so? If you are going to wager with offshore sportsbooks, you ought to be connected with others who are doing the same so as to avoid the rip-off artists.

News travels fast on the Internet. If a sportsbook doesn't pay or is found to be disreputable in some other way, people will let you know by posting information on websites. If you experience a problem with an offshore sportsbook, you can share your experience with others. Good websites for this type of information are:

www.eog.com
www.SportsBookReview.com
www.TheRX.com

The above list is courtesy of Goats, and is not intended to be complete. The order is not intended to have any meaning other than alphabetical. These websites may generate revenue from Internet sportsbooks.

Goats says: "Nowadays, it's widely known which books will take countermeasures against sharps. These measures include reducing limits, making you call in bets, and putting your online account on a delay so when you enter a bet, it hangs there for 30-60 seconds to give a manager time to approve or deny the wager or move the line. Ultimately, some books will also close your account and bar you."

From "Frank B"

Now I'm really pissed. The XFL final game between Los Angeles and San Francisco is next Saturday. I just got an email canceling all my XFL futures on Los Angeles and San Francisco. I've had LA for $800 @ 5-1 and San Francisco for $300 @ 15-1 both voided this week as the game is getting set to be played.

Dear Mr. Frank B, Due to a massive error in our systems XFL Futures that weren't supposed to appear in the sports book were showing, causing many of our customers to believe that those odds were available to bet on. For this very reason we are now forced to void ALL tickets posted on XFL Futures, thus effective from this very minute. Losers and pending tickets are now all voided and all the funds involved in such bets is from this moment on back to your account. We apologize for the aggravation in which we might be putting you in this instant. For more information on the subject please email us or call to our toll free line.

Best Regards,
Charlie
Casino Customer Service

I made these bets after only three weeks of play, when San Francisco's record was 1-2. San Francisco at 15-1 was also available at Station Casinos in Las Vegas at the time I made my bets on the Internet. I should have just bet in Las Vegas.

I feel I have to do something about this but don't know where to begin. I had someone call and ask what the problem was with the XFL bets and they claimed someone clicked in $100,000 worth of XFL futures so they had to void all bets. This is absurd as the controls in place would have alerted them at less than $1000 of bets on any one side. They are just plain lying about this. Funny how I haven't received any refunds on my Las Vegas and Memphis bets that lost. These guys are thieves but I don't know what to do since I have a nice chunk of change at their sportsbooks collectively.

I'm showing you this to make clear how treacherous the offshore situation has become recently and to illustrate one of the differences between offshore and Las Vegas books. I would put a strong warning in your net betting chapter regarding these type of actions.

Offshore Books as a Source of Betting Information

One way you can use offshore books is as a source of betting information. If you are walking from sportsbook to sportsbook in Las Vegas shopping for lines, it's nice to know ahead of time what the lines are so that you recognize a good one as soon as you see it.

Conclusion

The Internet has revolutionized the way things are done in today's world. Bookstores, travel agents, insurance agents, flower shops, you name it, many businesses have been affected by the Internet. The advent of Internet casinos and sportsbooks has made it possible for someone in London, Tokyo, or Sydney to wager on a sports event without having to find an illegal local bookie.

Internet sportsbooks have low overhead costs due to not having to buy huge televisions or cocktails for their customers, or needing a lavish palace for ambiance. Thus Internet sportsbooks can afford to spend lavishly to get customers to their websites and keep them there.

These opportunities favor the sharp bettor who is willing to make the effort to take advantage of what is offered. Many Internet sportsbooks will offer games with no vig or reduced vig, or other promotions that make Internet wagering easier on the bankroll. Combine that with deposit bonuses, referral bonuses, line shopping at the click of a mouse, and you have an attractive package.

As for me personally, despite all of the above, I still prefer Las Vegas and its sportsbooks.

CHAPTER 4

BASIC MATH OF STRAIGHT BETS

The purpose of this chapter is to explain the basic mathematical concepts used in sports betting.

Player's Edge

When you put numbers on the player's edge, you can call the result the *win rate*. Or you can call it your *edge*. Or you can call it *return on investment* or *ROI*. All those terms mean the same thing.

This chapter makes extensive use of the word "terms." The terms of a bet are the details of how much you win if you win and how much you lose if you lose.

If the amount you stand to win is less than the amount you stand to lose, the "terms" are expressed in terms of how many units you must risk to win 100 units.

If the amount you stand to win exceeds how much you stand to lose, the "terms" are how many units you will win if you wager 100 units.

That sounds confusing but is actually unambiguous and easy to understand in practice.

Bets at -110

The standard terms for betting sports in the legal sportsbooks of Nevada are -110. This is the default, the terms so widely used that they are widely understood to apply unless the book specifically specified other terms. If you see Chicago +3 for example, and want to bet on it, the assumption is that you will have to risk $110 for every $100 you want to win, unless the terms of the bet specifically say otherwise. If the bet is described as Chicago +3 -115, then you must risk $115 to win $100 on Chicago +3. But if the bet is described as simply Chicago +3, then everyone understands that to mean Chicago +3 -110.

-110 means you the bettor must risk $110 to win $100. The bet does not have to be exactly $110; the terms are merely stated in the form of how much you have to risk to win $100. You can wager $44 to win $40, $132 to win $120, etc.

When you make a bet, you give your money to the sportsbook, which holds onto your money and gives you a ticket as a receipt. The ticket explains all the details of the bet you have made, and if your bet wins you return that ticket to the sportsbook to collect your winnings.

If your ticket loses it becomes worthless, except as backup should the IRS audit your tax return.

If your ticket wins, and you have made a bet at -110, the amount you will get for your ticket is the amount you have wagered times 210/110. If you wagered $110, your winning ticket will be worth $210. If you wagered $11, your winning ticket will be worth $21. If you wagered $5, your winning ticket will be worth theoretically $9.54545, but the amount you actually will receive will be $9.50.

Here is a warning commonly found in a sportsbook's posted list of rules for sports wagering:

"The sportsbook is not responsible for lost or stolen tickets."

Until the game has been played and your team has lost, be as careful with your ticket as you would be with currency. If you lose your ticket and someone else finds it, you will have as difficult a time reclaiming your ticket as you would had you lost a $100 bill. Whoever finds it will cash it, if anyone finds it.

Vig at -110

This question was posted on BJ21.com: "I have a basic question. How does one calculate a break-even win rate, given the juice? I read somewhere that it's 52.5 percent given the standard -110, but don't know where it comes from. Thanks."

Here is the way to figure it. You bet $110, and if your team wins you cash a ticket for $210. If your team loses, your ticket has no value. How often do you have to be right so that on average you will turn $110 into $210? Just divide 110 by 210. The answer is 52.38095 percent, which generally is rounded off to 52.38, 52.4, or 52.5 percent.

The sportsbook's vig ideally is one bet out of 22, or 4.5 percent. Here's how to get it. Suppose the sportsbook takes in $11 on one side and $11 on the other side. If one side wins the other side loses, and the book pays out $21 to the winner, keeping $1 for itself. The book's profit is $1 no matter which side wins. $1 profit on $22 of bets is 1/22 or 4.5 percent.

I said "ideally" because the book makes 4.5 percent with an equal split of bets on both sides, but if there is more action on one side than the other, the book will win something different from 4.5 percent.

If the book makes a bad line and a majority of the money is bet by people who make a better line than the book, the book's expectation might be to lose. Booking bets at -110 is no guarantee of winning unless either the line splits the action or the line is good enough so that even though more than 50% of the money is bet on one side, that side has only about a 50 percent chance of covering.

Terms Other Than -110

The common way of expressing betting terms in sportsbooks is how much money the customer must risk to win $100, or how much a customer wins on a bet of $100. That's really two different systems, but it's confusing only initially.

A Positive Number

If the terms of a bet are expressed as a positive number, the number will be 100 or more and will indicate the amount of your win on a $100 bet.

For example, if you make a bet at +145 and your bet wins, for every $100 you wager you will receive your $100 back plus an additional $145 that formerly was the sportsbook's money.

If you bet $200 at +145 and your bet wins, that piece of paper you bought for $200 is now worth $490.

Here's how to do the arithmetic: $200 times 1.45 is the amount of your win, $290. You also receive back the $200 you wagered. $290 + $200 equals $490.

An alternative way to do the arithmetic: Making a bet at +145 means you will receive back $245 for every $100 risked. Thus to get the price of a winning ticket, multiply the purchase price by 2.45. $200 times 2.45 is $490.

A Negative Number

If the terms of a bet are expressed as a negative number, the number will be farther from zero than -100 and will indicate the amount you must wager to attempt to win $100.

For example, if you make a bet at -120 and your bet wins, for every $120 you wager you will receive your $120 back plus an additional $100 of what had been the sportsbook's money.

You might for example wager $300 at -120, and if your bet wins, the ticket you bought for $300 is now worth $550.

Here's how to do the arithmetic. $300 divided by 1.20 is the amount of your win, $250. You also receive back the $300 that you wagered. $300 plus $250 is $550.

An easy way to handle the arithmetic is to always bet a multiple of the negative number. For example, if the terms of a bet are -120, and you want to risk around $500 on the game, bet some multiple of 120 that is close to $500. For example, you might bet $480 to try to win $400. Or you might bet $600 to try to win $500.

You do not have to force your bet to be an exact multiple of the betting number. You can bet an even $500 at -120, and if the bet wins you will receive $916.6667 rounded off, probably to $916.65 or $916.50 or $916.

Typical Money Line

A money line is a bet that a team will win straight up, no points added or subtracted.

Generally whenever a sportsbook offers a money line on a game or offers a proposition for betting, you can bet on either side. The book is hoping that people do in fact bet on both sides, so that the money from the loser can be used to pay the winner with some left over to go to the book for providing the service. The terms might be expressed as two negative numbers, or they might be expressed as a positive number and a negative number, or they might be expressed as a negative number and "EV."

Two Negative Numbers.

The two-negative-number situation occurs when each side is approximately equally likely to win. You might, for example, see one team or one side of the prop quoted as -105 while the other team or side is quoted as -115. Bettors who like the first team or side must risk $105 in an attempt to win $100. Bettors who favor the other team or side must risk $115 to try to win $100.

A Negative Number and a Positive Number

The negative number will always be farther from zero than the positive number; if that were not the case, the sportsbook would not have an edge over balanced action. You might see, for example, +210 and -270. Bettors who like the underdog risk $100 in an attempt to win $210. Bettors who back the favorite must risk $270 for every $100 they want to win.

A Negative Number and EV

EV means "even money." Sometimes the board will spell it out, "even," instead of "EV."

EV means you risk a dollar to try to win a dollar. EV could also be expressed as -100 or +100; they would mean the same thing as EV but using them just isn't conventional.

You might see the terms of a prop expressed as a negative number on one side and EV on the other side; for example -130 and EV. Bettors who like the favorite would have to risk $130 for every $100 they want to win, and bettors who back the underdog would receive even money on their bets.

Break-Even Win Rates

For each betting term such as -130 or +120, you can calculate the particular probability of winning for which the bet would break even in the long run. As was mentioned above, the default term of -110 is associated with a break-even point of 52.4 percent winners.

For a bet quoted as EV, the probability of winning would have to be 50 percent for the bet to break even in the long run.

For Super Bowls the Imperial Palace in Las Vegas generally offers a prop on who will receive the kickoff. Typically the prop is offered with both teams at EV. It's easy enough to see that there is no house edge for the Imperial Palace on that bet. You could bet $100 on one team and match it with $100 on the other team, and whichever team receives the opening kickoff will bring back your entire $200. The Imperial Palace runs this one prop as a loss leader, the same as a grocery store offering an item at cost to get you to shop there instead of at a competitor's store.

Enough people who visit Imperial Palace to make the no-vig bet also make other bets that do have a house vig that the sportsbook keeps offering that no-vig bet Super Bowl after Super Bowl.

Table 1 gives the break-even rates associated with various bet terms. You can interpolate to find values not explicitly stated in the table.

Table 1
Break-Even Win Rates
for Sports Bets

BE	terms	BE	terms	BE	terms	BE	terms	BE	terms
		79.5	-388	59.5	-147	39.5	153	19.5	413
		79.0	-376	59.0	-144	39.0	156	19.0	426
98.5	-6567	78.5	-365	58.5	-141	38.5	160	18.5	441
98.0	-4900	78.0	-355	58.0	-138	38.0	163	18.0	456
97.5	-3900	77.5	-344	57.5	-135	37.5	167	17.5	471
97.0	-3233	77.0	-335	57.0	-133	37.0	170	17.0	488
96.5	-2757	76.5	-326	56.5	-130	36.5	174	16.5	506
96.0	-2400	76.0	-317	56.0	-127	36.0	178	16.0	525
95.5	-2122	75.5	-308	55.5	-125	35.5	182	15.5	545
95.0	-1900	75.0	-300	55.0	-122	35.0	186	15.0	567
94.5	-1718	74.5	-292	54.5	-120	34.5	190	14.5	590
94.0	-1567	74.0	-285	54.0	-117	34.0	194	14.0	614
93.5	-1438	73.5	-277	53.5	-115	33.5	199	13.5	641
93.0	-1329	73.0	-270	53.0	-113	33.0	203	13.0	669
92.5	-1233	72.5	-264	52.5	-111	32.5	208	12.5	700
92.0	-1150	72.0	-257	52.0	-108	32.0	213	12.0	733
91.5	-1076	71.5	-251	51.5	-106	31.5	217	11.5	770
91.0	-1011	71.0	-245	51.0	-104	31.0	223	11.0	809
90.5	-953	70.5	-239	50.5	-102	30.5	228	10.5	852
90.0	-900	70.0	-233	50.0	EV	30.0	233	10.0	900
89.5	-852	69.5	-228	49.5	102	29.5	239	9.5	953
89.0	-809	69.0	-223	49.0	104	29.0	245	9.0	1011
88.5	-770	68.5	-217	48.5	106	28.5	251	8.5	1076
88.0	-733	68.0	-213	48.0	108	28.0	257	8.0	1150
87.5	-700	67.5	-208	47.5	111	27.5	264	7.5	1233
87.0	-669	67.0	-203	47.0	113	27.0	270	7.0	1329
86.5	-641	66.5	-199	46.5	115	26.5	277	6.5	1438
86.0	-614	66.0	-194	46.0	117	26.0	285	6.0	1567
85.5	-590	65.5	-190	45.5	120	25.5	292	5.5	1718
85.0	-567	65.0	-186	45.0	122	25.0	300	5.0	1900
84.5	-545	64.5	-182	44.5	125	24.5	308	4.5	2122
84.0	-525	64.0	-178	44.0	127	24.0	317	4.0	2400
83.5	-506	63.5	-174	43.5	130	23.5	326	3.5	2757
83.0	-488	63.0	-170	43.0	133	23.0	335	3.0	3233
82.5	-471	62.5	-167	42.5	135	22.5	344	2.5	3900
82.0	-456	62.0	-163	42.0	138	22.0	355	2.0	4900
81.5	-441	61.5	-160	41.5	141	21.5	365	1.5	6567
81.0	-426	61.0	-156	41.0	144	21.0	376		
80.5	-413	60.5	-153	40.5	147	20.5	388		
80.0	-400	60.0	-150	40.0	150	20.0	400		

For example, try to find -110. You won't find it; it's not in table 1. However you can find -111 associated with the break-even win rate 52.5 percent, and you can find -108 associated with the break-even win rate of 52.0 percent. So you know that -110 must have a break-even win rate of between 52.0 and 52.5 percent, and interpolation would lead you to choose 52.3 or 52.4 percent.

Table 1 allows you to find the break-even win rate that corresponds to the terms on any sportsbook bet that is expressed as how much to bet to win $100 or how much a $100 bet will win.

Suppose you see a prop offered at -130. Table 1 tells you that the event must happen 56.5 percent of the time for you to break even, and the event must be more likely than that for you to have the expectation of showing a profit on the bet. If that event happens less than 56.5 percent of the time, then the bet has a negative *expected value*.

Suppose you see a prop offered at +115. Table 1 tells you that the event must happen 46.5 percent of the time for you to break even, and if the event is more likely than that to happen, then you have the expectation of showing a profit on the bet.

You can reproduce any of the terms in table 1 yourself. Let BE be the break-even percentage.

For each negative term:
    term = - 100 * BE / (100 - BE)

For each positive term:
    term = 100 * (100 - BE) / BE

Sometimes the terms of a bet will be expressed as a ratio instead of as an amount to win $100. Table 2 lists the commonly used ratios and gives the equivalent break-even win rates and amounts to win $100

Table 2
Bets Expressed as Ratios

ratio	BE	terms
7:1	12.5	+700
6:1	14.3	+600
5:1	16.7	+500
9:2	18.2	+450
4:1	20.0	+400
7:2	22.2	+350
3:1	25.0	+300
5:2	28.6	+250
2:1	33.3	+200
3:2	40.0	+150

For example, if a sportsbook is offering a bet at 4:1, it could have said +400 instead because +400 means the same thing as 4:1. That bet has a positive expected value for the customer if the event has greater than a 20.0 percent chance of happening.

Expected Value

The term *expected value* is used throughout this book. This term has a precise meaning. Expected value means the arithmetic mean or "average" result if the game were to be played over and over a large number of times.

Here's a simple example. Suppose you find someone foolish enough to pay you $105 for each head flipped with a coin, if you would pay him $100 for each tail. I am assuming this is a fair coin and you are not going to end up with an earful of cider. What is the EV (acronym for expected value) of the game? Fifty percent of the time you will win $105 and fifty percent of the time you will lose $100, so on average you will win $2.50. The calculation is .5 x $105 - .5 x $100. You could describe the situation by saying you have an EV of $2.50 per flip.

You are not going to run into fools who will play this win-$100-lose-$105 game with you, but you might encounter something similar in the way of sports bets. You might encounter bets that will pay you $105 or cost you $100 that you think you have a fifty percent chance of winning. If you really do have a fifty percent chance of winning, then your expected win on the bet is $2.50.

You can call it "expected win" or you can call it "expected value." The important thing is that the "expected" part means the mean result if the game were to be played over and over.

Expected value can also be expressed as a percentage of the wager. $2.50 of expected win on a bet of $100 is 2.5 percent return on the wager.

Expected Value: Money Line Example

Here is another numerical example. Suppose a sportsbook is offering a game at -130, and you think you have a 60 percent chance of winning that bet. What is your expected win, in percent?

Solution: If you risk $130 and the bet wins, your ticket is worth $230. You think that has a 60 percent chance of happening. The expected value of that ticket thus is 60 percent of $230, or $138. That particular ticket will be worth $230 or nothing, but its *expected value* is $138. That's an average win of $8. Winning $8 on an investment of $130 is earning 8/130 or 6.15 percent on your investment.

Expected Value with Multiple Possible Outcomes

Sometimes there are more possible outcomes than just win and lose. The most common alternate outcome is getting your money back on a push. For example, suppose you bet on Chicago -3 on an NFL game. If Chicago wins the game by more than three points, you win your bet. If Chicago loses or if Chicago wins by only one or two points, you lose your bet. If Chicago wins by exactly three, you get your money back but do not win or lose anything.

The general way to find expected value is to list all the possible outcomes and their chances of happening, multiply each outcome by its associated chance of happening, and sum.

As a check to make sure you have accounted for all possible outcomes, add up your chances of various things happening and be sure they sum to 100 percent.

Example Calculating Expected Win

For example, suppose you think Chicago winning by more than three is going to happen with probability .55. That is, if this game could somehow be played over an over and over, Chicago would win 55 percent of the time. Suppose you think that Chicago winning by exactly three has a 10 percent chance of happening. That leaves 35 percent as the chance that Chicago will not cover the spread.

Check: 55 percent plus 10 percent plus 35 percent equals 100 percent.

Suppose you can wager at the standard term of -110. Let's work out the math for a wager of $110. You have 55 percent chance of winning $100, 10 percent chance of breaking even, and 35 percent chance of losing $110.

EV_w = .55 x $100 + .10 x $0 + .35 x (-$110)

Multiplying each outcome by its probability gives $55 on a win plus $0 on a push minus $38.50 on a loss for a total win of $16.50.

Dividing that $16.50 average win by the $110 investment yields fifteen percent. The expected win on that Chicago bet is fifteen percent if your chances of winning, pushing, and losing are accurate.

The number of dollars invested does not matter. Use a bet size different from $110 and you will get the same fifteen percent answer for expected win rate.

Example Calculating Expected Ticket Price

An alternate way to get the same answer is to figure out what is the expected value of the ticket you will be cashing in. A ticket that costs you $110 might turn into $210 or it might stay at $110 or it might turn into zero. For the Chicago example, the chances of each of those were assumed to be 55 percent, 10 percent, and 35 percent. Multiplying each possible ticket value times its probability gives:

EV_T = .55 x $210 + .10 x $110 + .35 x $0

$$= $115.50 + $110 + $0$$

The total is $126.50. That's the expected postgame ticket price. Expecting to turn a $110 bet into a $126.50 ticket means an expected win of $16.50, which is the same answer as in the calculation of expected amount of win.

Sample Problems

Problem 1

A sportsbook offers special prices on Thursday night: -105 for bets on sides, instead of the normal -110. What is the vig at -105, from the standpoint of someone who has a 50-50 chance of winning a bet?

Problem 2

What percent prediction accuracy is needed to break even at -105?

Problem 3

If you can pick winners with 57 percent accuracy, what is your expected win rate if you make bets at -110?

Problem 4

Suppose you are offered -800 on a bet that a game will not go into overtime, and suppose you evaluate the chance of overtime at five percent. What is your edge on this bet?

Problem 5

A sportsbook offers +185 on a particular prop. What percent of the time do you need to win that prop to break even?

Problem 6

Suppose I can receive +185 on something that I think will happen around forty percent of the time. What would my win rate be?

Problem 7

A sportsbook offers -400 on something that I think will win 75 percent of the time. Is that a good bet?

Problem 8

A sportsbook offers a prop with -115 on one side and -115 on the other side. How does this compare with the normal -110 with regards to the book's expected win, in percent?

Problem 9

I like the Braves with Greg Maddux -280 vs. Expos. I think the break-even point is a line of -350. What is my edge if I am right about the -350?

Problem 10

If I think the break-even point is a line of -350 on the Braves with Greg Maddux, and I want to invest my money only on bets on which I think my edge is at least 10 percent, what is the worst line I should take?

Solutions to Sample Problems

Problem 1

A sportsbook offers special prices on Thursday night:-105 for bets on sides, instead of the normal -110. What is the vig at -105, from the standpoint of someone who has a 50-50 chance of winning a bet?

If you make a wager of $105, you have a 50 percent chance of winning $100 and a 50 percent chance of losing $105. That's $50 minus $52.50. Your average loss is $2.50 on an investment of $105, or a loss rate of 2.38 percent.

Here is another way to arrive at the same answer. You have a 50 percent chance of turning $105 into $205 and a 50 percent chance of turning it into zero. That means on average, $105 will turn into $102.50. That's the same average loss as was found in the above paragraph.

Problem 2

What percent prediction accuracy is needed to break even at -105?

Table 1 gives 51.0 percent as the break-even point for -104, and 51.5 percent as the break-even point for -106. Interpolating gives 51.2 or 51.3 percent winners as the prediction accuracy needed to break even at -105.

If you want to work out the arithmetic instead of grabbing the answer from table 1, it's 105/205 x 100 or 51.22 percent.

Problem 3

If you can pick winners with 57 percent accuracy, what is your expected win rate if you make bets at -110?

Working with a bet of $110, you have 57 percent chance of cashing a ticket for $210, so the average ticket you buy will be cashed for $119.70. Dividing by the $110 purchase price gives 8.8 percent return on investment.

Problem 4

Suppose you are offered -800 on a bet that a game will not go into overtime, and suppose you evaluate the chance of overtime at five percent. What is your edge on this bet?

You have five percent chance of turning $800 into zero and 95 percent chance of turning $800 into $900. Multiplying .95 times $900 yields $855. Thus an average $800 will turn into $855. That's an average profit of $55 on an $800 investment, or 6.9 edge.

Problem 5

A sportsbook offers +185 on a particular prop. What percent of the time do you need to win that prop to break even?

Table 1 gives the answer. +182 is associated with 35.5 percent chance of occurring, and +186 is associated with 35.0 percent chance of occurring. Interpolation yields +185 being associated with 35.1 percent chance of occurring. So if you think the event has more than 35.1 percent chance of happening, you have a positive EV on that bet.

Problem 6

Suppose I can receive +185 on something that I think will happen around forty percent of the time. What would my win rate be?

A bet of $100 will win $185 about 40 percent of the time, and will lose about 60 percent of the time. Thus the average $100 turns into $114, which is 40 percent of $285. If your forty percent is accurate, your win rate is fourteen percent.

Problem 7

A sportsbook offers -400 on something that I think will win 75 percent of the time. Is that a good bet?

No, it is not a good bet. Table 1 says you need to win 80.0 percent of the time to break even on bets you make at -400. You need to have more than 80.0 percent chance of winning to have an edge. Your estimate of winning 75 percent of the time means the book has an edge over you on that bet.

Problem 8

A sportsbook offers a prop with -115 on one side and -115 on the other side. How does this compare with the normal -110 with regards to the book's expected win, in percent?

At -110 you need 52.4 percent predictive accuracy to break even. At -115, table 1 says you need 53.5 percent predictive accuracy to break even.

At -110 on both teams, a sportsbook with balanced action earns $10 per $220 of action, or 4.5 percent.

At -115 for both teams, a sportsbook with balanced action earns $15 per $230 of action, or 6.5 percent. You can derive that yourself by assuming $115 bet on each team. Whichever bet wins will receive $215, and the sportsbook will keep the other $15.

Problem 9

I like the Braves with Greg Maddux -280 vs. Expos. I think the break-even point is a line of -350. What is my edge if I am right about the -350?

Table 1, with a little interpolation, tells you that the win rate associated with -350 is 77.8 percent. If your -350 is correct, your $280 bet has a 77.8 percent chance of turning into $380. Multiplying .778 times $380 yields $295.64. Since you have only three-digit accuracy on the .778, you should round off the $295.64 to three digits, getting $296.

If your -350 is right, the average $280 you invest in the Braves with Maddux will turn into $296. Dividing 296 by 280 yields 105.7 percent. You have about a 5.7 percent edge on this bet.

Problem 10

If I think the break-even point is a line of -350 on the Braves with Greg Maddux, and I want to invest my money only on bets on which I think my edge is at least 10 percent, what is the worst line I should take?

Table 1 again is the place to start. The win rate associated with a line of -350 is 77.8 percent winners.

That 77.8 percent must cover both your wager and the 10 percent of your wager that you expect to gain. Thus that 77.8 percent must cover 110 percent of your wager.

Dividing 77.8 percent by 1.10 (which is 110 percent) yields 70.7 percent. That's the break-even win rate you need in order to have an expected result of getting your money back plus 10 percent.

Table 1 also is the place to finish. For a break-even win rate of 70.7 percent, table 1 says you need bet terms between -239 and -245. Interpolation gives -241.

In summary, if you think the line should be -350 and you want to earn 10 percent on your investment, you should hold out for a line of -241 or better.

CHAPTER 5

HANDICAPPING

Betting lines on sports events are similar to the prices of common stocks. Both are set by the actions of buyers and sellers in a market.

Finding profitable sports bets is similar to outperforming the stock market. (*Outperforming* means obtaining returns in excess of what the market generally offers for the level of risk involved.)

To earn excess profits in the stock market, you must either have information that is not available to the general public, or you must have a superior ability to process the information that is public.

If you are trading stocks based on the same information that is available to other investors, and you do not have superior ability to figure out how that information will cause stock prices to change, you are spinning your wheels. You will have some winners and you will have some losers, but over time if you analyze your past performance you will find that you have not outperformed the market.

The stock market has an upward drift over time. A stock price is more likely to go up than down (though sometimes that is hard to believe).

If you stay invested in the stock market long enough, and if you avoid churning your portfolio so much that transaction fees eat up all your profits, you *will* make money in the stock market. That is true even if your method of selecting stocks is attaching a copy of the *Wall Street Journal* to your wall and throwing darts at it.

There is no upward drift in bets on sports events. If you attach a list of all possible sports bets to your wall and throw darts at it to select the games you will bet, you will lose over time.

In order to make money betting on sports, you must either have information that is not being used by the betting public, or you must have a superior ability to process the information that is public.

Best Simple Strategy

A lively topic of discussion on BJ21.com has been: What is the best simple strategy for betting sports?

Suppose a person who knows nothing about sports is given a free bet on a game, and gets to select the team. Which is generally the better choice, the favorite or the dog? Home team or visiting team?

An easy answer is to bet a dog. The historical data show that betting dogs is superior to betting favorites. See for example the chapter in this book on NFL results against the spread. Most bettors look for reasons to bet on a team, rather than for reasons to bet against a team. Most bettors seem to back favorites. Bookmaker James Jeffries in his *The Book on Bookies* describes the betting preferences of his customers. Jeffries says that his customers are all so solidly in favor of favorites that the line he offers is often the Vegas line shaded a half point against the favorites.

A better answer might be to bet a home dog. In the NFL since 1985, all the excess wins enjoyed by dogs have gone to home dogs. Traveling dogs have not accomplished excess wins, at least not in the NFL between 1985 and 2000. Over that sixteen year period, home dogs have covered 52.7 percent of the time. Caution: That sample size is too small for the result to have any statistical significance. But if a person must make a sports bet, my advice is to take a dog playing at home.

A better answer yet would be to bet the biggest home dog you can find. (This probably is not a profitable strategy; it simply is a way for someone who is going to bet no matter what to lose the least expected value.)

Early Lines

Suppose somebody asks: "What is the line on the Packers-Lions game?" What that person means is what are the terms that sportsbooks are offering for wagers on the game. The answer usually is expressed as a team and a number, for example: "Packers -3."

The line can be positive or it can be negative. If the Packers are three-point favorites over the Lions, then the line could be expressed as Packers -3 or Lions +3.

If the two teams are so evenly matched that the game looks like a toss-up, the line is said to be *even* and is written on the boards in sportsbooks as *PK*.

If the odds are not given, the default is whatever are the normal odds offered by the sportsbook for that type of bet. The standard default odds in the sportsbooks of Nevada are -110, meaning the bettor wagers $110 in an attempt to win $100.

The -110 is not cut into stone. It is a number that has been used by Nevada sportsbook for years, and has proven to be low enough to attract bets from customers and yet high enough for the books to make enough money to survive. Various Las Vegas books sometimes offer special odds to try to attract big bets; if you are making football bets in Las Vegas, ask around and you might learn about places where you can bet NFL sides for -105 for limited hours on selected days.

If the odds on a bet are other than the usual, which in Nevada means other than -110, the odds will be stated as part of the line. You might for example find Rams -3 -115, which means you must wager $115 to try to win $100 if you want to bet on the Rams -3. If the Rams are -3 -115 and they are playing the Saints, the line on the Saints will be +3 -105. This situation means the Rams are slightly stronger than three points better than the Saints, but not so much stronger as to justify a line of Rams -3.5.

Not all lines are the same. A lot of thought goes into the lines that are posted for major events, of which the Super Bowl is the most major of all. At the other extreme, not much time is spent on constructing lines for *exotic* bets.

Exotic Bets

First look at exotics, which are the same thing as *prop* bets. Here is an example. Prior to the start of the 2001 baseball season, the Imperial Palace in Las Vegas offered an extensive menu of exotic bets. One that caught my eye was Sammy Sosa to hit more home runs than Mark McGwire. McGwire held the all-time record for most homers in a season with 70. McGwire and Sosa were co-favorites to hit the most homers in 2001; each was listed at 4:1. But in a head-to-head matchup between the two men, the prop sheet listed McGwire as +110 and Sosa as -140. Sosa was born on 11/12/68, making him 32 at the start of the 2001 season. McGwire was born on 10/01/63, making him 37 at the start of the season. McGwire had a history of physical ailments that kept him out of the lineup for weeks or months at a time; Sosa had been sturdy, seldom missing a game. I thought that Sosa was going to get 50 or so homers almost for sure, while McGwire had a small chance of having a huge year but a large chance of missing a lot of games due to injury. Thus I thought that Sosa to hit more homers than McGwire looked like a good bet.

The prop sheet said Sosa -140, but he was -145 on the board. The max bet was a payoff of $500. The clerk accepted my max bet of $725, and then immediately walked over to where the bet was listed on the board and changed the numbers to McGwire +120, Sosa -160.

I came back a couple of hours later, and Sosa was still -160. I made another max bet, giving the clerk $800. After accepting my bet, the clerk walked over to the listing and changed it to McGwire +140, Sosa -180.

I came back the next day, and the numbers were unchanged: McGwire +140, Sosa -180. That says something about how much attention that prop was getting from other bettors. One day it was McGwire +115, Sosa -145; my bets caused it to change to McGwire +140, Sosa -180; and the next day those numbers were still up on the board. There was no new information that affected the bet in that one day. The only thing that caused the numbers to change was my two max bets. You would think that raising the payoff on McGwire from +115 to +140 would bring in some money on McGwire. But if the change attracted any McGwire money, the amount was not enough to cause the odds to change. My bets undoubtedly were a major part of the total wagered on that prop over those 24 hours. Perhaps my bets were the *only* bets on either side of the prop during those 24 hours.

How much thought went into the original line of McGwire +110, Sosa -140? Probably not much. The line on Sosa was changed to -160 and then to -180 purely because of my bets. The line did not move because the people behind the counter rethought the prop and suddenly agreed with me that Sosa was much more likely than McGwire to stay healthy. Had I made max bets on McGwire instead of Sosa, the line probably would have been moved the other way.

The Imperial Palace has limited time for thinking up exotic bets, and must do it cheaply in order to make a profit overall. That means the Imperial Palace can't justify spending excessive time researching each prop bet.

Individual customers undoubtedly devote more time to analyzing some of the Imperial Palace's exotic offerings than the Imperial Palace spends creating them. I did not spend any time analyzing McGwire vs. Sosa; I liked that bet as soon as I saw it. But there have been a number of other Imperial Palace props that I'm sure I spent more time analyzing than the person or people who created them.

There are two reasons why the Imperial Palace does not have to worry if the lines on some of its exotic bets are soft. One reason is the max bet. Even if Imperial Palace makes a big mistake on an exotic, a customer who finds the mistake can take advantage of it for only a small number of dollars, $500 at the time of this writing. After accepting a max bet on a prop, the sportsbook can change the bet to make that side less attractive and the other side more attractive. I could have continued to bet more and more money on Sosa to outhomer McGwire, but each successive bet would have been at worse odds. The other reason is the large spread between the two sides of the proposition. The sportsbook occasionally puts up a prop that ends up costing it money, but any such losses are small compared to what the book makes on the props that get action on both sides, and props that get an imbalance of action on the losing side.

So for props, one reality is that if you examine enough of them, you are going to find some that promise a huge expected return. But another reality of prop bets is that you won't be able to make a huge number of dollars on them, due to your not being able to wager a huge number of dollars without drastically affecting the odds. Thus you will have a large percentage edge but will win a small number of dollars. For example, I put a few more max bets on Sosa, but each bet was to win only $500. I'd have loved to have won $20,000 betting Sosa to outhomer McGwire during the 2001 baseball season, but there was no way I could have gotten that much money down. Either the Imperial Palace would have moved the line against me after each max bet until further bets were no longer worthwhile, or the prop would have been removed from the board, or the welcome mat for further bets would have been yanked from beneath my feet.

Super Bowl

Whereas an obscure prop bet might be the brainchild of a single person investing a few minutes of time, the early line for the spread on the Super Bowl is the product of several people's investing much thought. The initial spread for the Super Bowl is a much more solid number than the early odds on a prop.

From the time the early line is posted, a huge volume of dollars flows into bets on the Super Bowl. If the initial line on the Super Bowl is not splitting the early money as evenly as another number would, the line is changed quickly. A sportsbook does not mind if an obscure prop gets one-sided action, but the Super Bowl brings in too much money to make one-sided action palatable.

Super Bowls are different from other sporting events in that most of the dollars wagered against the spread on the Super Bowl come from unsophisticated bettors.

To sharps, the Super Bowl is just another bet. There is no mathematical justification for a sharp's betting more money on one team in the Super Bowl than he or she would bet on any other game.

When linesmakers try to balance the action on a Super Bowl, it's unsophisticated action they are trying to split, half on each team. It's logically possible that all the sharps are betting on the same side of a Super Bowl, and the sportsbooks don't mind if they do.

Bettors shop around for Super Bowl lines, quickly bringing the various sportsbooks into agreement on their line for that game.

Unlike the situation with prop bets at Imperial Palace, the bets of any one individual on the Super Bowl do not cause the line to change. One person's bets are simply too small compared to the total being wagered by all bettors. If you want to bet $20,000 on one side to win the Super Bowl, you can do so easily without moving the line.

However, there is a downside to betting on which team will win the Super Bowl. The downside is the line on the Super Bowl is much more efficient than the lines on prop bets. That means that all the information that you might consider before making your bet has already been considered by other bettors, and has already been factored into the line. As a result, it's much harder to find positive expected value in betting a Super Bowl side.

Thus betting on the Super Bowl is quite different from betting on exotics. In the Super Bowl you can bet huge, whereas on exotics the amount you can bet is limited. In the Super Bowl it's difficult to get an edge, whereas on selected exotics it can be easy to get an edge.

Other Games

Exotics and the Super Bowl define the extremes. Bets on other games fall between those extremes.

Creating early lines for the first week of a new season requires a considerable investment of time on the part of linesmakers, because there is much information to consider. Every new season brings new players, new coaches, changes in the rules, etc.

Creating the early lines for subsequent games is much faster. The process involves extrapolating each team's performances in the season to date, with allowances for injuries, weather, and other criteria.

There is a company whose business is consulting on lines for sportsbooks: Las Vegas Sports Consultants (LVSC). The handicapping experts employed by LVSC create lines that can be purchased by sportsbooks.

An early line is an expert opinion, but it is an expert opinion rendered by a group of people who must create lines on dozens or hundreds of games in a short period of time. Thus there is opportunity for bettors to find soft spots.

Why Lines Change

Sharps Bet Early

Early lines on most games are solid, but a few are *soft*, meaning sharp bettors can find an edge. Sportsbooks like to find those soft spots quickly, and move the numbers to remove the softness. The way that is done is to hold early bettors to lower limits. The sportsbook is quicker to move the lines in response to early bets than to bets that come in closer to game time.

For an interesting account of the process of sharps working the softness out of a line back in the days when Stardust hung the first lines, see Chad Millman's *The Odds*, pages 83-87.

How much adjustment will the sharps cause? If an early line is +8 and they think it should be +4, they are going to bet it off of +8 but they are not going to make the final bet that causes the line to move from +4.5 to +4, because they must wager $110 to try to win $100, and the cost of the vig is greater than the expected value of the half point. They may not make the bet that would move it from +5 to +4.5 either, because they might not see that bet as being profitable enough. They will stop making bets when they think the profit potential is too small to compensate for the risk involved and the time their money will be tied up waiting for the bet to be resolved.

Balanced Action?

Ideally, from the viewpoint of the sportsbook, the line should never move up or down, it should attract huge action on both teams, and by the time the game starts there should be approximately the same number of dollars bet on each team. At least that's what most people think. It's not true.

Better than that, from the viewpoint of the sportsbook, is when are a whole lot more dollars bet on one team than on the other, and the team with all the action on it is the one that loses.

While competing in the Stardust football tournament in the fall of 2000, I had the opportunity to ask Robert Walker, race and sportsbook director at MGM Mirage, whether his company's action is balanced on football games. I mentioned that it seemed to me that on about half the games, most people who had an opinion agreed on the same team. I said it therefore appeared to me that sportsbooks might be taking lopsided action on about half of all NFL games. Mr. Walker answered that what I hypothesized was indeed the case. He said he does not mind lopsided action as long as his sportsbook makes money overall on those games.

Then I asked him why he did not make more line moves to try to balance the action. His answer was that to move the line to try to balance the action would result in less profit for the sportsbook.

Balanced action is seldom achieved. It's a myth that balancing the action is the purpose of the line, except in the case of the Super Bowl.

Games With Less Public Interest

Sharps are willing to bet on any game, and the amount of money they are willing to bet depends on their perceived edge. The amount of money wagered on a game by unsophisticated bettors, sometimes called *squares* or the *public*, varies from game to game and sport to sport.

Some sports attract lesser amounts of unsophisticated action: NBA regular-season games, hockey, baseball, and regular-season college basketball games. If there is any big action on such games, it most likely comes from sharps. Lopsided action can mean somebody knows more about the game than do the linesmakers.

Games that are not televised generally attract a lower volume of bets from unsophisticated bettors.

If enough sharps agree that a team is good value, the amount of money they are capable of betting is huge. Therefore, on games that attract less money from unsophisticated bettors, sportsbooks must be quick to move the line in response to lopsided action.

Games with lesser amounts of bets from unsophisticated bettors are the ones on which sportsbooks like to have balanced action, because a big imbalance of action on such a game might mean the sportsbook does not have an edge.

Games With More Public Interest

Games that are televised attract more public money than do games that are not televised. Playoff games attract more public money than do regular-season games.

The Super Bowl attracts the highest percentage of unsophisticated money, of course. The next highest percentage of unsophisticated money is on other high-profile games, such as the World Series, the NBA playoffs, and regular-season NFL games. College football and the NCAA basketball playoffs attract the next-highest proportion of unsophisticated money. After that come NBA regular-season games, hockey, baseball, and regular-season college basketball games.

On games on which the bulk of wagers come from unsophisticated bettors, the sportsbook might actually welcome lopsided action, if the manager of the sportsbook thinks that the side with the most action is the side most likely to lose. Sportsbook managers think like sharps; they are happy to have their books take risk as long as higher risk is accompanied by enough expected profit.

Maximum Profits for Sportsbook

One way the theoretical hold percentage can be achieved is if the line stays constant from the time it is first hung until game time, and both sides get equal action.

Another way the theoretical hold percentage can be achieved is if the opening line handicaps the game perfectly, with each side having an equal chance of winning the game. When this happens the theoretical hold percentage may not be achieved on any single game, but it has the expectation of being achieved on average over many games.

Sportsbook managers strive to achieve better than the theoretical hold percentage. They try to set lines so that the excess action is on the side that is less likely to win. It's easier to do this on games with a higher proportion of money being bet by unsophisticated bettors.

Suppose that a sportsbook manager thinks there is a 50 percent chance that Baltimore will win Sunday's game by more than 7.5 points. And further suppose that the manager thinks that hanging a line of Baltimore -7.5 would attract an imbalance of action on Baltimore, but that a line of Baltimore -10 would split the action evenly between Baltimore and its opponent.

A line of Baltimore -7.5 would allow the sportsbook to achieve its theoretical hold percentage, as would a line of Baltimore -10.

At a line of Baltimore -7, most of the action would come in on Baltimore, and Baltimore would be the side that is most likely to cover, so the

sportsbook would not have an edge.

At a line of Baltimore -10.5, most of the action would come in on Baltimore's opponent, and that would be the side most likely to cover, so the sportsbook would not have an edge.

Any line between Baltimore -8 and Baltimore -9.5 will attract more money on the side that is less likely to cover the spread, and give the sportsbook the expectation of achieving better than the theoretical hold percentage.

The manager wants to make money for the business, and the more money the better. The point of maximum dollars of profit could come at Baltimore -7.5, or it could come at Baltimore -10, but more likely it would come at a number between -7.5 and -10. Within the range of -7.5 and -9.5, the sportsbook would knowingly be accepting an imbalance of action on Baltimore.

Sure the sportsbook takes extra risk by intentionally accepting an imbalance of action on Baltimore. But the sportsbook diversifies by also accepting bets on many other games, each of which is independent. Therefore the risk due to an imbalance in action on any one game is unimportant unless the action on that game is huge, as is the case with the Super Bowl.

In the real world of course, the sportsbook manager does not know for certain the spread at which Baltimore has a 50 percent chance of covering. But between his expertise and the expertise he has access to, the manager comes up with a good estimate of that spread.

Likewise in the real world, the sportsbook manager does not know for certain the spread at which action would be split evenly between both teams. He does not need to know it.

Suppose the manager thinks Baltimore has around a 50 percent chance of covering a spread of eight points. Further suppose the manager thinks that an excess of money will be coming in on Baltimore if he hangs a line of Baltimore -8. So the line he hangs is Baltimore -8.5 or Baltimore -9. He's not trying to balance the action on the game, and he's not even trying to attract bets against Baltimore. What he is trying to do is gain a little extra advantage from all those squares who will bet Baltimore no matter what the spread. If he hangs Baltimore -8.5 instead of Baltimore -8, then one possible game outcome that would have been a push for Baltimore bettors becomes a win for the sportsbook.

The result will be a line that might attract sharp money to the unpopular team. The manager does not really want sharp action, but will put up with a little bit of it in order to get an extra-big edge over a larger amount of action on the popular team.

If the manager can set a line that will attract some but not a lot of sharp action on the unpopular team, the resulting spread will win more money for the business than if the line split the action evenly.

After hanging a line that takes extra advantage of squares but might attract sharp action to the other team, the sportsbook manager needs only to keep tabs on the bets of people known to be good handicappers.

Squares prefer to bet favorites more often than not. So the manager is more likely to hang a line that penalizes betting on favorites.

There is a Limit

Of course there must be a limit to the dollar amount of lopsidedness of action the manager will tolerate. The manager does not know with certainty what line handicaps the game perfectly; there is always a chance that a customer has a superior line on an individual game. A manager who hangs a line that is too far out of whack with what is offered at another sportsbook is taking a chance, because profits to arbitragers who bet both sides show up as losses for one or both sportsbooks.

Any manager who feels too exposed on an individual game will move the line.

The Bottom Line

The line on a game is the number that the sportsbook manager thinks has the highest expected win for the business, consistent with the risk the manager is willing to accept. What that means, where possible, is setting the lines in such a way as to earn a higher percentage on the bets of those people who are going to bet on their team no matter what the odds.

Dollars flow into sportsbooks from sharps and from squares, and squares generally prefer to bet favorites. Thus the line generally is set so that the dog is slightly better value for the customer than is the favorite.

The sportsbook can earn more dollars of expected win from squares by raising the cost of betting favorites. But if dogs become too attractive to sharps, they will bet and win some of the money that sportsbooks are winning from squares backing favorites.

Maximum profit for the sportsbook comes at spreads that take advantage of squares without attracting too many bets from sharps.

Getting an Edge

As in picking winners in the stock market, picking winners at sports bets requires information not public, or a superior ability to process public information. You probably do not have a bet when the reason you like a team is information that is available to and easily understood by all bettors.

Ways to get an edge can be divided into three categories:

a. Breaking news
b. Superior use of existing data
c. Motivation

The more money being bet on a game by other people, the bigger the bet you can make without moving the line. The more money being bet on a game, the more likely the information available to you is already factored into the line.

Breaking News

To profit from news, generally you must hear the news quickly and you must act on it quickly. Here are some examples.

Example: Food Poisoning

Suppose Arizona State is a three-point favorite over Wake Forest in the upcoming Aloha Bowl. Further suppose that the night before the game, ten members of the Arizona State team come down with food poisoning. Obviously that will impact Arizona State's chances of winning the

game. The way that news gets factored into the spread is by the actions of bettors. If you hear the news and then find a sportsbook that still lists Wake Forest +3, you can be part of the process of moving the line to where it should be. If, by the time you try to bet, the line is Wake Forest +1, you are too late; the food poisoning has already been factored into the line.

Example: Injury to a Key Player

Cleveland was +9 in a game coming up at Pittsburgh on 22 October 2000. During practice a few days before the game, Cleveland's quarterback Tim Couch was injured. Couch was a major part of Cleveland's offense. Bettors who first heard about the injury were the ones who moved the line to Cleveland +13. Cleveland really missed its quarterback, losing 22-0.

Example: Stadium vote in Phoenix

On 5 November 2000, the Arizona Cardinals were a 10-point underdog to the Washington Redskins. Two days later, on Tuesday the 7th, Phoenix voters would vote on whether to construct a new football stadium. After Arizona won outright 16-15, accounts of the game credited the upcoming election as motivating Arizona to play an inspired game against Washington. The players got what they wanted: The stadium vote passed.

The line of Arizona +10 seemed to totally ignore the upcoming stadium vote. It was as if football bettors read only the sports page and the weather reports, ignoring the rest of the newspaper. I had Arizona +10 because I like double-digit NFL home dogs; had I known about the upcoming election, I would have made a bigger bet on Arizona.

Examples: XFL

The XFL played its first season in early 2001. On 13 February 2001, the announcement "XFL promises to speed up its games after overtime contest" appeared on the Internet. The change was to take place immediately, meaning it would impact the games scheduled for the upcoming weekend. Sportsbooks did not react to the news, and did not immediately reduce their totals. When the news item was brought to the attention of green chippers on BJ21.com, all who were inclined to bet sports quickly jumped on the unders. Unders won, as the average number of plays run during an XFL game declined by ten percent, bringing the scores down too.

"XFL promises to speed up its games after overtime contest"
Tuesday, February 13, 2001
    NEW YORK (AP) — If ratings for the XFL keep sinking, its operators might consider pitting angry NBC executives against one another — no pads allowed.
    The XFL promised Tuesday to speed up its games after Saturday's double-overtime contest caused a 45-minute delay starting "Saturday Night Live," reportedly infuriating the show's founding producer, Lorne Michaels.
    ...
    Ebersol wasn't talking Tuesday, but his spokeswoman, Cameron Blanchard, said the XFL will cut its pregame introductions by at least five minutes, shorten the halftime breaks and try to keep the clock moving.
    For example, the time clock will start when the ball is placed on the line of scrimmage following incomplete passes and changes of possession, instead of waiting until the ball is snapped.
— David Bauder, AP Television Writer

Two weeks later came the announcement: "Bump and run gets the boot." That change also was to start immediately. Sportsbooks did not react to that news either, and did not immediately increase their totals. That news announcement was also brought to the attention of the BJ21.com community, with the result that they quickly bet overs, and they were rewarded when scoring rose ten percent.

"Bump and run gets the boot"
Wednesday, February 28, 2001
    LAS VEGAS - Faced with few touchdowns and low TV ratings, the XFL will make a significant rule change this week.
    The XFL will no longer allow defenses to play bump-and-run past five yards. This is the same rule used by the NFL.
    Prior to the rule change, XFL defenders could make contact against receivers the entire way down field. The official announcement on this rule change should occur Thursday, according to two league sources.
— Stephen Nover, Senior Sports Analyst, VegasInsider.com

Superior Use of Existing Data

If you like a team for reasons that were considered by the linesmakers and the sharps who bet into the early line, then you probably do not have a good bet. Those people looked at won-loss records, yards gained on the ground and yards gained in the air, yards given up by the defense, turnovers, injuries, past opponents, and future opponents. The linesmakers know what day of the week the game is being played, and who is the home team. They know which teams are in which divisions. They know what happened the last time these two teams met. If you are selecting a team based on those factors, be aware that the linesmakers have already considered the same data on which you are basing your analysis.

If you watched a game and think you saw something that would give you a good bet in a future game, be aware that at least some of the linesmakers who create the early line and some of the sharps who bet into it also watched the same game you did.

Overcompensation in the lines is common, particularly when one team is coming off a big loss or big win that was televised. The public sometimes overvalues a team's most recent performance.

There are people who can make money by analyzing the same data that are available to others. For example, if you are a former professional baseball player who knows baseball inside and out, you know how to evaluate baseball players, you know ballparks, you know baseball strategy, and you know how the different variables interact with one another, then it's entirely possible that you can find good baseball bets while looking at the same information that is available to everyone else.

Many serious bettors create "power ratings." *Power ratings* are numbers, one number per team, that are used to estimate what the spreads

should be. The idea is to give each team a number to represent its strength, and then for each game to subtract the power rating of one team from the power rating of the other to predict the margin of victory of one team over the other. Power ratings created by other people are available in numerous places on the Internet and in newspapers.

One interesting source of information is TwoMinuteWarning.com It looks at the NFL from a lot of angles. I have no financial interest in TwoMinuteWarning.com; I merely enjoy visiting it.

TwoMinuteWarning.com uses mathematical models to analyze data from past games. The data from past games reflect a team's average performance over those games. TwoMinuteWarning.com predicts how much one team should beat another if both teams play up to their ability as displayed in past games.

If you want to find bets based on doing your own analysis of existing data, I suggest staying away from the National Football League. NFL past results must be the most overanalyzed data in the world. Pick some obscure college conference, and learn everything there is to learn about all the basketball teams in that conference, or about all the football teams in that conference. Then bet only games involving those teams.

If you want to make bets based on analysis of existing data, my suggestion is to keep a separate record of those bets so that at any time you can review your past performance to be sure you really are picking winners based on analysis of existing data.

Personally, I have never spent much time handicapping sports because I am too busy handicapping the stock market.

As for your comments that one needs non-public info or better processing of public info, you forgot one other reality. Smaller cap stocks are generally not well followed and often you can make money in them even without the most skillful analytical mind, simply by digging around to find a company with obvious attributes that nobody has bothered to look at yet. The analogy in sports betting is that you need superior processing ability or non-public info to consistently make money betting on or against the Lakers, which should be an efficient market; but making money on small-market college hoop games is not as hard if you familiarize yourself with the teams involved that the linesmakers simply lack the time (but not the info) to more accurately handicap, and which don't get enough action to create an efficient market.

One last correlation with the stock market is momentum. If there is a big move upward in a stock, something is going on and you might be able to ride the movement for a while. Likewise I have noticed, particularly in college basketball, the line movements are good indicators of which team will cover the spread; an increase in the spread will often result in the favorite covering, and vice versa.

— Belgo

Motivation

One fertile source of good bets is player motivation. Linesmakers have reams of data on past performances, and for the most part they predict outcomes of future games by projecting past performances. If you can figure out the motivations of the players, you can zero in on games in which past performances are not good indicators of what is going to happen. Here are some examples.

Teams That Have Clinched

Here is an example that seems obvious, but has led to many good bets in the past and probably will find many good bets in years to come: Once a team has won enough games to clinch everything worth having (such as home-field advantage in playoff games), it no longer has as much incentive to win as it did when wins meant more. Thus betting against it might have positive expectation.

Must Win

Look for situations where a team has extra motivation to win. This is mentioned in most books on betting sports. Other bettors also will spot the extra motivation and will bet it enough to change the odds, but you still will have a good bet going with the motivation because there will be bettors who go strictly by the numbers and think they have found a fabulous bet going against the motivation.

Here is an example. After ten weeks of the 1999 NFL season, Green Bay stood fourth in the NFC Central Division at 4-5. Its opponent for the day was Detroit, leader of the NFC Central Division with a record of 6-3. The teams in the division between Detroit and Green Bay had records of 6-4 and 5-4. Green Bay had participated in several recent Super Bowls, and thus could be counted on to have a lot of pride. I'm sure Green Bay players thought of themselves as being of Super Bowl caliber even if the 1999 version of their team did not appear to be Super Bowl bound. A loss to Detroit would have meant Green Bay could kiss its playoff chances good-bye. Thus one would have expected Green Bay to be motivated to play its best against Detroit. The game was being played at Green Bay.

You might have expected Detroit to be the favorite in the game, due to its 6-3 record while Green Bay was only 4-5. In total points scored for the season, Detroit was 201-171 while Green Bay was 166-192. You might have expected to see Detroit listed as the favorite by about three points. If that is what you expected, you would have been surprised to see Green Bay listed as a 4-point favorite early in the week. The closer it got to game time, the higher the spread; by game time Green Bay was a 5-point favorite.

Green Bay was a favorite not due to its record during its first nine games of the season, but because of the motivation situation. Bettors who looked at more than just the numbers realized that Green Bay had sufficient motivation to play at a higher level than the numbers indicated.

Final score: Green Bay 26, Detroit 17.

Because the line contained about eight points of motivation, Green Bay may or may not have been a good bet. I thought it was a good bet, and in this game my bet won. It's also possible that eight points was too much adjustment, and that Detroit was the smart bet, and that in this game the smart bet lost. You won't know whether you are capable of making good judgments in cases like this until you try, and keep careful records, and then review your records to see what percentage of winners you are picking.

Intensity Versus Talent

In NBA games, intensity overwhelms talent. If one can predict which team will be playing with more intensity, one can get an edge on bets on selected NBA games. This is particularly true during NBA playoff games.

Home Teams

Teams playing at home seem to play harder than visiting teams. How strong that phenomenon has been in the NFL has a chapter of its own

in this book. If you can identify situations where the home team's natural advantage is greater or smaller than normal, you can find some positive-expectation bets. You might, for example, look at home underdogs playing against teams that have already clinched everything worth clinching.

Big Dogs

Strong teams involved in mismatches often do not play up to their potential. If the players see no reason to give an extra effort, they often won't. They might say they are going to play their hardest, but they generally won't.

If you are constructing your own power ratings, your ratings almost always will tell you that the double-digit dog will lose far worse than predicted by the line. Your power ratings will tell you that huge favorites are great bets. Do not blindly follow your power ratings by backing huge favorites.

Some huge favorites do win by huge margins. Many huge favorites win by such small margins that the dog covers the spread. Sometimes big dogs beat big favorites outright. If you can discern which big favorites will play up to their potential and win big, and which will play just hard enough to win but not cover the spread, you can find a great bet every once in a while.

Here was my prediction for the 22 October 2000 NFL game of Denver at Cincinnati, as posted on BJ21.com:

> CIN +10 vs. DEN. From reading the *Denver Post*, I get the impression Denver is not taking Cincinnati seriously. The *Post* calls them the "Bungles." I hope somebody has posted that article in the Cincinnati dressing room. This might be Cincinnati's best chance if it wants to win a game this year.

Cincinnati had a record of 0-6, and had scored only 37 points in those six games. There had been articles discussing Cincinnati's chances of setting an all-time NFL record for fewest points scored. Denver was a 10-point favorite, but it seemed to me from what I had read in the *Denver Post* that Denver was not taking Cincinnati seriously. It turned out I was right; Cincinnati won outright, 31-21, ending all discussion of whether the team would set an all-time record for futility.

For information on the historical records of big NFL dogs, see the chapters on NFL results against the spread and NFL money lines.

A caution on betting double-digit dogs: Historically they have performed well during the regular season, but not during playoffs or Super Bowls.

Discouraging Losses

Another source of good bets might be games following discouraging losses. TwoMinuteWarning.com calls it "Horrible Defeat Syndrome."

I first noticed this phenomenon when intensively studying 1999 NFL results. In week 1, Cincinnati lost a heart-breaker to Tennessee. Cincinnati was comfortably ahead as a 9.5-point dog, but Tennessee managed to pull out a last-minute come-from-behind victory. That loss seemed to drop Cincinnati into a two-month funk; it proceeded to lose nine straight against the spread.

During the 2000-2001 basketball season, Maryland was ahead of Duke by ten points with a minute to play. Somehow Duke managed to pull out a victory. That dropped Maryland into a tailspin that lasted for several weeks. What finally gave the Maryland team the emotional lift it needed to get back to playing its normal game was a pep talk by the coach of the Baltimore Ravens, winners of the most recent Super Bowl.

Obviously not all losses will result in a team's losing its next few games against the spread. But I don't think Maryland will be the last team to be affected this way.

Keep Records

My advice for you if you want to make bets based on motivation is the same as my advice if you want to make bets based on analysis of existing data: Keep a separate record of those bets so that at any time you can review your past performance to be sure you really are picking winners based on motivation.

Attitude While Handicapping

My advice is do not try to pick the winner of the game. Instead, try to think in terms of either team's having a chance if it plays hard enough. Then try to figure out the probability each team has of winning the game.

You will find good bets on only some of the games. Most games have lines that are solid, meaning both teams are negative-expectation bets.

You are looking for situations where a team's probability of winning is higher than suggested by the odds. You have a good bet only if your estimate of the probability of a team winning is different enough from the betting line, and if your estimate is correct.

Sometimes your bet will lose. Making a smart bet is no guarantee of winning the bet.

Here is a quote from BJ21.com, posted by one of the more esteemed members of the website's community, who shall remain anonymous, after I had posted that the Portland Trail Blazers +6 was a strong pick in the 2000 NBA finals:

> I have no doubt whatsoever that Los Angeles will close out the series tonight. I keep hearing all over the place that Portland is really much better than all of this, but it's all nonsense. They didn't even have to bother showing up.

When I read that I cringed, not because he disagreed with my pick, but because he was picking a winner rather than thinking in terms of probabilities. I agreed with him that the Lakers had more talent than Portland, but he liked the Lakers no matter what. He ignored motivation. I picked the Blazers because they were down 1-3 in the best-of-seven series, and had to win to stay alive. The Lakers had no reason to play hard because they needed to win only one game out of three, but the Blazers could be counted on to be fighting for every loose ball. The result: The Blazers won outright, 96-88.

Remember: the object is to pick probabilities. If you do a good job of picking probabilities, the winners will come.

Another Book to Check Out

King Yao is a sports handicapper as well as a poker player. Part of his income comes from betting sports. His *Weighing the Odds in Sports*

Betting is full of good information on football, basketball, and baseball. His chapter on baseball first halves breaks new ground.

Last Word

There are lots of ways to handicap sports. You might find you are better at some handicapping methods than at others. You might find that you are better at some sports than at others. The best way to identify your own personal strengths is to keep careful records of your picks and how they do.

CHAPTER 6

FAN MONEY

Watch for the possibility of fan money influencing the odds. When linesmakers expect fan money to back primarily one side, they nudge the line to take extra advantage of that fan money. Sometimes the amount of money that pours into sportsbooks in support of a popular athlete or popular team causes the odds to change to the point where taking the unpopular side is worthwhile.

Sometimes money pours into Las Vegas sportsbooks in support of teams geographically located near Las Vegas; particularly watch for the opportunity to bet against fan money pouring in to support teams from the Los Angeles area. Of course that does not mean betting blindly against every Los Angeles team is a good idea. The more important that Internet sports betting becomes, the less likely that Los Angeles teams will be seriously mispriced due to bets by fans.

When large numbers of fans are betting with their hearts instead of their heads, you might find it worthwhile betting the unpopular side.

This chapter presents examples.

World Cup Soccer

Here's an example I learned about from Fezzik, the handle used by a brilliant sports bettor who shares his thoughts on the Internet. He posted this particular item on TwoPlusTwo.com.

Mia Hamm, a talented and popular soccer player, was playing for the US team in the World Cup Final. Fezzik found a sportsbook offering a bet on whether Hamm would score a goal during the game: Mia scores Yes +120, no -150. Fezzik thought of how popular Hamm was, and how her fans would be much more likely to bet on her than against her. That led him to think that maybe the sportsbook had hung a line that would take advantage of all that Hamm fan money on the Yes side of the prop. Fezzik did some research into how likely it was that Hamm would score, and came up with an estimate of 25 percent that she would. He figured that betting against her was worthwhile, and did so with a few thousand dollars.

Result: Hamm did not score in that game, and Fezzik won his bet.

NBA Playoffs, 2000

In late March of 2000, before the NBA playoffs were to begin, most sportsbooks of Las Vegas had the Los Angeles Lakers at -120 to -150 to win the NBA championship, and one place had -300. The Lakers were a very strong team, with a great manager, Phil Jackson. I was hoping to find the Lakers to win the NBA at even money or better. When I found the Lakers at even money at the Riviera, I bet on them. The next day I visited North Las Vegas. Poker Palace offered 8:5 on the Lakers to win the NBA, and Jerry's Nugget offered 9:5, so I put some more money on the Lakers.

I was amazed at the range of odds offered on that bet. A high of 9:5 and a low of -300 (or 1:3) on the Lakers to win the NBA, all at the same time! That certainly emphasized the value of shopping around before making a bet!

When I returned to Las Vegas in early May, the first round of the playoffs had just concluded and the second round had yet to start. I shopped Laker odds all over town, and everywhere I went the Lakers were 1:6 or 1:7! Those were the odds to win the championship!

The Lakers were good, but 1:6? To win the championship, the Lakers would have to defeat three other teams in best-four-of-seven series. One of those opponents was very likely to be the Portland Trail Blazers, who on paper looked to be almost as good as the Lakers. The two teams had split their regular-season games. The Lakers should not have been as low as 1:6 against the Blazers alone, but they were 1:6 to beat the Blazers and two other teams besides. This is an extreme example of local money backing a local favorite.

That got me looking for ways to bet against the Lakers. Unfortunately, I could not find a bet on "Lakers to not win the championship." The only way I could bet against the Lakers was by betting on one or more of the other seven teams still alive in the tournament

MGM offered the Blazers at 8:1. Out of the eight teams left, the Lakers were the best by a small margin over the Blazers, and those two seemed clearly superior to the other six. I thought Blazers at 8:1 was an outstanding opportunity, and backed up my analysis with a large bet.

MGM also offered the Pacers at 10:1. The Pacers appeared to be the third strongest team left in the playoffs, but clearly inferior to both the Lakers and the Blazers. What made the Pacers attractive was they were in a different division from the Lakers and Blazers. If they made the finals, the Pacers would play only one of the Lakers or the Blazers. For the Lakers to win they would have to get past both the Blazers and the Pacers, and for the Blazers to win they would have to get past both the Lakers and the Pacers.

So I bet on the Pacers at 10:1.

The second round of the playoffs saw the Lakers, Blazers, and Pacers all advancing.

In the third round, the first series to finish was Pacers against New York, with the Pacers winning. So when the playoff wound down to the final three teams, they were the three teams on which I had placed bets. I had a sure winner! I stood to win a whole lot more if the Blazers won the tournament than if the Lakers or Pacers won, so I was rooting for the Blazers.

Result: Lakers squeaked by the Blazers in game 7 of the semifinals, and then handily defeated the Pacers in the finals.

The point of this section is the Lakers were hugely overbet when they were 1:6 or 1:7, opening the opportunity for positive-EV bets on their opponents.

De La Hoya vs. Mosley

Oscar De La Hoya was scheduled to fight Shane Mosley on 17 June 2000 in Las Vegas. I was visiting Las Vegas four days before the fight, and shopping odds from sportsbook to sportsbook to see if I could *scalp* the fight (bet on both fighters at odds that would guarantee me a profit).

Mosley to win was +210 at Desert Inn, and De La Hoya was -200 just up the street at Riviera. At the time I did not know which bet was the smart one. I made small bets on both fighters just so I could write that I had scalped the fight. I had a winning bet combo no matter which fighter won, but my return on investment was only 1 percent.

After making my two small bets, I started thinking about the possibility of making a bigger bet. I wanted a higher return on investment than 1 percent. I wanted to figure which was a smarter bet, Mosley at +210 or De La Hoya at -200. I only thing I knew about boxing came from the one time I laced on gloves as a teenager; I learned how slow my reflexes are.

I recalled seeing the De La Hoya name in Las Vegas several times before, but the name Mosley was new to me. I discovered that De La Hoya was a glamorous figure and was from Los Angeles. I suspected that De La Hoya could have been the betting favorite just because of fan money.

I examined the records of the two fighters, and discovered that they appeared to be evenly matched. They were of similar age and size, and had similar boxing records.

So I returned to Desert Inn and put more money on Mosley.

Result: Mosley won in a split decision.

De La Hoya vs. Trinidad

Here is a bet combo I found in Las Vegas that I want to share someplace in this book, and this chapter seems like a good home for it.

Oscar De La Hoya was fighting Felix Trinidad on 18 September 1999. I was in Las Vegas the day of the fight, and was shopping prices, hoping to find a good bet.

Here's what I found: De La Hoya to win by knockout, 5:2 at Barbary Coast. Trinidad to win by knockout, also 5:2 at Barbary Coast. The fight to go the distance, +160 at the Bally's, right next door to the Barbary Coast.

One of those bets had to win; the only other thing that could have happened was for the fight to be canceled at the last minute, with all bets being returned.

$200 on each fighter to win by knockout at 5:2 would have turned $400 into $700 if the fight ended in a knockout.

$270 on the fight to go the distance would have turned into $702 if neither fighter managed to knock out the other. (A $269.23 ticket would have turned into $700, had you been able to bet that odd amount.)

Thus a total of $670 spread among three bets would have turned into $700 or more no matter what the outcome of the fight. That's not gambling, that's investing, and earning a risk-free 4.6 percent in less than a day.

After betting small amounts on each of the three bets to verify that a scalping opportunity actually existed, I started thinking about which of the three bets was best. The three-bet combo gave the punter an edge, so at least one of the three individual bets must have given an edge. Perhaps instead of all three bets giving a small edge, two of them were actually bad bets and the third contained a huge player edge.

I figured that betting on a fighter to win by knockout was sexier than betting the fight to go the distance. Sexier bets attract more action from squares and are less likely to offer an edge to sharp bettors. So I thought that the fight to go the distance was likely a better bet than either fighter to win by knockout. I was actually driving away from Bally's when I figured it out. I made a U-turn and returned to Bally's to load up on the +160. The odds had dropped to +150 for the fight to go the distance, but I made the bet anyhow.

Result: The fight went the distance, and some of Bally's money ended up in my pocket.

Willie's Last Ride

This section was originally published in my long-out-of-print *Betting Cheap Claimers*, and is reproduced in my book *Casino Tournament Strategy*.

The date was 3 February 1990. The 1990s were the sixth decade in which Willie Shoemaker had raced horses. This day a $100,000 handicap was to be his last ride in an illustrious career. Patchy Groundfog was to be his mount. The conditions of the race included "This race will be Bill Shoemaker's final ride. In the event that his mount is withdrawn prior to the running of the race, any one of the remaining entrants' jockeys will be subject to replacement by Bill Shoemaker." There were eleven horses in the race, and Shoemaker's Patchy Groundfog went off the big favorite at 3:5. Patchy Groundfog should not have been that big a favorite had bettors been going strictly by the information in the *Daily Racing Form*. Undoubtedly many of the people backing Patchy Groundfog were betting only because it was Shoemaker's last ride; they were betting with their hearts and not their heads. The second-favorite went off at 5:1; and the next two favorites went off at 12:1.

Result: One of the 12:1 horses won the race. Patchy Groundfog finished fourth.

Winning Colors

When a big race like the Kentucky Derby comes along, many race tracks televise the race and accept bets on it. The money being bet on such a race does not all go into one big pool (or at least did not all go into one big pool in 1988, the year being discussed here.) Various tracks had their own pari-mutuel pools for the race.

The 1988 Kentucky Derby featured several regional favorites. A California horse, Winning Colors, was among the favorites. After Winning Colors won, I scoured various editions of *The Daily Racing Form* to find the payouts at various tracks around the country. The results are listed in Table 3. I originally published this table in *Betting Cheap Claimers*, and have also reproduced it in *Casino Tournament Strategy*.

Table 3 clearly shows the effect of fans backing local favorites. A $2 bet on Winning Colors in Southern California was worth $4.40 after she won. Back in Kentucky, a $2 bet on Winning Colors paid $8.80. Same bet, same horse, but $2 on the winner paid twice as much in Kentucky as in Southern California.

What happened in the 1988 Kentucky Derby was not a rare event. Data from any other major race would show the same pattern: bettors backing local favorites.

Table 3

Winning Colors, 1988 Kentucky Derby

Location	Win	Place	Show
Suffolk, Massachusetts	10.60	6.60	5.20
Calder, Florida	10.40	6.00	5.70
Beulah Park, Ohio	10.40	6.00	4.00
New York (Aqueduct)	9.80	6.00	5.20
Thistledown, Ohio	9.80	5.60	4.40
Connecticut	9.60	5.80	5.00
Louisiana Downs	9.60	5.80	4.40
River Downs, Ohio	9.40	5.20	4.40
New York (OTB)	9.20	5.60	4.40
Garden State, New Jersey	8.80	5.60	4.20
Churchill Downs, Kentucky	**8.80**	**5.20**	**4.60**
Rockingham, New Hampshire	8.60	5.60	4.80
Penn National, Pennsylvania	8.40	5.40	4.20
Mountaineer Park, West Virginia	8.20		
Delaware	7.80	4.60	4.00
Fairmount, Illinois	7.60	4.20	4.20
Western Fair, Ontario	7.60		
Fort Erie, Ontario	7.50		
Pimlico, Maryland	7.40	5.60	4.00
Detroit, Michigan	7.40	5.20	4.00
Blue Ribbon Downs, Oklahoma	7.40		
Verendrye Ben, South Dakota	7.20		
Sportsman's, Illinois	7.00	5.00	4.60
Charles Town, West Virginia	7.00	4.40	4.00
Woodbine, Ontario	6.90	4.80	3.80
Stampede Park, Alberta	6.70		
San Juan Downs, New Mexico	6.60		
Exhibition Park, British Columbia	6.40		
Canterbury Downs, Minnesota	6.00	4.80	4.00
Playfair, Washington	6.00		
Connaught Harness, Quebec	5.90		
Last Chance, Montana	5.80		
Sunland, New Mexico	5.80		
Saskatchewan	5.80		
Northlands Park, Alberta	5.70		
Assiniboia Downs, Manitoba	5.60		
Louisiana	5.50		
Blue Bonnets, Quebec	5.50		
Tri-State, West Virginia	5.40		
Turf Paradise, Arizona	5.40		
Yakima, Washington	5.40		
Santa Fe Downs, New Mexico	5.20		
Northern California	5.20	4.00	3.60
Les Bois, Idaho	4.60		
Multnomah Club, Oregon	4.60		
Longacres, Washington	4.40		
Southern California	4.40	3.80	3.40

CHAPTER 7

TESTING W-L RECORDS FOR SIGNIFICANCE

The purpose of this chapter is to make the application of the methods of statistics to sports betting as easy as possible.

The idea of testing a theory by taking a sample and looking for statistical significance has been around for a long time. This chapter adds nothing new to the theory of statistics.

There are three steps. First is formation of the hypothesis. Second is testing the hypothesis. Third is interpreting the results of the test.

Forming the Hypothesis

Start by forming your hypothesis. This means make an explicit statement of what the relationship is that you wish to test.

It is important to pin down all the details of your hypothesis before starting to gather data to test it. For example, you can't test "Big NFL dogs are good bets" without first defining exactly how big is a big dog.

It's okay to examine part of your data during the formulation of your hypothesis. You might, for example, examine the results of games played during the 1995 NFL season to define how big is a big dog. That might help you clarify your hypothesis as "NFL dogs of +5.5 or more are good bets." You must then throw away those games before beginning the test of your hypothesis. If you used 1995 games to decide to look only at dogs of +5.5 or more, then you can't use 1995 games to test that hypothesis.

It is best to write down all details of the hypothesis to be sure that it does not get modified in any way during the testing phase.

Testing the Hypothesis

There is a real problem in properly testing hypotheses involving sports: The quantity of data is small. For example, the NFL plays fewer than 300 regular-season games per year. You can get data from football games of years past, but too-long-ago games might not be representative of tomorrow's games, which is what you are trying to predict.

Ideally you should like to test your hypotheses by making predictions for games yet to be played. But that means waiting months or years to generate a sufficient sample size.

It's acceptable to test your hypothesis against games already played, but remember that the real proof that a system works is its ability to predict future games.

Though it's acceptable to test your hypothesis using a database of games already played, you must do it properly. There are pitfalls that might lead you to think you have discovered a relationship that in fact does not exist.

In short, when you are testing using games already played, you may use only games that were not used in any way to formulate your hypothesis.

Modifying the Hypothesis

If, after starting to gather data to test your hypothesis, you decide that your hypothesis needs modification, then fine, modify the hypothesis.

For example, suppose you used games played during the 1995 season to formulate the hypothesis "NFL dogs of +5.5 or more are good bets." Then you examined games played during the 1996 season. After studying those 1996 games, you concluded that your model seems to work better if applied only to home dogs and not to traveling dogs. So you change your hypothesis to "NFL home dogs of +5.5 or more are good bets." Then you must throw out the 1996 data because they were used to modify your hypothesis. You must start your testing all over again, and this time not use any 1995 or 1996 games because they were used in the formulation and modification of your hypothesis.

You might decide several times to modify your hypothesis. Each time you modify it, you must throw out the games you have looked at so far and not use them to test your newly modified hypothesis.

You might, for example, next look at results of 1997 NFL games. You might decide that your theory seems to work better if applied to only home dogs of +7 or more, instead of home dogs of +5.5 or more. So modify your hypothesis to "NFL home dogs of +7 or more are good bets." Then you must throw out the 1997 games and start your testing all over again. You have now thrown out 1995-1997 games, which leaves games played in 1994 and earlier as well as games played in 1998 and later to test your hypothesis.

I'll say it again because it's important and often violated: You must throw out all the games you used to formulate your initial hypothesis as well as all the games you examined to modify your hypothesis. Only games not used in any manner in the construction of the hypothesis are valid as a test of that hypothesis.

Roulette Example

Understanding why a roulette system is worthless for predictions makes it easier to understand why some sports systems are worthless for predictions.

Roulette is a casino game with a ball that is spun around a track and falls down into one of 37 or 38 numbered slots. I could watch a hundred spins of the ball, keeping careful track of which numbers won. Then I could analyze the results to find out which numbers tended to follow which numbers. Maybe I would find a profit for betting odd after two consecutive even numbers, red after a red-black-red sequence, and so forth. Suppose I did this and used my data to devise a roulette system, and offered to sell it to you. Would you buy this system? Your answer should be "No." Such a roulette system could tell you only which numbers tended to follow which numbers for the 100 spins I happened to watch. Only by coincidence would that system work on a different 100 spins. You do not have the option of betting on the 100 spins I watched, so my roulette system would be worthless to you. It would be a real surprise if it worked on balls that have yet to be spun.

Suppose I carefully analyzed the results of the NFL games that were played last year to find the characteristics of the winners against the spread. I could come up with a system that would have made money had I used it for those games. Of course I did not use it to make money on those games because I did not formulate the system until those games had already been played. But I could write an ad telling you how much money you could have made had you used my system on those games. Would you be willing to bet your money on that system? Again, your answer should be "No" because you do not have the option of betting the particular games on which the system would have worked.

The only acceptable way to test a system is with a different set of data than was used to formulate the system. That's every bit as true for sports as it is for roulette.

It is acceptable to analyze the results of past games to formulate a system. But that is not the point to stop. The system must be tested against a different set of games. The only performance worth reporting is how the system did against the different set of games.

Interpreting the Results

So you formulated your hypothesis, and you use it to make predictions about games that were not used in the formation of the hypothesis. Now what?

A full explanation of the science of statistics is beyond the scope of this book. If this area intrigues you, I suggest taking a college course in statistics.

This chapter discusses only one tiny area of statistics: using the binomial distribution to examine the significance of W-L records.

You have a win-loss record that describes your sample. You are trying to show that the W-L record of your sample is significantly different from 50 percent wins.

Two Standard Errors

The most generally used standard of statistical significance is five percent. As a close approximation, five percent rarity occurs when the W-L record of the sample you have gathered is two standard errors different from 50 percent wins.

The square root of your sample size is the standard deviation of the difference between your total wins and total losses, which I will call *excess wins*.

The easy way to find the number of standard errors is to divide excess wins by the standard deviation.

You have reached that five-percent point when the your excess wins is two standard errors.

For example, suppose you tested the hypothesis that NFL home dogs of +7 or more are good bets by examining the games played during the 1998-2000 seasons. Suppose you came up with a W-L record of 30-25.

That's a sample size of 55 decisions. The square root of 55 is 7.4. 30 wins minus 25 losses is 5 excess wins. That's less than one standard error. For 55 decisions you need a W-L record of 35-20 to have statistical significance at the five percent level.

Suppose the W-L record for NFL home dogs of +7 or more was 32-15 for games played during 1995-1997. If you add those games in, you get a record of 62-37 for the six-year period 1995-2000. Can you call that a sample of 99 decisions and test for significance?

No you cannot do that. The reason is you used those 1995-1997 games to formulate and modify your hypothesis. You cannot also use them to test the hypothesis. Only the games played in years other than 1995-1997 can be used to test that hypothesis.

Two Standard Errors is Not Enough

Two standard errors is enough significance for many purposes, but not for betting sports.

The search for profitable betting systems involves examining large numbers of possible relationships. Approximately five percent of the relationships you examine will meet a two-standard-error test by chance alone. Examine a hundred possible relationships all of which are really no relationship, and you likely will find five that are significant at the two-standard-error level.

The two-standard-error standard is reasonable to use for testing non-betting applications where there is only one hypothesis being tested, and that hypothesis is never modified. But if dozens of hypotheses are being tested, or if you are willing to modify your hypothesis, then two standard errors gives too many false positives.

There are publications that report results that look like relationships but are in fact the expected product when one examines large quantities of random data. The process of looking for relationships where most likely none exist is called *data mining*. The results of data mining are called *angles*. Data mining can turn up nuggets, and some angles can work. However, most of what look like strong relationships in past data describe what happened only in past games, and fail in attempts to predict the results of future games.

If you have discovered a relationship that really exists, then examining more and more games will result in the level of significance going up and up. If the first 100 games you analyze give you a 60-40 record, you are at two standard errors. So keep gathering more data. By the time your sample size gets to 200, your W-L record might be 120-80 whereas the requirement for two standard errors is a W-L record 114-86.

As your sample size increases, if the added games seem to have just 50 percent winners, then your initial results that made you so hopeful were likely a random blip in the data and do not result in a system you can use to win money from sportsbooks.

If you are testing hypotheses using games already played rather than games yet to be played, you must use a higher standard of significance than just five percent rarity. If you are going to draw conclusions from data mining but not test your hypotheses against different data, then the minimum requirement for statistical significance is four standard errors. Think of it as two standard errors to develop the hypothesis and then two more to test it.

If you are testing a system against games already played, my suggestion is to hold out for 1:1000 chance of a win-loss record being achieved by chance alone. Even with a standard that high you will occasionally find false positives, methods that you at first think find good bets but later prove to be worthless.

Use of Table 4

To find out how rare your W-L record is, refer to table 4.

The first column of table 4 lists sample sizes. Find the row that corresponds to the total of wins and losses in your sample.

Table 4
Rarity of Good W-L Records

Sample size	1:100	1:1000	1:10,000
6	not pos	not pos	not pos
7	7-0	not pos	not pos
8	8-0	not pos	not pos
9	8-1	not pos	not pos
10	9-1	10-0	not pos
11	10-1	11-0	not pos
12	11-1	12-0	not pos
13	11-2	12-1	not pos
14	12-2	13-1	14-0
15	13-2	14-1	15-0
16	13-3	15-1	16-0
17	14-3	15-2	17-0
18	15-3	16-2	17-1
19	15-4	17-2	18-1
20	16-4	18-2	19-1
21	17-4	18-3	19-2
22	17-5	19-3	20-2
23	18-5	20-3	21-2
24	19-5	20-4	22-2
25	19-6	21-4	22-3
26	20-6	22-4	23-3
27	20-7	22-5	24-3
28	21-7	23-5	24-4
29	21-8	23-6	25-4
30	22-8	24-6	26-4
35	25-10	27-8	29-6
40	28-12	30-10	32-8
50	34-16	37-13	39-11
60	40-20	43-17	45-15
70	45-25	49-21	51-19
80	51-29	54-26	57-23
90	57-33	60-30	63-27
100	62-38	66-34	69-31
150	90-60	95-55	98-52
200	117-83	122-78	127-73
250	144-106	150-100	155-95
300	171-129	177-123	183-117
350	198-152	205-145	210-140
400	224-176	231-169	238-162
450	250-200	259-191	265-185
500	277-223	285-215	292-208
600	329-271	338-262	346-254
700	381-319	391-309	400-300
800	434-366	444-356	453-347
900	486-414	497-403	506-394
1000	537-463	549-451	559-441

The second column of table 4 lists the minimum W-L requirements to have a one-out-of-100 rare event. Don't get excited if your W-L record is the same as listed in that column, because you will happen upon a sample of games that meet the requirements of the 1:100 column once for every 100 systems you examine.

The third column of table 4 lists the minimum W-L requirements to have a 1:1000 rare event. That means one in a thousand worthless systems will achieve that kind of a W-L record by chance alone. When you find a system that achieves this good a W-L record on games that were not used to formulate your hypothesis, you may have a system that will make you money.

The last column of table 4 lists the minimum W-L requirements to have a 1:10,000 rare event. When you find a system that achieves a W-L record equal to or better than the numbers in that column, you truly have a winning system.

Note that the minimum sample size necessary to achieve rarity at the 1:100 level is 7. A record of 6-0 is not a 1:100 rare event. The "not pos" entries in table 4 mean "not possible." You need a sample of at least 7 games to get to 1:100, and even then you need to go 7-0 to achieve significance at the 1:100 level.

The minimum sample size necessary to find a 1:1000 rare event is 10, and it's a 1:1000 rarity only if the W-L record is 10-0.

A 1:1000 rare event can stand a loss only if the sample size is 13 or more. A W-L record of 11-1 is not a 1:1000 rare event.

Note that as the sample size gets larger, the win percentage required for significance drops. For example, the requirement for 1:1000 rarity on a sample of 20 is 18-2, or 90 percent winners. But by the time the sample size gets to 100, the requirement for 1:1000 rarity is 66-34, which is only 66 percent winners.

If you are examining a relationship that is giving you two-thirds winners in a small sample of games, you won't be able to verify the validity of the relationship if your sample is only 20 games. But if the system continues to give you two-thirds winners, you will be able to meet the requirements for 1:1000 rarity when your sample size reaches 100 games.

The numbers in table 4 should be applied to your total sample size. If you are gathering games to test a system, and early results show significance according to table 4, and then a group of games turns out to be mostly losers, that fact that the early results looked significant no longer has any weight.

For example, suppose you are testing a new system, and your early results achieve a W-L record of 14-1. You look at table 4 and shout with joy, thinking you have met the 1:1000 test. Then you apply the method to five more games, and those five go 1-4. That brings your 20-game totals to 15-5. You look at table 4 and see that 15-5 does not even meet the minimum requirements for 1:100 rarity. The conclusion at that point: The new system is not yet proven. You must focus on the 15-5 record that describes all the games in your sample; you cannot ignore the last five just because they were losers. The fact that the first fifteen games went 14-1 no longer matters.

It's easy to apply statistics to W-L records. The distribution of number of wins is binomial. The numbers in table 4 have been calculated using the binomial distribution with p = .5. You can recreate the entire table yourself using *Excel*.

Rarity of a W-L record is also available on the Links page of BJ21.com; click on Sports: Prop Tools.

Standard Deviation of a Binomial Distribution

Table 4 should suffice for testing systems for finding good bets against the spread. An alternative is to apply the traditional statistical tests using standard deviation.

Variance for a binomial distribution is npq. The n is the number of games you bet; p is the probability of winning by guessing, i.e. 0.5; and q is

1-p. The standard deviation is the square root of the variance.

The answers you get by using npq for variance are not as accurate as the method used to generate the numbers in table 4. The npq approach yields approximate answers, and the approximation is less accurate the farther you get out in the tails of the distribution. Table 4 uses the binomial distribution directly, and involves no approximation.

Sample Problems

Problem 1

The leader in a basketball handicapping tournament is 27-8 against the spread. Can you conclude that this guy is a great handicapper?

Problem 2

Which is less likely to be a random result, a record of 15-5 for twenty games or a record of 65-35 for 100 games?

Problem 3

A small preliminary sample indicates that a method is able to predict winners about 60 percent of the time. Assuming the 60 percent rate of success continues, how large a sample is needed to meet the 1:1000 test of rarity?

Solutions to Sample Problems

Problem 1

The leader in a basketball handicapping tournament is 27-8 against the spread. Can you conclude that this guy is a great handicapper?

A record of 27-8 meets the table 4 criterion for being a 1:1000 rare event. However, there are at least two reasons to be cautious before concluding that the leader is a great handicapper.

One thing to look at is how many people are entered in the tournament. If there are hundreds of entrants, then the chances are good that the leader will achieve a 1:1000 result by chance alone.

The other thing to be aware of when analyzing tournament data is sometimes some of the lines are "soft" — that is, bets available in the tournament might not be available to people wanting to bet real money. For example, if Chicago is a 10-point favorite on every board in town but a tournament card has Chicago -8, entrants are likely to take Chicago for the tournament. They will take Chicago in the tournament because it is -8 there, but they will not be able to put real money on Chicago -8. It's easier to compile a record of 27-8 in a tournament with soft lines than with real money against the spread. Table 4 applies only if the W-L record has been compiled against lines offered for real-money bets; it does not apply to tournaments using soft lines.

In summary, the guy could well be a great handicapper, but you can't say so conclusively based only on his leading a tournament with a 27-8 record.

Problem 2

Which is less likely to be a random result, a record of 15-5 for twenty games or a record of 65-35 for 100 games?

15-5 is 75 percent winners, whereas 65-35 is only 65 percent winners. Nevertheless, 65-35 is harder to achieve by guessing. Table 4 shows that 15-5 is achieved by guessing more than once in 100 tries, whereas 66-35 is achieved by guessing less than once in 100 tries, and almost reaches a rarity of one in 1000. By that standard, a record of 65-35 is more impressive than is 15-5.

Most likely the person with the 15-5 start will not keep hitting 75 percent winners. It's unlikely that by the time that person's picks total 100 that the W-L record will be 65-35 or better. Of course it's possible, but it's not likely.

Problem 3

A small preliminary sample indicates that a method is able to predict winners about 60 percent of the time. Assuming the 60 percent rate of success continues, how large a sample is needed to meet the 1:1000 test of rarity?

A close look at the 1:1000 column of table 4 shows that for a sample size of 250, the W-L record required for significance is 150-100. That's 60 percent winners. If the method keeps picking 60 percent winners, your testing will achieve significance at the 1:1000 level when your sample size gets to 250.

CHAPTER 8

PARLAYS

A parlay is a bet involving more than one team. When discussing parlays, *team* can mean *side* or it can be an *over* or an *under*.

The two major kinds of parlays are "off the board" and "parlay cards."

Off the board means the customer selects the teams to parlay from among the various possible bets that could be made alone as straight bets.

Parlay cards are printed up by the book, and have numbers on them that may or may not be the same as listed on the board.

Parlays Off The Board

Look around a sportsbook for its list of rules, and among them you will find payoffs on parlays.

These payoffs apply to combinations of any sports bets available in the sportsbook, except for those bets on which the book specifies "no parlays."

The vig on a two- or three-team parlay is related to the vig on a straight bet. A person whose picks are no better than guessing loses faster at parlays than at straight bets. A person whose handicapping skills are sufficient to get an edge at straight bets can get a bigger edge on two- or three-team parlays, but with more risk. Parlaying four or more teams almost always is a bad bet.

Probably parlays got their start when some punter said to his bookie: "I want to bet team A to beat team B, and then I want to use the payoff to bet team C to beat team D, but I don't want to have to find you to collect on the first game in order to bet on the second game. Can you just use my first-game payoff as a bet on the second game?"

The bookie of course said "Can do," and then sat down to work out the math. He collects $11 from his customer as a bet on team A, and if team A wins, the payoff to the customer will be $21. But instead of handing that $21 to the customer, he uses that $21 as a bet on team C. If team C wins, each $11 of the new bet will turn into $21, so a $21 bet will turn into $40.09.

So if both team A and team C win, the bettor wins $29.09 from the bookie. If A or C loses, or if both of them lose, the bookie wins $11 from the bettor.

That would get the bookie to thinking: Why not offer this two-game parlay to other customers? And why require that one game be finished before the other begins — the bet could be made on two games played simultaneously.

Two-Team Parlay

A win of $29.09 on an $11 bet is a bit awkward. So the bookie searched for a simpler fraction that would give approximately the same result. 29.09/11 is 2.64, so what was needed is a fraction close to 2.64. How about 13/5, which is 2.60? Hey, why not?

Thus was the payoff for a two-team parlay probably created. 13:5 means each dollar wagered on a winning two-team parlay wins $2.60, which is four cents less than if the punter had bet a dollar on one game at 10:11, collected the winnings, and then parlayed those winnings and the original $11 right back as a bet on the second game at 10:11.

Three-Team Parlay

Suppose the $11 punter had specified three teams instead of just two. After the first two games won, the $40.09 payoff would have been used as a wager on the third team at 10:11. Had that third team also won, the bookie would owe the punter a total of $76.54, of which $65.54 would have been winnings. Betting $11 and winning $65.54 means the average dollar bet on three winning teams would have won $5.96.

Again this is an awkward number. It's probably better for business to round off the 5.96. In the case of three-team parlays, the bookie rounded it off in the customer's favor, calling it 6:1.

Thus was the payoff for a three-team parlay created. 6:1 means each dollar wagered on a winning three-team parlay turns into $7, which is four cents more than if the punter had bet a dollar on one game at 10:11, collected the winnings, and then handed those winnings right back as a bet on the second game at 10:11, won on that game, and then repeated the process with a third game.

Parlays of Four or More Teams

On parlays of four or more teams, the vig usually is higher. Four-team parlays should pay 12:1, but some books pay only 10:1. That is, if a punter bets one game at a time, parlays his winnings, and keeps it up for four straight wins, he will have turned $1 into $13.28. Thus a four-team parlay payoff of 12.28:1 would be the same thing as parlaying a single bet on four wins at 10:11. Some sportsbooks do pay 12:1 on winning four-team parlays, but others do not.

Parlay odds are shown in table 5. The first column is the number of teams being parlayed. The second column is the true odds, which is what the payoff would be if there were no edge for the casinos. The third column is what the parlay odds would be if they were figured on the basis of 10:11 for each team selected.

Table 5
Parlay Odds

Teams	true odds	-110 per team
2	3:1	13:5
3	7:1	6:1
4	15:1	12:1
5	31:1	24:1
6	63:1	47:1
7	127:1	91:1
8	255:1	175:1
9	511:1	336:1
10	1,023:1	642:1
11	2,047:1	1,227:1
12	4,095:1	2,343:1
13	8,191:1	4,473:1
14	16,383:1	8,541:1
15	32,767:1	16,307:1

Pushes

On parlays off the board, a push removes a team from the parlay, reducing the number of teams in the parlay. For example, a tie result would convert a three-team parlay into a parlay involving the remaining two teams. A push in one game of a two-team parlay reduces the parlay to a straight bet.

EV on Parlays

Sports bettors who have no skill at picking winners give sportsbooks a huge percentage on parlays. On straight bets at -110, choosing teams by flipping coins gives the sportsbooks 4.5 percent. On 13:5 two-team parlays, choosing teams by flipping coins gives the sportsbooks 10.0 percent. For four-team parlays at 12:1, choosing teams by flipping coins gives the sportsbooks 18.75 percent. For bettors who choose teams by flipping coins, parlays are bad news.

If you must bet parlays, bet only on terms at least as good as the last column of table 5. There are, for example, sportsbooks that pay 14:5 on two-team parlays, which is the equivalent of betting two teams at -105 each.

Example of a Good Deal

In October of 2000 I received a brochure from an Internet sportsbook, Infinity Sports International, www.BetOnInternet.com, phone 1-877-919-4263.

The big print on the brochure said "Home of the world's highest parlay odds." So I immediately checked its table of parlay odds. 13:5 on two teams; nothing special about that. 7:1 on three teams. Whoa! That's the true odds, the break-even point for random guesses!

For a Break-Even Handicapper

Off-the-board parlays are not necessarily bad news for skillful handicappers.

Imagine a retired gentleman whose expertise on sports allows him to pick 52.5 percent winners. Thus he is able to overcome the book's vig on straight bets. In the long run his expectation is to break even on straight bets. He's happy with that. His expertise allows him to while away the hours in sportsbooks without having to pay for his seat. He sometimes wins and sometimes loses, but his wins and losses fairly balance out — on straight bets.

How would this retired gentleman do on parlays? Is his expectation to win or to lose?

If he always picks teams that have 52.5 percent chance of winning, his expectation is to break even on parlays. He'll experience larger risk with parlays, having bigger ups and bigger downs than with straight bets, but in the long run his parlay wins will roughly balance out his parlay losses. That's true no matter how many teams he parlays, as long as he receives the odds shown in the third column of table 5.

For a Winning Handicapper

Imagine a handicapper named Frank, who can pick more than 52.5 percent winners. What happens to parlays that Frank bets?

If Frank is good enough to win money at straight bets laying -110, then Frank is also good enough to win money at parlays, so long as he receives at least the odds shown in the third column of table 5.

Here is an example. Suppose Frank likes two teams and estimates each as having 55 percent chance of covering the spread. On straight bets at -110, Frank has the expectation of winning 5% on his bets.

Suppose he combines those two teams into a parlay at 13:5. If each bet has 55 percent chance to win and the two bets are independent, there is a 30.25 percent chance that the parlay will win. Getting 13:5 on the winner is a return of 8.9 percent on Frank's bet.

If Frank is able to find another independent 55 percenter to combine with the first two in a three-team parlay at 6:1, all three teams will win 16.6 percent of the time and Frank can expect a return of 16.3 percent on the amount he wagers on the three-team parlay.

Thus Frank earns a higher rate of return on parlays than on straight bets. But parlays are also more risky: Frank wins 55 percent of his straight bets but only 30 percent of his two-teamers and 16.6 percent of his three-teamers.

One reason for Frank or any other winning handicapper to consider parlays is to get money down on a high-expected-value situation. For example, if you want to bet a particular game to go over and the sportsbook has a $300 max on that bet, you might be able to parlay the over with something else for $500 without your bet affecting the line.

Parlays With Odd Odds

Suppose you want to parlay teams listed on the board at terms other than -110. Can you do it? Of course you can; the sportsbooks have figured out a way for you to make that bet.

The first step in figuring out the payoff is to figure out for each team what the payoff would be for a bet of $1.

For underdogs that's easy: just move the decimal point two places to the left and add in the bet. For example, for a team being offered at +160, a winning wager of $1 would result in cashing a ticket for $2.60. A $10 parlay of two dogs, say +140 and +160, should result in a ticket of $10 x 2.40 x 2.60 = $62.40 if both dogs win.

For favorites, the math is particularly easy to do for certain numbers, such as -200. A winning wager of $1 at terms of -200 would result in cashing a ticket of $1.50. The math is easy enough to do for other favorites, and the results are shown in table 6. This is the table that sportsbooks should use to calculate payoffs for parlays involving favorites. For example, a $10 parlay of -120 and -150 favorites should result in a ticket of $10 x $1.833 x 1.667 = $30.56 if both teams win.

Table 6
Conversions for Parlays

odds	payoff for $1
-105	1.952
-110	1.909
-115	1.870
-120	1.833
-125	1.800
-130	1.769
-135	1.741
-140	1.714
-145	1.690
-150	1.667
-155	1.645
-160	1.625
-165	1.606
-170	1.588
-175	1.571
-180	1.556
-185	1.541
-190	1.526
-195	1.513
-200	1.500
-205	1.488
-210	1.476
-215	1.465
-220	1.455
-225	1.444
-230	1.435
-235	1.426
-240	1.417
-245	1.408
-250	1.400
-260	1.385
-270	1.370
-280	1.357
-300	1.333
-350	1.286

After all teams have been converted to payoffs on $1 bets, the next step is to multiply all those payoffs together. That yields the payoff per dollar wagered on the parlay.

Suppose you want to bet a $5 parlay of two baseball teams, one of which is being offered at -160 while the other is +170. For the -160 team, table 6 shows that the $1 payoff is $1.625. For the +170 team, the $1 payoff is $2.70. If your $5 parlay wins, the payoff should be $5 x 1.625 x 2.70 = $13.81.

You probably won't be paid the odd penny. Probably your payoff will be rounded down.

Individual sportsbooks may use slight variations of table 6. For example, the conversion number for a team going off at -130 should be 1.769, but a sportsbook might round up to 1.770. The conversion number for -135 should be 1.741, but a sportsbook might round down to 1.740.

In summary, when you parlay a group of teams that are going off at other than -110, you will be paid within pennies of what you should be paid had the calculation been done absolutely correctly.

Parlay Cards

Parlay cards are not the same thing as off-the-board parlays. On parlay cards, the customer chooses from only those selections listed on the cards. Those selections may or may not be listed on the board as being available for straight bets.

Ties on parlay cards are handled according to the fine print on the parlay card. "Ties lose" is most common. Some cards specify that ties win.

Payoffs are made according to the schedule listed on the card.

The advantages of betting parlay cards are sometimes you can bet better numbers than are shown on the board, and sometimes you can bet things that are not shown on the board, such as points scored by particular players.

For several years I have been visiting Las Vegas just prior to the Super Bowl, and one of the things I have enjoyed doing is walking from sportsbook to sportsbook evaluating parlay cards and prop sheets.

One reason to bet a parlay card is if you can make *correlated* selections. (Correlation is covered later in this chapter.) Another reason to bet a parlay card is if you can find enough bets that you would love to make individually if they were listed on the board.

Correlation Example

An interesting card I found at Santa Fe in Las Vegas in 1996 allowed me to select either team for first field goal, shortest field goal, or longest field goal. That was an obvious correlation situation, because the first field goal could turn out to be the shortest or the longest. I made two parlay bets:

1. Dallas to kick first, shortest, and longest field goal.
2. Pittsburgh to kick first, shortest, and longest field goal.

The result: Dallas kicked the first field goal, and also had shortest and longest until the fourth quarter. Then Pittsburgh, behind two scores at 20-7, kicked a long field goal that left it still two scores behind. So both my parlays lost.

Example of Good Selections

As an example of bets that might make a parlay card worthwhile, here are three items I selected on a parlay card at the Rio in Las Vegas for the 2001 Super Bowl. I was able to combine Baltimore most penalty yards, Baltimore to kick the first field goal, and the total to go under 34 in a parlay paying 6 for 1. During the season, Baltimore had suffered considerably more penalty yards than had the Giants. Baltimore had been averaging 2.2 field goals per game, compared to 1.2 for the Giants. The shakiest selection of the three was total to go under 34, but the total all over town was 32 or 32.5 so under 34 looked worthwhile.

Baltimore kicked the first field goal, and had 70 penalty yards to 27 for the Giants. But the final score was Baltimore 34, New York Giants 7, so the under 34 was a loser. I lost $100 instead of winning $500.

Disadvantages of Parlay Cards

The disadvantage of betting parlay cards is the payoff schedule: usually it is horrible. You might, for example, see a parlay card with a payoff schedule similar to the third column of table 5, but specifying that ties lose.

Or you might see a payoff schedule that looks like the third column of table 5 but all the numbers are "for 1" instead of "to 1." *For 1* means the listed price includes the bet that is returned to you. For example, "6 for 1" is the same thing as "5 to 1." The third column in table 5 is "to 1" prices.

Summary of Parlay Cards

In general, parlay cards are for suckers. But they are fun, and if you search hard enough you will find some good ones.

Correlated Parlays

A time to consider betting a parlay is when you can take advantage of correlation. Correlation means the outcomes of two bets are linked somehow; if one bet wins the other is likely to win, and if one bet loses the other is likely to lose.

Two related terms that need to be defined are correlation and covariance. Correlation is the property of two outcomes being linked. Covariance is the mathematical measure that describes the degree of correlation. Lack of correlation is covariance of zero. A perfect correlation has covariance of 1.0. A perfect negative correlation also has covariance of 1.0.

A good example of bets that are correlated is halftime results and end-of-the-same-game results. The team that is ahead at halftime is more likely to win the game than is the team behind at halftime. Sportsbooks are aware of that correlation, and will not let you parlay halftimes and totals of the same game. What you need are correlations that you are allowed to bet.

There is zero correlation when two games are independent. When Tampa Bay plays at St. Louis and Tennessee plays at Jacksonville, you probably have no reason to parlay St. Louis and Jacksonville because the results of those two games are uncorrelated. The probability of St. Louis covering the spread is the same whether Jacksonville wins or loses.

One situation that can cause correlation is when there is a single random variable that is overly important in deciding the outcome of two bets.

A caution: Don't use the word "correlation" in a sportsbook. If the people taking your bet think that correlation is possible, they might refuse the bet. Sportsbooks generally do not knowingly accept correlated parlays.

Example: Storm

For example, suppose a big storm is predicted to move into an area in which two outdoor games are being played, but nobody knows whether the storm will arrive early enough to affect the games. Also suppose that if the storm hits, it most likely will affect both games; it would be unlikely for the storm to hit one game and not the other. Further suppose that you have a good idea of how a big storm is likely to affect each game. That suggests making correlated parlays. How you bet each game depends on how you expect a storm to affect it. Perhaps you think that a storm will hold down the score in one game, and will favor one team in the other game. You might want to parlay the under in the first game and the appropriate side in the second game.

Big Dog With Good Defense

The game is St. Louis (14-3) against Tampa Bay (12-5) for the conference championship on 23 January 2000. St. Louis brings the NFL's best offense to the game, and Tampa Bay brings the conference's best defense. Half of Las Vegas's sportsbooks have St. Louis favored by 13.5, and the other half have 14. The total also varies from book to book, ranging from 45 to 46.5.

I think the St. Louis/Tampa Bay game is a correlation situation because the uncertainty in St. Louis's score seems higher than the uncertainty in Tampa Bay's score. In the first seventeen games this season, Tampa Bay generally scored 13-24 points, and St. Louis typically allowed 10-24 points, so Tampa Bay probably will score in the 10-24 range.

St. Louis's score, on the other hand, is more uncertain. St. Louis generally scored more than 30 points and has scored not less than 21 points all year; against a typical defense we'd have no problem predicting 30-35 points for St. Louis. But Tampa Bay's defense is not typical. Tampa Bay generally held its opponents to 17 points or less, and often held them to 10. If Tampa Bay were playing a typical opponent, we'd predict 10 to 17 points for that opponent. St. Louis of course is not a typical opponent; it is a scoring machine. Will Tampa Bay hold St. Louis to 17 points, or will St. Louis break 30? The greater uncertainty as to the number of points to be scored by St. Louis is what gives rise to correlation.

The big uncertainty in the game is whether Tampa Bay's stingy defense can stop St. Louis. Tampa Bay seems incapable of mounting offensive fireworks of its own, so it seems reasonable to expect Tampa Bay to stay within two touchdowns only if its defense stops St. Louis's offense. If Tampa Bay's defense does stop St. Louis's offense, and the Tampa Bay offense provides its predictable number of points, the final total likely will be under.

If, on the other hand, St. Louis's offense proves overwhelming, St. Louis should cover the spread. But St. Louis's defense probably won't stop

Tampa Bay from scoring its usual 10-24 points, so if St. Louis covers the spread the final total probably will go over.

There seems to be much more uncertainty over how many points St. Louis will score than over how many points Tampa Bay will score. Both the winner against the spread and whether the final total goes over or under seem to depend much more on how many points St. Louis scores than on how many points Tampa Bay scores. That is the feature that makes this game an example of a correlation situation: A single random variable appears to be important in deciding the outcome of two bets. If St. Louis covers the spread, it is easier to visualize a high-scoring game than a low-scoring game because Tampa Bay seems likely to get some points on the board. If Tampa Bay wins against the spread, it is easier to imagine a low-scoring game than to imagine Tampa Bay scoring a lot of points.

There are four possible side/total parlays, and one of them must win. Of the four, Tampa Bay/over seems particularly unlikely to win. I think the probability of Tampa Bay covering the spread while the total goes over is no more than .05. Assigning a probability of .05 to TB/over means assigning a probability of .95 to the sum of the other three parlays: TB/under, SL/over, and SL/under. The break-even point when a parlay pays 13:5 is .28. It's possible that all three of those parlays are positive-EV bets, and I considered betting all three. If the total probability of those three parlays is .95, the three-parlay combo has an EV of 14%. I think the SL/under parlay is weak, and I am trying do better than 14% by making only the other two parlays.

These are the two parlays I made on the game:

St. Louis and over
Tampa Bay and under

Caution: This analysis is my opinion, and could be wrong. Some experts think that the amount of correlation in this game was not enough to make good bets of the parlays.

As I visited various sportsbooks in Las Vegas looking for good numbers to make those parlays, one of the sportsbooks I visited was the Frontier. It had Tampa Bay +14 and the total at 46.5, which was the second-highest total I found combined with Tampa Bay +14. I tried to put $500 on Tampa Bay and the under, but the Frontier would accept a max of only $100 on the parlay. The supervisor actually used the word "covariance" when explaining why he would not let me bet more than $100.

When I posted that on [BJ21.com](BJ21.com), Frank B responded with:

I've had the same experience with that guy. The Frontier went independent awhile back and are very cautious of any type of action. They would only take $100 bets on many mainstream sporting events this year. When I went to bet a couple of correlated parlays there, the writer called for approval. The manager started yelling about correlated parlays and limited me to $20 bets. The sportsbook manager there will check any parlays he sees that match up the fav/over or dog/under when a large point spread is involved. He was getting hit all year with parlays on the Cleveland Browns' opponents and the OVER and the Browns/UNDER.

The Browns were offensively inept that year. In another post, Frank adds:

There is an extensive track record of certain combinations of side/total lines showing a profit when parlayed. I would not call the St. Louis game one in which the two outcomes would be correlated much. For the most part, you want to deal with the lower totals. Big point spread and a low total. I do not have figures in front of me to cite but there is a formula that has shown a respectable profit over quite a period of time.

Final score of the game: St. Louis 11, Tampa Bay 6. Tampa Bay covered the spread and the under won.

Correlation Involving Playoff Hopes

Parlays are harder to evaluate than they are to spot. Here is one I considered one Sunday in late 2000: Indianapolis will make the playoffs only if it beats Minnesota while Baltimore beats the Jets. The Baltimore-Jets game will be over (or almost over) before the Indianapolis-Minnesota game starts. It's possible that Indianapolis will play harder if Baltimore beats the Jets than if Baltimore loses to the Jets. That suggests parlaying Indianapolis and Baltimore, and also parlaying Minnesota and the Jets.

Caution: there are capable sports bettors who insist that the degree to which pro athletes "play harder" is too small to overcome the vig inherent in a parlay.

But just because correlation exists does not mean the amount of correlation is high enough to justify making the parlay. You should evaluate each parlay individually. You might decide, for example, that it's worth betting on Indianapolis to throw in the towel if their playoff hopes disappear just before they take on Minnesota, but not worth betting on Indianapolis to rise to a higher level if Baltimore beats the Jets.

You can also bring in the Miami-New England game, which also will be concluded before the Indianapolis-Minnesota game starts; If New England beats Miami and Baltimore beats the Jets and Indianapolis beats Minnesota, then Indianapolis is the AFC East champion. I did not parlay New England, Baltimore, and Indianapolis because I thought the correlation was not high enough to make the bet attractive at the odds I expected to find in Las Vegas. But if you can find a sportsbook that pays 7:1 on three-team parlays, then such a parlay might justify a bet.

Conclusion

Forget about parlays unless you are a winning handicapper, find bets that are correlated, or find a parlay card with selections you think are strong.

CHAPTER 9

POISSON PROPS

Many casinos offer proposition or *prop* bets for big events such as Super Bowls. Prop bets are limited only by the imagination of the linesmakers. Prop bets can be on anything.

Sportsbooks set up prop bets to attract more dollars of action and to bring in bettors who just want to peruse large numbers of bets. It seems to work.

This chapter explains how to evaluate certain prop bets: those involving events that occur one at a time, such as field goals.

Three-Step Process

Evaluating a prop bet is a three-step process. The first step is to make a prediction of what is likely to happen. The second step is to assign probabilities to both sides of the prop. The third step is to quantify your edge so that you can decide whether to place a bet.

Step 1: Prediction

To predict the likely outcome, look at past performances. Look at matchups. Consider injuries. Look at weather reports. Consider motivations. Look at anything you can think of that might affect the prop. The linesmaker who thought up the prop probably thinks up several prop bets per hour. If you devote enough time to analyzing enough props, you surely can find props where your prediction differs from the line posted in the sportsbook.

You are looking for props where the number of occurrences you expect is different from the number of outcomes specified in the prop. For example if a prop allows you to bet over or under 2.5 of something or other, and you think the average number of that something ought to be 1.5, then you can move on to step 2.

Your prediction represents an average value, and the actual number of occurrences during the game may be greater or less than your prediction. Technically what you are looking for is the mean, the arithmetic average.

Stop 2: Assign Probabilities

Completing step 1 means you have a prediction, a number of something or others that you think will occur. You also have the description of the prop. Now you must figure out the probability that each side of the prop will win. That's what this chapter is all about.

If, for example, you predict 1.5 and the prop allows you to bet over or under 2.5, step 2 is figuring out how likely the under 2.5 is to win. It's all mathematics. For this example, the answer is 81 percent. Under 2.5 means 0 or 1 or 2, and those happen 81 percent of the time when the average is 1.5. Over 2.5 happens only 19 percent of the time.

This arithmetic may seem like magic, but by the time you devour this chapter you will be able to perform such magic yourself.

Step 3: Quantify Your Edge

Completing step 2 means you have a probability that a particular bet will win. You can compare that to the terms of the prop to determine whether you have an edge, and if so what your edge is.

Think of step 3 as shopping for value. It's the same process you would use to evaluate any financial investment. You know how much money you will be laying out, you know how much you will be collecting if you win, and in step 2 you have figured out how likely you are to win.

Multiply the amount you will collect if you win by the probability of winning. That gives you the expected value of the payoff.

Then compare that expected value with the amount you will be investing. If the expected value of the payoff is higher, you have an edge. If the expected value of the payoff is the same as the bet, you will break even on average. If the expected value of the payoff is less than the amount of the bet, do not make the bet unless you want to enrich the sportsbook.

Example: Backing a Favorite

Suppose for example that you have identified a prop that you think will win 81 percent of the time. Suppose the terms on that bet are -190. Do you have an edge, and if so what is it?

The break-even point comes when you invest $81 to receive $100, which is a win of $19. To find the break-even terms, divide $81 by $19, multiply by 100, and put a minus sign in front of it: -426.

Think of the -426 as being a price tag: $426. The value of a $100 win is $426, but the sportsbook is offering to sell you that $100 win for only $190. The smart shopper in you smiles at paying $190 for something worth $426.

If the terms of the bet specified something more expensive than $426, the bet would not be worthwhile. You should not, for example, be tempted to bet the under 2.5 if the terms were -450.

So what is your edge in percent? You pay $190, and that buys you an 81 percent chance of cashing a ticket for $290. The expected value of the ticket you will be cashing is 81 percent times $290, or $235. On average you will be winning $235 minus $190, or $45. Simple division computes your rate of return when you can earn $45 on an investment of $190: it's almost 24 percent.

Example: Backing a Dog

Suppose the terms on that bet are +125. There is no need to change any of the other details. You can still assume the bet has an 81 percent chance of winning.

So what is your edge in percent when you can make the bet at +125? It's the same logic as above.

You pay $100, and that buys you an 81 percent chance of cashing a ticket for $225. The expected value of the ticket you will be cashing is 81

percent times $225, or $182. On average you will be winning $182 minus $100, or $82. Simple division computes your rate of return when you can earn $82 on an investment of $100: it's 82 percent.

How Many of Something

Here is a prop bet that is offered at several sportsbooks for Super Bowls:

Total QB Sacks by: Both Teams. Total 5.
OVER EV;
UNDER -120.

A prop like that might be worth betting. In deciding whether to bet that prop and which side of it to take, there are two steps you will have to take.

Step one is analyzing data from games already played to see what has occurred in the past.

The next step is to use your best judgment to estimate the expected number of quarterback sacks that will be allowed in the upcoming game. Think of it as estimating the average number of quarterback sacks that would occur if the game were played over and over a large number of times. There might be reasons why you will expect more or fewer sacks than have typically happened in the past.

This book will help you with the rest of the analysis after you have come up with the number that you think best represents expected or average quarterback sacks.

Suppose you arrive at 4.7 as the mean number of sacks per game total for the two teams. Once you have settled on a mean number of occurrences, mathematics takes over because there is a particular distribution of outcomes that applies.

In other words, once you have told me that you expect an average of 4.7 somethings to happen during the game, I can tell you the probability that the actual number will be 0, 1, 2, etc.

Thus once you tell me 4.7 quarterback sacks, I can tell you precisely how likely it is that the number of quarterback sacks will be over 5, under 5, or exactly 5.

The material of this chapter applies to more than just quarterback sacks. It applies to any wager involving how many of one *countable* variable. The last part of this chapter applies to any wager involving how many of one countable variable versus how many of another countable variable.

Poisson Distribution

The mathematical distribution that describes the probabilities of each possible number of quarterback sacks is called the Poisson distribution.

Thanks to the work of an early 19th century French mathematician named Simeon Denis Poisson, you can start with the number you select as the expected value and determine the probability of each possible outcome. Thus you can calculate how likely you are to win if you take one side of the prop, and how likely you are to win if you take the other side of the prop.

The two properties necessary for the Poisson distribution to apply to the number of events are: 1. The variable must be something that is counted one at a time, and 2. The probability of occurrence of an event is small, while the number of chances to achieve the event is large.

Quarterback sacks follow a Poisson distribution because a) sacks occur one at a time, and b) there is a small chance of a quarterback sack on any given play, but there are many plays in the game.

Yards lost on quarterback sacks do not follow a Poisson distribution, because the yards occur in bunches instead of one at a time.

Number of scores follows a Poisson distribution, but number of points scored is Poisson only if each score is worth one point.

Number of penalties is Poisson, but not number of penalty yards since penalties vary in the number of yards assessed.

The binomial distribution applies when there is a single event that can have either of two possible results — such as heads or tails. The binomial distribution also applies when that event is repeated over and over.

When one of the results is rare and there are a large number of repetitions, the binomial distribution begins to resemble the Poisson distribution. Thus you can think of the Poisson as what the binomial distribution becomes when there are a large number of possible occurrences of a rare event.

What *really* gets interesting are props involving two Poisson distributions. There have been props comparing, say, missed free throws by a particular basketball player and number of completions by a particular quarterback. The last part of this chapter applies to props like this.

The easiest way to understand Poisson analysis is with examples.

The Math

The old-fashioned way of solving problems like this is to find a statistics text book, open it up to the tables of Poisson probabilities in the appendix, and find the number you need. That's easy to do if you happen to have a statistics book close at hand, and if you understand statistics well enough to be confident you are grabbing the correct number out of the correct table.

The way to solve problems like this without a statistics book is to use a spreadsheet, such as *Excel*. *Excel* gives the Poisson distribution directly, and all you have to do is plug in three things:

1) the number of events of interest (5 in the example of quarterback sacks)
2) the average (4.7 in this example)
3) whether you want exactly 5 sacks, or 5 or fewer sacks. In this example you want the cumulative amount, 5 or fewer.

Excel is quick and easy and accurate and you are unlikely to make a mistake.

I have used *Excel* to create appendixes A and B. They list the probabilities of events for Poisson distributions. If you wish, you can use *Excel* to recreate any number in appendixes A and B.

Appendix A has tables showing the probability of any exact number of events, and you would use it to find the probability of exactly 5 quarterback sacks. Appendix B has tables showing the cumulative probability, and you would use it to find the probability of 5 or fewer quarterback sacks.

You also can use *Excel* to analyze situations not specifically included in appendix A or B. For example, suppose you estimate 4.75 sacks per game; appendix A gives you numbers for 4.7 and 4.8 but does not mention 4.75. You can interpolate between numbers in appendix A to come up with an approximate answer, or you can use *Excel* and come up with a more accurate answer.

Likewise, if you need the distribution of something that occurs more frequently than the maximum listed in appendix A, *Excel* will give you the answers you need.

Our web site, BJ21.com, has a Links page with a link called Sports: Prop Tools, which includes an expansion of the material in appendixes A and B.

The numbers in the tables in appendix A may not add up to exactly 1.00 due to rounding.

Back to the prop: "Total QB Sacks by: Both Teams. Total 5. OVER EV; UNDER -120." Find the applicable part of appendix A, the columns that apply to the average QB sacks expected, which is 4.7. Find the row corresponding to five sacks. You should find the number 17. That is the probability of exactly five sacks, in percent.

In the same part of appendix B you should find 67. That's the probability in percent of five or fewer sacks.

Subtract 67 percent from 100 percent to get the probability of more than five sacks.

Appendix A says there is 17 percent probability of exactly five sacks. Appendix B says there is 33 percent probability of more than five sacks, and 49 or 50 percent probability of fewer than five sacks. (A more precise figure on fewer than five sacks is 49.46 percent, which is rounded to 49 percent if you look at the row of appendix B corresponding to four sacks, but gets rounded to 50 percent if you look at the row corresponding to five sacks. Either number is close enough for your purposes.)

Since you get your money back on pushes, you need be concerned only with the ratio of losses to wins. If that ratio is less than 1.0, you flip it over and add a minus sign.

A bet on over five sacks would win 33 percent of the time, push 17 percent of the time, and lose 50 percent of the time. Looking at losses over wins, you need 50/33 or +150 to break even on the over. Thus you certainly would not want to bet over five sacks at even money; your loss rate would be 17 percent.

A bet on under five sacks would win 50 percent of the time, push 17 percent of the time, and lose 33 percent of the time. The ratio of losses to wins is 33/50, which is less than one. Flipping it over and adding a minus sign gives -50/33 or -150 to break even. You can make that bet for just -120. So if your 4.7 estimate is correct, you have an edge on under five sacks.

Assuming the estimate of 4.7 expected sacks is correct, your $120 ticket has a 50% chance of turning into $220, a 17% chance of staying at $120, and a 33% chance or turning into toilet paper. Thus your $120 will on average turn into $130.40. So the player advantage is 10.4/120 or 8.7 percent.

Recap

Appendix A and B apply to proposition bets where events are counted in increments of one, such as number of quarterback sacks, number of runs in baseball, number of eagles in a golf tournament, or number of free throws missed by a basketball superstar.

Sample Usage of Appendix A

Find the part of appendix A that describes the distribution when the expected number of events is four. What is the probability of exactly four events, what is the probability of three, and what is the probability of five?

		4.0
0	...	2
1	...	7
2	...	15
3	...	20
4	...	20
5	...	16

The applicable part of appendix A is reproduced above. The 20 in the 4 row means that the probability of getting exactly four events when 4.0 are expected is 20 percent. The probability of getting three events is 20 percent, and the probability of getting five events is 16 percent.

Sample Usage of Appendix B

Find the part of appendix B that describes the distribution when the expected number of events is four. What is the probability of four or fewer, what is the probability of three or fewer, and what is the probability of five or more.

		4.0
0	...	2
1	...	9
2	...	24
3	...	43
4	...	63
5	...	79

The applicable part of appendix B is reproduced above. The 63 in the 4 row means the probability of ending up with four or fewer events is 63 percent. Subtracting from 100 gives the probability of getting five or more events: 37 percent. The probability of getting three or fewer events is 43 percent.

How Many vs. How Many

Sometimes sportsbooks offer proposition bets that pit one variable against another. These bets can represent profitable opportunities to the sharp bettor. An example of one such bet is:

Team to Make Most Field Goals in Game:
Baltimore Ravens -1/2 EV, or
New York Giants +1/2 -120

One of the props available for betting in Super Bowl XXXV was which team would kick more field goals, with the tie going to the New York Giants. The line on the prop varied from sportsbook to sportsbook, and at one place was BAL even, Giants -120. If Baltimore kicked more field goals, a $100 bet on Baltimore turned into $200. If the New York Giants kicked as many or more field goals than did Baltimore, a $120 bet on the Giants turned into $220.

Analyzing the Bet

The first part of analyzing a bet like that requires judgment. You must look at the statistics for each team and decide for yourself how many field goals each team is likely to kick in the upcoming game. You must come up with numbers representing a sort of average performance by each team.

I looked at the regular-season totals for each team and discovered that Baltimore on average kicked 2.2 field goals per game, and the New York Giants kicked 1.2 per game. I saw no reason why either team should kick more or fewer field goals than that during the Super Bowl, so I used 2.2 for Baltimore and 1.2 for the New York Giants.

One caution: The betting advice you will get out of this chapter is only as valuable as the numbers you come up with for frequencies of events. If the 2.2 and 1.2 field goals are good predictions of what is going to happen, then the analysis of this chapter is accurate. If the 2.2 and 1.2 estimates are flawed, then the advice of this chapter will yield bad bets. Keep in mind: "Garbage in, garbage out." But don't be discouraged; I have been able to win money using the material in this chapter; you should be able to do it too.

You might have looked at the data and formed a different opinion of how many field goals to expect from each team, and that's fine. You still have to use your best judgment to come up with the average number of times the two events will happen, but after you have your two estimates the rest is simply mathematics — no more judgment required.

Before proceeding with the chapter, decide for yourself if you would have made the field goal bet presented above. Assume that the 2.2 and 1.2 numbers are close enough so that you can accept them. Would you bet on Baltimore to kick more field goals, or would you bet on the Giants to kick as many as or more field goals than Baltimore? Do you think it is a close decision, or do you think your choice stands head and shoulders over the opposing bet?

The Math

Before you had quick computers in your homes and offices, and spreadsheets to do lightning-fast calculations, the way you solved problems like this was to find the probabilities in a table in the appendix of a statistics book, multiply the numbers by hand, and then add them up to find the probabilities of the various joint events. That's a tedious, time-consuming job, and it's easy to make a mistake.

Once again, *Excel* is at your service. *Excel* does not solve this problem directly, but it gives you the numbers that you need to multiply together and add up. *Excel* is quick and easy and accurate, but the procedure is complicated and mistakes are likely.

I have used *Excel* to calculate the results for the range of numbers you are likely to encounter in prop bets in casinos, and have presented those results as appendix C. It's possible for you to use *Excel* to verify all the numbers in appendix C, but it's tedious and time-consuming.

You can interpolate between two rows or two columns of appendix C, but extrapolating beyond the given numbers is risky. It's possible to use *Excel* to generate numbers beyond the range given in appendix C, and one easily could expand that table to fill a hundred pages. If you need Poisson probabilities beyond the range of numbers in appendix C, go to the Links page of our web site, BJ21.com, and click on Sports: Prop Tools.

The Math: An Example

Obviously, kicking an average of 2.2 field goals per game does not mean kicking exactly 2.2 field goals in every game. 2.2 is an average, total field goals divided by total games. A similar statistic is the average American family having 2.2 children. I certainly hope that not too many families have exactly 2.2 children!

For an average of 2.2 field goals per game, appendix A yields:

Field Goals	Percent
0	11
1	24
2	27
3	20
4	11
5	5
6	2
7	1

For an average of 1.2 field goals per game, appendix A yields:

Field Goals	Percent
0	30
1	36
2	22
3	9
4	3
5	1

The totals might not sum to exactly 100 percent due to rounding.

The next step is to multiply the numbers in the first list by the appropriate numbers in the second list to figure out the probability of Baltimore kicking more field goals, the Giants kicking more field goals, and each team kicking the same number of field goals.

The probability of neither team kicking a field goal is 11 percent times 30 percent, or 3.3 percent. They could also tie with one field goal apiece (24 percent times 36 percent), two field goals apiece (27 percent times 22 percent), three field goals apiece (20 percent times 9 percent), four field goals apiece (11 percent times 3 percent), or five field goals apiece (5 percent times 1 percent). Add those up and you get 20 percent chance of a tie in the number of field goals kicked.

You don't need to do all this work yourself; it has been done for you as part of appendix C.

Using Appendix C

Appendix C applies to the situation of comparing the numbers of occurrences of two variables. The table describes them as "Variable A" and "Variable B." It does not matter whether A or B occurs first in time; either variable could be Variable A.

Find the part of appendix C that contains a column heading matching the number you expect of one variable and a row that matches the number you expect of the other variable. You might have to interpolate between two rows or between two column headers.

Under each column header are three columns of numbers. Thus for the variables of interest you will find a set of three numbers in appendix C. The first number is the probability that there will be more of Variable A. The second number is the probability that there will be more of Variable B. The third number is the probability of a tie.

Answer to the Field-Goal Example

Find the part of appendix C that applies to 2.2 for one team and 1.2 for the other. You should find three numbers: 60, 20, and 20. Those numbers are percentages, 60 percent, 20 percent, and 20 percent. The third number is probability of a tie, and was calculated exactly as explained above.

The 60 percent is the probability that the actual number of occurrences of the variable expected to occur 2.2 times will exceed the actual number of occurrences of the variable expected to occur 1.2 times. You can verify that if you enjoy arithmetic. The probability that Baltimore wins the field-goal battle 1-0 is 24 percent times 30 percent. The probability that Baltimore wins the field-goal battle 2-0 is 27 percent times 30 percent, etc.

Again, appendix C has the final answers, already calculated for you.

Assuming 2.2 field goals for Baltimore and 1.2 for the Giants, appendix C tells you that the probability that Baltimore will kick more field goals is 60 percent. The probability that the Giants will kick more is 20 percent, and the probability of a tie is 20 percent, for a win-or-tie total of 40 percent.

A bet on Baltimore to kick the most field goals would win 60 percent of the time and lose 40 percent of the time, since ties go to the Giants. You need 40/60 or -60/40 or -150 to break even on that bet. Thus you certainly would smile when you see the bet offered at even money. At even money, the player edge is 20 percent. One book offered Baltimore to kick most field goals at +120, a player edge of 32 percent. I jumped all over that one, and was certainly pleased when Baltimore kicked the only two field goals in the game.

A bet on the Giants to kick most field goals would win 40 percent of the time and lose 60 percent of the time. You need 60/40 +150 to break even. Since you are offered -120, you would decline. Of course you knew you would decline as soon as you saw that the bet on Baltimore is worthwhile; you could not find both bets worthwhile at the same time.

Minus or Plus Events

Sometimes you find props matching the number of times one thing will occur with one less than the number of times something else will occur. It might have been reasonable, for example, for some sportsbook to offer bets on Baltimore Ravens field goals minus one versus New York Giant field goals during Super Bowl XXXV. Had that prop been offered, the numbers in appendix C are approximations that would be close enough for your purposes.

Suppose the expected number of Ravens field goals is 2.2 and the expected number of Giants field goals is 1.2 and you find a prop on Ravens field goals minus one versus Giants field goals. For 1.2 versus 1.2, appendix C yields 36 percent chance of each side winning and 28 percent chance of a tie. For 2.2 versus 2.2, appendix C yields 40 percent chance of each side winning and 20 percent chance of a tie. Exact calculations show that Ravens minus one has 38 percent chance of winning, Giants have 40 percent chance of winning, and there is 22 percent chance of the Ravens ending up with exactly one field goal more than the Giants. So appendix C gives a fair approximation for plus or minus one field goal.

Some props involve plus or minus two or more events. Appendix C yields good-enough approximations for them also.

The approximations are better for larger numbers of expected events.

For example, you expect Variable A to occur 7.6 times and Variable B 6.4, and the prop is for the number of Variable A minus one. You can use appendix C, looking for 6.6 versus 6.4, finding 47, 42, 11. Or you can find 7.6 versus 7.4, which is 47, 43, 10. Exact calculations yield 47, 43, 11, which does not sum to 100 percent due to rounding.

For Higher Numbers

For numbers of events higher than are shown on appendix C, here is an approximation. Ties get rarer and rarer. Ignoring ties and looking at just wins and losses, the difference between the numbers of the two variables is approximately as shown in table 7.

Table 7
Chance of Having More
When Many of Both Are Expected

Expected Difference	Prob More	Prob Less
0.0	50	50
0.5	54	46
1.0	58	42
1.5	61	39
2.0	65	35
2.5	68	32
3.0	71	29
3.5	74	26
4.0	77	23

The first column is the difference between the expected number of the more likely variable and the expected number of the other. The second column is the probability of achieving more of the more likely variable, in percent. The third column is the probability of achieving more of the less likely variable, in percent.

For example, suppose you find a prop relating the number of A to the number of B, and your estimate is that on average there should be two more of A. Table 7 says that the probability that the game will see more of A than B is around 65 percent.

Table 7 is reproduced at the end of Appendix C.

Summary

Identifying edges in bets that can be analyzed by the Poisson distribution is an aspect of sports betting that I have found to be most enjoyable and rewarding. I hope you have as much fun as I have in finding and exploiting these opportunities.

Sample Problems

The first seven sample problems are props copied from the Imperial Palace's offerings for Super Bowl XXXV. Expected values for things like number of tackles are not part of the props and are given here merely so that the problems have precise numerical solutions.

Problem 1

Total tackles by J. Armstead (Giants):
Over 5   -130
Under 5   EV
Assume the expected number of tackles is 4.8.

Problem 2

Who will have more:
Ravens touchdowns + 1/2 -115
Blackhawks goals - 1/2   -115
Assume the Ravens are expected to score 1.6 touchdowns, and the Blackhawks are expected to score 2.5 goals.

Problem 3

Who will have more:
T. Dilfer (Ravens) Completions -2   -115
S. O'Neal (LA) Missed Free Throws +2 -115
Assume Dilfer is expected to complete 12 passes. Assume O'Neal is expected to miss 7.3 free throws.

Problem 4

Who will have more:
Dilfer (Ravens) Gross Passing Yds +32 -115
76ers + Pacers Points -32   -115
Assume Dilfer is expected to pass for 160 yards. Assume the 76ers and Pacers are expected to combine for 184.6 points.

Problem 5

Will the Giants convert a 4th down attempt?
Yes +160
No   -200
Assume the Giants convert an average of 0.4 fourth downs per game.

Problem 6

Will the game ever be tied after 0-0?

Yes   EV

No   -130

Problem 7

Total number of players to have a passing attempt:

Over 2.5   -130

Under 2.5   EV

Obviously one quarterback minimum per team will have passing attempts. Assume that the probability of a second player attempting a pass for the Giants is 10 percent, and the probability of a second player attempting a pass for the Ravens is 30 percent.

Problem 8

Duke averages 10.6 three-pointers per game. Harrah's offers +120 on Duke to shoot over 10.5 three-pointers. Is this a good bet?

Problem 9

Maryland averages 20 assists per game. Harrah's offers EV for over 19.5, and -120 for under 19.5. If you assume that the expected number of assists for Maryland is 20, is either of these a good bet?

Problem 10

Stardust has a prop on Maryland free throw attempts versus Duke three-point attempts. The spread is 6.5. Thus you can bet on Maryland free throw attempts plus 6.5 versus Duke three-point attempts, or on Duke three-point attempts minus 6.5 versus Maryland free-throw attempts. Duke has been allowing 18.0 free-throw attempts per game, and has been attempting 26.6 three pointers per game. Using those numbers as the expectations for the upcoming game, is Duke -6.5 a good bet at -110?

Problem 11

Several sportsbooks have a prop on free throws made: Duke -1.5 or Maryland +1.5. The line on Duke -1.5 is -120. Duke has been allowing 18.0 free throws per game, and Maryland has been allowing 22.3. Each team makes 69 percent of its free throws. If all those averages hold for Saturday's game, Duke's expectation is to make 15.4 free throws and Maryland's is to make 12.4 free throws.

Is Duke -1.5 free throws a good bet at -120?

Solutions to Sample Problems

The solutions to the sample prop problems are:

Problem 1

Total tackles by J. Armstead (Giants)

Over   -130

Under 5   EV

Assume the expected average number of tackles is 4.8.

This is a typical use of appendix B. That table says the probability of four or fewer tackles is 48 percent, and the probability of five or fewer tackles is 65 percent. Subtraction gives the probability of more than five tackles being 35 percent.

For a bet on over five tackles to be profitable, the odds would have to be 48/35 x 100 = +137 or more, and the sportsbook is offering considerably less than that.

For a bet on under five tackles to be profitable, the odds would have to be -137 or better, and you are offered even money. Thus you have a healthy edge betting on J. Armstead to produce under five tackles if the estimate of 4.8 tackles per game is accurate.

Note that the solution depends on getting a refund of the bet if Armstead makes exactly five tackles. You have 48 percent probability of winning, 35 percent probability of losing, and 17 percent probability of getting the bet refunded.

Problem 2

Who will have more:

Ravens touchdowns + 1/2 -115

Blackhawks goals - 1/2   -115

Assume the Ravens are expected to score 1.6 touchdowns, and the Blackhawks are expected to score 2.5 goals.

This is a typical use of appendix C. Look for 1.6 of one thing and 2.5 of the other. You should find 57, 24, and 19.

Which number is probability of most Ravens touchdowns? If you are expecting 1.6 touchdowns and 2.5 goals, then on average you will get more goals than touchdowns. That logic says 57 percent probability of more Blackhawks goals, 24 percent probability of more Ravens touchdowns, and 19 percent probability of Ravens touchdowns equaling Blackhawk goals.

The terms of the prop give ties to the Ravens. Ravens touchdowns plus ties will win with probability 43 percent, and Blackhawk goals will win with probability 57 percent.

To break even on a bet on Blackhawk goals, you need a better price than - 57/43 x 100 = -132. You are offered the bet at -115 and that is a better price than -132, so you have an edge betting Blackhawk goals -1/2.

The amount of edge is .57/1.15 - .43, or 6.5 percent.

Problem 3

Who will have more:
T. Dilfer (Ravens) Completions -2   -115
S. O'Neal (LA) Missed Free Throws +2 -115
Assume Dilfer is expected to complete 12 passes. Assume O'Neal is expected to miss 7.3 free throws.

Use appendix C, looking for 7.3 and 10. You will not find 7.3, and will have to interpolate between 7.0 and 7.5.

You should find Dilfer completions to win with probability 70 percent, O'Neal missed free throws to win with probability 23 percent, and a tie (Dilfer completions exceeding O'Neal free throws by exactly 2) to occur with probability 8 percent.

Or you can look for 9.3 and 12 in appendix C, and you will come up with about the same numbers. Or you could look up 8.3 and 11.

Whichever numbers you use to solve the problem, you will discover that there is a huge edge betting on Dilfer completions -2.

This prop actually was offered by the Imperial Palace, and Dilfer -2 looked like a fabulous bet to all who commented on it on the Football page of BJ21.com. Unfortunately, O'Neal did not play in the game specified in the prop, and so all bets on that prop were refunded.

Problem 4

Who will have more:
Dilfer (Ravens) Gross Passing Yards +32 -115
76ers + Pacers Points -32   -115
Assume Dilfer is expected to pass for 160 yards. Assume the 76ers and Pacers are expected to combine for 184.6 points.

This is a trick question. The answer is: Poisson is an inappropriate tool to use to analyze the prop. One reason is: Yards are gained in chunks, rather than one at a time. Another reason is: In basketball, points sometimes are scored two or more at a time, instead of always one at a time. The methods of this chapter will not help you to decide whether this prop is worth betting.

Problem 5

Will the Giants convert a 4th down attempt?
Yes +160
No   -200
Assume the Giants convert an average of 0.4 fourth downs per game.

This prop can be analyzed with the help of appendix A. 0.4 converted fourth downs per game is associated with a 67 percent chance of no fourth-down conversions. That means the "No" would be a break-even bet, and there is no worthwhile bet on this prop.

Problem 6

Will the game ever be tied after 0-0?
Yes   EV
No   -130
This prop cannot be analyzed by the methods of this chapter.

Problem 7

Total number of players to have a passing attempt:
Over 2.5   -130
Under 2.5   EV
Obviously one quarterback minimum per team will have passing attempts. Assume that the probability of a second player attempting a pass for the Giants is 10 percent, and the probability of a second player attempting a pass for the Ravens is 30 percent.

You have enough information to evaluate this prop, but the solution does not require the Poisson distribution. The tables in this chapter will not give you the solution to this problem.

The probability of the Giants not getting a pass attempt from a second player is 90 percent and the probability of the Ravens not getting a pass attempt from a second player is 70 percent, and multiplying those two numbers together gives you the probability that neither team will get a pass attempt from a second player: 63 percent. Subtracting from 100 percent gives 37 percent as the probability that either or both teams will get a pass attempt from a second player.

Getting even money for something that happens with probability 63 percent is a great investment; your edge is 26 percent. If the 90 percent and 70 percent are correct, you should bet that the total number of players to have a passing attempt will be under 2.5.

Problem 8

Duke averages 10.6 three-pointers per game. Harrah's offers +120 on Duke to shoot over 10.5 three-pointers. Is this a good bet?

Look at appendix B. For a mean of 10.6 and a frequency of 10, you see 51. That means there is 51 percent chance that Duke will hit ten or fewer threes. That leaves a 49 percent chance that Duke will hit eleven or more threes. A $100 bet on that prop yields a 51 percent chance of losing $100 and a 49 percent chance of winning $120. That means the average $100 wins $7.80. You must decide for yourself whether 7.8 percent expected return on a bet that will be decided in a day or two is worthwhile.

Problem 9

Maryland averages 20 assists per game. Harrah's offers EV for over 19.5, and -120 for under 19.5. If you assume that the expected number of assists for Maryland is 20, is either of these a good bet?

Appendix B says there is a 47 percent chance that Maryland will have 19 or fewer assists, meaning a 53 percent chance of 20 or more assists.

It's easy to see that if you have an edge, it's with the over. A $100 bet on the over has a 53 percent chance of winning $100 and a 47 percent chance of losing $100. That's $6 profit per $100 bet, or 6.0 percent return on investment. Whether that is a good bet is up to you.

You could work out the math on the under if you want, though if the expected value of the over is positive you know the expected value of the under is negative. A bet of $120 on the under has a 47 percent chance of winning $100 and a 53 percent chance of losing $120. That's a loss of $16.60 on an investment of $120, or a loss of 13.8 percent. So it's bet the over or don't bet on this prop.

Problem 10

Stardust has a prop on Maryland free throw attempts versus Duke three-point attempts. The spread is 6.5. Thus you can bet on Maryland free throw attempts plus 6.5 versus Duke three-point attempts, or on Duke three-point attempts minus 6.5 versus Maryland free-throw attempts. Duke has been allowing 18.0 free-throw attempts per game, and has been attempting 26.6 three pointers per game. Using those numbers as the expectations for the upcoming game, is Duke -6.5 a good bet at -110?

First you need to add 6.5 to Maryland's free-throw attempts or subtract 6.5 from Duke's three-point attempts. You don't need to do both, but I will do both here.

If Maryland has 24.5 and Duke has 26.6, you have a set of numbers that is beyond the range of appendix C. If Maryland has 18.0 and Duke has 20.1, you still are beyond the range of appendix C.

When your numbers are too large for appendix C, you look at table 7. When the difference between your two numbers is 2.1, you have a 65-35 situation, or maybe 66-34. Duke has about a 65 percent chance of winning, and Maryland has about a 35 percent chance of winning.

Betting $110 on Duke gives you a 65 percent chance of winning $100 and a 35 percent chance of losing $110. That's an expected win of $26.50 on an investment of $110, an expected return of 24 percent.

Problem 11

Several sportsbooks have a prop on free throws made: Duke -1.5 or Maryland +1.5. The line on Duke -1.5 is -120. Duke has been allowing 18.0 free throws per game, and Maryland has been allowing 22.3. Each team makes 69 percent of its free throws. If all those averages hold for Saturday's game, Duke's expectation is to make 15.4 free throws and Maryland's is to make 12.4 free throws.
Is Duke -1.5 free throws a good bet at -120?

You have to make the adjustment of 1.5, and it does not matter whether you do it to Duke or to Maryland. You can look at 13.9 versus 12.4 in appendix C, or you can look at 15.4 versus 13.9. Either of those requires interpolation. Or you can look at 15.5 and 14.0, which yields 36-57-7. You need to split the ties between the two sides, since there cannot be a tie on the final result. Splitting the ties gives you 39-61. That's the same thing you would have gotten had you used table 7 instead of appendix C.

The 39-61 means Maryland has a 39 percent chance of having most free throws with the 1.5 it is given, and Duke has a 61 percent chance of having most free throws after subtracting 1.5 of them.

Thus a wager of $120 has a 61 percent chance of winning $100 and a 39 percent chance of losing $120. That's a $14.20 expected win on an investment of $120, or 11.8 percent return on investment.

CHAPTER 10

SEASON WINS

One popular prop is total wins that a team will accumulate during the coming season. The sportsbook posts numbers for totals wins, and the customers can bet over or under.

This chapter will not teach you how to figure out the number of games any team will win. But this chapter will enable you to evaluate any season-win prop that you think looks attractive.

Time Value of Money

When you bet totals, you must consider the time value of money. You will be making your bets before the season starts, and if you have winning tickets you will be cashing them in after the season ends.

Your NFL season bets will tie up your money for four months. Bets on season totals in baseball, basketball, and hockey will mean holding tickets for six months before being able to cash winners.

You won't be able to cash in winning tickets early. Suppose, for example, you bet on an NFL team to have more than 5.5 wins, and your team starts off the season with six straight wins. You have a certain winner, but you will have to wait until the season ends before cashing your ticket. The reason is if anything happens that results in the season not being completed, all tickets, including yours, will be refunded. Thus your team winning its sixth game has not really given you a certain winner, just an almost-certain winner.

Suppose you buy an NFL season-wins ticket in August and it wins. You finally get to cash it in early January. The sportsbook has had the use of your money for more than four months. Baseball is even worse; you buy your ticket in March, cash it in October, and in the process give the sportsbook use of your money for more than six months.

The way to handle that is to expect a higher win rate from tickets that must be held for extended time periods. Ten percent return is great for letting a sportsbook hold your money for a day; but a ten percent return may not be generous enough if your money will be tied up for many months.

Expect the same return for the use of your money from long-term bets as you would expect from other long-term uses of your money. You expect compensation for three things. You expect compensation for the time value of your money. You expect compensation for the loss of liquidity waiting for the investment to mature. You expect compensation for the risk you are taking.

A CD is a use of your money that involves loss of liquidity for the term of the CD, but zero risk. What return would be sufficient to entice you to invest funds in a CD? Expect the same from a sports bet as far as compensation for the time value of your money and the loss of liquidity, and expect more expected return on a sports bet to compensate you for the risk involved because you may lose the bet.

Theoretically you should not expect too much return for the risk involved in futures bets because that risk is diversifiable. If you get heavily involved in sports futures, making bets on a variety of teams, your overall risk will be considerably lower than if you were to bet that total amount of money on only one team.

Would you make a long-term investment that promises a certain 10 percent per year but must be held at least six months before you can cash it in? Perhaps you would. If not, how about 20 percent per year? If not 20, how about 30 percent per year? There must be some number that would entice you to make a riskless investment that you could not cash for six months. Decide for yourself what that number is. Then add in an amount of your choosing to compensate you for the risk involved in futures bets. The result will be an expected return per year that you can use to evaluate all long-term bets. Make only those bets that meet your own personal requirement for expected return.

Suppose you require 30 percent per year, just to pick a number out of the air. That means a bet that could be cashed in six months at the earliest would need to have an expected return of at least 15 percent. A bet that could be cashed in four months at the earliest would need to have an expected return of at least 10 percent. If you find a season-win bet that promises to return only five percent, you ought not to make that bet if the season is longer than two months.

Requirements by Sport

The NFL regular season lasts four months. Thus NFL season-win bets are four-month investments.

Other major bettable sports have six-month seasons. When you bet season totals for baseball, basketball, or ice hockey, you are making six-month investments.

An Example: Math Boy

Math Boy says on BJ21.com:

> I think this is the major deterrent for gamblers who are building their bankroll. I had found a large, solid book that was offering -400 that the electoral college would not be abolished by 1/1/2002. Since this takes a constitutional amendment and it was early March of 2001, I figured this was about as sure a thing as it gets. But I passed it up because right now I want to double my current capital by the end of the year. In a few years, I would probably jump on that bet.

If that bet were a sure thing, Math Boy could have turned $400 into $500, earning 25 percent. Probably it was not quite a sure thing, so the actual expectation probably was less than 25 percent. But Math Boy thought it was a sure thing, and made the investment decision as if the expected return were 25 percent. Making the investment would have meant tying up his money for ten months. For him, 25 percent was not sufficient for ten months use of his money; he decided to pass up the opportunity to bet against the electoral college's being abolished by 1 January 2002. Likely you would have made that bet, but of course for only a small part of your bankroll.

Middles on Season Wins

Before the start of the 2001 baseball season, this question was posted on BJ21.com: "There are a number of two- and three-game *middles*. How much are they worth?" That's the question addressed in this section.

This section looks at average teams, and also at teams that are extra good or extra bad.

Average Teams

Table 8 gives the values of middles for various number of wins for seasons of various lengths.

Table 8
Probability of Middle:
Average Team

games per season	0.5	1.0	1.5	2.0	2.5	3.0
10	12.3	24.6	34.9	45.1	51.0	56.8
16	9.8	19.6	28.4	37.1	43.2	49.3
20	8.8	17.6	25.6	33.6	39.6	45.7
30	7.2	14.4	21.2	28.0	33.6	39.1
40	6.3	12.5	18.5	24.5	29.6	34.8
50	5.6	11.2	16.6	22.0	26.8	31.6
60	5.1	10.3	15.2	20.2	24.7	29.2
70	4.8	9.5	14.1	18.7	23.0	27.2
80	4.4	8.9	13.2	17.6	21.6	25.6
82	4.4	8.8	13.1	17.4	21.3	25.3
90	4.2	8.4	12.5	16.6	20.4	24.3
100	4.0	8.0	11.9	15.8	19.4	23.1
110	3.8	7.6	11.3	15.0	18.6	22.1
120	3.6	7.3	10.8	14.4	17.8	21.2
130	3.5	7.0	10.4	13.9	17.1	20.4
140	3.4	6.7	10.0	13.4	16.5	19.7
150	3.3	6.5	9.7	12.9	16.0	19.1
160	3.1	6.3	9.4	12.5	15.5	18.5
162	3.1	6.3	9.4	12.4	15.4	18.4
170	3.1	6.1	9.1	12.1	15.1	18.0
180	3.0	5.9	8.9	11.8	14.7	17.5
190	2.9	5.8	8.6	11.5	14.3	17.0
200	2.8	5.6	8.4	11.2	13.9	16.6

The row is a season length. Currently seasons consist of 16 games in NFL football, 162 in major-league baseball, and 82 in the NBA and the NHL. There also are rows for other possible season lengths. Interpolating between rows is fine.

All the tables in this chapter are based on the binomial distribution. I used *Excel* to develop them. You can reproduce any number in any of these tables yourself by using Excel or any similar program that will calculate binomial probabilities for you.

Table 8 assumes that a team has a 50 percent chance of winning each game. Of course no team has exactly 50 percent chance of winning every single game of the year. Each game individually will be associated with a likelihood of winning that only sometimes will be 50-50. Some games will be 60-40, some will be 53-47, and so on. But if over the course of a season a team is expected to win around half of its games, table 8 does a good job of describing the likelihood of middles winning.

The first column is number of games in the season. Skip the second column for a minute. The third column is the probability of winning a middle of exactly one game.

Here is an example of the application of table 8 to baseball.

Look at table 8 to find the probability that an average major-league baseball team will achieve a one-game middle over the course of 162 games. You should find 6.3. That number is in percent, 6.3 percent. If you have found two bets on season wins, and those two bets give you a middle of one game, you have a 6.3 percent chance of hitting that middle. For example, if you have a bet on a team to win fewer than 81.5 games and also a bet on that same team to win more than 80.5 games, the probability that the team will win exactly 81 games out of 162 is 6.3 percent.

Those percentages also apply to a baseball team that is expected to win something slightly different from 81 games. For example, if you have a bet on a team to win fewer than 85.5 games and also a bet on that same team to win more than 84.5 games, the probably that the team will win exactly 85 games is about 6.3 percent.

The second column in table 8, the column you skipped temporarily, has values equal to half the numbers in the third column. This column is for half-game middles. For example, if you have a bet on a team to win fewer than 81.5 games and also a bet on that same team to win more than 81 games, the probably that the team will win exactly 81 games is about 6.3 percent, which would give you a win on one bet and a push on the other. That's the same as half a win, and half of 6.3 rounds off to 3.1 or 3.2.

The 1.0 column applies to any one-game middle; it does not have to be a middle that contains an integer. For example, a baseball middle composed of over 80 and under 81 would yield a win if the final win total is either 80 or 81. Each of those is half of 6.3 percent, so the two halves total 6.3 percent.

The final four columns of table 8 show the probability of achieving a middle when you are lucky enough to construct one containing 1.5 to 3 wins. Take for example a combination of over 80.5 wins and under 83.5 wins out of 162 played. The chance of hitting that middle is 18.4 percent according to table 8.

Extra-Strong or Extra-Weak Teams

Middles are more valuable when they involve extra-strong or extra-weak teams than when they involve average teams.

Table 9 assumes a team has a 60 percent chance of winning each game, and table 10 assumes a team has a 75 percent chance of winning each game.

Table 9
Probability of Middle:
Team that Expects 60% wins

games per season	games in middle					
	0.5	1.0	1.5	2.0	2.5	3.0
10	12.5	25.1	35.8	46.6	52.6	58.7
16	9.9	19.8	27.9	36.1	41.1	46.2
20	9.0	18.0	26.3	34.6	40.8	47.0
30	7.4	14.7	21.7	28.7	34.5	40.2
40	6.4	12.8	18.9	25.1	30.4	35.7
50	5.7	11.5	17.0	22.5	27.5	32.4
60	5.2	10.5	15.6	20.7	25.3	29.9
70	4.8	9.7	14.4	19.2	23.5	27.9
80	4.5	9.1	13.5	18.0	22.1	26.2
82	4.5	8.9	13.4	17.8	22.0	26.1
90	4.3	8.6	12.8	17.0	20.9	24.8
100	4.1	8.1	12.1	16.1	19.9	23.6
110	3.9	7.7	11.6	15.4	19.0	22.6
120	3.7	7.4	11.1	14.7	18.2	21.7
130	3.6	7.1	10.6	14.2	17.5	20.9
140	3.4	6.9	10.3	13.7	16.9	20.2
150	3.3	6.6	9.9	13.2	16.4	19.5
160	3.2	6.4	9.6	12.8	15.9	18.9
162	3.2	6.4	9.6	12.7	15.8	18.9
170	3.1	6.2	9.3	12.4	15.4	18.4
180	3.0	6.1	9.1	12.1	15.0	17.9
190	2.9	5.9	8.8	11.7	14.6	17.4
200	2.9	5.8	8.6	11.5	14.2	17.0

Table 10
Probability of Middle:
Team that Expects 75% wins

games per season	games in middle					
	0.5	1.0	1.5	2.0	2.5	3.0
10	12.5	25.0	39.1	53.2	62.6	72.0
16	11.3	22.5	32.9	43.3	50.0	56.7
20	10.1	20.2	29.7	39.2	45.9	52.6
30	8.0	15.9	24.2	32.6	39.8	47.1
40	7.2	14.4	21.4	28.4	34.3	40.2
50	6.3	12.6	19.1	25.5	31.5	37.5
60	5.9	11.8	17.6	23.4	28.6	33.7
70	5.4	10.8	16.2	21.7	26.9	32.1
80	5.1	10.3	15.3	20.3	25.0	29.6
82	5.0	10.0	15.0	20.1	24.9	29.7
90	4.8	9.5	14.4	19.2	23.8	28.5
100	4.6	9.2	13.7	18.2	22.5	26.7
110	4.3	8.7	13.0	17.4	21.6	25.9
120	4.2	8.4	12.5	16.7	20.6	24.5
130	4.0	8.0	12.0	16.0	19.9	23.8
140	3.9	7.8	11.6	15.5	19.1	22.8
150	3.7	7.4	11.2	14.9	18.6	22.3
160	3.6	7.3	10.9	14.5	17.9	21.4
162	3.6	7.2	10.8	14.4	17.9	21.4
170	3.5	7.0	10.5	14.0	17.5	20.9
180	3.4	6.9	10.3	13.7	16.9	20.2
190	3.3	6.6	10.0	13.3	16.6	19.8
200	3.3	6.5	9.7	13.0	16.1	19.2

A baseball team that is expected to win 75 percent of its games, or 121.5 wins out of 162, would be a truly great baseball team indeed! If you ever encounter a baseball team that is expected to win say 120 games, and you can construct a one-game middle on season wins, you can look at table 10 to find that the probability of winning both your bets is 7.2 percent. Compare that to the 6.3 percent number from table 8. The comparable number of table 9 is 6.4 percent.

The numbers that apply to bad teams are the same as the numbers shown in tables 9 and 10. On a one-game middle on a baseball team that is so bad that it is expected to win only 40 games, you have a 7.2 percent chance of winning both bets.

ROI on a Wins Middle

Let P be the probability of winning the middle. P is the number you get from table 8, 9, or 10.
The probability of not winning the middle is 100 - P.
Let Vig1 and Vig2 be the vig on the two bets. Examples: If the terms are -110, the vig is 10; if the terms are -130, the vig is 30; if the terms are +110, the vig is -10.
Your expected profit EP is the possible win times the probability of that win plus the expected loss times the probability of that loss, or, for $100 bets:

$$EP = 200P - (Vig1 + Vig2)*(100 - P)/2$$

To find the return on investment (ROI), divide the expected profit above by the investment 200 + Vig1 + Vig2.

$$ROI = EP/(200 + Vig1 + Vig2)$$

$$ROI = [200P - (Vig1 + Vig2)*(100 - P)/2]/$$

<div align="right">(200 + Vig1 + Vig2)</div>

Example: One-Point NFL Middle

The NFL season is sixteen games. According to table 8, if you can construct a one-game middle, you have 19.6 percent chance of achieving it. Is 19.6 percent chance of a middle enough return for you to tie up your money for four months?

Unfortunately, it's more complicated than simply deciding whether 19.6 percent is sufficient return on a four-month investment. You also have to consider the terms on which the bets are offered.

Suppose that the over requires you to put up $110 to try to win $100, and the under requires you to put up $115 to try to win $100. Thus to construct the middle, you will invest $225 for each $200 you are hoping to win if the middle hits. (You do not have to buy the two bets in the ratio of $115 to $110; the final percentage answer will be approximately the same even if you buy a slightly different ratio of the two bets.)

You have a 19.6 percent chance of winning both bets, and if you win both bets you will win $200.

You have 100 - 19.6 = 80.4 percent chance of winning one bet and losing the other. That's 40.2 percent for winning the over and losing the under, and 40.2 percent for losing the over and winning the under. (Again the split does not have to be exactly 40.2 to 40.2; the final percentage answer will be about the same as long as the total is 80.4 percent.)

You have 40.2 percent chance of losing the $15 vig on one bet (115 lost on one bet minus 100 won on the other bet), 40.2 percent chance of losing the $10 vig on the other bet (110 lost on one bet minus 100 won on the other bet), and 19.6 chance of winning both bets for $200. That's $39.20 minus $6.03 minus $4.02 for a net expected gain of $29.15, on an investment of $225. Laying out $225 to earn $29.15 is 13 percent return on investment.

That's as far as I can take you. I can tell you that if you make bets at -110 and -115 to lock up a one-game NFL middle, you will be earning an average of 13 percent on a four-month investment. You have to decide for yourself whether 13 percent is sufficient return for tying your money up on a risky bet for four months.

<div align="center">

Single Bets on Season Wins

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This section presents an analysis of single bets on season wins. Again, I cannot teach you how to figure out how many games any team will win. But I can help you put numbers on any good season-win bets that you find.

Table 11 is for use in the situation where you think a team is going to win a different number of wins than specified in a proposition. The columns are labeled "excess or shortfall of predicted wins." If your prediction is for a team to win more than the number of wins stated in the prop, choose the column corresponding to the number of excess wins. If your prediction is for a team to fall short of the number of wins stated in the prop, choose the column corresponding to the shortfall of wins.

<div align="center">

Table 11
Probability of Average Team Winning Enough Games to Cover a Bet on Total Wins

</div>

games per season	excess or shortfall of predicted wins
	0.5	1.0	1.5	2.0	2.5	3.0
10	62.3	72.6	82.8	88.7	94.5	96.7
16	59.8	68.5	77.3	83.4	89.5	92.8
20	58.8	66.8	74.8	80.8	86.8	90.5
30	57.2	64.0	70.8	76.3	81.9	85.9
40	56.3	62.2	68.2	73.4	78.5	82.6
50	55.6	61.0	66.4	71.2	76.0	79.9
60	55.1	60.1	65.1	69.6	74.1	77.9
70	54.8	59.4	64.0	68.2	72.5	76.2
80	54.4	58.8	63.1	67.2	71.2	74.7
82	54.4	58.7	63.0	67.0	70.9	74.5
90	54.2	58.3	62.4	66.2	70.1	73.5
100	54.0	57.9	61.8	65.5	69.1	72.5
110	53.8	57.5	61.2	64.8	68.3	71.5
120	53.6	57.2	60.8	64.2	67.6	70.7
130	53.5	56.9	60.4	63.7	66.9	70.0
140	53.4	56.7	60.0	63.2	66.4	69.3
150	53.3	56.5	59.7	62.8	65.8	68.7
160	53.1	56.3	59.4	62.4	65.4	68.2
162	53.1	56.2	59.3	62.3	65.3	68.1
170	53.1	56.1	59.1	62.0	64.9	67.7
180	53.0	55.9	58.8	61.7	64.5	67.2
190	52.9	55.8	58.6	61.4	64.2	66.8
200	52.8	55.6	58.4	61.1	63.8	66.4

Each row of table 11 is for a different number of games to be played in a season. Included are rows for the NFL (16 games), major-league baseball (162 games) NBA and NHL (82 games), and other rows in case you want to analyze a bet involving a different number of games in a season.

In order to use table 11, you must have your own estimate of how many games a team is likely to win in excess of or less than the number specified in the prop. That is, you must start with an expectation that a team is going to win a certain number of games, and that expectation must be different from the number specified in the prop. The columns of table 11 cover excess bets from half a game to three games. If your expectation is that a team is going to win a number of games differing by more than three from the prop, you do not need me to tell you that you have found a wonderful bet.

Example: MLB, One Game Over

Here's a sample use of table 11. Suppose you think a particular baseball team should be expected to win 82 games, and you have found a

prop allowing you to bet that the team will win more than 80.5 games. Table 11 enables you to find your expected win, and then you can decide for yourself whether that expected win is high enough for you to tie up funds for the six months required to play out the season.

Find the row of table 11 that corresponds to a 162-game season. Then find the column headed by 1.5, for the excess wins you are predicting. You should see 59.3. That number means 59.3 percent, and is the probability that your bet will win.

Now you need to know the terms of the bet. Is it -110 or -120 or what? Let's assume -115 just to have a number for working out the arithmetic. If the terms are -115, you wager $115 to try to win $100. There is a 59.3 percent chance you will win your bet, and a 40.7 percent chance you will lose. 59.3 percent times $100 minus 40.7 percent times $115 yields $12.495 of expected win on the $115 investment. That's 10.9 percent return, which ought to be rounded off, so call it 11 percent return.

Now the question you must ask yourself: "Is 11 percent return sufficient for me to tie up my money for six months?" If you say yes, and if you are confident about the accuracy of your prediction, and if you trust the sportsbook to still be in business six months hence when it comes time to cash your ticket, then make the bet.

Another Use of Table 11

You also can use table 11 to figure out what is the minimum number of games the prop must differ from your prediction to make the bet worthwhile.

For example, suppose your minimum requirement is 10 percent return on bets on NFL total wins, and 15 percent on other sports. (The difference in requirements is due to the different season lengths.)

For bets at even money, you earn 10 percent at a win probability of 55.0 percent, and you earn 15 percent at a win probability of 57.5 percent. That tells you that half a game is enough to justify an NFL bet, but at other sports you need a full game in your favor.

For bets at -110, you earn 10 percent at a win probability of 57.6 percent, and you earn 15 percent at a win probability of 60.2 percent. Half a game is still enough for an NFL bet, but now the NBA and NHL require 1.5 games and baseball requires two games.

For bets at -120, you earn 10 percent at a win probability of 60.0 percent, and you earn 15 percent at a win probability of 62.7 percent. At those terms half a game is barely enough for an NFL bet, and the NBA and NHL require 1.5 games, but baseball requires two games.

Another Place to Find the Math

Season-wins math is also available on the Sports: Prop Tool on the Links page of BJ21.com.

Sample Problems

Problem 1

There are a number of two- and three-game middles available on major-league baseball season wins. How much are they worth? Assume that all bets are offered at -110.

Problem 2

What are the middles for other sports that are about equally attractive as a three-game middle at baseball?

Solutions to Sample Problems

Problem 1

There are a number of two- and three-game middles available on major-league baseball season wins. How much are they worth? Assume that all bets are offered at-110.

The major-league baseball season is 162 games. Table 8 yields probability of middles hitting as 6.3 percent for one game, 12.4 percent for two games, and 18.4 percent for three games.

Constructing a middle involves making two bets at $110 each, for a total investment of $220. If the middle won, the amount won would be $200. Other bet sizes could be used, providing the ratio of wins to investment is 200/220.

A $220 middle containing one game would win $200 6.3 percent of the time and would lose $10 the other 93.7 percent of the time. That's an average win of $3.23 on a $220 investment, a return of 1.6 percent.

A $220 middle containing two games would win $200 12.4 percent of the time and would lose $10 the other 87.6 percent of the time. That's an average win of $16.04 on a $220 investment, a return of 7.3 percent.

A $220 middle containing three games would win $200 18.4 percent of the time and would lose $10 the other 81.6 percent of the time. That's an average win of $28.64 on a $220 investment, a return of 13.0 percent.

The method used to get those numbers is approximate, and thus the answers should be rounded off. I suggest using 2 percent, 7 percent, and 13 percent as the values of baseball middles of one, two, and three games if all bets are made at -110.

The problem is you have to tie up your money until October. You have to decide for yourself if you are willing to do that, for an investment of this risk. Earning 13 percent in six months is fine if it is risk-free, but a three-game middle gives you roughly 18.4 percent chance of winning both bets and a 81.6 percent chance of winning one bet and losing the other.

For me personally, I'd say buying a three-game middle would be worthwhile as long as I am confident that all the sportsbooks involved are going to survive to buy back any winning tickets. I would not invest in baseball season-total middles of less than three games; the expected return is too small to warrant investing my money for six months. What your minimum requirements are is up to you.

Problem 2

What are the middles for other sports that are about equally attractive as a three-game middle at baseball?

NFL

The NFL season is 16 games, and lasts for four months. Table 8 says that a one-game middle on NFL games wins about 19.6 percent of the time. That makes a one-game NFL middle slightly more profitable than a three-game baseball middle.

A half-game NFL middle is about as attractive as a two-game baseball middle.

NBA

The NBA plays 82 games in a six-month season. A two-game NBA middle is almost as attractive as a three-game baseball middle. The two-game middle will hit 17.4 percent of the time. The math shows that to be a 12 percent return on a six-month investment.

NHL

The NHL plays the same length season as the NBA: 82 games in six months. Thus the middle requirements for a worthwhile NHL middle are the same as for the NBA: a two-game middle will return about 12 percent on a six-month investment.

CHAPTER 11

MARCH MADNESS O/U PROPS

While visiting the Imperial Palace prior to the start of the 2001 NCAA Basketball Tournament, also known as March Madness, I discovered a prop bet with over/under numbers for each of six athletic conferences.

This sort of problem intrigues me. The analysis is fairly complicated. Each conference was represented by five to seven teams of various seedings. Take the PAC 10, for example: The prop was whether the total wins of Arizona, California, UCLA, USC, and Stanford would be over or under 10.5. Stanford was rated #1 in the west, Arizona was #2 in the midwest, UCLA was #4 in the east, USC was #6 in the east, and California was #8 in the south.

So the question I asked myself was: How many wins should typical teams rated #1, #2, #4, #6, and #8 achieve?

Tournament Structure

The answer depends on the structure of the tournament. The NCAA Basketball Tournament has had the same well-defined structure since 1985, and that structure is the subject of this chapter. As long as the NCAA Basketball Tournament continues to have that structure, the material in this chapter will continue to apply. This chapter also applies to any other tournament that has the same structure; the sport does not have to be basketball.

There are 64 teams in the tournament, organized into four regional competitions of 16 teams each. The schedule is organized in such a manner that if all games are won by favorites, the top half of the field will advance in each round, with #1 and #2 in each region meeting to decide which of them will go to the Final Four.

The games also are organized to encourage the advancement of the strongest teams. In the first round, the #1 (strongest) seed plays the #16 (weakest) seed, the #2 seed plays the #15 seed, and so on down to the #8 seed playing the #9 seed.

In the second round, the winner of #1 vs. #16 plays the winner of #8 vs. #9. The winner of #2 vs. #15 plays the winner of #7 vs. #10. The winner of #3 vs. #14 plays the winner of #6 vs. #11. And the winner of #4 vs. #13 plays the winner of #5 vs. #12.

The third round matches the winner among #1-16-8-9 with the winner among #4-13-5-12. The winner among #6-11-3-14 plays the winner among #2-15-7-10.

The fourth round matches the two winners of the third round.

The national finals consist of two games the first night to narrow the field to two teams, and then a final game for the national championship.

That's a total of 63 games played by 64 teams, so the average is less than one win per team. The best teams of course would be expected to win more than one game, and the lowest seeds would be expected to win close to zero games.

The team that wins the national championship will have six wins. The runner-up will have five wins. The other two teams in the Final Four will have four wins.

Method

Again, how many wins should typical teams rated #1, #2, #4, #6, and #8 achieve?

I sat in the Imperial Palace race book and worked out an approximation of expected wins for each seed in the tournament. My effort was rewarded with the discovery of a fabulous bet. Since then I have refined the analysis.

I assigned arbitrary strength ratings to each of the 16 positions, and then used *Excel* to translate those strength ratings into probabilities of winning.

The only judgment I used was in the assigning of strength ratings; once they were assigned, the numbers of wins for each seed is a matter of mathematics.

The interesting phenomenon, and the reason this chapter exists, is that when I used different sets of strength ratings, I got approximately the same numbers of wins for each seed. Numbers of expected wins is not terribly sensitive to the particular strength ratings assigned. That means the same table of expected wins applies to all 64-team tournaments that have this structure.

Here is an example of the way the strength ratings are used to generate the probability of winning one game. One first-round game pits seed #5 against seed #12. Suppose I have assigned strength ratings of 20 to seed #5 and 11 to seed #12. The probabilities of winning that game go 20/31 = 0.65 to seed #5 and 11/31 = 0.35 to seed #12.

The probabilities of winning subsequent games are more complicated mathematically, but use the same strength ratings. For each team and each game, the probabilities take into account the strength rating of that team, the probability of the team's being alive in the tournament to play that game, the various possible opponents for that game, and the strength ratings of each of those possible opponents.

When assigning strength ratings, I assign higher ratings to higher seeds. I assign small differences between the lowest seeds, and I assign larger differences the higher the seed. I assume the biggest imbalance in strength is between the #1 and #2 seeds.

The results are shown in table 12

Table 12
Estimated Wins by Seed, Single-Elimination 64-Team Tournament

seed	wins
1	3.7 to 4.2
2	2.7
3	1.9
4	1.3
5	1.0
6	0.8
7	0.7
8	0.6
9	0.5
10	0.5
11	0.5
12	0.5
13	0.4
14	0.2
15	0.1
16	0.1

Different sets of strength ratings yield numbers of expected wins that differ only slightly from those shown in table 12. The only number that varies very much when the strength ratings are changed is the number of wins for the #1 seed. For the rest of the seeds, starting with a different set of strength ratings can result in numbers different from those shown in table 12, but there would be only a few differences and all of those differences would be 0.1 wins. So consider the numbers in table 12 to be estimates that might be off by 0.1 wins for any particular team.

The main thing that causes different numbers of wins is how strong the #1 seed is compared to the #2 seed. That's why table 12 shows a range of wins for the #1 seed. Use 4.2 for the strongest #1 seed, and less than that, down to as low as 3.7, for weaker #1 seeds.

To make the number of wins for all 64 teams come out to exactly 63, the total of wins to assign to the four #1 seeds should be 15.8.

You might be surprised to learn that the expected wins of most of the seeds are not sensitive to the exact strength ratings used. The reason for the phenomenon is the way the tournament format matches high seeds against low seeds. For example, consider the fate of the eighth seed and the ninth seed. Those teams are about equally likely to win the game they play against each other in the first round, and then the winner of that game is likely to lose to the #1 seed. Any reasonable set of strength ratings is going to result in approximately 0.5 of a win for the ninth seed, and only slightly more than that for the eighth seed.

The numbers of expected wins shown in table 12 assume you know nothing about basketball except the seedings of the various teams. If you know of teams that are stronger or weaker than indicated by their seedings, you can modify the expected wins to reflect your knowledge.

The methodology of this chapter could be used to find expected wins for tournaments with different structures. For example, it could be used to generate a table of expected wins for tournaments with other than 64 teams. If there is a need to find expected wins for tournaments with other than the particular 64-team format currently used by the NCAA Basketball Tournament, the best place to look for the table of expected wins is BJ21.com.

Example: PAC 10

Here are the expected-win numbers for the PAC 10 for the 2001 tourney:

For #1 Stanford I assigned 3.9 wins. For #2 Arizona it's 2.7 wins. #4 UCLA gets 1.3. #6 USC gets 0.8. #8 California gets 0.6. That's a total of 9.3 expected wins for the PAC 10. The Imperial Palace made the over/under total 10.5. The over and under were each offered at -115.

The next step is to estimate the expected value of PAC 10 under 10.5 wins at -115. For this you can use appendix B. The Poisson distribution is an approximation that is close enough for this analysis.

For 9.3 expected wins, appendix B (with interpolation) says that there is a 67 percent chance that the actual number of wins will be ten or less. Thus $115 will turn into $215 about 67 percent of the time. 67 percent of $215 is $144. Thus the expectation of under 10.5 wins is to turn $115 into $144. That's an expected profit of 25 percent.

Overview

One thing you can do is look at the other props to see whether there is any reason to favor an over or under. There have been instances where race books offered props on total wins where the totals posted have overstated the actual number of games to be played overall, leading the sharp bettor to favor the under.

In 2001, the Imperial Palace listed prop bets for six conferences comprising a total of 35 teams. There were 64 teams in the tournament, so there were 29 tournament teams not in any of the six listed conferences.

Total wins listed in the props for those six conferences in the 2001 NCAA Basketball Tournament was 57. That leaves 6 wins for the 29 tournament teams not in any of the six listed conferences.

The highest-seeded team not in a listed conference was Cincinnati, a #5 seed. Also not listed were three #9 seeds, two #10 seeds, three #11 seeds, and all teams seeded #12 through #16. According to table 12, those unlisted teams were expected to accumulate 10.2 wins.

The Imperial Palace totals left 6 wins for the unlisted teams, but the calculations of this chapter say to expect those teams to accumulate 10.2 wins. That says you were more likely to find good bets among the unders than among the overs.

Actual total wins by unlisted teams during the 2001 NCAA Basketball Tournament: 16.

Back to the PAC 10

Under 10.5 wins for the PAC 10 looks like a good bet, but is not the one I described as "fabulous."

The final result was the PAC 10 achieved thirteen wins. Arizona accomplished five wins before losing in the final to Duke, Stanford and USC had three wins apiece, and UCLA had two.

So a bet on PAC 10 under 10.5 wins was a loser.

Problem 1

The total for the ACC for the 2001 Tournament was 13.5 wins. You could bet the over at even money and the under at -130. The ACC was represented by six teams: Duke #1 and a heavy favorite to win the national title, North Carolina #2, Maryland #3, Virginia #5, Wake Forest #7, and Georgia Tech #8. Is there a good bet involving the ACC's total wins?

Problem 2

The total for the SEC for the 2001 Tournament was 9 wins. You could bet the over at -150 and the under at +120. The SEC was represented by six teams: Kentucky #2, Mississippi #3, Florida #3, Virginia #5, Arkansas #7, Tennessee #8, and Georgia #8. Is there a good bet involving the SEC's total wins?

Problem 3

The total for the Big 10 for the 2001 Tournament was 11 wins. You could bet the over at -110 and the under at -120. The Big 10 was represented by seven teams: Michigan State #1, Illinois #1, Indiana #4, Ohio State #5, Wisconsin #6, Iowa #7, and Penn State #7. Is there a good bet involving the Big 10's total wins?

Problem 4

The total for the Big 12 for the 2001 Tournament was 7.5 wins. You could bet the over at -115 and the under at -115. The Big 12 was represented by six teams: Iowa State #2, Kansas #4, Oklahoma #4, Texas #6, Missouri #9, and Oklahoma State #11. Is there a good bet involving the Big 12's total wins?

Problem 5

The total for the Big East for the 2001 Tournament was 7.5 wins. You could bet the over at -125 and the under at -105. The Big East was represented by five teams: Boston College #3, Syracuse #5, Notre Dame #6, Georgetown #10, and Providence #10. Is there a good bet involving the Big East's total wins?

Solutions to Sample Problems

Problem 1

The total for the ACC for the 2001 Tournament was 13.5 wins. You could bet the over at even money and the under at -130. The ACC was represented by six teams: Duke #1 and a heavy favorite to win the national title, North Carolina #2, Maryland #3, Virginia #5, Wake Forest #7, and Georgia Tech #8. Is there a good bet involving the ACC's total wins?

Duke was the favorite to win the national championship, so I assigned it a win total of 4.2. The other SEC teams had expected wins of 2.7, 1.9, 1.0, 0.7, and 0.6 according to table 12, for a conference total of 11.1.

When the expected number of wins is 11.1, appendix B says the probability of 13 or fewer wins is .77. Thus under 13.5 wins for the ACC conference looked like a great bet. This is the bet I described as "fabulous" in the beginning of the chapter.

The result: The ACC ended up with two teams in the final four, but not much help from the other four teams. Duke was the national champion with six wins, Maryland had four wins, and North Carolina had one win, for a total of eleven wins. Thus the under was a winner.

Problem 2

The total for the SEC for the 2001 Tournament was 9 wins. You could bet the over at -150 and the under at +120. The SEC was represented by six teams: Kentucky #2, Mississippi #3, Florida #3, Arkansas #7, Tennessee #8, and Georgia #8. Is there a good bet involving the SEC's total wins?

Expected wins from table 12 are 2.7, 1.9, 1.9, 0.7, 0.6, and 0.6, for a total of 8.4.

Appendix B says to expect 8 or fewer wins 54 percent of the time, and 9 or fewer wins 67 percent of the time. Subtraction from 100 percent gives the chance of 10 or more wins as 33 percent. 8 wins is a push, so the probability of exactly 8 wins is needed. You can get it either by subtracting the probability of other than 8 from 100 percent, or you can look in appendix A. Depending on the method you use, you get 13 or 14 percent chance of a tie. The difference is due to rounding error.

A wager of $100 on the under will result in a win of $120 with probability .54, and a loss of $100 with probability .33. That's a 32 percent edge for betting the under.

The result: Kentucky and Mississippi won two games each, and Florida won one game, so the conference had five wins and the under won.

Problem 3

The total for the Big 10 for the 2001 Tournament was 11 wins. You could bet the over at -110 and the under at -120. The Big 10 was represented by seven teams: Michigan State #1, Illinois #1, Indiana #4, Ohio State #5, Wisconsin #6, Iowa #7, and Penn State #7. Is there a good bet involving the Big 10's total wins?

For the two #1 teams I used 3.9 and 3.8 expected wins. For the other five teams, table 12 says 1.3, 1.0, 0.8, 0.7, and 0.7. That's a total of 12.2 expected wins for the Big 10.

Appendixes A and B say that for 12.2 expected wins there is a 33 percent chance of 10 or fewer wins, a 44 percent chance of 11 or fewer wins meaning a 56 percent chance of 12 or more wins, and an 11 percent chance of exactly 11 wins.

A wager of $110 on the over had a 56 percent chance of winning $100 and a 33 percent chance of losing $110. That's a net expected profit of $20 on $110 of bets, or 18 percent return on investment for betting the over.

The result: Michigan State won four games, Illinois won three, Penn State won two, and Iowa won one for a total of ten wins for the Big 10. So the over lost.

Problem 4

The total for the Big 12 for the 2001 Tournament was 7.5 wins. You could bet the over at -115 and the under at -115. The Big 12 was represented by six teams: Iowa State #2, Kansas #4, Oklahoma #4, Texas #6, Missouri #9, and Oklahoma State #11. Is there a good bet involving the Big 12's total wins?

Table 12 gives expected wins of 2.7, 1.3, 1.3, 0.8, 0.5, and 0.5. That's a total of 7.1 expected wins.

Appendixes A and B say that when 7.1 wins are expected, there is a 43 percent chance of 6 or fewer wins, a 58 percent chance of 7 or fewer wins meaning a 42 percent chance of 8 or more wins, and a 15 percent chance of exactly 7 wins.

A bet of $115 on the under had a 43 percent chance of winning $100 and a 42 percent chance of losing $115. That's a net loss of $5 betting on the under. A bet on the over has an even worse expected result. There was no good bet on total wins for the Big 12.

The result: Kansas won two games and Missouri won one, for a total of three for the conference.

Problem 5

The total for the Big East for the 2001 Tournament was 5.5 wins. You could bet the over at -125 and the under at -105. The Big East was represented by five teams: Boston College #3, Syracuse #5, Notre Dame #6, Georgetown #10, and Providence #10. Is there a good bet involving the Big East's total wins?

Table 12 gives expected wins of 1.9, 1.0, 0.8, 0.5, and 0.5. The total is 4.7.

Appendix B says five or fewer wins has 67 percent chance of happening, meaning six or more wins has 33 percent chance of happening.

An investment of $125 on under has a 67 percent chance of winning $100 and a 33 percent chance of losing $125 That's a net expected win of $26 on an investment of $125, or 21 percent return on investment for betting under.

The result: Georgetown had two wins, and Boston College, Syracuse, and Notre Dame had one win apiece, for a total of five wins for the conference. So the under won.

CHAPTER 12

NFL HOME-FIELD ADVANTAGE

A term frequently used by sports bettors is *home-field advantage*. The home team in the NFL has an advantage that averages three points per game.

Linesmakers know about the three-point home-field advantage in the NFL. They build it into the lines. So knowing that the home team has an average of three points of natural advantage will not help you to win money betting on NFL games.

The average might be three points, but the home-field advantage seems to vary from game to game. If you can do a better job of estimating the home-field advantage in particular games than is built into the lines, you can get an edge over the sportsbooks.

Table 13
NFL Regular-Season Points

year	games	home pts	vis pts	home ppg	vis ppg	edge
1990	224	4,915	4,109	21.9	18.3	3.6
1991	224	4,630	3,876	20.7	17.3	3.4
1992	224	4,529	3,862	20.2	17.2	3.0
1993	224	4,500	3,877	20.1	17.3	2.8
1994	224	4,705	4,370	21.0	19.5	1.5
1995	240	5,400	4,914	22.5	20.5	2.0
1996	240	5,349	4,456	22.3	18.6	3.7
1997	240	5,314	4,623	22.1	19.3	2.9
1998	240	5,531	4,694	23.0	19.6	3.5
1999	248	5,542	4,782	22.3	19.3	3.1
2000	248	5,477	4,777	22.1	19.3	2.8
2001	248	5,261	4,763	21.2	19.2	2.0
2002	256	5,836	5,261	22.8	20.6	2.2
2003	255	5,776	4,852	22.7	19.0	3.6
2004	256	5,821	5,179	22.7	20.2	2.5
2005	252	5,672	4,726	22.5	18.8	3.8
2006	256	5,397	5,180	21.1	20.2	0.8
2007	255	5,913	5,168	23.2	20.3	2.9
2008	254	5,927	5,263	23.3	20.7	2.6
2009	253	5,751	5,126	22.7	20.3	2.5
2010	253	5,838	5,340	23.1	21.1	2.0
totals	5,114	113,086	99,198	22.1	19.4	2.7

Notes:
Edge means home-team edge.
Regular season, excluding games on neutral sites

Points Scored

By looking at games played in recent seasons, you can see that the home field has a significant impact on football games. You can use scores of past games to estimate the home-field advantage.

Take a look at table 13. This table shows the points scored in regular-season games in the National Football League in recent years. Games at neutral sites are not included.

Since there is no bias in scheduling regular-season games that results in playing more games at the homes of better teams, home teams overall are not stronger than visiting teams.

Yet table 13 shows that year after year, in the NFL regular season, home teams score hundreds more points than visiting teams. It's a certainty that next season, home teams will once again score hundreds of points more than visiting teams.

By looking at the far-right column of table 13, you can see that over the years, the average home-field advantage in the NFL has hovered around three points per game.

For games played in neutral sites, such as those Super Bowls in which both competitors are from out of town and the home team is not involved, neither team has a home-field advantage. One visiting team might be assigned the home team's locker room and have its score appear on the home-team side of the scoreboard, but that does not give it a home-field advantage.

Games Won

Table 14 shows how much of a difference those three points per game make in terms of wins and losses. This table lists the number of victories by NFL home teams and by visitors during the regular season. These are straight-up results, and not results against a point spread. Games at neutral sites are not included.

Table 14
Straight-Up Wins in NFL Regular Season

year	home	visitor	tie
1990	132	92	0
1991	132	92	0
1992	136	88	0
1993	123	101	0
1994	128	96	0
1995	144	96	0
1996	149	91	0
1997	146	92	2
1998	151	89	0
1999	148	100	0
2000	138	110	0
2001	136	112	0
2002	148	107	1
2003	157	98	0
2004	145	111	0
2005	150	102	0
2006	136	120	0
2007	149	106	0
2008	145	108	1
2009	146	107	0
2010	142	111	0
totals	2981	2129	4

Regular season, excluding games on neutral sites

Whatever the reason for it, the home-field advantage is clear from studying the results of past games. Home NFL teams have won dozens more games per year than have visiting teams. NFL home teams have won 58 or 59 percent of regular-season games in recent years, to 41or 42 percent for the visiting teams.

In NFL playoffs, the home teams have won over 70 percent of games straight up. But in playoff games, the team with the better record is rewarded by having the game played at its home field. Thus you would expect home teams to win more than half of playoff games even if there were no such thing as a home-field advantage. Playoff games and Super Bowls are not included in table 14.

Year after year, home teams win more games than visiting teams. Being the home team makes quite a difference!

Three Points

To get another estimate for the magnitude of the NFL home field advantage, I used *Excel* to award points to each visiting team for each NFL regular-season game. I wanted to see how many points I would have to add to bring visiting-team victories in line with home-team victories.

The answer is three points. Adding three points to the score of each visiting team of each NFL regular-season game played since 1990 eliminates the disparity between home and visiting NFL teams. Giving each visiting team 2.5 points is not enough; there still is an imbalance of wins for the home teams; and giving each visiting team 3.5 points swings the pendulum too far, giving too many victories to visiting teams.

Table 15 shows what the year-by-year results would have been had all visiting teams been given three points in each regular-season game. Excess wins in the "home" column means the home-field advantage averaged more than three points that year, and excess wins in the "visitor" column means the home-field advantage averaged less than three points that year. The average home-field advantage in the NFL has been three points for a long time.

Table 15
NFL Regular-Season Wins if Visitors Given Three Points

year	home	visitor	tie
1990	109	99	16
1991	104	99	21
1992	105	98	21
1993	103	108	13
1994	101	108	15
1995	107	105	28
1996	125	99	16
1997	104	109	27
1998	119	104	17
1999	116	110	22
2000	102	121	25
2001	109	120	19
2002	114	119	23
2003	123	110	22
2004	114	118	24
2005	118	112	22
2006	104	129	23
2007	115	112	28
2008	117	123	14
2009	111	117	25
2010	111	123	19
totals	2331	2343	440

Regular season, excluding games on neutral sites

Getting an Edge

The average NFL home-field advantage is three points, but that does not mean that the home field favors the home team by three points in every single game. There might be games for which the home-field advantage is more than three points, balanced out by games in which the home-field advantage is less than three points.

If, for example, the home-field advantage is two points on half the games and four points on the other half of the games, the overall home-field advantage still would average three points.

You might be able to find an occasional good bet by developing an understanding of how the home-field advantage works. This is one of the areas in which I personally am looking for good bets.

I do not claim to understand how home-field advantage works. Even if I understood it, I would not explain it in this book, because this book will be read by linesmakers and whatever I write here might be reflected in lines of future games.

One important factor in estimating the strength of the home-field seems to be the importance of the game. The more important the game to the home team's players, the larger the home-field advantage. Robert Ross shares this idea on page 166 of his 1996 book *Betting to Win at Football*.

Advice From "The Renegade"

You might look at the home field advantage for teams out of playoff contention late in the season. In some cases, these teams should not be given any points for home field.

As always, when handicapping sports you need to look at the particular situation and all the factors involved. Are the players still playing hard? Are the fans still coming to the games — a half empty stadium with fans wearing bags over their heads is not inspiring to the home boys. Is the coach about to be fired and getting his resume ready for the next job?

In the second half of the season, I always look at each team's particular situation before I assign a home field value. I may give extra points to good teams, average points to mediocre teams, and few or none to the really bad teams.

By the way, I didn't come up with this idea myself. I got it from reading *Lem Banker's Book on Sports Betting* back in the mid-1980s. This guy is a legend and one of my heroes. Anybody who can make money betting sports for 40 years obviously knows a few things.

Advice From "Big Player"

Home-field advantage can best be judged by comparing other factors when applied to specific teams. For example comparing:
Turf teams/grass teams
Start of season/end of season
Winning teams/losing teams
Strong playoff hopes/playing out the string
Young, excitable players/unemotional overpaid veterans
Loud, emotional fans/quiet, corporate fans
Usually great weather/usually horrible weather
High-scoring teams/low-scoring teams
I think that many of these factors applied to various point totals would yield some interesting data. I'm sure there are more factors that haven't just popped into my head.

Kansas City, for example, over the years has had a typically strong home-field advantage. What factors are the reason?
Weather? How does offense/defense play design match this?
Loud fans?
Stadium design?
Grass field? How has home-field advantage changed since the change in turf a few years back?
Good basic coaching?
Personality of players?
Food for thought.

Advice From Frank Polo

Have you ever listened to an oddsmaker? They know the subsurfaces at the various fields. They know what time the tide comes in in San Francisco because it softens the playing surface. They know the average wind speeds and temperatures in Buffalo by the day. They factor in their knowledge into the sides and totals numbers. When you say that if you figured it out you wouldn't put it in the book because the oddsmaker would adjust you are shortchanging their skills — they have already been to where you want to be! I have had the good fortune to listen to Ken White carefully explain how sharp the oddsmaker is in understanding home-field advantage. They look at it from every angle and have all the data and statisticians they need to do their thing.

Conclusion

I think the home-field advantage is an area ripe for finding good bets. My advice if you look for an edge in this area is to keep in mind that the average home-field advantage in the NFL has been three points over the years, and likely will stay around three points in the future. If you can find a category of team for which the home-field advantage is less than three points, then there must be a counterbalancing category of team for which the home-field advantage is more than three points.

I can give you a hint to narrow your search for factors that help explain home-field advantage: I live near the ocean, and high tides do not water my lawn. ☺

CHAPTER 13

NFL RESULTS AGAINST THE SPREAD

Table 16 contains won-lost records against the spread for NFL games. It includes both regular season and playoff games, but not games played on neutral fields, such as Super Bowls. For the 2005 season it includes New Orleans home games played at Baton Rouge but not New Orleans "home" games played farther from New Orleans.

Each row is one year of games. Each set of columns is the spread of the game from the viewpoint of the home team.

Where a tie against the spread is possible, the spread has three columns: home team covers, visiting team covers, and ties against the spread.

Where a tie against the spread is not possible, meaning when the spread includes a half point, there are columns for home team covers and visiting team covers, but no column for ties.

An example: Find the part of table 16 that gives the record against the spread of home teams that were 7-point dogs during the year 2008. Look for the row labeled 2008 and the column labeled +7. You should find 2-4-0. Those numbers mean there were two games in which the home team was a 7-point dog and covered the spread, four games in which the home team was a 7-point dog but failed to cover, and no games in which the home team was a 7-point dog and lost by exactly seven.

Another example: Find the part of table 16 that gives the record against the spread of home teams that were 6.5-point favorites during the year 2003. Look for the row labeled 2003 and the column labeled -6.5. You should find 7-3. Those numbers mean there were seven games in which the home team was a 6.5-point favorite and covered the spread, and there were three games in which the home team was a 6.5-point favorite but failed to cover. There is no third number because there are no half points in football, and thus no chance of a tie against the spread when the spread is 6.5 points.

Table 16 is spread over five pages. The totals in the last column of the fifth page are the totals over all five pages.

Have fun examining this table. You can use it to verify or refute some common beliefs about betting NFL games.

For example, some sharp bettors believe that it is smarter to take the points than to bet the favorite. You can examine table 16 to see how betting the dogs has done.

Another example: Some sharp bettors think that double-digit dogs are better bets than double-digit favorites. The data in table 16 can be used to examine that idea.

Table 16 Part 1
NFL Results Against the Spread

year	-11.5 & on	-8 to -11	-7.5	-7	-6.5	-6
1990	7-7-0	11-18-0	2-0	9-3-0	4-3	7-3-0
1991	11-6-1	16-11-1	1-2	9-8-0	7-9	2-2-1
1992	8-17-0	15-17-0	2-2	7-3-0	4-3	2-2-0
1993	6-11-0	16-19-1	4-0	5-10-0	4-8	2-4-1
1994	7-8-0	10-12-0	3-6	5-5-2	7-3	1-3-0
1995	6-11-1	17-16-1	2-3	6-11-0	4-3	2-2-0
1996	8-9-0	20-15-1	1-1	4-3-0	6-5	3-8-1
1997	8-5-1	12-15-2	5-2	2-3-1	4-7	5-6-1
1998	9-9-0	18-7-0	7-3	6-9-1	7-1	2-6-0
1999	6-7-0	14-18-0	2-4	9-5-4	3-5	3-9-0
2000	11-4-2	10-18-0	2-2	8-5-1	5-8	3-10-0
2001	7-6-0	11-16-1	1-4	4-5-2	6-0	4-4-0
2002	4-5-0	14-14-0	4-5	8-7-0	3-5	4-6-0
2003	3-4-0	14-13-0	2-7	7-7-0	7-3	7-4-0
2004	4-3-0	11-20-1	3-7	9-8-0	4-14	11-3-0
2005	9-10-1	13-15-0	5-1	4-5-0	4-4	5-5-0
2006	6-13-0	19-15-1	2-2	8-3-0	6-7	0-4-0
2007	9-9-0	23-16-1	1-3	6-3-0	3-5	5-1-0
2008	5-13-0	17-16-0	3-2	4-4-0	5-5	5-4-0
2009	14-12-1	21-20-0	3-2	4-7-0	5-8	2-2-0
2010	6-9-0	11-10-0	6-5	4-7-0	2-5	6-3-0
total	154-178-7	313-321-10	61-63	128-121-11	100-111	81-91-4

Table 16 Part 2
NFL Results Against the Spread

year	spread, from viewpoint of home team						
	-5.5	-5	-4.5	-4	-3.5	-3	-2.5
1990	4-4	4-4-0	4-3	2-3-0	8-6	9-4-1	4-5
1991	6-3	3-3-0	3-2	1-3-0	3-5	6-4-1	7-3
1992	4-5	1-1-0	2-1	5-3-0	11-9	4-3-3	2-2
1993	3-0	5-2-1	1-0	0-2-0	5-13	10-5-1	7-6
1994	4-1	2-0-0	3-4	4-5-1	8-15	9-11-0	7-7
1995	1-4	1-0-0	5-3	7-1-0	6-10	10-12-3	1-2
1996	4-1	6-5-0	5-2	3-4-0	6-10	10-7-0	7-5
1997	2-7	2-8-1	1-1	5-5-1	6-5	8-4-5	5-8
1998	4-3	1-4-0	1-5	6-2-0	2-5	14-5-6	9-4
1999	1-7	3-2-0	5-4	2-3-0	7-9	9-3-0	5-5
2000	3-3	2-0-0	3-2	3-4-0	12-8	8-9-4	1-9
2001	7-5	2-5-0	4-1	4-1-0	9-7	9-14-4	6-3
2002	2-4	2-4-0	5-6	4-3-0	6-10	11-11-1	3-7
2003	5-1	6-5-0	2-5	8-5-1	3-5	18-15-5	4-5
2004	1-3	8-3-0	0-2	1-2-0	10-9	7-11-2	4-2
2005	4-3	4-3-0	1-3	4-2-1	6-3	24-12-5	4-6
2006	3-5	5-2-0	1-5	1-6-1	10-6	5-18-2	4-7
2007	5-2	1-6-0	4-3	0-1-0	12-8	7-15-7	2-5
2008	0-6	2-4-0	2-4	4-4-1	6-9	13-13-3	3-4
2009	1-1	1-4-0	4-2	3-6-0	4-6	9-9-1	2-8
2010	2-5	5-6-1	5-3	3-1-0	8-8	6-13-1	4-9
total	66-73	66-71-3	61-61	70-66-6	148-166	206-198-55	91-112

Table 16 Part 3
NFL Results Against the Spread

year	spread, from viewpoint of home team						
	-2	-1.5	-1	EV	+1	+1.5	+2
1990	5-4-1	3-1	5-2-0	2-0	4-5-0	3-0	6-3-0
1991	3-2-0	1-2	0-4-0	0-0	3-2-0	2-0	3-5-1
1992	1-0-0	3-2	1-5-1	1-2	2-2-0	3-2	2-1-1
1993	1-3-0	1-1	1-3-0	4-1	3-0-0	0-1	0-5-1
1994	3-3-0	2-4	3-4-0	1-3	3-3-0	3-2	1-2-0
1995	2-2-0	5-3	4-3-0	3-2	3-0-0	1-2	4-3-0
1996	7-7-0	2-1	3-1-0	2-0	3-0-0	3-2	3-3-0
1997	4-5-0	2-5	2-2-0	5-3	1-3-0	1-3	2-1-0
1998	3-2-0	4-3	3-1-0	1-1	1-2-0	3-0	1-0-0
1999	2-2-0	5-1	4-1-0	2-2	1-4-0	3-0	3-0-0
2000	4-5-0	0-3	3-3-0	2-2	1-0-0	2-2	3-1-0
2001	3-2-0	3-3	3-5-0	1-2	3-1-0	0-0	0-3-0
2002	1-4-1	5-0	4-2-0	2-1	3-4-0	1-0	6-2-0
2003	2-4-0	2-4	4-2-0	1-1	2-2-0	1-0	2-2-0
2004	3-2-0	2-2	2-4-0	0-4	4-4-0	2-2	3-2-0
2005	3-3-0	3-3	3-1-0	2-1	4-3-0	2-0	0-3-0
2006	2-3-0	3-1	3-4-0	2-1	2-2-0	1-2	1-3-0
2007	2-0-0	3-2	1-1-0	0-0	3-3-0	2-2	0-3-0
2008	4-2-0	5-1	2-5-0	3-0	2-1-0	1-2	2-0-0
2009	4-4-0	0-0	5-0-0	0-0	4-4-0	2-0	0-2-0
2010	5-5-0	5-1	5-1-0	0-0	3-1-0	2-3	3-0-0
total	64-64-2	59-43	61-54-1	34-26	55-46-0	38-25	45-44-3

Table 16 Part 4
NFL Results Against the Spread

year	spread, from viewpoint of home team						
	+2.5	+3	+3.5	+4	+4.5	+5	+5.5
1990	3-6	4-8-1	3-1	0-1-0	0-1	1-0-0	3-0
1991	5-4	7-4-2	6-2	1-4-0	2-0	1-0-0	1-2
1992	4-4	4-3-0	3-3	2-1-0	1-1	3-0-0	2-2
1993	2-0	9-4-2	4-1	2-3-0	0-2	2-0-0	0-1
1994	4-1	8-4-2	1-0	2-1-0	0-2	1-2-0	0-2
1995	1-4	7-4-1	2-4	2-1-0	1-2	1-4-0	0-1
1996	2-1	3-6-0	3-2	6-1-0	2-0	2-1-0	3-0
1997	4-3	5-7-1	2-5	3-1-0	0-0	2-2-0	2-3
1998	4-1	8-7-1	1-3	2-4-0	0-2	1-1-0	1-0
1999	6-5	11-6-3	6-6	4-1-0	0-0	0-1-0	1-1
2000	2-3	6-8-1	2-4	3-1-0	1-1	0-1-0	1-0
2001	5-6	7-8-5	8-6	1-1-0	0-1	3-0-0	1-2
2002	5-3	14-11-2	3-4	2-1-0	2-1	0-2-0	1-1
2003	3-3	4-9-2	3-2	2-3-0	2-5	0-5-0	2-1
2004	4-2	14-7-2	2-6	2-3-0	0-2	0-2-0	0-0
2005	2-2	6-11-0	4-10	1-4-0	0-0	1-1-0	0-1
2006	3-2	9-9-0	10-4	2-0-0	2-1	2-0-0	3-3
2007	5-5	8-9-0	8-8	1-2-0	1-2	1-0-0	2-1
2008	3-5	7-11-0	3-4	0-1-0	1-0	3-1-0	1-1
2009	3-3	3-7-0	7-4	0-4-0	0-1	1-2-0	1-1
2010	5-3	8-14-1	3-7	2-1-0	3-2	3-0-0	1-2
total	75-66	152-157-26	84-86	40-39-0	18-26	28-25-0	26-25

Table 16 Part 5
NFL Results Against the Spread

year			spread, from viewpoint of home team				
	+6	+6.5	+7	+7.5	8 to 11	11.5 & up	totals
1990	2-6-0	2-1	2-0-0	0-1	0-3-0	1-1-0	124-107-3
1991	0-1-0	2-6	2-2-0	1-0	5-1-0	3-2-0	123-104-7
1992	1-2-0	0-3	2-6-0	0-3	7-3-0	4-2-0	113-115-5
1993	1-2-0	1-2	4-3-0	0-0	6-5-0	0-2-0	109-119-7
1994	2-0-0	2-1	0-0-0	0-1	2-3-0	1-2-0	109-120-5
1995	2-1-0	2-1	3-0-0	0-2	10-3-0	2-1-0	123-121-6
1996	0-2-0	4-1	3-0-0	0-0	5-6-0	0-0-0	139-109-2
1997	2-1-0	1-2	1-0-0	2-0	3-2-0	3-1-0	112-125-13
1998	1-1-0	6-6	3-4-0	1-1	5-2-1	1-1-0	136-105-9
1999	2-3-0	1-1	1-2-1	0-1	4-3-0	2-1-1	127-122-9
2000	0-4-0	4-3	5-2-0	2-2	5-3-0	2-1-0	119-131-8
2001	3-1-0	3-2	2-1-0	3-2	2-1-0	2-1-0	127-119-12
2002	1-0-0	2-2	2-2-0	3-0	5-3-0	0-0-0	132-130-4
2003	3-1-0	4-1	3-0-0	3-2	1-0-0	1-0-0	131-126-8
2004	1-1-0	2-3	1-1-0	1-1	4-6-0	0-0-0	120-141-5
2005	1-1-0	2-2	1-3-0	0-1	2-5-1	1-2-0	125-129-8
2006	2-2-0	1-3	1-1-0	1-0	6-2-0	0-0-0	126-136-4
2007	1-1-0	1-2	3-0-0	1-2	7-4-0	2-3-0	130-127-8
2008	1-2-0	2-2	2-4-0	4-2	5-8-0	0-0-0	120-140-4
2009	1-2-0	2-4	0-1-1	1-2	12-7-0	5-1-0	124-136-3
2010	0-2-0	4-2	4-2-0	1-2	2-0-0	0-1-0	127-133-3
total	27-36-0	48-50	45-34-2	24-25	98-70-2	30-22-1	2596-2595-133

CHAPTER 14

NFL MONEY LINE VS. SPREAD

There are two common ways of betting on NFL games: *against the spread* and *money line*.

Against the spread means one team receives points for the purpose of settling the bet.

With the money line, winning the game means winning the bet. Think of the money line as meaning zero points are assigned to either team.

In a world of efficient betting lines, the relationship between the spread and the money line should reflect exactly the chances the two bets have of winning. However, the world of sports bets is not that efficient. Oftentimes one bet is superior to the other in terms of expected win.

If you have spent any time in sportsbooks, you probably have seen the numbers on the board change. Your own bets may well have caused books to change numbers. When you have seen a change in the spread, did the money line also change simultaneously? If your experience parallels my own, the answer is "no." What appears to happen is when a book moves a point spread in response to betting action, it does not also simultaneously move the money line.

It's a wise shopper who, when presented with two ways to purchase the same item, chooses the lower price.

This applies to football bets too, but only if the two teams are fairly evenly matched, neither being favored by more than three points or so. Then the amount risked is of the same order of magnitude as the amount you are trying to win, so the risk for betting the money line is comparable to the risk betting against the spread.

For games predicted to be more lopsided, risk becomes a bigger consideration. A money-line bet on a big favorite means risking a lot to win a little. A money-line bet on a big dog means winning a lot when you win, but not winning very often.

To relate the money line to the spread, you need to examine how frequently games are won by particular numbers.

Frequencies of Pushes: Raw Data

One of the pieces of information needed is how frequently a game will end up a push against the spread. An example of game that was a push against the spread is Super Bowl XXXIV: St. Louis was favored by seven over Tennessee, and the final score was St. Louis 23, Tennessee 16.

Table 19 shows the frequencies with which bets on NFL teams have ended in pushes against the spread in recent years. All regular-season and playoff games are included in table 19, including Super Bowls. The frequencies are expressed as fractions.

Each denominator in each fraction in table 19 is the number of games in which one team was favored by the number at the head of the column, plus or minus two points. The numerator is the number of games (looking at only the games represented in the denominator) in which the favorite won by exactly the number at the top of the column. For example, in the column of table 19 headed "3," each table entry is the fraction of teams favored by 1 to 5 (inclusive) that won by exactly 3.

Table 19 Part 1
NFL Frequencies of Being Within
Two Points of a Push ATS

year	spread 1	2	3	4	5	6	7	8	9
1990	4/107	1/115	12/128	3/134	2/122	1/84	2/85	1/74	1/49
1991	2/80	5/96	13/110	8/114	0/126	4/101	9/96	1/85	0/60
1992	2/72	3/98	12/102	3/102	1/113	3/80	0/76	3/75	2/68
1993	1/83	2/106	10/109	4/113	3/125	6/80	5/84	2/86	0/73
1994	6/107	0/131	16/137	2/126	3/123	2/80	7/69	2/64	0/49
1995	0/97	2/120	13/127	2/119	3/130	4/83	4/79	1/82	0/74
1996	0/87	2/115	11/134	8/141	2/132	4/95	5/85	0/84	0/59
1997	3/105	1/130	13/131	5/141	2/130	5/98	3/96	4/74	1/50
1998	1/93	4/111	11/122	3/123	5/142	3/109	9/93	3/86	0/69
1999	0/97	2/125	10/132	3/140	2/145	2/95	6/90	0/90	0/69
2000	2/94	3/124	13/126	1/136	6/148	1/103	3/95	3/98	2/65
2001	3/111	1/136	22/146	4/155	0/152	1/91	4/87	1/73	0/55
2002	2/120	5/141	12/157	7/157	0/156	5/104	4/90	1/84	0/67
2003	2/109	3/131	13/157	3/164	4/172	6/125	9/101	0/80	0/60
2004	2/108	1/130	12/139	3/138	3/158	4/106	5/105	2/105	2/74
2005	3/121	0/145	14/152	4/153	2/154	1/84	4/82	1/74	1/56
2006	2/102	5/132	11/144	4/148	3/154	0/88	7/86	1/78	0/61
2007	1/93	4/125	16/143	3/144	2/145	3/78	3/75	1/81	1/71
2008	3/107	1/129	13/140	6/140	1/147	2/95	4/95	1/91	0/73
2009	2/87	2/103	7/122	5/118	0/124	4/85	3/84	3/93	0/81
2010	4/111	5/133	13/163	8/163	5/157	2/102	1/91	2/75	0/54
totals		52/2576		89/2869		63/1966		33/1732	
	45/2091		267/2821		49/2955		97/1844		10/1337
percent	2.2	2.0	9.5	3.1	1.7	3.2	5.3	1.9	0.7

All games

Table 19 Part 2
NFL Frequencies of Being Within Two Points of a Push ATS

year	10	11	12	13	14	15	16	17
1990	1/33	0/30	0/23	0/18	2/16	1/14	0/4	0/2
1991	0/41	2/31	0/25	0/24	1/18	0/11	0/5	0/2
1992	2/45	0/44	1/34	2/24	0/24	0/22	1/16	0/12
1993	1/48	1/41	0/33	0/21	1/16	0/14	1/10	0/4
1994	1/29	0/20	0/18	0/16	0/16	1/16	0/10	0/8
1995	3/50	1/45	0/37	0/26	2/20	0/18	0/10	0/4
1996	1/52	2/43	0/35	0/18	2/15	0/9	0/5	0/2
1997	3/38	1/27	0/23	0/19	2/16	0/14	1/11	0/1
1998	3/35	2/32	0/33	0/17	0/17	1/13	0/7	1/6
1999	2/43	0/35	2/24	0/16	0/14	0/8	0/7	1/3
2000	0/37	0/27	0/24	1/13	0/13	0/15	1/12	1/8
2001	1/35	2/28	0/29	0/15	1/13	0/8	0/5	0/2
2002	4/39	0/28	0/16	0/10	0/6	0/2	0/0	0/0
2003	1/32	1/24	0/18	1/14	0/6	0/4	0/3	0/0
2004	3/48	0/40	0/24	0/13	2/3	0/1	0/0	0/0
2005	1/37	0/32	0/23	0/20	2/21	0/18	0/9	0/6
2006	4/46	0/47	0/30	0/22	0/17	0/11	0/4	0/2
2007	3/57	1/49	0/31	1/14	0/16	0/13	0/8	1/6
2008	3/49	1/36	1/26	0/19	0/16	0/13	0/9	0/4
2009	1/60	1/51	1/51	1/35	2/32	0/32	0/17	1/3
2010	1/25	1/27	0/15	0/15	1/10	0/12	0/6	0/0
totals		16/737		6/389		3/268		5/75
	39/879		5/572		18/325		4/158	
percent	4.4	2.2	0.9	1.5	5.5	1.1	2.5	6.7

The reason for the plus or minus one or two points is to broaden the sample size. There are too few games with one team favored by exactly a given number points to achieve any precision in estimation of frequency of pushes.

The printed version of this book also has tables 17 and 18, which are similar to table 19 except the same sizes are much smaller. Table 17 includes only those games in which one team was favored by exactly the number at the head of the column. Table 18 includes only those games in which one team is favored by that number plus or minus one point. I have omitted tables 17 and 18 from this book because they add no extra information to what is covered in table 19.

The column of table 19 headed "2" includes teams favored by 0 to 4. In pick 'em games, both teams are favored by 0. Thus each pick 'em game is included twice for the column of table 18 headed "1" and the column of table 19 headed "2," once for the home team and once for the visiting team.

The same logic applies to the column headed "1" in table 19. That column in table 19 includes teams going off at -1 to +3. That means all pick 'em games and all games in which one team is favored by 1 are included twice for the column of table 19 headed "1," once for the home team and once for the visiting team.

Frequencies of Pushes: Indexes

The data of table 19 are summarized in table 20. Some subjectiveness is involved here. My intention in creating table 20 was to select the integers that I think best represent the frequency of pushes in this year's NFL season. You are welcome to combine more or fewer years of past data from table 19, and to weight one table more than the other two, to come up with your own version of table 20.

Table 20
NFL Frequencies of Pushes Against the Spread

spread	freq (%)
17	6
16	3
15	1
14	5
13	1
12	1
11	2
10	5
9	1
8	2
7	5
6	3
5	2
4	3
3	10
2	2
1	2
0	0

Table 20 shows that shopping for a better line has the most value for spreads of 3, 7, 10, 14, and 17.

Pushing on 3 has been happening about ten percent of the time when one team is favored by 3.

Note that pushes on 3 happen only when the favorite wins by 3. If the dog wins by 3, the bet is not a push. Some football handicapping publications quote a sixteen percent chance of a game's ending in a difference of 3, but they get that sixteen percent by also including games on which dogs win by 3.

Buying a Half Point

One use of table 20 is to decide whether to buy a half point. Some sportsbooks allow you to move the spread a half point in exchange for making the bet at -120 instead of -110. For example, if a team is -7, you have the option of betting it at -6.5 -120.

The break-even point for buying a half point for ten cents is five percent chance of occurrence. Buying a half point is worthwhile for those numbers that table 20 lists as occurring more frequently than five percent of the time.

Buying a 3

If you can pay ten or fifteen cents to buy a half point that gives you a push or a win on the favorite's winning the game by exactly 3, do it. The break-even point for buying a push or win on a 3 is twenty cents. There are four situations for which it's worthwhile paying fifteen cents or less to buy a half point: to go from -3.5 to -3, to go from -3 to -2.5, to go from +2.5 to +3, and to go from +3 to +3.5.

Buying Other Numbers

Buying a half point for ten cents when the spread is 7, 10, 14, or 17 is approximately break-even.

It's not worth paying ten cents for a half point on any numbers except 3, 7, 10, 14, and 17.

NFL Only

The above advice on buying half points depends on the probability that a game will end in a push against the spread. The game-results data describe only the National Football League. Thus the half-point advice applies only to NFL games and not to any other professional football games and not to college games.

Using Table 20

You can use table 20 to evaluate maverick lines and for putting win rates on picks for which you have your own line; the same analysis applies in both cases.

How much of a difference is required for you to overcome the vig inherent in risking $110 to win $100? Answer: You must overcome 4.55 percent to break even. How does this relate to table 20? Answer: You have an edge on a bet if table 20 says you are gaining 5 percent or more.

For example: Suppose your handicapping tells you that an NFL team should be -6, but you find a sportsbook offering -4. If you really believe your -6 number is accurate, do you have an edge backing your team at -4?

Analysis: By getting a team at -4 instead of -6, you pick up a push on 4, a win instead of a push on 6, and a win instead of a loss on 5. Table 20 says 4 happens with a frequency of three percent, 5 happens with a frequency of two percent, and 6 happens with a frequency of three percent. You pick up one 4, two 5s, and one 6, for a total of ten percent. That ten percent handily overcomes the 4.55 percent vig you face in betting at -110. If your handicapping is accurate, you have an edge of about 5.5 percent on that bet.

The reason the 5 counts double in the above analysis: By betting your team at -4 instead of -6, you win on a 5 instead of losing on it. You gain 2 percent on the win and also gain a 2 percent reduction in losses.

By contrast, consider the 6: By making the bet at -4, you have brought in a win on a 6, gaining you three percent. But there is no second three percent. You did not reduce your losses by three percent because a bet at -6 would not have lost if the final score showed a win by 6.

You also can use table 20 to evaluate middles and sides, which involve betting both sides of one game at different spreads. If you have found two different lines for the same game, and that gets you to thinking about betting equal amounts on both sides to lock in a win, be aware that to overcome the vig you need 4.55 percent for each bet, which is the same thing as 9.10 percent of one bet.

Key Number: 3

Example: Suppose the line on the Steelers is -3 at one book and -2.5 at another. The difference between Steelers -3 and Steelers -2.5 is the latter is a win instead of a push if the Steelers win by exactly three points. Table 20 says that has a 10 percent chance of happening, and 10 percent is the minimum you need to have the expectation of breaking even betting equal amounts on both teams at $110 to win $100. You have a 10 percent chance of winning one bet and pushing the other; that leaves you a 90 percent chance of winning one and losing the other, losing the vig on one bet. The arithmetic shows that on average you will gain about 0.5 percent on that bet combo. (I got 0.455 percent and rounded.) That's half a percent, or $1 of profit per $200 of bets.

When you find a combination of bets that gives you an edge, I suggest figuring out which of the bets is the better one and making only that bet, instead of betting both sides. For example, suppose you know the Steelers should be -3 because they are -3 everywhere you look. The money line on -3 NFL teams generally is -155, so checking the money line can tell you how solid is the -3 in question. Maybe the money line will say Steelers -150, which means they are closer to -2.5 than they are to -3.5. If you think Steelers at -2.5 is the good bet, then bet only the Steelers at -2.5 and do not also bet their opponents at +3. If the chance of a push is 10 percent and otherwise the Steelers have an equal chance of covering or not covering the spread, for every $110 on the Steelers -2.5 you have 55 percent chance of winning $100 and 45 percent chance of losing $110. That works out to 5 percent return on your investment, which is considerably higher than the half percent you would earn by betting both teams. If the Steelers are -150 on the money line, then your edge betting them at -2.5 will be less than 5 percent but still greater than the half percent you would have from betting both teams.

As table 21 shows, the approximate equivalent to Steelers -3 is Steelers -2.5 -130. The break-even point for a single bet (not for the two bets involved in creating a middle) when the true line is Steelers -3 is to find Steelers -2.5 -120; and the break-even point on the opponent is +3.5 -120. Thus combining one team at -2.5 -120 and its opponent at +3.5 -120 yields a break-even middle.

If you can bet one team at -2.5 and its opponent at +3.5, with both bets at the standard -110, the two-bet combo gives you a 5 percent edge over the sportsbook, which is about the same as the 4.55 percent edge that the sportsbook enjoys when it books bets at -110.

Suppose the spread on a game is 3 all over town, except at one sportsbook. Suppose that either you have no handicapping opinion on the game, or you agree that the spread should be 3. The value of gaining a push or a win on 3 by betting the maverick line is approximately the same in all four cases:

1. The line should be 3 and you can bet one of the teams at +3.5
2. The line should be 3 and you can bet one of the teams at -2.5
3. The line should be -3.5 and you can bet the team at -3, and
4. The line should be +2.5 and you can bet the team at +3.

In each of those cases you are gaining about five percent of a bet. You are gaining slightly more in cases 1 and 2 above because the value applies to your bet (say $110), whereas in cases 3 and 4 the value applies to the amount (say $100) that you are trying to win.

In summary, when the line on an NFL game should be around 3, being able to bet a line that is a half point off is to turn the tables if you can gain a win or a push on the 3; you will have an edge of the same magnitude as the book normally enjoys when it books bets at -110.

Key Numbers Other Than 3

The spreads at which you can approximately break even by betting one team when you find a half-point in your favor are 7, 10, 14, and 17. For example, if a team should be -7 and you can find it for -6.5, the -6.5 is a break-even bet.

You do not have a break-even two-bet combination with a half-point side involving 7, 10, 14, or 17 because you need to pick up 5 percent for each bet you make. If you bet one team at -6.5 and the other at +7, on average you lose because the 7 occurs often enough to balance the vig on just one of your bets.

Middles around the 7, 10, 14, and 17 are approximately break-even. For example, betting one team at -6.5 and its opponent at +7.5 is approximately break-even.

In summary, when the line on an NFL game should be around 7, 10, 14, and 17, finding a line that is a half point off is to find a break-even bet if the half point gives you a win or a push on the 7, 10, 14, and 17.

Other Numbers

You need a larger difference to break even on bets (or middles) involving numbers other than 3, 7, 10, 14, and 17. Table 20 can help you to determine whether a bet or a middle is profitable.

Example: Suppose the Chargers are playing the Chiefs, and you find Chargers -4.5 at one sportsbook and Chiefs +6 at another. Is this a profitable middle? From table 20 you can see that 4.5 to 5 gives you 2 percent for gaining a push on 5. From 5 to 5.5 gains you another 2 percent for turning a push on 5 into a winner. From 5.5 to 6 gains you 3 percent for picking up a push on 6. Your total gain is 2 + 2 + 3 for 7 percent. But for a two-bet combo you need 10 percent of a bet (meaning five percent average per bet) to have an edge. Combining a bet on one team at -4.5 with a bet on the other at +6 will cost you money in the long run because final spreads of 5 and 6 happen too infrequently to offset the vig.

Perhaps your handicapping can help you identify one team as being a good bet. Or perhaps you have found a maverick line. If the line should be Chargers -4.5 or -5 then a bet on Chiefs +6 should have a positive EV. If the line should be Chargers -6 then a bet on Chargers -4.5 should have a positive EV. But if the line should be Chargers -5.5, then neither Chargers -4.5 nor Chiefs +6 is a good bet.

If you estimate the amount of your edge with the help of table 20, remember to subtract the vig, which is 4.55 percent if you are betting at -110.

In general, for numbers other than 3, 7, 10, 14, and 17, finding a maverick line that is a full point off what it should be is to find a break-even bet. There are some exceptions. The numbers 0, 2, 8, 9, 12, and 13 occur too seldom to make a worthwhile bet out of a maverick line that is only one point off what it should be.

The zero is worthless; if the line should be Jets -1 and you find Jets +1, you have not found a rogue line that is strong enough to overcome the sportsbook's vig.

Games Predicted to be Close

Suppose your handicapping skills identify an NFL game worthy of betting. When you visit a sportsbook to make your bet, you probably will have more than one option. For example, you might see your team with a spread of +3, and also as +140 on the money line.

If you take the +3, you will wager $110 in the attempt to win $100, and your bet will be decided by adding three points to the final score achieved by your team.

If you take them on the money line, you will wager $100 in the attempt to win $140, and your bet will be decided by who wins the game outright, no points added in. ($100 is used to simplify the arithmetic. You could bet $110 on the money line, to try to win $154.)

There are two differences between taking the points and betting the money line: 1. The amount of money you stand to win is different. 2. If the favorite wins the game but fails to cover the spread, favorite bettors collect on their money line bets while dog bettors collect on bets against the spread.

Suppose you like an NFL team that is +3. What is the money-line equivalent of +3?

The only difference between betting against the spread and betting the money line is what happens when the favorite wins but does not cover the spread. If you can put frequencies on that, then you can find the theoretical relationship between spread and money line.

Relating Spread to Money Lines

Table 21 relates spreads and money lines for NFL games with spreads of +3.5 to -3.5.

Table 21
Probability of Winning, Money Line, and Spread, for NFL Games

pct. win	ML	Spread
36.0	+178	+3.5 EV, and also +3 +120
36.5	+174	
37.0	+170	
37.5	+167	
38.0	+163	
38.5	+160	+3.5 -110, and also +3 +110
39.0	+156	
39.5	+153	
40.0	+150	
40.5	+147	
41.0	+144	+3 EV, and also +3.5 -120
41.5	+141	
42.0	+138	
42.5	+135	
43.0	+133	
43.5	+130	+3 -110, and also +2.5 +110
44.0	+127	
44.5	+125	
45.0	+122	
45.5	+120	
46.0	+117	+2.5 EV, and also +3 -120
46.5	+115	
47.0	+113	+2 EV
47.5	+111	PK +110
48.0	+108	+1.5 EV
48.5	+106	+2.5 -110
49.0	+104	+1 EV
49.5	+102	+2 -110
50.0	EV	PK EV
50.5	-102	+1.5 -110
51.0	-104	-1 EV
51.5	-106	+1 -110
52.0	-108	-1.5 EV
52.5	-111	PK -110
53.0	-113	-2 EV
53.5	-115	-1 -110
54.0	-117	-2.5 EV
54.5	-120	-1.5 -110
55.0	-122	
55.5	-125	-2 -110
56.0	-127	
56.5	-130	-2.5 -110
57.0	-133	-3 +110
57.5	-135	
58.0	-138	
58.5	-141	
59.0	-144	-3 EV, and also -2.5 -120
59.5	-147	
60.0	-150	
60.5	-153	
61.0	-156	
61.5	-160	-3 -110, and also -2.5 -130
62.0	-163	
62.5	-167	
63.0	-170	
63.5	-174	
64.0	-178	-3.5 EV, and also -3 -120
64.5	-182	
65.0	-186	

Only three pieces of information are used to construct table 21, and all three come from table 20: For NFL games predicted to be close, the chance of the favorite's winning by one point has been about 2 percent, the chance of the favorite's winning by two points has been about 2 percent, and the chance of the favorite's winning by three points has been about 10 percent. As long as those three numbers continue to apply, table 21 will continue to describe the relationship between spreads and money lines for NFL games.

The first column of table 21 is percentage of wins.

The second column of table 21 is money lines. Each percentage of wins is associated with a particular money line.

The third column of table 21 is spreads. Each spread is associated with a particular percentage of wins, and hence a particular money line.

Think of the first column as being the minimum chance of winning required for the associated bets on the money line and against the spread to break even.

For example, consider a team that you can bet at a spread of -1.5. A bet at -1.5 will win if the team wins by two points or more. A bet at -1.5 will lose if the team loses or ties or wins by a single point.

Suppose you think a team should be favored by precisely 2.5 points. That means you think there is a 50 percent chance that the team will win by three or more points. The historical record indicates that there is a 2 percent chance that the team will win by exactly two points, and a 2 percent chance that the team will win by exactly one point. Thus the team you handicap as being a 2.5-point NFL favorite should have a 54 percent chance of winning the game straight up.

That's an example of the logic used to construct table 21. Predicting an NFL team to be a 2.5 favorite is equivalent to predicting that the team has a 54 percent chance of winning the game outright. If you look at the row of table 21 with 54.0 percent in column 1, you will see "-2.5 EV."

To break even when you must risk $110 to win $100, you need an extra 2.5 percent wins. This fact is incorporated into table 21. For example, -2.5 -110 requires 56.5 percent wins, which is 2.5 percentage points more than the 54.0 percent wins associated with -2.5 EV.

Each probability of winning is associated with a particular money line. For example, 54 percent probability of winning means 46 percent probability of losing, and the ratio of 54 to 46 is 1.17. For a bet on the favorite, that means a money line of -117. For a bet on the dog, that means a money line of +117.

Higher is Better

Table 21 can be used for guidance in choosing between multiple ways to bet the same team. Higher in the table is better.

For example, table 21 can aid in choosing between a team at +3 -110 or the money line at +140. You have to interpolate to find the win

percentage for +140. Table 21 says the +140 is the better bet, 41.7 percent to 43.5 percent. The amount by which it is better is about 1.8 percent of the bet.

Another example: One weekend there was a choice of Miami +2.5 or Miami+115 on the money line. The +115 needs 46.5 percent wins to break even; +2.5 -110 needs 48.5 percent wins to break even. Thus Miami +115 was the better bet, by about 2.0 percent of a win.

Gaining 2.0 percent of wins means also having 2.0 percent less in the way of losses, a total swing of 4.0 percent. That offsets a good portion of the 4.55 percent vig that sportsbooks earn for accepting bets at -110.

NFL Only

Table 21 applies only to the NFL. The money-line equivalent of a +3 spread depends on the frequency with which the favorite wins by exactly 1, exactly 2, or exactly 3. It also depends on the frequency of a tie game. In the NFL, those frequencies are 2 percent, 2 percent, 10 percent, and close to zero chance of a tie. Other sports may have different frequencies of favorites winning by various numbers of points, so table 21 likely does not apply to them.

Table 22 Part 1
NFL Straight-Up Win-Loss Records

spread, from viewpoint of home team

year	-11.5 & on	-11	-10.5	-10	-9.5	-9	-8.5	-8	-7.5
1990	12-2	2-1	1-0	3-1	2-1	7-1	3-4	1-2	2-0
1991	16-2	3-0	1-0	0-0	7-0	1-1	5-0	10-0	2-1
1992	18-7	4-1	3-1	6-1	5-3	4-0	3-0	1-1	3-1
1993	15-2	3-2	1-2	3-3	4-2	5-1	5-2	2-0	4-0
1994	12-3	1-0	2-1	3-0	1-1	3-1	3-2	4-0	5-4
1995	13-5	3-0	2-0	5-3	2-2	11-1	2-0	3-0	3-2
1996	16-1	1-0	3-0	10-4	2-0	2-0	6-2	5-1	1-1
1997	14-0	1-0	3-0	3-0	1-1	5-2	6-1	6-0	7-0
1998	17-1	2-0	7-1	2-1	2-0	1-0	4-0	4-1	9-0
1999	11-2	0-0	4-1	4-0	4-4	4-2	6-0	2-1	4-2
2000	15-2	1-0	3-0	4-2	2-0	2-1	5-0	4-4	3-1
2001	10-3	0-0	4-1	6-4	0-0	3-0	3-3	2-2	4-1
2002	6-3	0-1	4-0	2-0	6-2	3-0	5-0	4-1	8-1
2003	6-1	5-1	3-1	1-0	3-0	4-1	3-0	3-2	5-4
2004	6-1	4-0	1-0	8-0	4-2	4-2	1-1	5-0	6-4
2005	17-3	2-0	1-1	1-0	6-2	4-3	5-0	3-0	6-0
2006	16-3	3-1	3-1	1-3	8-1	7-0	4-1	2-0	2-2
2007	17-1	0-0	6-1	5-1	14-0	5-1	1-1	5-0	2-2
2008	16-3	3-0	3-1	4-1	4-2	4-0	5-1	4-1	5-0
2009	24-3	3-0	5-0	5-2	7-1	3-0	8-3	3-1	4-1
2010	11-4	2-0	1-0	5-0	3-0	5-1	3-0	1-0	10-1
total	288-52	43-7	61-12	81-26	87-24	87-18	86-21	74-17	95-28

All games except those on neutral sites

Table 22 Part 2
NFL Straight-Up Win-Loss Records

spread, from viewpoint of home team

year	-7	-6.5	-6	-5.5	-5	-4.5	-4	-3.5	-3
1990	10-2	4-3	10-0	6-2	4-4	4-3	3-2	9-5	10-4
1991	13-4	8-8	4-1	7-2	3-3	5-0	3-1	5-3	7-4
1992	9-1	6-1	3-1	6-3	1-1	3-0	6-2	15-5	7-3
1993	10-5	8-4	4-3	3-0	7-1	1-0	0-2	5-13	12-4
1994	7-5	9-1	2-2	5-0	2-0	4-3	6-4	13-10	11-9
1995	11-6	5-2	3-1	4-1	1-0	6-2	7-1	10-6	14-11
1996	4-3	9-2	8-4	4-1	8-3	6-1	5-2	7-9	10-7
1997	5-1	7-4	9-3	5-3-1	7-4	1-1	6-5	6-5	13-4
1998	11-5	7-1	4-4	4-3	2-3	2-4	6-2	4-3	20-5
1999	16-2	6-2	8-4	2-6	5-0	5-4	2-3	10-6	9-3
2000	12-2	7-6	5-8	3-3	2-0	4-1	6-1	15-5	12-8
2001	8-3	6-0	4-4	9-3	3-4	4-1	5-0	13-3	15-12
2002	11-4	5-3	8-2	3-3	2-3-1	6-5	5-2	10-6	14-9
2003	11-3	9-1	9-2	6-0	8-3	3-4	12-2	5-3	24-14
2004	12-5	7-11	12-2	2-2	10-1	1-1	2-1	13-6	9-11
2005	6-3	7-1	6-4	5-2	5-2	2-2	6-1	8-1	28-12
2006	10-1	8-5	0-4	4-4	5-2	2-4	2-6	12-4	8-17
2007	7-2	4-4	5-1	6-1	3-4	4-3	0-1	13-7	15-14
2008	8-1	6-4	5-3	1-5	3-3	4-2	7-2	8-7	17-12
2009	7-4	10-3	3-1	1-1	2-3	4-2	4-5	7-3	12-7
2010	6-5	4-3	6-3	3-4	6-6	7-1	4-0	9-7	9-11
total		142-69		89-49-1		78-44		197-117	
	194-67		118-57		89-50-1		97-45		276-181

Table 22 Part 3
NFL Straight-Up Win-Loss Records

spread, from viewpoint of home team

year	-2.5	-2	-1.5	-1	EV	+1	+1.5	+2	+2.5
1990	5-4	8-2	3-1	5-2	2-0	4-5	3-0	5-4	3-6
1991	7-3	3-2	1-2	0-4	0-0	3-2	2-0	3-6	4-5
1992	2-2	1-0	3-2	2-5	1-2	2-2	3-2	2-2	4-4
1993	8-5	1-3	1-1	1-3	4-1	3-0	0-1	0-6	2-0
1994	10-4	3-3	2-4	3-4	1-3	3-3	3-2	1-2	4-1
1995	1-2	2-2	5-3	4-3	3-2	3-0	1-2	4-3	1-4
1996	7-5	7-7	2-1	3-1	2-0	3-0	3-2	3-3	2-1
1997	5-7.1	4-5	3-4	2-2	5-3	1-3	1-3	2-1	4-3
1998	10-3	3-2	4-3	3-1	1-1	1-2	3-0	1-0	4-1
1999	6-4	2-2	5-1	4-1	2-2	1-4	3-0	3-0	5-6
2000	2-8	4-5	0-3	3-3	2-2	1-0	2-2	3-2	2-3
2001	6-3	3-2	3-3	3-5	1-2	3-1	0-0	0-3	4-7
2002	3-7	3-3	5-0	4-2	2-1	3-4	1-0	6-2	5-3
2003	5-4	2-4	2-4	4-2	1-1	2-2	1-0	2-2	3-3
2004	4-2	4-2	2-2	2-4	0-4	4-4	2-2	3-2	4-2
2005	4-6	4-2	2-3	3-1	2-1	3-3	3-0	0-3	2-2
2006	4-7	3-2	3-1	3-4	2-1	2-2	1-2	1-3	3-2
2007	3-4	2-0	3-2	1-1	0-0	3-3	2-2	0-3	4-6
2008	4-3	4-2	5-2	2-6	3-0	2-1	1-2	2-0	2-5
2009	3-7	4-4	0-0	5-0	0-0	4-4	2-0	0-2	3-3
2010	5-8	5-5	5-1	5-1	0-0	3-1	1-4	2-1	5-3
total	104-98	72-59	59-43	62-55	34-26	54-46	38-26	43-50	70-70

Table 22 Part 4
NFL Straight-Up Win-Loss Records

spread, from viewpoint of home team

year	+3	+3.5	+4	+4.5	+5	+5.5	+6	+6.5	+7
1990	4-9	1-3	0-1	0-1	0-1	1-2	2-6	1-2	0-2
1991	6-7	4-4	0-5	0-2	1-0	0-3	0-1	1-7	2-2
1992	4-3	3-3	1-2	1-1	1-2	1-3	1-2	0-3	2-6
1993	9-6	3-2	0-5	0-2	1-1	0-1	0-3	1-2	1-6
1994	8-6	1-0	2-1	0-2	0-3	0-2	1-1	1-2	0-0
1995	7-5	2-4	2-1	1-2	1-4	0-1	1-2	0-3	1-2
1996	3-6	1-4	4-3	2-0	1-2	1-2	0-2	3-2	1-2
1997	4-9	2-5	3-1	0-0	1-3	2-3	2-1	1-2	0-1
1998	8-8	1-3	2-4	0-2	1-1	0-1	0-2	5-7	1-6
1999	9-11	5-7	3-2	0-0	0-1	0-2	2-3	0-2	0-4
2000	5-10	2-4	2-2	1-1	0-1	1-0	0-4	3-4	3-4
2001	7-13	6-8	0-2	0-1	0-3	0-3	3-1	0-5	1-2
2002	13-14	0-7	1-2	0-3	1-1	0-1	0-2	2-2	1-3
2003	4-11	3-2	2-3	2-5	0-5	1-2	1-3	3-2	2-1
2004	11-12	2-6	2-3	0-2	0-2	0-0	1-1	2-3	0-2
2005	6-12	3-11	0-5	0-0	1-1	0-1	0-2	1-3	0-4
2006	7-10	7-8	2-0	1-2	2-0	2-4	0-4	0-4	0-2
2007	7-10	6-10	1-2	1-2	0-1	2-1	1-1	0-3	2-1
2008	8-11	2-5	0-1	1-0	2-2	0-2	0-3	1-3	1-5
2009	4-7	7-4	0-4	0-1	1-2	1-1	0-3	1-5	0-2
2010	6-17	1-9	2-1	2-3	1-2	0-3	0-2	1-5	4-2
total	140-197	62-109	29-50	12-32	14-39	13-38	15-48	27-71	22-59

Table 22 Part 5
NFL Straight-Up Win-Loss Records

spread, from viewpoint of home team

year	+7.5	+8	+8.5	+9	+9.5	+10	+10.5	+11 to 12.5	+13 & up
1990	0-1	0-1	0-0	0-0	0-1	0-1	0-0	0-0	0-2
1991	0-1	0-0	1-0	0-3	0-1	0-0	1-0	0-3	1-1
1992	0-3	1-0	0-2	0-3	0-2	0-0	1-1	1-1	1-3
1993	0-0	2-1	0-1	0-0	1-2	1-0	0-1	0-2	0-2
1994	0-1	0-1	0-2	0-0	0-1	0-0	0-1	0-2	
1995	0-2	0-2	1-1	0-2	0-0	3-0	0-1	2-2	1-1
1996	0-0	0-2	0-1	1-1	0-3	1-1	0-1	0-0	0-0
1997	2-0	1-0	0-1	0-0	0-1	1-0	0-1	1-2	0-1
1998	0-2	0-1	0-0	0-1	0-1	0-2	1-1	1-1	0-1
1999	0-1	0-0	2-0	0-0	0-2	1-1	0-0	0-3	0-2
2000	2-2	0-1	0-1	1-0	0-1	2-2	0-0	0-0	0-3
2001	3-2	0-2	0-0	0-0	0-1	0-0	0-0	1-1	0-1
2002	1-2	3-1	0-1	0-2	0-0	0-0	0-0	0-1	0-0
2003	2-3	0-0	0-1	0-0	0-0	0-0	0-0	1-0	0-0
2004	1-1	0-1	0-0	0-3	1-1	0-1	0-1	0-2	0-0
2005	0-1	0-2	0-1	0-2	0-1	0-0	1-1	0-1	0-2
2006	1-0	0-0	0-1	3-1	0-2	0-0	0-0	0-1	0-0
2007	1-2	2-1	0-2	0-1	1-0	0-2	0-2	0-1	0-4
2008	3-3	0-2	1-3	0-2-1	1-1	0-1	0-0	0-1	0-0
2009	1-2	0-1	0-1	2-3	1-1	2-2	0-4	0-2	1-5
2010	1-2	0-0	1-0	0-0	0-0	1-0	0-0	0-1	0-0
total	18-31	9-19	6-19	7-24-1	5-22	12-14	4-14	7-26	4-30

Data From NFL Games

Table 22 presents detailed historical data linking spreads to money lines for NFL regular season and playoff games. Super Bowls are not

included, because they are played on neutral fields. Other games played on neutral fields are also excluded.

The data are wins and losses straight up, and not results against the spread. The spread is used only to put each game into the correct column. The column headings are the spread from the viewpoint of the home team.

My original purpose for gathering the data in table 22 was to create a table of trade-offs between spreads and money lines. But the sample sizes in table 22 are so small that I decided against creating such a table from these data, and instead used a different methodology to create table 21. I do think the data in table 22 are interesting, and thus have included them in this book though I make no use of them myself. If you use table 22 to create your own table of tradeoffs of money line and spread, keep in mind that the numbers in your table will contain a lot of sampling error.

In general, the frequencies of wins and losses as shown in table 22 are in agreement with the money lines offered by sportsbooks. There are point spreads for which the recent historical record shows excess wins for the favorite or for the dog, but the differences between actual results and money lines offered by sportsbooks are in line with what one would expect if the results were generated randomly.

Sample Problems

Problem 1

Primm Valley has the Vikings PK +110. Most other sportsbooks show the Vikings +1. Which is better?

Problem 2

Most of the time when an NFL team is +3, the money line is +135. Which is better, +3 or +135?

Problem 3

Most of the time when an NFL team is -3, the money line is -155. Which is better, -3 or -155?

Problem 4

Some sportsbooks allow you to buy a half point for a dime. Is it worthwhile to pay a dime for a half point involving a 3, assuming you can find a book that will sell it?

Problem 5

Ohio State is favored to beat Wisconsin by three points at almost every sportsbook in Las Vegas. One book offers Wisconsin +4. Do you have an edge on that bet, and if so, how much?

Problem 6

One sportsbook allows you to bet at -105 instead of -110, but another sportsbook shows the game at a half-point better line. Is it better to bet at -105, or take the half point?

Solutions to Sample Problems

Problem 1

Primm Valley has the Vikings PK +110. Most other sportsbooks show the Vikings +1. Which is better?

Table 21 shows that Vikings PK +110 needs 47.5 percent wins to break even, and Vikings +1 needs 51.5 percent wins. You are better off needing only 47.5 percent wins to break even. So you are 8.0 percent better off betting the Vikings at PK +110, due to 4.0 percent more wins and 4.0 percent fewer losses.

Problem 2

Most of the time when an NFL team is +3, the money line is +135. Which is better, +3 or +135?

Table 21 shows that +3 -110 is equivalent to a money line of +130. Thus a money line of +135 is preferable to a spread of +3.
The break-even point for +135 on the money line is 42.5 percent wins. The break-even point for a spread of +3 is 43.5 percent wins. That's 1.0 percent more wins and 1.0 percent fewer losses, making your expectation is about 2.0 percent more betting the money line at +135 compared to taking three points at -110.

Problem 3

Most of the time when an NFL team is -3, the money line is -155. Which is better, -3 or -155?

Table 21 shows that -3 -110 is the equivalent of a money line of about -160. Thus a money line of -155 is slightly better than giving up three points.

Interpolation in table 21 yields the break-even point for -155 on the money line as about 60.8 percent wins. The breakeven point for a spread of -3 is 61.5 percent wins. That's 0.7 percent more wins and 0.7 percent fewer losses, so your expectation is to win about 1.4 percent more betting the money line at -155 compared to giving three points at -110.

Problem 4

Some sportsbooks allow you to buy a half point for a dime. Is it worthwhile to pay a dime for a half point involving a 3, assuming you can find a book that will sell it?

Yes indeed. Table 21 shows that you would much rather have +3.5 -120 than +3 -110. And you would much rather have +3 -120 than +2.5 -110. And you would much rather have -2.5 -120 than -3 -110. And you would much rather have -3 -120 than -3.5 -110. In each case the difference is 2.5 percent more wins and 2.5 percent less losses, for a total swing of 5.0 percent.

Problem 5

Ohio State is favored to beat Wisconsin by three points at almost every sportsbook in Las Vegas. One book offers Wisconsin +4. Do you have an edge on that bet, and if so, how much?

Sorry. The data presented in this chapter apply only to NFL games.

Problem 6

One sportsbook allows you to bet at -105 instead of -110, but another sportsbook shows the game at a half-point better line. Is it better to bet at -105, or take the half point?

Depending on which half point is involved, sometimes the -105 is better, and sometimes the half point is better. Table 20 tells which is which. For a half point involving a number with frequency 3 percent or greater, the half point is more valuable. For a half point involving a number with frequency 2 percent or lower, the -105 is more valuable.
Take the half point if it means picking up a tie or win on 3, 4, 6, 7, 10, 14, 16, or 17. Do not take the half point if it involves any other integer.
Example: -5.5 -110 is more valuable than -6 -105.
Example: +1 -105 is more valuable than +1.5 -110.

CHAPTER 15

NFL TOTALS

On NFL games, you can bet on more than just which team will win; you also can bet on how many points the two teams will score. The sportsbook posts an estimate of how many points it thinks will be scored; that number is called the *total*. You can bet that the sum of the points of both teams will be greater than the total; that bet is called the *over.* And you can bet that the points scored by both teams will be less than the total; that bet is called the *under*.

Generally there is a minimum number of minutes that must be played for totals to have action; if the game is called early for whatever reason, all money wagered on totals is returned to the bettors.

Points scored in overtime count for deciding over and under bets.

If the sum of the final scores falls right on the total, there is no money won or lost; you turn in your ticket and get your money back.

If you are capable of making or finding a good line on a game, you might be able to find a good bet on a total. Totals have the reputation of being easier to beat than sides.

Totals of Totals

Table 23 is a compilation of the frequency of totals for NFL games played in recent years. The table includes all regular-season and playoff games except for Super Bowls, which were left out because they have tended to be higher scoring than the average game.

Table 23 Part 1
Number of NFL Games
Resulting in Various Totals

total points scored in game

year	un 30	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1990	43	13	9	2	7	10	9	3	13	7	4	6	5	5	6	10
1991	64	11	13	3	7	10	5	2	14	7	4	4	4	2	8	8
1992	54	19	7	1	6	12	3	10	11	10	2	6	13	2	4	8
1993	62	14	11	2	8	2	7	5	7	7	1	10	8	5	9	4
1994	54	6	3	4	10	4	9	1	15	9	2	8	8	2	7	7
1995	46	4	7	1	8	8	3	5	12	5	4	9	15	0	5	9
1996	51	8	8	2	7	6	3	7	10	5	4	4	12	9	10	5
1997	53	7	3	1	5	11	4	7	16	6	4	7	14	3	6	3
1998	46	5	5	4	10	3	8	5	16	11	1	4	8	4	3	5
1999	53	9	8	1	5	8	9	4	13	7	6	4	9	6	10	6
2000	66	7	11	3	3	9	3	1	9	6	3	7	12	4	8	2
2001	61	7	3	5	11	7	7	4	15	9	4	7	11	2	5	7
2002	41	8	5	4	13	7	3	4	10	9	5	10	12	3	7	11
2003	44	3	14	5	6	8	6	10	11	8	7	7	15	1	10	10
2004	55	6	4	2	6	6	4	8	11	11	5	7	8	3	5	5
2005	52	14	6	2	7	7	4	4	11	1	4	17	12	4	8	15
2006	53	12	5	3	7	10	6	4	13	4	3	7	10	1	7	13
2007	50	2	2	4	14	4	6	2	9	8	4	7	10	7	7	8
2008	37	6	3	3	10	7	3	6	10	6	4	13	13	4	14	10
2009	43	5	6	5	7	7	5	7	17	4	1	8	14	2	8	13
2010	36	13	9	1	6	2	5	6	10	4	2	6	10	2	13	8
totals		179		58		148		105		144		158		71		167
	1064		142		163		112		253		74		223		160	

All games except Super Bowls

Table 23 Part 2
Number of NFL Games
Resulting in Various Totals

total points scored in game

year	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	ov 59	tot
1990	14	0	7	7	3	3	8	2	2	4	4	1	2	1	4	20	234
1991	6	4	3	6	4	5	8	2	0	3	3	2	2	3	2	15	234
1992	12	2	4	9	1	5	10	1	1	0	3	2	0	5	1	10	234
1993	4	3	7	6	4	5	8	5	1	3	1	1	6	1	1	16	234
1994	2	2	10	6	7	5	1	4	7	2	0	2	1	5	5	26	234
1995	7	2	7	7	1	3	15	4	1	7	4	1	7	7	4	32	250
1996	12	4	10	9	6	4	5	9	5	2	2	2	5	6	2	16	250
1997	10	8	7	7	3	3	8	7	4	2	8	2	2	1	4	24	250
1998	5	5	10	8	7	6	6	4	5	6	7	1	6	5	4	27	250
1999	7	6	9	6	3	5	7	3	1	4	6	1	2	6	3	31	258
2000	5	3	7	8	2	4	11	4	6	5	9	1	3	4	3	29	258
2001	3	4	4	5	5	3	11	5	2	4	7	4	3	5	3	25	258
2002	5	4	11	6	4	5	8	5	2	7	7	0	5	4	5	36	266
2003	6	8	6	6	3	5	10	4	1	3	5	4	2	2	3	33	266
2004	11	1	10	7	5	5	9	5	7	3	6	1	6	1	3	40	266
2005	9	2	4	8	5	6	7	6	4	4	7	2	2	8	4	20	266
2006	10	5	11	6	5	4	10	2	3	3	2	1	5	7	5	29	266
2007	10	2	12	8	3	3	9	8	6	6	7	0	3	4	7	34	266
2008	4	4	7	6	8	8	9	7	5	7	8	1	8	5	1	29	266
2009	6	4	7	12	4	3	12	1	4	6	11	0	7	4	4	29	266
2010	8	5	11	11	4	8	10	9	4	7	4	2	6	6	3	35	266
totals		78		154		98		97		88		31		90		556	
	156		164		87		182		71		111		83		71		5338

Some totals are more common than others. 37 is the most common total; about 5% of NFL games end with a total of 37. The next most common total is 41. The ranking of the other totals depends on how many years of recent data you decide to use.

Some totals are rarer than others. The rarest totals in the range 30-59 are 56 and 32. One percent of game totals land on exactly 32, and a total of 56 is rarer yet.

Pushes on Totals

Table 24 presents the fraction of games for which the total points actually scored in a game lands on a particular betting number, looking only at games in which the total was predicted to be on or close to that number. "Close" was arbitrarily selected to mean two points. For example, the denominators of the fractions in the 37 column are numbers of games in which the betting number was 35 to 39 inclusive, and the numerators are the numbers of those games that ended with 37 points being scored.

Table 24 Part 1
Pushes on Totals on NFL Games

total

year	33	34	35	36	37	38	39	40	41
1990	1-18	4-35	5-67	1-92	1-99	2-112	2-104	3-96	0-89
1991	4-60	3-89	5-110	2-127	7-117	1-97	3-80	1-61	0-59
1992	2-68	3-81	1-102	5-123	5-112	3-111	0-99	4-78	2-59
1993	3-61	0-85	3-125	2-142	4-132	3-122	0-93	1-63	3-46
1994	3-37	1-59	3-88	0-107	6-109	3-106	1-91	1-74	1-64
1995	2-7	1-15	0-39	1-65	5-91	2-118	3-141	4-128	4-120
1996	0-1	0-9	0-32	2-62	5-93	2-117	2-136	1-149	8-138
1997	0-2	0-7	0-35	2-63	5-77	2-106	1-117	3-122	8-124
1998	1-10	0-20	1-46	0-61	6-82	4-99	1-113	1-109	2-110
1999	0-23	2-45	1-78	2-110	4-110	4-111	2-107	0-78	3-75
2000	0-30	3-48	1-66	0-85	6-87	2-93	2-86	4-81	3-72
2001	2-55	2-76	3-94	1-90	4-94	4-94	2-87	4-77	1-78
2002	2-17	0-30	0-47	3-69	2-73	3-80	0-89	2-83	4-80
2003	0-19	0-29	1-50	1-81	3-89	3-98	2-102	1-89	5-89
2004	1-38	1-45	0-61	3-76	7-80	1-68	1-75	1-71	3-72
2005	1-36	2-43	3-62	3-68	3-69	0-68	0-69	2-66	5-81
2006	0-28	3-41	2-73	2-86	4-94	4-98	2-101	4-82	5-83
2007	2-17	0-32	0-42	1-66	1-81	3-90	3-105	4-93	5-89
2008	0-14	1-16	0-35	2-48	3-57	2-64	0-73	6-84	6-99
2009	0-6	0-10	1-27	0-39	3-47	2-62	1-73	2-89	3-103
2010	0-4	0-8	0-20	0-31	1-47	1-59	0-76	2-79	5-91
totals		26-823		33-1691		51-1973		51-1852	
	24-551		30-1299		85-1840		28-2017		76-1821
pct	4.4	3.2	2.3	2.0	4.6	2.6	1.4	2.8	4.2

All games

Table 24 Part 2
Pushes on Totals on NFL Games

year	total 42	43	44	45	46	47	48	49
1990	1-84	1-73	4-68	4-45	0-32	1-22	0-18	1-7
1991	1-51	1-45	1-41	3-32	0-20	0-12	0-8	0-4
1992	2-43	0-42	2-29	0-19	1-12	1-6	0-2	0-1
1993	2-39	2-29	1-17	0-14	0-10	0-6	0-5	0-5
1994	0-60	0-63	3-57	1-49	0-43	4-26	0-18	1-11
1995	0-110	2-89	2-76	0-60	1-40	0-28	0-24	0-12
1996	4-127	5-110	1-79	2-55	1-34	0-15	0-7	0-3
1997	1-136	1-115	2-98	2-63	1-44	1-29	0-13	0-5
1998	1-102	0-91	1-74	1-58	0-47	1-31	1-28	0-20
1999	2-74	0-63	0-57	2-51	3-47	0-40	0-34	0-20
2000	1-69	1-65	2-53	2-45	2-51	1-37	2-38	0-28
2001	0-53	1-57	2-55	0-53	0-48	1-36	2-25	0-19
2002	1-102	3-96	7-86	2-88	2-79	4-49	1-43	0-30
2003	1-95	5-94	2-92	4-83	2-64	2-46	1-25	0-18
2004	2-80	1-77	2-73	5-61	0-58	2-39	2-33	0-30
2005	1-92	4-91	6-91	3-84	1-70	1-51	3-35	0-31
2006	1-87	1-83	3-73	3-74	2-60	2-46	1-34	0-22
2007	2-87	3-81	1-68	3-66	0-66	4-58	0-40	0-33
2008	4-104	4-121	2-105	2-92	3-75	2-58	3-45	3-38
2009	1-112	4-121	5-105	3-95	2-88.0	2-69	0-51	3-37
2010	0-116	4-135	5-130	2-119	1-97	2-63	1-41	1-35
totals	28-1823	43-1741	54-1527	44-1306	22-1085	31-767	17-567	9-409
pct	1.5	2.5	3.5	3.4	2.0	4.0	3.0	2.2

Table 24 includes all regular season and playoff games, including Super Bowls.

The data of table 24 are summarized in table 25. You are welcome to drop older years of past data from table 24 to come up with your own version of table 25.

Table 25
Frequencies of Pushes on NFL Totals

Total	freq (%)
33	4
34	3
35	2
36	2
37	5
38	3
39	1
40	3
41	4
42	2
43	2
44	3
45	3
46	2
47	4
48	3
49	2

So how big a deviation between your prediction and the posted O/U number do you need to overcome the book's vig, assuming your prediction is accurate? You need to gain 4.55 percent, the same as if you were picking a side, because you pay the same $110 to try to win $100. You can estimate the point at which you have an edge with the aid of table 25; you must pick up at least five percentage points to overcome the book's vig.

As an example, if the true line on the total is 37, you can break even by betting under 37.5 or over 36.5. For other numbers, you generally need one full point to break even or get a small edge. For example, if the true line on the total is 44.5, you can overcome the book's vig betting under 45.5. The only important exception is 39; if the 39 is involved, you need 1.5 points to break even.

Generally you need a gap of two points to at least break even on a middle on totals. You need five percent per bet, meaning ten percent total from table 25, to break even. For example, betting equal amounts over 43.5 and under 45.5 picks up fourteen percent, which is better than breaking even. If you can find a wider spread than two points, you have found a profitable middle.

CHAPTER 16

NFL TEASERS

A teaser is a parlay in which each team is given extra points against the spread. In bets involving NFL sides, six-point teasers are common but you also can buy teasers for 6.5 points and seven points.

Here is a example of how teasing works. Suppose the line is Cowboys +2. If you bet that team as part of a six-point teaser, you would be betting on Cowboys +8. Cowboys +8 is more likely to cover than Cowboys +2, but the payoffs for teasers are lower than the payoffs for bets that do not involve receiving extra points.

I have never seen one-team teasers being offered, though any sportsbook could offer a one-team teaser if it wished. The only teasers of which I am aware require the bettor to tease at least two teams. Some sportsbooks require you to tease at least three teams in the NFL.

Payoffs on teasers vary from sportsbook to sportsbook. If you want to bet teasers, shop around to see who offers the best prices.

Teasers are available on more than just NFL games. Six-point to seven-point teasers are also available on college football games, sometimes for different payoffs than are used for NFL games. Teasers of four to five points are available on basketball games.

Table 26 shows typical payoffs for teasers on NFL games.

Table 26
Typical NFL Teaser Payouts

teams	points		
	6	6.5	7
2	-110	-120	-130
3	+180	+160	+150
4	+300	+250	+200
5	+450	+400	+350
6	+700	+600	+500

For example, you pick two teams for a six-point teaser. You risk $110 in an attempt to win $100. Each of your teams is given an additional six points in addition to the spread off the board. Both teased teams must cover for you to win your bet. If one ties, you get your money back regardless of what happens in the other game.

This chapter examines what would have happened had you bet selected NFL teasers during 1999-2010. There is no guarantee that future teams going off at those same odds will perform the same. Teasers that would have been profitable had you bet them in the past may or may not be profitable in the future.

This chapter assumes you know only the lines on the games, and have done no handicapping. With handicapping you can do better, of course.

Frequency of Covers With More Points

To evaluate teasers, it's helpful to know the frequency of actual game results coming close to the predicted results. See for example table 20 in chapter 14.

Table 27 summarizes all the NFL regular-season games played over many seasons. It shows what your cover-lose-tie results would have been had you been able to bet on both sides of every regular-season game with various numbers of extra points. The total of win, lose, and push may not sum to 100% on some rows due to rounding.

Table 27
NFL Results if Given More Points,
Regular-Season Games, 1999-2010

bonus	% win	% lose	% tie
0.0	48.8	48.8	2.5
0.5	51.2	47.0	1.8
1.0	53.0	45.4	1.6
1.5	54.6	44.3	1.2
2.0	55.7	42.7	1.6
2.5	57.3	41.5	1.2
3.0	58.5	40.3	1.3
3.5	59.7	38.9	1.3
4.0	61.1	37.1	1.8
4.5	62.9	35.9	1.2
5.0	64.1	34.5	1.4
5.5	65.5	33.2	1.3
6.0	66.8	31.0	2.2
6.5	69.0	29.9	1.1
7.0	70.1	28.6	1.3
7.5	71.4	27.4	1.1
8.0	72.6	26.2	1.2
8.5	73.8	25.1	1.0
9.0	74.9	24.1	1.1
9.5	75.9	22.9	1.1
10.0	77.1	21.4	1.5
10.5	78.6	20.1	1.3
11.0	79.9	19.2	0.9
11.5	80.8	18.5	0.7
12.0	81.5	17.7	0.8
12.5	82.3	17.0	0.7
13.0	83.0	16.2	0.9
13.5	83.8	15.4	0.8
14.0	84.6	14.4	1.0
14.5	85.6	13.7	0.6
15.0	86.3	12.9	0.8
15.5	87.1	12.3	0.6
16.0	87.7	11.7	0.6
16.5	88.3	11.1	0.6
17.0	88.9	10.3	0.8
17.5	89.7	9.6	0.7
18.0	90.4	9.0	0.6

For example, had you bet both teams of every game at one more point away from the spread, table 27 says you would have won 53.0 percent of your bets, lost 45.4 percent of them, and tied on 1.6 percent of them.

The first few points you get are the most valuable. Each additional point tends to add less value. For example, the value to you of the fifteenth point is considerably less than the value of the first point.

For seven points or less, each extra half point increases your chance of winning by approximately 1.4 percent. That's consistent with the average frequency of pushes with various spreads presented in table 20.

Had you been given a half-point bonus on every team but been required to bet both teams of every game, you would have almost broken even. (Breaking even requires winning 52.4 percent of non-ties. You would have won 51.2 percent, lost 47.0 percent, and tied 1.8 percent, which is 52.1 percent winners after removing ties.)

Another way of looking at that result: If you are a good enough handicapper to identify spreads that, on average, are off by more than a half point, you are good enough to have an edge while risking $110 to try to win $100.

Caution: Not all spreads are equally likely. In the NFL, by far the most common margin of victory is 3 points.

Teasing into a Tie

Suppose you tease a +2 team up to +8. Suppose the final score is your team loses the game 21-13. After adding in your eight points, the game is a tie. What happens to your teaser?

If your teaser was for more than two teams, the pushing team is ignored and the teaser is treated as if it were made without that team's being a part of it. Thus a push would convert a three-team teaser into a two-team teaser.

Two-team teasers in which one team is teased into a push become no action; your money is returned to you. So if you have teased two teams and your first team loses, you still have a chance to get something back for your ticket: Root for the teased points to give your second team a push. If your first team loses and your second team ties, you get your money back. If your first team loses and your second team covers, you lose. That sounds irrational, but that's the way it is. (Read the fine print before betting a two-team teaser; some Internet sportsbooks treat a tie and a loser as a loser.)

Six-Point Teaser

Requirements for a Good Bet

Some sportsbooks pay 11:10 on six-point teasers, some pay even money, and some are 10:11 or -110.

Table 28 presents the minimum required win rates for teasers, and is based on mathematics, not empirical data. As table 28 shows, the most generous six-point teaser pay schedules require each team to cover 69.0 percent of the time for the bet to be break-even. For those sportsbooks that pay even money or -110 on two-team teasers, you need teams that cover 70.7 percent or 72.4 percent.

Table 28
Teasers: Break-Even Win Rates

To tease two teams	
at +110:	69.0%
at even:	70.7
at -110:	72.4
at -120:	73.9
at -130:	75.2
at -140:	76.4
to tease three teams	
at +180 or 9:5:	70.9%
at +170:	71.8
at +160 or 8:5:	72.7
at +150 or 3:2:	73.7
at +140 or 7:5:	74.7
at +130:	75.8
at +120 or 6:5:	76.9
at +110:	78.1
at even:	79.4
to tease four teams	
at +300 or 3:1:	70.7%

Sportsbooks offer six-point teasers of three teams at terms that range from +140 to +180. If you can find +180 for a three-teamer, table 28 shows that you need to find teams that each have 70.9 percent or more chance of covering. If you tease your three teams at a sportsbook that pays less than +180, you will need teams that cover with higher frequency to justify making the bet.

You don't want to merely meet those minimums; you want teams that cover more often than that so that your bets have positive EV.

Tease All for 6 Points

On average during 1999-2010, when you were given six points, you had a 66.8 percent chance of covering, a 31.0 percent chance of losing, and a 2.2 percent chance of pushing, as shown in table 27. That is not good enough to get an edge.

Does that mean never betting on six-point teasers? Nope. It means you can't select random teams for teasing, because teams on average cover only 66.8 percent of the time if given six points. But just because the average is 66.8 percent does not mean that *every* team given six points will have a 66.8 percent chance of covering.

Eliminating Big Favs and Big Dogs

As is noted elsewhere in this book, the most common outcome of an NFL game is the favorite's winning by three points. That happens in about 10% of NFL games. Might you enhance your teaser chances if you consider only teams that will pick up fav-by-3 when teased? That is, consider teams that would fail to cover the spread if the game resulted in the favorite's winning the game by exactly three points, but would cover the teased spread. An example is a two-point dog. If you bet a dog at +2 and the favorite wins the game by three points, your bet loses. But if you tease that dog to +8 and the favorite wins the game by three points, your team covers the teased spread.

To answer that question, 1999-2010 NFL game results are partitioned into three categories: big favorites, big dogs, and teams in the middle. The first category is teams favored by so many points that a six-point tease won't capture the 3. The second category is dogs by enough points that they already have the 3 and don't need six points to capture it. The third category is all the teams that are left after the big favorites and big dogs are removed.

Teams favored by 9.5 or more, if given six points, would not cover the teased spread if winning the game by only three points.

Dogs of 3.5 or more do not need any teased points to cover if the result of the game is the favorite winning by three points.

Teasing all the remaining teams, meaning teams going off at -9 to +3, over the years 1999-2010 would have resulted in covering a six-point teased spread 68.0 percent of time, failing to cover 29.3 percent of the time, and pushing 2.7 percent of the time. Ignoring pushes, six-point teased teams covered 69.9 percent of the time.

Teasing only teams going off at -9 to +3 is an improvement over teasing all teams, and is good enough to get an edge over any sportsbook that offers two-teamers at -110, which is why sportsbooks nowadays charge more than -110 for that teaser.

Teasing to Gain the 3 and 7

Suppose the teaser candidates are reduced further. Suppose teasers are constructed using only teams that, when teased, will pick up both the 3 and the 7. If you consider teasing teams that will pick up all of the 3 and all of the 7 if given six more points, you will be looking at teams that are listed on the board as favorites of -7.5 to -8.5, and also dogs of +1.5 to +2.5. Table 20 indicates that picking up favorites by 3 to 7 points gains about (10 + 3 + 2 + 3 + 5) or 23 percentage points. You pick up a sixth number also, either the 2 or the 8, for another 2 percentage points.

Here are the data for the years 1999-2010. Pushes are excluded in the calculation of percent covers.

NFL home favorites of -7.5 to -8.5 covered a six-point teased spread 128-42-3 for 75 percent covers.

NFL home dogs of +1.5 to +2.5 covered a six-point teased spread 120-42-2 for 74 percent covers.

NFL visiting dogs of +1.5 to +2.5 covered a six-point teased spread 170-60-0 for 74 percent covers.

NFL visiting favorites of -7.5 to -8.5 covered a six-point teased spread 43-25-0 for 63 percent covers.

The total of the above four categories is 461-169-5 for 73.2 percent covers.

Summary of Six-Point Teasers

Six-point teasers appear to be worthwhile bets only if two conditions hold.

One necessary condition is you must select teams going off at spreads that allow the teased points to capture 3s and 7s.

Another important condition is you must get good enough terms.

6.5-Point Teaser

Requirements for a Good Bet

It's not difficult to find sportsbooks that charge -120 on 6.5-point teasers. As table 28 shows, two-team teasers at -120 require 73.9 percent accuracy to be break-even. At a sportsbook that pays +160 on three-team teasers, you need 72.7 percent accuracy to break even.

Tease All for 6.5

Table 27 says that for the games played in 1999-2010, giving each team 6.5 points resulted in a 69.0 percent chance of covering, a 29.9 percent chance of losing, and a 1.1 chance of pushing. Throwing out the ties meant covering a 6.5-point tease 69.8 percent of the time. That's consistent with the numbers in table 20, and is not good enough to get an edge. So you can't profitably select random teams for 6.5-point teasing.

Teasing to Gain the 3 and 7

Use the same rules to find teams to tease for 6.5 points as were worthwhile using to tease for six points.
You want the teased points to capture the 3 and the 7. That means favorites of -7.5 to -9 and dogs of +1 to +2.5.
The percentage of covering ought to be higher than the rate at which six-pointers cover by the value of half of a 1, 2, 8, or 9, which according to table 20 means you pick up an extra percentage point. Thus 6.5-pointers ought to cover at about one percent higher rate than six-pointers.

Teasing Selected Spreads for 6.5 Points

Here are the data for the years 1999-2010. The percentages ignore pushes.
NFL home favorites of -7.5 to -9 covered a 6.5-point teased spread 176-51-1 for 77.5 percent covers.
NFL home dogs of +1 to +2.5 covered a 6.5-point teased spread 166-54-0 for 75 percent covers.
NFL visiting dogs of +1 to +2.5 covered a 6.5-point teased spread 217-79-1 for 73 percent covers.
NFL visiting favorites of -7.5 to -9 covered a 6.5-point teased spread 57-32-0 for 64 percent covers.
The total of the above four categories is 616-216-2 for 74.0 percent covers for 6.5-point teasers.

Summary of 6.5-Point Teasers

6.5-point NFL teasers look almost as worthwhile as six-point teasers. Be sure that the extra points you pick up by teasing include the 3 and the 7, and find a sportsbook that offers excellent terms.
As a practical matter, the only time to tease for 6.5 points instead of six is when you want to tease a -9 favorite.

Seven-Point Teaser

Requirements for a Good Bet

On seven-point NFL teasers, you may find sportsbooks that charge -130 or -140. As table 28 shows, two-team teasers at -130 require 75.2 percent accuracy to be break-even, and -140 requires 76.4 percent accuracy. If the sportsbook pays +150 on three-team teasers, you need 73.7 percent accuracy to break even.

Tease All

Table 27 says that giving each team seven points resulted in a 70.0 percent chance of covering, a 28.6 percent chance of losing, and a 1.4 chance of pushing for the NFL games played in 1999-2010. Throwing out the ties meant covering a seven-point tease 71.0 percent of the time.
That is not good enough to get an edge. You can't select random teams for seven-point teasing.

Teasing to Gain the 3 and 7

Use the same rules to find teams to tease for seven points as were worthwhile using to tease for six or 6.5 points.
You want the teased points to capture the 3 and the 7. That means favorites of -7.5 to -9.5 and dogs of +1 to +2.5. (No NFL teams are ever listed at +0.5 due to the rarity of a tie.)
The percentage of covering with seven points ought to be higher than the rate at which 6.5-pointers cover by the value of half of a 1, 2, 8, or 9, which according to table 20 means you pick up an extra percentage point compared to 6.5-pointers.

Teasing Selected Spreads for Seven Points

Here are the data for the years 1999-2010. Again the percentages ignore pushes.
NFL home favorites of -7.5 to -9.5 covered a seven-point teased spread 229-68-3 for 77 percent covers.
NFL home dogs of +1 to +2.5 covered a seven-point teased spread 166-53-1 for 76 percent covers.
NFL visiting dogs of +1 to +2.5 covered a seven-point teased spread 218-78-1 for 76 percent covers.
NFL visiting favorites of -7.5 to -9.5 covered a seven-point teased spread 66-37-0 for 64 percent covers.
The total of the above four categories is 679-236-5 for 74.2 percent covers.

Summary of Seven-Point Teasers

Seven-point NFL teasers to pick up both the 3 and the 7 are almost as worthwhile as six-point teasers, if you can get excellent terms.

As a practical matter, the only time to tease for seven points instead of six is when you want to tease a -9.5 favorite.

Choosing Teams to Tease

Select how many points to tease based on the sportsbook's payoff schedule and the menu of NFL spreads available that capture both the 3 and the 7. To analyze the payoff schedule, use table 28.

Choosing the Number of Teams

The most important step is finding a sportsbook with at least one good teaser price. Use table 28 to figure which teasers have the lowest break-even cover rates, with lower being better.

If you have identified a sportsbook at which teasers are worth betting, then see if there are any NFL teams worth teasing. You need at least two; you cannot bet a one-team teaser. Select teams that will lose against the spread if the favorite wins the game by 3 or 7, but receiving the teased points would change those two results into covers. That might affect your preference for number of points teased.

Example: Suppose you have found two teams you would like to tease for six points, and the best odds you can find on two-team six-pointers is -120, but one of those sportsbooks offers three-team seven-point teasers for +140. Turn to table 28. The two-teamer at -120 requires 73.9 percent accuracy to break even. The three-teamer at +140 requires 74.7 percent accuracy to break even. Use of the rule of thumb that you pick up an extra 1.0 percent by teasing for another half point would lead you to prefer to tease three teams for seven points for +140.

You could split your money among multiple bets; you could combine your two great teaser prospects into a two-team six-pointer at -120, and look for another team to combine with them for a three-team seven-pointer at +140.

Additional Teams to Tease

When you are looking for another team to tease and have only choices that do not pick up both the 3 and the 7, look first at teams that need the teased points to pick up the whole 3 and half the 7. Examples are any tease of a -7 favorite, or a seven-point tease of a pick 'em team.

Home teams have performed better than visiting teams, though the sample size is not large enough for statistical significance. If you want to tease a pick 'em team for seven points, you might prefer to tease the home team.

The raw data that were used to assign cover rates to teasers are shown in table 29. You don't really need table 29; I am including it in case you want to delve further into the mysteries of teasers. The Win column means cover the spread if given an extra 5.5 points. The "by 6" column means tie if given an extra six points. The "by 6.5" column means tie if given an extra 6.5 points. The "by 7" column means tie if given an extra seven points. Lose means fail to cover even if given an extra 7.5 points.

Table 29
Raw Teaser Data 1999-2010

spr	win	by 6	by 6.5	by 7	lose	total
vis -10	5	1	0	2	6	14
vis -9.5	9	0	0	0	5	14
vis -9	9	5	0	0	7	21
vis -8.5	11	0	0	0	4	15
vis -8	11	0	0	0	5	16
vis -7.5	21	0	0	0	16	37
vis -7	31	1	0	0	14	46
vis +3	210	1	0	12	65	288
vis +2.5	83	0	0	0	20	103
vis +2	52	0	0	0	19	71
vis +1.5	35	0	1	0	20	56
vis +1	43	4	0	1	19	67
vis pk	20	1	0	1	7	29
home -10	35	2	0	4	13	54
home -9.5	46	0	6	0	20	72
home -9	40	5	0	1	9	55
home -8.5	47	0	0	0	10	57
home -8	27	3	0	2	12	44
home -7.5	54	0	1	0	17	72
home -7	105	1	0	0	33	139
home -4	54	2	0	3	14	73
home -3.5	122	0	6	0	44	172
home -3	176	28	0	10	74	288
home +3	159	4	0	6	51	220
home +2.5	63	0	0	0	23	86
home +2	31	1	0	0	13	45
home +1.5	25	0	0	0	5	30
home +1	40	6	0	1	12	59
home pk	19	1	0	1	8	29

Low Scoring Versus High Scoring

Teams in games predicted to be low scoring are more likely to cover a teased spread than are teams in games predicted to be high scoring.

Preseason games are better for teasing than are regular-season games.

Tease Teams In Different Games

Is there any inherent advantage or disadvantage involved in teasing two teams that are playing against each other? For example, should you

tease both teams in a pick 'em game?

The answer is yes, it does make a difference. Teasing opponents in the same game is inferior to teasing teams not playing against each other.

Here is an easy way to understand why. Suppose you have identified two NFL teams that you think will benefit greatly from the added points of a teaser. In order for your teaser to win, both of your teams must cover the teased spread. If one or both of your teams fail to beat the teased spread, you lose your bet.

What you would like to maximize is the probability that your second team covers the teased spread given that your first team covers the teased spread. It does you no good for your second team to cover when your first team has already lost. Maximizing the probability of both of your teams covering means minimizing the probability of one team covering while the other is losing, which means taking a chance on both teams losing at the same time.

Put some numbers on it. Suppose each of your teams covers the teased spread 80% of the time. Do you want one team to lose 20% of the time, the other team to lose a different 20% of the time, and both of them to cover only 60% of the time? That's what you get when you tease two teams playing against each other.

If you had teased two teams not involved in the same game and each beat the teased spread 80% of the time, they would both lose 4% of the time and they would both cover 64% of the time. The probability of their both losing is equal to the increase in the probability of their both covering.

When you tease teams playing each other, such that at least one must cover, that "must cover" comes at the expense of a lower probability that both cover.

Conclusion: Tease teams not playing against each other.

Internet Teaser Caution

Dunbar says: "Some books with ostensibly good teaser odds make those odds worthless by posting 'off' lines for teaser plays. Example: 5Dimes offers +100 2-teamers but forces you to take -9.5 or -10 on a team that is listed at -7.5 -110 for a straight bet." Taking the 3 out of the teased spread eliminates the value of the teaser.

CHAPTER 17

FACING THE SUPER-BOWL CHAMPION

This chapter looks at how Super Bowl champions have fared at the beginning of the following season.
Table 30 lists the Super Bowl results.

Table 30
Super Bowl Results

I	1966-1967	Green Bay 35, Kansas City 10
II	1967-1968	Green Bay 33, Oakland 14
III	1968-1969	NY Jets 16, Baltimore 7
IV	1969-1970	Kansas City 23, Minnesota 7
V	1970-1971	Baltimore 16, Dallas 13
VI	1971-1972	Dallas 24, Miami 3
VII	1972-1973	Miami 14, Washington 7
VIII	1973-1974	Miami 24, Minnesota 7
IX	1974-1975	Pittsburgh 16, Minnesota 6
X	1975-1976	Pittsburgh 21, Dallas 17
XI	1976-1977	Oakland 32, Minnesota 14
XII	1977-1978	Dallas 27, Denver 10
XIII	1978-1979	Pittsburgh 35, Dallas 31
XIV	1979-1980	Pittsburgh 31, Los Angeles 19
XV	1980-1981	Oakland 27, Philadelphia 10
XVI	1981-1982	San Francisco 26, Cincinnati 21
XVII	1982-1983	Washington 27, Miami 17
XVIII	1983-1984	LA Raiders 38, Washington 9
XIX	1984-1985	San Francisco 38, Miami 16
XX	1985-1986	Chicago 46, New England 10
XXI	1986-1987	NY Giants 39, Denver 20
XXII	1987-1988	Washington 42, Denver 10
XXIII	1988-1989	San Francisco 20, Cincinnati 16
XXIV	1989-1990	San Francisco 55, Denver 10
XXV	1990-1991	NY Giants 20, Buffalo 19
XXVI	1991-1992	Washington 37, Buffalo 24
XXVII	1992-1993	Dallas 52, Buffalo 17
XXVIII	1993-1994	Dallas 30, Buffalo 13
XXIX	1994-1995	San Francisco 49, San Diego 26
XXX	1995-1996	Dallas 27, Pittsburgh 17
XXXI	1996-1997	Green Bay 35, New England 21
XXXII	1997-1998	Denver 31, Green Bay 24
XXXIII	1998-1999	Denver 34, Atlanta 19
XXXIV	1999-2000	St. Louis 23, Tennessee 16
XXXV	2000-2001	Baltimore 34, NY Giants 7
XXXVI	2001-2002	New England 20, St. Louis 17
XXXVII	2002-2003	Tampa Bay 48, Oakland 21
XXXVIII	2003-2004	New England 32, Carolina 29
XXXIX	2004-2005	New England 24, Philadelphia 21
XL	2005-2006	Pittsburgh 21, Seattle 10
XL1	2006-2007	Indianapolis 29, Chicago 16
XLII	2007-2008	NY Giants 17, New England 14
XLIII	2008-2009	Pittsburgh 27, Arizona 23
XLIV	2009-2010	New Orleans 31, Indianapolis 17
XLV	2010-2011	Green Bay 31, Pittsburgh 25

The reason for this chapter is that prior to publication of the first edition of this book in 2001, betting against the Super Bowl champion in the first games of the new season was considered a smart move. If you know of an early publication of that advice, please tell me about it so that I can cite it in a future edition.

Betting against the defending champion has two items of logic favoring it. One is that bettors are likely to overestimate the strength of the team that won the most recent Super Bowl. The other is that the champ's opponent will be more motivated, resulting in a higher-than-normal level of performance. Playing against the champion makes the game special; but to the champion, the first game of the season is just another regular-season game.

The factors that suggest betting against the Super Bowl champion in week 1 might carry over to subsequent games. This chapter looks at what would have been the result of betting against the defending champion every week for the first six weeks of the season.

Totals are presented also, though I am not aware that anyone has suggested betting on them.

Some people suggest betting against a team that is looking ahead to its next game. This chapter gathers some data to test that notion. One example of that is: If a team takes on the defending champion next week, it might underperform this week. The chapter presents results of games played immediately before taking on the defending champion.

Some people suggest betting against a team that played a big game last time out, figuring it will have a letdown in its next game. One example of that is a team that played the defending champion last week might underperform this week. The chapter presents results of games played immediately after taking on the defending champion.

Thus the whole purpose of this chapter is to present data. The Gold Sheet's historical records of scores and lines appear to be accurate and are readily available on the Internet, so I have used them. For each game of interest, the home team is identified, the spreads is given, and the results is listed.

Proper statistical analysis involves testing a hypothesis with data not used in the creation of the hypothesis. An easy way to do that is to test with data generated after the hypothesis was created, which in this case means using games played after this book was published.

This book was first published in 2001. Games played prior to the 2001 season were played prior to publication of this book. Games played during and after the 2001 season were played after publication of this book. So we can test the wisdom of betting against the defending champ and betting against its past and upcoming opponents by using NFL games played in the 2001 and more recent seasons. Games of interest played during the 1985-2000 seasons also are listed.

Some games are listed from the viewpoint of both teams, because sometimes one team fills two roles. For example, the champion's next opponent might currently be facing the team that battled the champion last week.

Though this chapter looks at only what has happened when you bet against the Super Bowl champs, the conclusions should apply to betting

against other teams that share the two attributes of being possibly overrated due to strong past performance and facing a highly motivated opponent.

The rest of this chapter contains the results of games involving Super Bowl Champion in the first six weeks of the following season, starting with 1985.

1985: San Francisco

Bet watch for week 1:

Minnesota +11 vs. San Francisco	W 28-21
Minnesota, San Francisco total 46	Over
Detroit +3 at Atlanta	W 28-27

Bet watch for week 2:

Atlanta +14 at San Francisco	L 16-35
Atlanta, San Francisco total 45	Over
Kansas City +1.5 vs. LA Raiders	W 36-20
Tampa Bay -3 vs. Minnesota	L 16-31

Bet watch for week 3:

LA Raiders +3 vs. San Francisco	L 10-34
LA Raiders, San Francisco total 44	P
Tampa Bay +2.5 at New Orleans	L 13-20
Denver -6 at Atlanta	W 44-28

Bet watch for week 4:

New Orleans +15.5 at San Francisco	W 20-17
New Orleans, San Francisco total 45.5	Under
LA Rams -9.5 vs. Atlanta	W 17-6
New England -1 vs. LA Raiders	L 20-35

Bet watch for week 5:

Atlanta +11.5 vs. San Francisco	L 17-38
Atlanta, San Francisco total 47.5	Over
Tampa Bay +8 vs. Chicago	P 19-27
Philadelphia +3.5 at New Orleans	W 21-23

Bet watch for week 6:

Chicago +4.5 at San Francisco	W 26-10
Chicago, San Francisco total 45	Under
Washington -9.5 vs. Detroit	W 24-3
Seattle -14 vs. Atlanta	L 30-26

1985 Summary

Bets against the champ	W	L	L	W	L	W
Over/Under results	O	O	P	U	O	U
Bets against the champ's next	W	W	L	W	P	W
Bets against the champ's last	-	L	W	L	W	L

1986: Chicago

Bet watch for week 1:

Cleveland +11 at Chicago	W 31-41
Cleveland, Chicago total 35	Over
Washington -6 vs. Philadelphia	W 41-14

Bet watch for week 2:

Philadelphia +16 at Chicago	W 10-13
Philadelphia, Chicago total 41	Under
New Orleans -3 vs. Green Bay	W 24-10
Houston -2 vs. Cleveland	L 20-23

Bet watch for week 3:

Green Bay +11.5 vs. Chicago	L 12-25
Green Bay, Chicago total 39	Under
Cleveland -4.5 vs. Cincinnati	L 13-30
Denver -3.5 at Philadelphia	W 33-7

Bet watch for week 4:

Cincinnati +4.5 vs. Chicago	L 7-44
Cincinnati, Chicago total 47	Over
Green Bay +6.5 at Minnesota	L 7-42
Minnesota -6.5 vs. Green Bay	W 42-7

Bet watch for week 5:

Minnesota +13 at Chicago	L 0-23
Minnesota, Chicago total 43.5	Under
Detroit -3 vs. Houston	W 24-13
Green Bay +7.5 vs. Cincinnati	W 28-34

Bet watch for week 6:

Houston +13.5 vs. Chicago	W 7-20
Houston, Chicago total 40.5	Under
San Francisco -9.5 vs. Minnesota	L 24-27
San Francisco -9.5 vs. Minnesota	L 24-27

1986 Summary

Bets against the champ	W	W	L	L	L	W
Over/Under results	O	U	U	O	U	U
Bets against the champ's next	W	W	L	L	W	L
Bets against the champ's last	-	L	W	W	W	L

1987: New York Giants

Bet watch for week 1:

Chicago -1 vs. NY Giants	W 34-19
Chicago, Giants total 35	Over
St. Louis pk vs. Dallas	W 24-13

Bet watch for week 2:

Dallas +12 at the Giants	W 16-14
Dallas, Giants total 39.5	Under
Cincinnati pk vs. San Francisco	L 26-27
Tampa Bay +14 at Chicago	L 3-20

Bet watch for week 3:

San Francisco -6 at the Giants	W 41-21
San Francisco, Giants total 41	Over
St. Louis -3 at Washington	L 21-28
New York Jets +7 vs. Dallas	L 24-38

Bet watch for week 4:

Washington +10 at the Giants	W 38-12
Washington, Giants total 38	Over
New England -10 vs. Buffalo	L 14-7
Atlanta +23.5 at San Francisco	W 17-25

Bet watch for week 5:

Buffalo +3 vs. NY Giants	W 6-3
Buffalo, Giants total unknown	Under
San Francisco -14 vs. St. Louis	L 34-28
Dallas -7.5 vs. Washington	L 7-13

Bet watch for week 6:

St. Louis +10 at NY Giants	L 7-30
St. Louis, Giants total 39.5	Under
Philadelphia -2 vs. Dallas	W 37-20
Miami -9 vs. Buffalo	L 31-34

1987 Summary

Bets against the champ	W	W	W	W	W	L
Over/Under results	O	U	O	O	U	U
Bets against the champ's next	W	L	L	L	L	W
Bets against the champ's last	-	L	L	W	L	L

1988: Washington

Bet watch for week 1:

Giants -2 vs. Washington	W 27-20
Giants, Washington total 42	Over
Dallas +3 at Pittsburgh	P 21-24

Bet watch for week 2:

Pittsburgh +7.5 at Washington	W 29-30
Pittsburgh, Washington total 44	Over
Cincinnati +5 at Philadelphia	W 28-24
San Francisco +2 at the Giants	W 20-17

Bet watch for week 3:

Philadelphia +5 vs. Washington	L 10-17
Philadelphia, Washington total 46.5	Under
Tampa Bay +3 vs. St. Louis	L 24-30
Cincinnati +2.5 at Pittsburgh	W 17-12

Bet watch for week 4:

Phoenix +3.5 vs. Washington	W 30-21
Phoenix, Washington total 40.5	Over
LA Rams +3.5 at the Giants	W 45-31
Minnesota -6 vs. Philadelphia	L 23-21

Bet watch for week 5:

Giants +3.5 at Washington	W 24-23
Giants, Washington total 41	Over
New Orleans -6.5 vs. Dallas	L 20-17
LA Rams -7 vs. Phoenix	L 27-41

Bet watch for week 6:

Dallas +1.5 vs. Washington	L 17-35
Dallas, Washington total 43	Over
Pittsburgh +6 at Phoenix	L 14-31
Philadelphia -2 vs. Giants	W 24-13

1988 Summary

Bets against the champ	W	W	L	W	W	L
Over/Under results	O	O	U	O	O	O
Bets against the champ's next	P	W	L	W	L	L
Bets against the champ's last	-	W	W	L	L	W

1989: San Francisco

Bet watch for week 1:

Indianapolis +3 vs. San Francisco	L 24-30
Indianapolis, San Francisco total 42.5	Over
Green Bay -3 vs. Tampa Bay	L 21-23

Bet watch for week 2:

Tampa Bay +7 vs. San Francisco	W 16-20
Tampa Bay, San Francisco total 44	Under
Washington -3 vs. Philadelphia	L 37-42
LA Rams -5 vs. Indianapolis	W 31-17

Bet watch for week 3:

Philadelphia -1.5 vs. San Francisco	L 28-38
Philadelphia, San Francisco total 44	Over
Green Bay +10 at LA Rams	W 38-41
New Orleans -3 at Tampa Bay	L 10-20

Bet watch for week 4:

LA Rams +4 at San Francisco	W 13-12
LA Rams, San Francisco total 47	Under
Washington -2 at New Orleans	P 16-14
Chicago -3.5 vs. Philadelphia	W 27-13

Bet watch for week 5:

New Orleans +3.5 vs. San Francisco	L 20-24
New Orleans, San Francisco total 42.5	Over
Green Bay +7 vs. Dallas	W 31-13
Atlanta +10 at LA Rams	L 14-26

Bet watch for week 6:

Dallas +4 vs. San Francisco	L 14-31
Dallas, San Francisco total 47	Over
Atlanta -2.5 vs. New England	L 16-15
New York Jets +7 at New Orleans	L 14-29

1989 Summary

Bets against the champ	L	W	L	W	L	L
Over/Under results	O	U	O	U	O	O
Bets against the champ's next	L	L	W	P	W	L
Bets against the champ's last	-	W	L	W	L	L

1990: San Francisco

Bet watch for week 1:

New Orleans +5 vs. San Francisco	W 12-13
New Orleans, San Francisco total 44	Under
Phoenix +12.5 vs. Washington	L 0-31

Bet watch for week 2:

Washington +5.5 at San Francisco	L 13-26
Washington, San Francisco total 45.5	Under
Detroit -3 vs. Atlanta	W 21-14
Minnesota -6 vs. New Orleans	W 32-3

Bet watch for week 3:

Atlanta +11 at San Francisco	W 13-19
Atlanta, San Francisco total 46.5	Under
No next opponent	-
Dallas +14 at Washington	W 15-19

Bet watch for week 4:

No San Francisco bet	-
No San Francisco total	-
San Diego -2.5 vs. Houston	L 7-17
No bet involving last week's opponent	-

Bet watch for week 5:

Houston +5.5 vs. San Francisco	W 21-24
Houston , San Francisco total 46	Under
New Orleans -2 vs. Atlanta	L 27-28
No bet involving last week's opponent	-

Bet watch for week 6:

Atlanta +6 vs. San Francisco	L 35-45
Atlanta, San Francisco total 46	Over
Denver -8.5 vs. Pittsburgh	L 17-34
Cincinnati +3.5 at Houston	L 17-48

1990 Summary

Bets against the champ	W	L	W	-	W	L
Over/Under results	U	U	U	-	U	O
Bets against the champ's next	L	W	-	L	L	L
Bets against the champ's last	-	W	W	-	-	L

1991: New York Giants

Bet watch for week 1:

San Francisco -1.5 at NY Giants	L 14-16
San Francisco, NY Giants total 36	Under
Phoenix +7 at LA Rams	W 24-14

Bet watch for week 2:

LA Rams +7 at NY Giants	W 19-13
LA Rams, NY Giants total 39	Under
Tampa Bay +3 vs. Chicago	W 20-21
San Diego +11.5 at San Francisco	L 14-34

Bet watch for week 3:

Chicago +1.5 vs. NY Giants	W 20-17
Chicago, NY Giants total 33.5	Over
Cincinnati -3.5 vs. Cleveland	L 3-13
New Orleans -3 vs. LA Rams	W 7-3

Bet watch for week 4:

Cleveland +12 at NY Giants	W 10-13
Cleveland, NY Giants total 35.5	Under
Phoenix -1 vs. Dallas	L 9-17
New York Jets +8 at Chicago	W 19-13

Bet watch for week 5:

Dallas +3 vs. NY Giants	W 21-16
Dallas, NY Giants total 35	Over
New England +6.5 at Phoenix	L 10-24
No Cleveland bet	-

Bet watch for week 6:

Phoenix +9.5 at NY Giants	L 9-20
Phoenix, NY Giants total 35	Under
Indianapolis +6.5 vs. Pittsburgh	L 3-21
Green Bay +2.5 vs. Dallas	L 17-20

1991 Summary

Bets against the champ	L	W	W	W	W	L
Over/Under results	U	U	O	U	O	U
Bets against the champ's next	W	W	L	L	L	L
Bets against the champ's last	-	L	W	W	-	L

1992: Washington

Bet watch for week 1:

Dallas +2 vs. Washington	W 23-10
Dallas, Washington total 43	Under
New York Jets +3 at Atlanta	P 17-20

Bet watch for week 2:

Atlanta +10 at Washington	W 17-24
Atlanta, Washington total 45.5	Under
Minnesota +3.5 at Detroit	L 17-31
Giants +3.5 vs. Dallas	L 28-34

Bet watch for week 3:

Detroit +9 at Washington	W 10-13
Detroit, Washington total 44.5	Under
No next opponent	-
New Orleans pk at Atlanta	W 10-7

Bet watch for week 4:

No Washington bet	-
No Washington total	-
No next opponent	-
Tampa Bay +9.5 at Detroit	W 27-23

Bet watch for week 5:

Phoenix +10.5 vs. Washington	W 27-24
Phoenix, Washington total 38.5 Over	
Kansas City +1 at Denver	P 19-20
No bet involving last week's opponent	-

Bet watch for week 6:

Denver +9 at Washington	L 3-34
Denver, Washington total 38	Under
Kansas City +2.5 vs. Philadelphia	W 24-17
Giants -7 vs. Phoenix	W 31-21

1992 Summary

Bets against the champ	W	W	W	-	W	L
Over/Under results	U	U	U	-	O	U
Bets against the champ's next	P	L	-	-	P	W
Bets against the champ's last	-	L	W	W	-	W

1993: Dallas

Bet watch for week 1:

Washington -3.5 vs. Dallas	W 35-16
Washington, Dallas total 40	Over
New England +14 at Buffalo	L 14-38

Bet watch for week 2:

Buffalo +5 at Dallas	W 13-10
Buffalo, Dallas total 44.5	Under
Washington -10 vs. Phoenix	L 10-17
Phoenix +10 at Washington	W 17-10

Bet watch for week 3:

Phoenix +6.5 vs. Dallas	L 10-17
Phoenix, Dallas total 38	Under
No next opponent	-
No bet involving last week's opponent	-

Bet watch for week 4:

No Dallas bet	-
No Dallas total	-
Minnesota -3 vs. Green Bay	L 15-13
Detroit -5 vs. Phoenix	W 26-20

Bet watch for week 5:

Green Bay +11 at Dallas	L 14-36
Green Bay, Dallas total 37.5	Over
Denver -8.5 vs. Indianapolis	W 35-13
No bet involving last week's opponent	-

Bet watch for week 6:

Indianapolis +11 vs. Dallas	L 3-27
Indianapolis, Dallas total 38	Under
Next opponent had a bye	-
Denver +2.5 at Green Bay	L 27-30

1993 Summary

Bets against the champ	W	W	L	-	L	L
Over/Under results	O	O	O	-	O	U
Bets against the champ's next	L	L	-	L	W	-
Bets against the champ's last	-	W	-	W	-	L

1994: Dallas

Bet watch for week 1:

Pittsburgh +4.5 vs. Dallas	L 9-26
Pittsburgh, Dallas total 39.5	Under
Indiana +3 vs. Houston	W 45-21

Bet watch for week 2:

Houston +15 at Dallas	W 17-20
Houston, Dallas total 43	Under
Minnesota -4.5 vs. Detroit	W 10-3
Cleveland -2.5 vs. Pittsburgh	L 10-17

Bet watch for week 3:

Detroit +13 at Dallas	W 20-17
Detroit, Dallas total 44.5	Under
No next opponent	-
Buffalo +2.5 at Houston	W 15-7

Bet watch for week 4:

No Dallas bet	-
No Dallas total	-
Atlanta -1 at Washington	W 27-20
New England +3.5 at Detroit	W 23-17

Bet watch for week 5:

Washington +15 vs. Dallas	L 7-34
Washington, Dallas total 45	Under
Minnesota -3 at Arizona	L 7-17
No bet involving last week's opponent	-

Bet watch for week 6:

Arizona +15 at Dallas	L 3-38
Arizona, Dallas total 37	Over
Washington -13 at Philadelphia	W 17-21
Philadelphia +13 vs. Washington	L 21-17

1994 Summary

Bets against the champ	L	W	W	-	L	L
Over/Under results	U	U	U	-	U	O
Bets against the champ's next	W	W	-	W	L	W
Bets against the champ's last	-	L	W	W	-	L

1995: San Francisco

Bet watch for week 1:

New Orleans +9 vs. San Francisco	W 22-24
New Orleans, San Francisco total 46.5	Under
Carolina +9 at Atlanta	W 20-23

Bet watch for week 2:

Atlanta +13 at San Francisco	L 10-41
Atlanta, San Francisco total 49	Over
Miami -1.5 at New England	W 20-3
St. Louis -1.5 vs. New Orleans	W 17-13

Bet watch for week 3:

New England +12 at San Francisco	L 3-28
New England, San Francisco total 48	Under
Arizona +6.5 at Detroit	W 20-17
New Orleans -3 vs. Atlanta	L 24-27

Bet watch for week 4:

Detroit +11 vs. San Francisco	W 27-24
Detroit, San Francisco total 48	Over
New Orleans +3 at the Giants	L 29-45
No bet involving last week's opponent	-

Bet watch for week 5:

Giants +16.5 at San Francisco	W 6-20
Giants, San Francisco total 45	Under
No next opponent	-
No bet involving last week's opponent	-

Bet watch for week 6:

No San Francisco bet	-
No San Francisco total	-
Miami -10 vs. Indianapolis	L 24-27
Arizona +4 at Giants	L 21-27

1995 Summary

Bets against the champ	W	L	L	W	W	-
Over/Under results	U	O	U	O	U	-
Bets against the champ's next	W	W	W	L	-	L
Bets against the champ's last	-	W	L	-	-	L

1996: Dallas

Bet watch for week 1:

Chicago +2.5 vs. Dallas	W 24-22
Chicago, Dallas total 43	Over
Buffalo -4 at the Giants	L 23-20

Bet watch for week 2:

Giants +10 at Dallas	L 0-27
Giants, Dallas total 40	Under
Jets +5 vs. Indianapolis	L 7-21
Washington +1 vs. Chicago	W 10-3

Bet watch for week 3:

Indianapolis +10 at Dallas	W 25-24
Indianapolis, Dallas total 39	Over
Pittsburgh -3 vs. Buffalo	W 24-6
Washington -1.5 at the Giants	W 31-10

Bet watch for week 4:

Buffalo +6.5 vs. Dallas	W 10-7
Buffalo, Dallas total 39.5	Under
Atlanta -2.5 vs. Philadelphia	L 18-33
Miami +2.5 at Indianapolis	L 6-10

Bet watch for week 5:

Philadelphia -3 vs. Dallas	L 19-23
Philadelphia, Dallas total 38	Over
No next opponent	-
No bet involving last week's opponent	-

Bet watch for week 6:

None.

1996 Summary

Bets against the champ	W	L	W	W	L	-
Over/Under results	O	U	O	U	O	-
Bets against the champ's next	L	L	W	L	-	-
Bets against the champ's last	-	W	W	L	-	-

1997: Green Bay

Bet watch for week 1:

Chicago +15.5 at Green Bay	W 24-38
Chicago, Green Bay total 42.5	Over
Giants +3 vs. Philadelphia	W 31-17

Bet watch for week 2:

Philadelphia +8 vs. Green Bay	W 10-9
Philadelphia, Green Bay total 43.5	Under
Houston +6 at Miami	W 13-16
Minnesota -1.5 at Chicago	W 27-24

Bet watch for week 3:

Miami +13 at Green Bay	W 18-23
Miami, Green Bay total 42	Over
Tampa Bay +4 at Minnesota	W 28-14
Dallas -9 vs. Philadelphia	L 21-20

Bet watch for week 4:

Minnesota +12 at Green Bay	W 32-38
Minnesota, Green Bay total 43.5	Over
New Orleans +6 vs. Detroit	W 35-17
Tampa Bay -3.5 vs. Miami	W 31-21

Bet watch for week 5:

Detroit +7.5 vs. Green Bay	W 26-15
Detroit, Green Bay total 45	Under
Arizona +7 at Tampa Bay.	W 18-19
Philadelphia +2.5 at Minnesota	L 19-28

Bet watch for week 6:

Tampa Bay +8 at Green Bay	W 16-21
Tampa Bay, Green Bay total 40	Under
New Orleans +3 at Chicago	W 20-17
Buffalo -4 vs. Detroit	W 22-13

1997 Summary

Bets against the champ	W	W	W	W	W	W

Green Bay won but failed to cover in week 7; had a bye in week 8; and, for the first time that season, won and covered in week 9.

Over/Under results	O	U	O	O	U	U
Bets against the champ's next	W	W	W	W	W	W
Bets against the champ's last	-	W	L	W	L	W

1998: Denver

Bet watch for week 1:

New England +7 at Denver	W 21-27
New England, Denver total 44.5	Over
Arizona +5.5 at Dallas	L 10-38

Bet watch for week 2:

Dallas +7.5 at Denver	L 23-42
Dallas, Denver total 44	Over
Giants +2 at Oakland	L 17-20
Indianapolis +10.5 at New England	L 6-29

Bet watch for week 3:

Oakland +7.5 vs. Denver	L 17-34
Oakland, Denver total 45	Over
Seattle -8.5 vs. Washington	W 24-14
Giants -4 vs. Dallas	L 7-31

Bet watch for week 4:

Washington +7 vs. Denver	L 16-38
Washington, Denver total 43	Over
Kansas City -8 at Philadelphia	L 24-21
Dallas -5 vs. Oakland	L 12-13

Bet watch for week 5:

Philadelphia +15.5 at Denver	L 16-41
Philadelphia, Denver total 42	Over
Kansas City -4 vs. Seattle	W 17-6
Dallas -1 at Washington	W 31-10

Bet watch for week 6:

Seattle +6 vs. Denver	W 16-21
Seattle, Denver total 45	Under
No next opponent	-
Washington -2.5 at Philadelphia	L 12-17

1998 Summary

Bets against the champ	W	L	L	L	L	W
Over/Under results	O	O	O	O	O	U
Bets against the champ's next	L	L	W	L	W	-
Bets against the champ's last	-	L	L	L	W	L

1999: Denver

Bet watch for week 1:

Miami +5.5 at Denver	W 38-21
Miami, Denver total 43.	Over
Chicago +3 at Kansas City	W 20-17

Bet watch for week 2:

Kansas City +3.5 vs. Denver	W 26-10
Kansas City, Denver total 40.5	Under
Philadelphia +7 vs. Tampa Bay	L 5-19
Arizona +9.5 at Miami	W 16-19

Bet watch for week 3:

Tampa Bay -2.5 vs. Denver	W 13-10
Tampa Bay, Denver total 37	Under
Washington -1 vs. NY Jets	W 27-20
Detroit -3.5 vs. Kansas City	W 31-21

Bet watch for week 4:

NY Jets +5.5 at Denver	W 21-13
Jets, Denver total 39.5	Under
Seattle -3 vs. Oakland	L 22-21
Minnesota -7 vs. Tampa Bay	P 21-14

Bet watch for week 5:

Oakland -6.5 vs. Denver	L 13-16
Oakland, Denver total 38	Under
Tampa Bay +6 at Green Bay	W 23-26
Jacksonville -3 vs. NY Jets	W 16-6

Bet watch for week 6:

Green Bay -3.5 vs. Denver	L 10-31
Green Bay, Denver total 40	Over
Miami +2.5 at New England	W 31-30
Buffalo -4 vs. Oakland	L 14-20

1999 Summary

Bets against the champ	W	W	W	W	L	L
Over/Under results	O	U	U	U	U	O
Bets against the champ's next	W	L	W	L	W	W
Bets against the champ's last	-	W	W	P	W	L

2000: St. Louis

Bet watch for week 1:

Denver +6.5 at St. Louis	W 36-41
Denver, St. Louis total 49.5	Over
Miami -3 vs. Seattle	W 23-0

Bet watch for week 2:

Seattle +8 vs. St. Louis	W 34-37
Seattle, St. Louis total 46	Over
Carolina -3.5 at San Francisco	W 38-22
Atlanta +6 at Denver	L 14-42

Bet watch for week 3:

San Francisco +17 at St. Louis	P 41-24
San Francisco, St. Louis total 56	Over
Carolina -5.5 vs. Atlanta	L 10-15
New Orleans +5.5 vs. Seattle	L 10-20

Bet watch for week 4:

Atlanta +6.5 vs. St. Louis	L 20-41
Atlanta, St. Louis total 55.5	Over
Seattle -2.5 at San Diego	W 20-12
Dallas -6.5 vs. San Francisco	L 24-41

Bet watch for week 5:

San Diego +17 at St. Louis	L 31-57
San Diego, St. Louis total 52.5	Over
No next opponent	-
Philadelphia -3 vs. Atlanta	W 38-10

Bet watch for week 6:

No St. Louis bet	-
No St. Louis total	-
New York Giants -1 at Atlanta	W 13-6
Denver -7 at San Diego	W 21-7

2000 Summary

Bets against the champ	W	W	P	L	L	-
Over/Under results	O	O	O	O	O	-
Bets against the champ's next	W	W	L	W	-	W
Bets against the champ's last	-	L	L	L	W	W

2001: Baltimore

2001 Week 1

Baltimore was a 10-point favorite at home against Chicago. The total was 33.5. Cincinnati, next up for the champion, was pick 'em at home against New England.

Bet watch for week 1:

Chicago +10 at Baltimore   L 6-17

Chicago, Baltimore total 33.5   Under

New England pick 'em at Cincinnati L 17-23

2001 Week 2

Baltimore (1-0) was a 7-point favorite at Cincinnati. The total was 33.5. Denver, next up for the champion, was -8 at Arizona. Chicago, the team that faced the champion last week, was +3.5 at home against Minnesota.

Bet watch for week 2:

Cincinnati +7 vs. Baltimore   W 21-10

Cincinnati, Baltimore total 33.5   Under

Arizona +8 vs. Denver   L 17-38

Minnesota -3.5 at Chicago   L 10-17

2001 Week 3

Baltimore (1-1) was +5.5 at Denver. The total was 41. Tennessee, next up for the champion, had a bye. Cincinnati, the team that faced the champion last week, was +6.5 at San Diego.

Bet watch for week 3:

Denver -5.5 vs. Baltimore   L 13-20

Denver, Baltimore total 41   Under

Next opponent has a bye   -

San Diego -6.5 vs. Cincinnati W 28-14

2001 Week 4

Baltimore (2-1) was -3.5 at home against Tennessee. The total was 33.5. Green Bay, Baltimore's next opponent, was +2.5 at Tampa Bay. Denver, the team that faced the champion last week, was -10 at home against Kansas City.

Bet watch for week 4:

Tennessee +3.5 at Baltimore   L 7-26

Tennessee, Baltimore total 33.5   Under

Tampa Bay -2.5 vs. Green Bay   W 14-10

Kansas City +10 at Denver   L 6-20

2001 Week 5

Baltimore (3-1) was -1 at Green Bay. The total was 33.5. Cleveland, Baltimore's next opponent, was +2 at Cincinnati. Tennessee, the team that faced the champion last week, was -2.5 at home against Tampa Bay.

Bet watch for week 5:

Green Bay +1 vs. Baltimore   W 31-23

Green Bay, Baltimore total 33.5   Over

Cincinnati -2 vs. Cleveland   W 24-14

Tampa Bay +2.5 at Tennessee   L 28-31

2001 Week 6

Baltimore (3-2) was -7.5 at Cleveland. The total was 32.5. Jacksonville, Baltimore's week-7 opponent, was -8.5 at home against Buffalo. Green Bay, the team that faced the champion last week, was -3.5 at Minnesota.

Bet watch for week 6:

Cleveland +7.5 vs. Baltimore   W 24-14

Cleveland, Baltimore total 32.5   Over

Buffalo +8.5 at Jacksonville   W 13-10

Minnesota +3.5 vs. Green Bay   W 35-13

2001 Summary

Bets against the champ	L	W	L	L	W	W
Over/Under results	U	U	U	U	O	O
Bets against the champ's next	L	L	-	W	W	W
Bets against the champ's last	-	L	W	L	L	W

2002: New England

2002 Week 1

New England was +2.5 at home against Pittsburgh. The total was 37.5. The NY Jets, next up for the champion, was -3 at Buffalo.
Bet watch for week 1:
Pittsburgh -2.5 at New England   L 14-30
Pittsburgh, New England total 37.5   Over
Buffalo +3 vs. NY Jets   L 31-37

2002 Week 2

New England (1-0) was +1 at New York against the Jets. The total was 42. Kansas City, next up for the champion, was -4 at home against Jacksonville. Pittsburgh, the team that faced the champion last week, was 3.5 at home against Oakland.
Bet watch for week 2:
NY Jets -1 vs. New England   L 7-44
NY Jets, New England total 42   Over
Jacksonville +4 at Kansas City W 23-16
Oakland +3.5 at Pittsburgh   W 30-17

2002 Week 3

New England (2-0) was a 9-point favorite at home against Kansas City. The total was 43.5. San Diego, next up for the champion, was -2 at Arizona. NY Jets, the team that faced the champion last week, was +6 at Miami.
Bet watch for week 3:
Kansas City +9 at New England   W 38-41
Kansas City, New England total 43.5   Over
Arizona +2 vs. San Diego   L 15-23
Miami -6 vs. NY Jets   W 30-3

2002 Week 4

New England (3-0) was a 3-point favorite at San Diego. The total was 41. Miami, New England's next opponent, was -3 at Kansas City, the team that faced the champion last week
Bet watch for week 4:
San Diego +3 vs. New England   W 21-14
San Diego, New England total 41   Under
Kansas City +3 vs. Miami   W 48-30
Miami -3 at Kansas City   L 30-48

2002 Week 5

New England (3-1) was +3 at Miami. The total was 43.5. Green Bay, New England's next opponent, was +1 at Chicago. San Diego, the team that faced the champion last week, was +6 at Denver.
Bet watch for week 5:
Miami -3 vs. New England   W 26-13
Miami, New England total 43.5   Under
Chicago -1 vs. Green Bay   L 21-34
Denver -6 vs. San Diego   W 26-9

2002 Week 6

New England (3-2) was -5.5 at home against Green Bay. The total was 48.5. New England had a bye in week 7. Miami, the team that faced the champion last week, was +3.5 at Denver.
Bet watch for week 6:
Green Bay +5.5 at New England   W 28-10
Green Bay, New England total 48.5   Under
No opponent next week   -
Denver -3.5 vs. Miami   L 22-24

2002 Summary

Bets against the champ	L	L	W	W	W	W
Over/Under results	O	O	O	U	U	U
Bets against the champ's next	L	W	L	W	L	-
Bets against the champ's last	-	W	W	L	W	L

2003: Tampa Bay

2003 Week 1

Tampa Bay was a 3-point dog at Philadelphia. The total was 36. Carolina, next up for the champion, was -4 at home against Jacksonville.

Bet watch for week 1:

Philadelphia -3 vs. Tampa Bay	L 0-17
Philadelphia, Tampa Bay total 49.5	Under
Jacksonville +4 at Carolina	W 23-24

2003 Week 2

Tampa Bay (1-0) was a 9-point favorite at home against Carolina. The total was 34. Atlanta, next up for the champion, was -3 at home against Washington. Philadelphia, the team that faced the champion last week, was -4 at home against New England.

Bet watch for week 2:

Carolina +9 vs. Tampa Bay	W 12-9
Carolina, Tampa Bay total 34	Under
Washington +3 at Atlanta	W 33-31
New England +4 at Philadelphia	W 31-10

2003 Week 3

Tampa Bay (1-1) was a 5-point favorite at Atlanta. The total was 35.5. There was no week-4 opponent. Carolina, the team that faced the champion last week, had a bye.

Bet watch for week 3:

Atlanta +5 vs. Tampa Bay	L 10-31
Atlanta, Tampa Bay total 35.5	Over
No opponent next week	-
No bet involving last week's opponent	-

2003 Week 4

Tampa Bay (2-1) had a bye. Indianapolis, Tampa Bay's next opponent, was -3 at Houston. Atlanta, the team that faced the champion last week, was +6 at Carolina.

Bet watch for week 4:

No Tampa Bay bet	-
No Tampa Bay total	-
Houston +3 vs. Indianapolis	W 24-20
Carolina -6 vs. Atlanta	W 23-3

2003 Week 5

Tampa Bay (2-1) was -4.5 at home against Indianapolis. The total was 37.5. Washington, Tampa Bay's next opponent, was +5 at Philadelphia.

Bet watch for week 5:

Indianapolis +4.5 at Tampa Bay	W 38-35
Indianapolis, Tampa Bay total 37.5	Over
Philadelphia -5 vs. Washington	L 27-25
No opponent last week	-

2003 Week 6

Tampa Bay (2-2) was -3.5 at home against Washington. The total was 37.5. San Francisco, Tampa Bay's week-7 opponent, was +3.5 at Seattle. Indianapolis, the team that faced the champion last week, was -5 at home against Carolina.

Bet watch for week 6:

Washington +3.5 vs. Tampa Bay	L 13-35
Washington, Tampa Bay total 37.5	Over
Seattle -3.5 vs. San Francisco	L 20-19
Carolina +5 at Indianapolis	W 23-20

2003 Summary

Bets against the champ	L	W	L	-	W	L
Over/Under results	U	U	O	-	O	O
Bets against the champ's next	W	W	-	W	L	W
Bets against the champ's last	-	W	-	W	-	W

2004: New England

2004 Week 1

New England was a 3-point favorite at home against Indianapolis. The total was 44.5. Arizona, next up for the champion, was +10.5 at St. Louis.

Bet watch for week 1:

Indianapolis +3 at New England	P 24-27
Indianapolis, New England total 44.5	Over
St. Louis -10.5 vs. Arizona	L 17-10

2004 Week 2

New England (1-0) was a 7.5-point favorite at Arizona. The total was 41. There was no week-3 opponent. Indianapolis, the team that faced the champion last week, was pick 'em at Tennessee.

Bet watch for week 2:

Arizona +7.5 vs. New England	L 12-23
Arizona, New England total 41	Under
No opponent next week	-
Tennessee pk vs. Indianapolis	L 17-31

2004 Week 3

New England (2-0) had a bye. Buffalo, next up for the champion, had a bye. Arizona, the team that faced the champion last week, was +10 at Atlanta.

Bet watch for week 3:

No New England bet	-
No New England total	-
Next opponent had a bye	-
Atlanta -10 vs. Arizona	L 6-3

2004 Week 4

New England (2-0) was a 5-point favorite at Buffalo. The total was 35. Miami, the next opponent for the champion, was +6.5 at home against the NY Jets.

Bet watch for week 4:

Buffalo +5 vs. New England	L 17-31
Buffalo , New England total 35	Over
NY Jets -6.5 at Miami	W 17-9
No opponent last week	-

2004 Week 5

New England (3-0) was -12 at home against Miami. The total was 34.5. Seattle, the next opponent for the champion, was -7.5 at home against St. Louis. Buffalo, the team that faced the champion last week, was +6.5 at the NY Jets.

Bet watch for week 5:

Miami +12 at New England	L 10-24
Miami, New England total 34.5	Under
St. Louis +7.5 vs. Seattle	W 33-27
NY Jets -6.5 vs. Buffalo	L 16-14

2004 Week 6

New England (4-0) was -4 at home against Seattle. The total was 42. The NY Jets, New England's week-7 opponent, was +1 at home against San Francisco. Miami, the team that faced the champion last week, was +5 at Buffalo.

Bet watch for week 6:

Seattle +4 at New England	L 20-30
Seattle, New England total 42	Over
San Francisco +10 at NY Jets	W 14-22
Buffalo -5 vs. Miami	W 20-13

2004 Summary

Bets against the champ	P	L	-	L	L	L
Over/Under results	O	U	-	O	U	O
Bets against the champ's next	L	-	-	W	W	W
Bets against the champ's last	-	L	L	-	L	W

2005: New England

2005 Week 1

New England opened as a 7.5-point favorite at home against Oakland. The total was 49.5. Carolina, next up for the champion, was -7 at home against New Orleans, just after that city was devastated by Hurricane Katrina.

Bet watch for week 1:

Oakland +7.5 at New England   L 20-30

Oakland, New England total 49.5   Over

New Orleans +7 at Carolina   W 23-20

2005 Week 2

New England (1-0) was a 3-point favorite at Carolina. The total was 43.5. Pittsburgh, next up for the champion, was -5 at Houston. Oakland, the team that faced the champion last week, was +1 at home against Kansas City.

Bet watch for week 2:

Carolina +3 vs. New England   W 27-17

Carolina, New England total 43.5   Over

Houston +5 vs. Pittsburgh   L 7-27

Kansas City -1 at Oakland   W 23-17

2005 Week 3

New England (1-1) was a 3-point dog at Pittsburgh. The total was 42. San Diego, next up for the champion, was -6.5 at home against the NY Giants. Carolina, the team that faced the champion last week, was -3 at Miami.

Bet watch for week 3:

Pittsburgh -3 vs. New England   L 20-23

Pittsburgh, New England total 42   Over

NY Giants +6.5 at San Diego   L 23-45

Miami +3 vs. Carolina   W 27-24

2005 Week 4

New England (2-1) was a 4.5-point favorite at home against San Diego. The total was 47.5. Atlanta, the next opponent for the champion, was -6 at home against Minnesota. Pittsburgh, the team that faced the champion last week, had a bye.

Bet watch for week 4:

San Diego +4.5 at New England   W 41-17

San Diego, New England total 47.5   Over

Minnesota +6 at Atlanta   L 10-30

No bet involving last week's opponent   -

2005 Week 5

New England (2-2) was +2 at Atlanta. The total was 41.5. Denver, next up for the champion, was -7 at home against Washington. San Diego, the team that faced the champion last week, was -3 at home against Pittsburgh.

Bet watch for week 5:

Atlanta -2 vs. New England   L 28-31

Atlanta, New England total 41.5   Over

Washington +7 at Denver   W 19-21

Pittsburgh +3 at San Diego   W 24-22

2005 Week 6

New England (3-2) was +3 at Denver. The total was 46.5. There was no week-7 opponent. Atlanta, the team that faced the champion last week, was -5.5 at San Antonio against New Orleans.

Bet watch for week 6:

Denver -3 vs. New England   W 28-20

Denver, New England total 46.5   Over

No next opponent   -

New Orleans +5.5 at SA against Atlanta W 31-34

2005 Summary

Bets against the champ	L	W	L	W	L	W
Over/Under results	O	O	O	O	O	O
Bets against the champ's next	W	L	L	L	W	-
Bets against the champ's last	-	W	W	-	W	W

2006: Pittsburgh

2006 Week 1

Pittsburgh opened as a 1-point favorite at home against Miami. The line reflected Pittsburgh's quarterback being sidelined by an emergency appendectomy. The total was 35.5. Jacksonville, next up for the champion, was -1.5 at home against Dallas.

Bet watch for week 1:

Miami +1 at Pittsburgh   L 17-28

Miami, Pittsburgh total 35.5   Over

Dallas +1.5 at Jacksonville L 17-24

2006 Week 2

Pittsburgh (1-0) was a 2.5-point favorite at Jacksonville. Cincinnati, next up for the champion, was -10 at home against Cleveland. Miami, the team that faced the champion last week, was -6.5 at home against Buffalo.

Bet watch for week 2:

Jacksonville +2.5 vs. Pittsburgh   W 9-0

Jacksonville, Pittsburgh total 37.5   Under

Cleveland +10 at Cincinnati   L 17-34

Buffalo +6.5 at Miami   W 16-6

2006 Week 3

Pittsburgh (1-1) was a 2-point favorite at home against Cincinnati. There was no week-4 opponent.. Jacksonville, the team that faced the champion last week, was +6.5 at Indianapolis.

Bet watch for week 3:

Cincinnati +2 vs. Pittsburgh   W 28-20

Cincinnati, Pittsburgh total 43   Over

No opponent next week   -

Indianapolis -6.5 vs. Jacksonville W 21-14

2006 Week 4

Pittsburgh (1-2) had a bye. San Diego, the next opponent for the champion, was -2 at Baltimore. Cincinnati, the team that faced the champion last week, was -6 at home against New England.

Bet watch for week 4:

No Pittsburgh bet   -

No Pittsburgh total   -

Baltimore +2 vs San Diego   W 16-13

New England +6 at Cincinnati W 38-13

2006 Week 5

Pittsburgh (1-2) was +3.5 at San Diego. Kansas City, next up for the champion, was -3.5 at Arizona.

Bet watch for week 5:

San Diego -3.5 vs Pittsburgh   W 23-13

San Diego, Pittsburgh total 37   Under

Arizona +3.5 vs Kansas City   W 20-23

No opponent last week   -

2006 Week 6

Pittsburgh (1-3) was -6.5 at home vs Kansas City. Cleveland, next up for the champion, had a bye. San Diego, the team that faced the champion last week, was -9.5 at San Francisco.

Bet watch for week 6:

Kansas City +6.5 at Pittsburgh   L 7-45

Kansas City, Pittsburgh total 37   Over

Next opponent had a bye   -

San Francisco +9.5 vs San Diego L 19-48

2006 Summary

Bets against the champ	L	W	W	-	W	L
Over/Under results	O	U	O	-	U	O
Bets against the champ's next	W	L	-	W	W	-
Bets against the champ's last	-	W	W	W	-	L

2007: Indianapolis

2007 Week 1

Indianapolis opened as 6-point favorite at home against New Orleans. The total was 52.5. Tennessee, next up for the champion, was +7 at Jacksonville,.

Bet watch for week 1:

New Orleans +6 at Indianapolis   L 10-41

New Orleans, Indianapolis total 52.5   Under

Jacksonville -7 vs Tennessee   L 10-13

2007 Week 2

Indianapolis (1-0) was a 7-point favorite at Tennessee. Houston, next up for the champion, was +6.5 at Carolina. New Orleans, the team that faced the champion last week, was -4.5 at Tampa Bay.

Bet watch for week 2:

Tennessee +7 vs. Indianapolis   W 20-22

Tennessee, Indianapolis total 45.5   Under

Carolina -6.5 vs. Houston   L 21-34

Tampa Bay +4.5 vs New Orleans W 31-14

2007 Week 3

Indianapolis (2-0) was a 6.5-point favorite at Houston. Denver, next up for the champion, was -3.5 at home against Jacksonville. Tennessee, the team that faced the champion last week, was +4.5 at New Orleans.

Bet watch for week 3:

Houston +6.5 vs. Indianapolis   W 24-30

Houston, Indianapolis total 47   Over

Jacksonville +3.5 at Denver   W 23-14

New Orleans -4.5 vs. Tennessee L 14-31

2007 Week 4

Indianapolis (3-0) was a 9.5-point favorite at home against Denver. Tampa Bay, the next opponent for the champion, was +3 at Carolina. Houston, the team that faced the champion last week, was -2.5 at Atlanta.

Bet watch for week 4:

Denver +9.5 at Indianapolis   L 20-38

Denver, Indianapolis total 46   Over

Carolina -3 vs. Tampa Bay   L 7-20

Atlanta +2.5 vs. Houston   W 26-16

2007 Week 5

Indianapolis (4-0) was -9.5 at home against Tampa Bay. There was no week-6 opponent. Denver, the team that faced the champion last week, was -1 at home against San Diego.

Bet watch for week 5:

Tampa Bay +9.5 at Indianapolis L 14-33

Tampa Bay, Indianapolis total 45   Over

No next opponent   -

San Diego +1 at Denver   W 41-3

2007 Week 6

Indianapolis (5-0) had a bye. Chicago, next up for the champion, was -5 at home against Minnesota. Tampa Bay, the team that faced the champion last week, was -3 at home against Tennessee.

Bet watch for week 6:

No Indianapolis bet   -

No Indianapolis total   -

Minnesota +5 at Chicago   W 34-31

Tennessee +3 at Tampa Bay P 10-13

2007 Summary

Bets against the champ	L	W	W	L	L	-
Over/Under results	U	U	O	O	O	-
Bets against the champ's next	L	L	W	L	-	W
Bets against the champ's last	-	W	L	W	W	P

2008: NY Giants

2008 Week 1

      The New York Giants opened as a 4-point favorite at home against Washington. The total was 41. St. Louis, next up for the champion, was +8.5 at Philadelphia.

Bet watch for week 1:

Washington +4 at the New York Giants L 7-16

Washington, Giants total 41   Under

Philadelphia -8.5 vs St. Louis   W 38-3

2008 Week 2

      The Giants (1-0) were 8.5-point favorites at St. Louis. Cincinnati, next up for the champion, was -1 at home against Tennessee. Washington, the team that faced the champion last week, was pick 'em at home against New Orleans.

Bet watch for week 2:

St. Louis +8.5 vs. the Giants   L 13-41

St. Louis, Giants total 42   Over

Tennessee +1 at Cincinnati   W 24-7

New Orleans pk at Washington L 24-29

2008 Week 3

      The Giants (2-0) were 13-point favorites at home against Cincinnati. There was no week-4 opponent. St. Louis, the team that faced the champion last week, was +9 at Seattle.

Bet watch for week 3:

Cincinnati +13 at the Giants W 23-26

Cincinnati, Giants total 41.5   Over

No next opponent   -

Seattle -9 vs. St. Louis   W 37-13

2008 Week 4

      The Giants (3-0) had a bye. Seattle, the next opponent for the champion, had a bye. Cincinnati, the team that faced the champion last week, was -2 at home against Cleveland.

Bet watch for week 4:

No Giants bet   -

No Giants total   -

Next opponent had a bye   -

Cleveland +2 at Cincinnati W 20-12

2008 Week 5

      The Giants (3-0) were -7 at home against Seattle. Cleveland, next up for the champion, had a bye.

Bet watch for week 5:

Seattle +7 at the Giants   L 6-44

Seattle, Giants total 43.5   Over

Next opponent had a bye   -

No opponent last week   -

2008 Week 6

      The Giants (4-0) were -8.5 at Cleveland. San Francisco, next up for the champion, was +5 at home against Philadelphia. Seattle, the team that faced the champion last week, was -1 at home against Green Bay.

Bet watch for week 6:

Cleveland +8.5 vs. the Giants   W 35-14

Cleveland, Giants total 43.5   Over

Philadelphia -5 at San Francisco W 40-26

Green Bay +1 at Seattle   W 27-17

2008 Summary

Bets against the champ	L	L	W	-	L	W
Over/Under results	U	O	O	-	O	O
Bets against the champ's next	W	W	-	-	-	W
Bets against the champ's last	-	L	W	W	-	W

2009: Pittsburgh

2009 Week 1

Pittsburgh opened as a 6-point favorite at home against Tennessee. The total was 35.5. Chicago, next up for the champion, was +4.5 at Green Bay.

Bet watch for week 1:

Tennessee +6 at Pittsburgh   W 10-13

Tennessee, Pittsburgh total 35.5   Under

Green Bay -4.5 vs Chicago   W 21-15

2009 Week 2

Pittsburgh (1-0) was a 2.5-point favorite at Chicago. Cincinnati, next up for the champion, was +8.5 at Green Bay. Tennessee, the team that faced the champion last week, was -6.5 at home against Houston.

Bet watch for week 2:

Chicago +2.5 vs. Pittsburgh   W 17-14

Chicago, Pittsburgh total 38   Under

Green Bay -8.5 vs Cincinnati   L 24-31

Houston +6.5 at Tennessee   W 34-31

2009 Week 3

Pittsburgh (1-1) was a 3.5-point favorite at Cincinnati. San Diego, next up for the champion, was -5.5 at home against Miami. Chicago, the team that faced the champion last week, was -2.5 at Seattle.

Bet watch for week 3:

Cincinnati +3.5 vs Pittsburgh W 23-20

Cincinnati, Pittsburgh total 37   Over

Miami +5.5 at San Diego   L 13-23

Seattle +2.5 vs. Chicago   L 19-25

2009 Week 4

Pittsburgh (1-2) was a 6.5-point favorite at home against San Diego. Detroit, next up for the champion, was +10 at Chicago. Cincinnati, the team that faced the champion last week, was -6.5 at Cleveland.

Bet watch for week 4:

San Diego +6.5 at Pittsburgh   L 28-38

San Diego, Pittsburgh total 43   Over

Chicago -10 vs Detroit   W 48-24

Cleveland +6.5 vs. Cincinnati W 20-23

2009 Week 5

Pittsburgh (2-2) was -10.5 at Detroit. Cleveland, next up for the champion, was +6 at Buffalo. San Diego, the team that faced the champion last week, had a bye.

Bet watch for week 5:

Detroit +10.5 vs Pittsburgh W 20-28

Detroit, Pittsburgh total 44   Over

Buffalo -6 vs Cleveland   L 3-6

Last opponent had a bye   -

2009 Week 6

Pittsburgh (3-2) was -14 at home against Cleveland. Minnesota, next up for the champion, was -3 at home against Baltimore. Detroit, the team that faced the champion last week, was +14 at Green Bay.

Bet watch for week 6:

Cleveland +14 vs. Pittsburgh W 14-27

Cleveland, Pittsburgh total 38   Over

Baltimore +3 at Minnesota   W 31-33

Green Bay -14 vs Detroit   W 26-0

2009 Summary

Bets against the champ	W	W	W	L	W	W
Over/Under results		U	U	O	O	O
Bets against the champ's next	W	L	L	W	L	W
Bets against the champ's last	-	W	L	W	-	W

2010: New Orleans

2010 Week 1

New Orleans opened as a 5-point favorite at home against Minnesota. The total was 48.5. San Francisco, next up for the champion, was -3 at Seattle.

Bet watch for week 1:

Minnesota +5 at New Orleans	P 9-14
Minnesota, New Orleans total 48.5	Under
Seattle +3 vs San Francisco	W 31-6

2010 Week 2

New Orleans (1-0) was a 5.5-point favorite at San Francisco. Atlanta, next up for the champion, was -6.5 at home against Arizona. Minnesota, the team that faced the champion last week, was -5.5 at home against Miami.

Bet watch for week 2:

San Francisco +5.5 vs. New Orleans	W 22-25
San Francisco, New Orleans total 44	Over
Arizona +6.5 at Atlanta	L 7-41
Miami +5.5 at Minnesota	W 14-10

2010 Week 3

New Orleans (2-0) was a 3-point favorite at home against Atlanta. Carolina, next up for the champion, was +3 at home against Cincinnati. San Francisco, the team that faced the champion last week, was -2.5 at Kansas City.

Bet watch for week 3:

Atlanta +3 at New Orleans	W 27-24
Atlanta, New Orleans total 49	Over
Cincinnati -3 at Carolina	W 20-7
Kansas City +2.5 vs. San Francisco	W 31-10

2010 Week 4

New Orleans (2-1) was a 13-point favorite at home against Carolina. Arizona, next up for the champion, was +10 at San Diego. Atlanta, the team that faced the champion last week, was -7 at home against San Francisco.

Bet watch for week 4:

Carolina +13 at New Orleans	W 14-16
Carolina, New Orleans total 44	Under
San Diego -10 vs Arizona	W 41-10
San Francisco +7 at Atlanta	W 14-16

2010 Week 5

New Orleans (3-1) was -7 at Arizona. Tampa Bay, next up for the champion, was +6.5 at Cincinnati. Carolina, the team that faced the champion last week, was -2.5 at home against Chicago.

Bet watch for week 5:

Arizona +7 vs New Orleans	W 30-20
Arizona, New Orleans total 45.5	Over
Cincinnati -6.5 vs Tampa Bay	L 21-24
Chicago +2.5 at Carolina	W 23-6

2010 Week 6

New Orleans (3-2) was -4.5 at Tampa Bay. Cleveland, next up for the champion, was +13.5 at Pittsburgh. Arizona, the team that faced the champion last week, had a bye.

Bet watch for week 6:

Tampa Bay +4.5 vs. New Orleans	L 6-31
Tampa Bay, New Orleans total 44	Under
Pittsburgh -13.5 vs Cleveland	W 28-10
Last opponent had a bye	-

2010 Summary

Bets against the champ	P	W	W	W	W	L
Over/Under results	U	O	O	U	O	U
Bets against the champ's next	W	L	W	W	L	W
Bets against the champ's last	-	W	W	W	W	-

Summaries

1985

Bets against the champ	W	L	L	W	L	W
Over/Under results	O	O	P	U	O	U
Bets against the champ's next	W	W	L	W	P	W
Bets against the champ's last	-	L	W	L	W	L

1986

Bets against the champ	W	W	L	L	L	W
Over/Under results	O	U	U	O	U	U
Bets against the champ's next	W	W	L	L	W	L
Bets against the champ's last	-	L	W	W	W	L

1987

Bets against the champ	W	W	W	W	W	L
Over/Under results	O	U	O	O	U	U
Bets against the champ's next	W	L	L	L	L	W
Bets against the champ's last	-	L	L	W	L	L

1988

Bets against the champ	W	W	L	W	W	L
Over/Under results	O	O	U	O	O	O
Bets against the champ's next	P	W	L	W	L	L
Bets against the champ's last	-	W	W	L	L	W

1989

Bets against the champ	L	W	L	W	L	L
Over/Under results	O	U	O	U	O	O
Bets against the champ's next	L	L	W	P	W	L
Bets against the champ's last	-	W	L	W	L	L

1990

Bets against the champ	W	L	W	-	W	L
Over/Under results	U	U	U	-	U	O
Bets against the champ's next	L	W	-	L	L	L
Bets against the champ's last	-	W	W	-	-	L

1991

Bets against the champ	L	W	W	W	W	L
Over/Under results	U	U	O	U	O	U
Bets against the champ's next	W	W	L	L	L	L
Bets against the champ's last	-	L	W	W	-	L

1992

Bets against the champ	W	W	W	-	W	L
Over/Under results	U	U	U	-	O	U
Bets against the champ's next	P	L	-	-	P	W
Bets against the champ's last	-	L	W	W	-	W

1993

Bets against the champ	W	W	L	-	L	L
Over/Under results	O	O	O	-	O	U
Bets against the champ's next	L	L	-	L	W	-
Bets against the champ's last	-	W	-	W	-	L

1994

Bets against the champ	L	W	W	-	L	L
Over/Under results	U	U	U	-	U	O
Bets against the champ's next	W	W	-	W	L	W
Bets against the champ's last	-	L	W	W	-	L

1995

Bets against the champ	W	L	L	W	W	-
Over/Under results	U	O	U	O	U	-
Bets against the champ's next	W	W	W	L	-	L
Bets against the champ's last	-	W	L	-	-	L

1996

Bets against the champ	W	L	W	W	L	-
Over/Under results	O	U	O	U	O	-
Bets against the champ's next	L	L	W	L	-	-
Bets against the champ's last	-	W	W	L	-	-

1997

Bets against the champ	W	W	W	W	W	W
Over/Under results	O	U	O	O	U	U
Bets against the champ's next	W	W	W	W	W	W
Bets against the champ's last	-	W	L	W	L	W

1998

Bets against the champ	W	L	L	L	L	W
Over/Under results	O	O	O	O	O	U
Bets against the champ's next	L	L	W	L	W	-
Bets against the champ's last	-	L	L	L	W	L

1999

Bets against the champ	W	W	W	W	L	L
Over/Under results	O	U	U	U	U	O
Bets against the champ's next	W	L	W	L	W	W
Bets against the champ's last	-	W	W	P	W	L

2000

Bets against the champ	W	W	P	L	L	-
Over/Under results	O	O	O	O	O	-
Bets against the champ's next	W	W	L	W	-	W
Bets against the champ's last	-	L	L	L	W	W

2001

Bets against the champ	L	W	L	L	W	W
Over/Under results	U	U	U	U	O	O
Bets against the champ's next	L	L	-	W	W	W
Bets against the champ's last	-	L	W	L	L	W

2002

Bets against the champ	L	L	W	W	W	W
Over/Under results	O	O	O	U	U	U
Bets against the champ's next	L	W	L	W	L	-
Bets against the champ's last	-	W	W	L	W	L

2003

Bets against the champ	L	W	L	-	W	L
Over/Under results	U	U	O	-	O	O
Bets against the champ's next	W	W	-	W	L	W
Bets against the champ's last	-	W	-	W	-	W

2004

Bets against the champ	P	L	-	L	L	L
Over/Under results	O	U	-	O	U	O
Bets against the champ's next	L	-	L	W	W	W
Bets against the champ's last	-	L	L	-	L	W

2005

Bets against the champ	L	W	L	W	L	W
Over/Under results	O	O	O	O	O	O
Bets against the champ's next	W	L	L	L	W	-
Bets against the champ's last	-	W	W	-	W	W

2006

Bets against the champ	L	W	W	-	W	L
Over/Under results	O	U	O	-	U	O
Bets against the champ's next	W	L	-	W	W	-
Bets against the champ's last	-	W	W	W	-	L

2007

Bets against the champ	L	W	W	L	L	-
Over/Under results	U	U	O	O	O	-
Bets against the champ's next	L	L	W	L	-	W
Bets against the champ's last	-	W	L	W	W	P

2008

Bets against the champ	L	L	W	-	L	W
Over/Under results	U	O	O	-	O	O
Bets against the champ's next	W	W	-	-	-	W
Bets against the champ's last	-	L	W	W	-	W

2009

Bets against the champ	W	W	W	L	W	W
Over/Under results	U	U	O	O	O	O
Bets against the champ's next	W	L	L	W	L	W
Bets against the champ's last	-	W	L	W	-	W

2010

Bets against the champ	P	W	W	W	W	L
Over/Under results	U	O	O	U	O	U
Bets against the champ's next	W	L	W	W	L	W
Bets against the champ's last	-	W	W	W	W	-

Win-Loss Summary

1985-2000

This book was first published in 2001. This chapter was in that first publication, though of course with data only through the 2000 season. For 1985-2000, the sixteen seasons prior to publication, bets against the defending champion each week for the first six weeks of each season went 52-36-1. That's 89 games; there also were seven byes.

In those same 89 games, overs went 47-41-1.

Bets against the champ's next-week opponents went 42-39-4. There was no previous opponent until week 2 of each season.

Bets against the teams that played the defending champ last week went 33-34-1.

Starting 2001

In the NFL seasons after the first issue of this book was published, bets against the defending Super Bowl champ every week for the first six weeks yielded a W-L-P record of 28-25-2.

Those 55 games had 34 overs and 21 unders.

Bets against the defending champ's next opponent went 29-20.

Bets against the defending champ's previous opponent went 29-12-1.

Analysis

Combining the three categories of bets (against the defending champ, against the defending champ's next opponent, and against the defending champ's last-week opponent) have gone a combined 86-57-3 since this book was first published. Table 4 (in chapter 7) shows that a win-loss record this good is a 1:100 rare event. Of course there is no assurance that these three bets will continue to win in the future.

APPENDIX A

POISSON, ONE VARIABLE

This appendix lists the probabilities of particular numbers of events for the Poisson distribution, and has been created with *Excel*. For an explanation of how to use this appendix, see chapter 9, Poisson Props.

The numbers in each column may not add up to exactly 100 due to rounding.

The information in this appendix is also available in a plug-in-the-numbers format on the Links page of BJ21.com; click on Sports: Prop Tools.

Table A1
Poisson, One Variable
Mean 0 to 1

	mean									
x	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0	90	82	74	67	61	55	50	45	41	37
1	9	16	22	27	30	33	35	36	37	37
2	0	2	3	5	8	10	12	14	16	18
3	0	0	0	1	1	2	3	4	5	6
4	0	0	0	0	0	0	0	1	1	2
5	0	0	0	0	0	0	0	0	0	0

Table A2
Poisson, One Variable
Mean 1 to 2

	mean									
x	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0	33	30	27	25	22	20	18	17	15	14
1	37	36	35	35	33	32	31	30	28	27
2	20	22	23	24	25	26	26	27	27	27
3	7	9	10	11	13	14	15	16	17	18
4	2	3	3	4	5	6	6	7	8	9
5	0	1	1	1	1	2	2	3	3	4
6	0	0	0	0	0	0	1	1	1	1

Table A3
Poisson, One Variable
Mean 2 to 3

	mean									
x	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0	12	11	10	9	8	7	7	6	6	5
1	26	24	23	22	21	19	18	17	16	15
2	27	27	27	26	26	25	24	24	23	22
3	19	20	20	21	21	22	22	22	22	22
4	10	11	12	13	13	14	15	16	16	17
5	4	5	5	6	7	7	8	9	9	10
6	1	2	2	2	3	3	4	4	5	5

Table A4
Poisson, One Variable
Mean 3 to 4

	mean									
x	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0	5	4	4	3	3	3	2	2	2	2
1	14	13	12	11	11	10	9	9	8	7
2	22	21	20	19	18	18	17	16	15	15
3	22	22	22	22	22	21	21	20	20	20
4	17	18	18	19	19	19	19	19	20	20
5	11	11	12	13	13	14	14	15	15	16
6	6	6	7	7	8	8	9	9	10	10
7	2	3	3	3	4	4	5	5	6	6
8	1	1	1	1	2	2	2	2	3	3
9	0	0	0	1	1	1	1	1	1	1
10	0	0	0	0	0	0	0	0	0	1

Table A5
Poisson, One Variable
Mean 4 to 5

mean

x	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0	2	1	1	1	1	1	1	1	1	1
1	7	6	6	5	5	5	4	4	4	3
2	14	13	13	12	11	11	10	9	9	8
3	19	19	18	17	17	16	16	15	15	14
4	20	19	19	19	19	19	18	18	18	18
5	16	16	17	17	17	17	17	17	18	18
6	11	11	12	12	13	13	14	14	14	15
7	6	7	7	8	8	9	9	10	10	10
8	3	4	4	4	5	5	5	6	6	7
9	1	2	2	2	2	3	3	3	3	4
10	1	1	1	1	1	1	1	1	2	2
11	0	0	0	0	0	0	1	1	1	1

Table A6
Poisson, One Variable
Mean 5 to 6

mean

x	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
0	1	1	0	0	0	0	0	0	0	0
1	3	3	3	2	2	2	2	2	2	1
2	8	7	7	7	6	6	5	5	5	4
3	13	13	12	12	11	11	10	10	9	9
4	17	17	16	16	16	15	15	14	14	13
5	18	17	17	17	17	17	17	17	16	16
6	15	15	15	16	16	16	16	16	16	16
7	11	11	12	12	12	13	13	13	14	14
8	7	7	8	8	8	9	9	10	10	10
9	4	4	5	5	5	6	6	6	7	7
10	2	2	2	3	3	3	3	4	4	4
11	1	1	1	1	1	2	2	2	2	2
12	0	0	1	1	1	1	1	1	1	1
13	0	0	0	0	0	0	0	0	0	1

Table A7
Poisson, One Variable
Mean 6 to 7

mean

x	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1
2	4	4	4	3	3	3	3	3	2	2
3	8	8	8	7	7	7	6	6	6	5
4	13	12	12	12	11	11	10	10	10	9
5	16	15	15	15	15	14	14	13	13	13
6	16	16	16	16	16	16	15	15	15	15
7	14	14	14	14	15	15	15	15	15	15
8	11	11	11	12	12	12	12	13	13	13
9	7	8	8	8	9	9	9	10	10	10
10	4	5	5	5	6	6	6	6	7	7
11	2	3	3	3	3	4	4	4	4	5
12	1	1	1	2	2	2	2	2	2	3
13	1	1	1	1	1	1	1	1	1	1
14	0	0	0	0	0	0	1	1	1	1
15	0	0	0	0	0	0	0	0	0	0

Table A8
Poisson, One Variable
Mean 7 to 8

mean

x	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0
1	1	1	0	0	0	0	0	0	0	0
2	2	2	2	2	2	1	1	1	1	1
3	5	5	4	4	4	4	3	3	3	3
4	9	8	8	8	7	7	7	6	6	6
5	12	12	12	11	11	11	10	10	10	9
6	15	14	14	14	14	13	13	13	13	12
7	15	15	15	15	15	15	14	14	14	14
8	13	13	14	14	14	14	14	14	14	14
9	10	11	11	11	11	12	12	12	12	12
10	7	8	8	8	9	9	9	9	10	10
11	5	5	5	6	6	6	6	7	7	7
12	3	3	3	3	4	4	4	4	5	5
13	2	2	2	2	2	2	2	3	3	3
14	1	1	1	1	1	1	1	1	2	2
15	0	0	0	1	1	1	1	1	1	1
16	0	0	0	0	0	0	0	0	0	0

Table A9
Poisson, One Variable
Mean 8 to 10

					mean					
x	8.2	8.4	8.6	8.8	9.0	9.2	9.4	9.6	9.8	10.0
2	1	1	1	1	0	0	0	0	0	0
3	3	2	2	2	1	1	1	1	1	1
4	5	5	4	4	3	3	3	2	2	2
5	8	8	7	7	6	6	5	5	4	4
6	12	11	10	10	9	9	8	7	7	6
7	14	13	13	12	12	11	11	10	10	9
8	14	14	14	13	13	13	13	12	12	11
9	13	13	13	13	13	13	13	13	13	13
10	10	11	11	12	12	12	12	12	12	13
11	8	8	9	9	10	10	10	11	11	11
12	5	6	6	7	7	8	8	9	9	9
13	3	4	4	5	5	5	6	6	7	7
14	2	2	3	3	3	4	4	4	5	5
15	1	1	1	2	2	2	3	3	3	3
16	1	1	1	1	1	1	1	2	2	2
17	0	0	0	0	1	1	1	1	1	1
18	0	0	0	0	0	0	0	1	1	1

Table A10
Poisson, One Variable
Mean 10 to 12

					mean					
x	10.2	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8	12.0
3	1	1	0	0	0	0	0	0	0	0
4	2	1	1	1	1	1	1	1	1	1
5	3	3	3	2	2	2	2	2	1	1
6	6	5	5	4	4	4	3	3	3	3
7	8	8	7	7	6	6	6	5	5	4
8	11	10	10	9	9	8	8	7	7	7
9	12	12	12	11	11	10	10	10	9	9
10	12	12	12	12	12	12	11	11	11	10
11	12	12	12	12	12	12	12	12	12	11
12	10	10	10	11	11	11	11	11	11	11
13	8	8	9	9	9	10	10	10	10	11
14	6	6	6	7	7	8	8	8	9	9
15	4	4	5	5	5	6	6	6	7	7
16	2	3	3	3	4	4	4	5	5	5
17	1	2	2	2	2	3	3	3	4	4
18	1	1	1	1	1	2	2	2	2	3
19	0	1	1	1	1	1	1	1	1	2
20	0	0	0	0	0	1	1	1	1	1

Table A11
Poisson, One Variable
Mean 12 to 14

					mean					
x	12.2	12.4	12.6	12.8	13.0	13.2	13.4	13.6	13.8	14.0
5	1	1	1	1	1	1	1	0	0	0
6	2	2	2	2	2	1	1	1	1	1
7	4	4	3	3	3	3	2	2	2	2
8	6	6	5	5	5	4	4	4	3	3
9	8	8	7	7	7	6	6	5	5	5
10	10	10	9	9	9	8	8	7	7	7
11	11	11	11	10	10	10	9	9	9	8
12	11	11	11	11	11	11	11	10	10	10
13	11	11	11	11	11	11	11	11	11	11
14	9	10	10	10	10	10	10	11	11	11
15	8	8	8	9	9	9	9	10	10	10
16	6	6	7	7	7	8	8	8	8	9
17	4	4	5	5	5	6	6	6	7	7
18	3	3	3	4	4	4	5	5	5	6
19	2	2	2	2	3	3	3	4	4	4
20	1	1	1	2	2	2	2	2	3	3
21	1	1	1	1	1	1	1	2	2	2
22	0	0	0	1	1	1	1	1	1	1
23	0	0	0	0	0	0	0	1	1	1

Table A12
Poisson, One Variable
Mean 14 to 16

x	14.2	14.4	14.6	14.8	15.0	15.2	15.4	15.6	15.8	16.0
6	1	1	1	1	0	0	0	0	0	0
7	2	1	1	1	1	1	1	1	1	1
8	3	3	2	2	2	2	2	1	1	1
9	4	4	4	4	3	3	3	3	2	2
10	6	6	6	5	5	5	4	4	4	3
11	8	8	7	7	7	6	6	6	5	5
12	10	9	9	9	8	8	8	7	7	7
13	10	10	10	10	10	9	9	9	8	8
14	11	11	10	10	10	10	10	10	10	9
15	10	10	10	10	10	10	10	10	10	10
16	9	9	9	9	10	10	10	10	10	10
17	7	8	8	8	8	9	9	9	9	9
18	6	6	6	7	7	7	8	8	8	8
19	4	5	5	5	6	6	6	6	7	7
20	3	3	4	4	4	4	5	5	5	6
21	2	2	3	3	3	3	3	4	4	4
22	1	2	2	2	2	2	2	3	3	3
23	1	1	1	1	1	1	2	2	2	2
24	0	1	1	1	1	1	1	1	1	1
25	0	0	0	0	0	1	1	1	1	1

Table A13
Poisson, One Variable
Mean 16 to 18

x	16.2	16.4	16.6	16.8	17.0	17.2	17.4	17.6	17.8	18.0
8	1	1	1	1	1	1	1	1	0	0
9	2	2	2	1	1	1	1	1	1	1
10	3	3	3	2	2	2	2	2	2	1
11	5	4	4	4	4	3	3	3	3	2
12	6	6	6	5	5	5	4	4	4	4
13	8	8	7	7	7	6	6	6	5	5
14	9	9	9	8	8	8	7	7	7	7
15	10	10	9	9	9	9	9	8	8	8
16	10	10	10	10	10	10	9	9	9	9
17	9	10	10	10	10	10	10	10	9	9
18	8	9	9	9	9	9	9	9	9	9
19	7	7	8	8	8	8	8	9	9	9
20	6	6	6	7	7	7	7	8	8	8
21	5	5	5	5	6	6	6	6	7	7
22	3	4	4	4	4	5	5	5	5	6
23	2	3	3	3	3	3	4	4	4	4
24	2	2	2	2	2	2	3	3	3	3
25	1	1	1	1	2	2	2	2	2	2
26	1	1	1	1	1	1	1	1	1	2
27	0	0	0	1	1	1	1	1	1	1

Table A14
Poisson, One Variable
Mean 19 to 28

x	19	20	21	22	23	24	25	26	27	28
10	1	1	0	0	0	0	0	0	0	0
11	2	1	1	0	0	0	0	0	0	0
12	3	2	1	1	0	0	0	0	0	0
13	4	3	2	1	1	1	0	0	0	0
14	5	4	3	2	1	1	1	0	0	0
15	7	5	4	3	2	1	1	1	0	0
16	8	6	5	4	3	2	2	1	1	0
17	9	8	6	5	4	3	2	2	1	1
18	9	8	7	6	5	4	3	2	2	1
19	9	9	8	7	6	5	4	3	2	2
20	9	9	9	8	7	6	5	4	3	2
21	8	8	9	8	8	7	6	5	4	3
22	7	8	8	8	8	8	7	6	5	4
23	6	7	8	8	8	8	8	7	6	5
24	4	6	7	7	8	8	8	7	7	6
25	3	4	6	7	7	8	8	8	7	7
26	2	3	4	6	6	7	8	8	8	7
27	2	3	3	5	6	6	7	8	8	8
28	1	2	3	4	5	5	6	7	7	8
29	1	1	2	3	4	5	5	6	7	7
30	0	1	1	2	3	4	5	5	6	7
31	0	1	1	1	2	3	4	5	5	6
32	0	0	1	1	1	2	3	4	5	5
33	0	0	0	1	1	2	2	3	4	5
34	0	0	0	0	1	1	2	2	3	4
35	0	0	0	0	0	1	1	2	2	3
36	0	0	0	0	0	0	1	1	2	2
37	0	0	0	0	0	0	1	1	1	2
38	0	0	0	0	0	0	0	1	1	1
39	0	0	0	0	0	0	0	0	1	1
40	0	0	0	0	0	0	0	0	0	1

Table A15
Poisson, One Variable
Mean 29 to 38

					mean					
x	29	30	31	32	33	34	35	36	37	38
18	1	1	0	0	0	0	0	0	0	0
19	1	1	1	0	0	0	0	0	0	0
20	2	1	1	1	0	0	0	0	0	0
21	3	2	1	1	1	0	0	0	0	0
22	3	3	2	1	1	1	1	0	0	0
23	4	3	3	2	2	1	1	1	0	0
24	5	4	3	3	2	2	1	1	1	0
25	6	5	4	3	3	2	2	1	1	1
26	7	6	5	4	3	3	2	2	1	1
27	7	7	6	5	4	4	3	2	2	1
28	7	7	6	6	5	4	4	3	2	2
29	7	7	7	6	6	5	4	4	3	2
30	7	7	7	7	6	6	5	4	4	3
31	7	7	7	7	7	6	6	5	4	4
32	6	7	7	7	7	7	6	6	5	4
33	5	6	7	7	7	7	7	6	6	5
34	5	5	6	6	7	7	7	6	6	5
35	4	5	5	6	6	7	7	7	6	6
36	3	4	5	5	6	6	7	7	7	6
37	2	3	4	5	5	6	6	6	7	6
38	2	2	3	4	5	5	6	6	6	6
39	1	2	2	3	4	4	5	6	6	6
40	1	1	2	2	3	4	4	5	6	6
41	1	1	1	2	3	3	4	4	5	6
42	0	1	1	1	2	3	3	4	4	5
43	0	1	1	1	2	2	3	3	4	4
44	0	0	1	1	1	2	2	3	3	4
45	0	0	0	1	1	1	2	2	3	3
46	0	0	0	0	0	1	1	2	2	3
47	0	0	0	0	0	1	1	1	2	2
48	0	0	0	0	0	0	1	1	1	2
49	0	0	0	0	0	0	0	1	1	1
50	0	0	0	0	0	0	0	0	1	1

APPENDIX B

POISSON, ONE VARIABLE, CUMULATIVE

This appendix lists the cumulative probabilities of particular numbers of events for the Poisson distribution, and has been created with *Excel*. For an explanation of how to use this appendix, see chapter 9, Poisson Props.

The numbers in each row include the probabilities associated with that row. For example, the row labeled "2" is probability of zero plus probability of one plus probability of two.

The information in this appendix is also available in a plug-in-the-numbers format on the Links page of BJ21.com; click on Sports: Prop Tools.

Table B1
Poisson, One Variable Cumulative
Mean 0 to 1

					mean					
x	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0	90	82	74	67	61	55	50	45	41	37
1	100	98	96	94	91	88	84	81	77	74
2	100	100	100	99	99	98	97	95	94	92
3	100	100	100	100	100	100	99	99	99	98
4	100	100	100	100	100	100	100	100	100	100

Table B2
Poisson, One Variable Cumulative
Mean 1 to 2

					mean					
x	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0	33	30	27	25	22	20	18	17	15	14
1	70	66	63	59	56	52	49	46	43	41
2	90	88	86	83	81	78	76	73	70	68
3	97	97	96	95	93	92	91	89	87	86
4	99	99	99	99	98	98	97	96	96	95
5	100	100	100	100	100	99	99	99	99	98
6	100	100	100	100	100	100	100	100	100	100

Table B3
Poisson, One Variable Cumulative
Mean 2 to 3

					mean					
x	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0	12	11	10	9	8	7	7	6	6	5
1	38	35	33	31	29	27	25	23	21	20
2	65	62	60	57	54	52	49	47	45	42
3	84	82	80	78	76	74	71	69	67	65
4	94	93	92	90	89	88	86	85	83	82
5	98	98	97	96	96	95	94	93	93	92
6	99	99	99	99	99	98	98	98	97	97
7	100	100	100	100	100	99	99	99	99	99
8	100	100	100	100	100	100	100	100	100	100

Table B4
Poisson, One Variable Cumulative
Mean 3 to 4

					mean					
x	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0	5	4	4	3	3	3	2	2	2	2
1	18	17	16	15	14	13	12	11	10	9
2	40	38	36	34	32	30	29	27	25	24
3	62	60	58	56	54	52	49	47	45	43
4	80	78	76	74	73	71	69	67	65	63
5	91	89	88	87	86	84	83	82	80	79
6	96	96	95	94	93	93	92	91	90	89
7	99	98	98	98	97	97	96	96	95	95
8	100	99	99	99	99	99	99	98	98	98
9	100	100	100	100	100	100	100	99	99	99
10	100	100	100	100	100	100	100	100	100	100

Table B5
Poisson, One Variable Cumulative
Mean 4 to 5

mean

x	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0	2	1	1	1	1	1	1	1	1	1
1	8	8	7	7	6	6	5	5	4	4
2	22	21	20	19	17	16	15	14	13	12
3	41	40	38	36	34	33	31	29	28	27
4	61	59	57	55	53	51	49	48	46	44
5	77	75	74	72	70	69	67	65	63	62
6	88	87	86	84	83	82	80	79	78	76
7	94	94	93	92	91	90	90	89	88	87
8	98	97	97	96	96	95	95	94	94	93
9	99	99	99	99	98	98	98	97	97	97
10	100	100	100	99	99	99	99	99	99	99
11	100	100	100	100	100	100	100	100	100	99

Table B6
Poisson, One Variable Cumulative
Mean 5 to 6

mean

x	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
0	1	1	0	0	0	0	0	0	0	0
1	4	3	3	3	3	2	2	2	2	2
2	12	11	10	9	9	8	8	7	7	6
3	25	24	23	21	20	19	18	17	16	15
4	42	41	39	37	36	34	33	31	30	29
5	60	58	56	55	53	51	49	48	46	45
6	75	73	72	70	69	67	65	64	62	61
7	86	84	83	82	81	80	78	77	76	74
8	93	92	91	90	89	89	88	87	86	85
9	96	96	96	95	95	94	94	93	92	92
10	98	98	98	98	97	97	97	97	96	96
11	99	99	99	99	99	99	99	98	98	98
12	100	100	100	100	100	99	99	99	99	99
13	100	100	100	100	100	100	100	100	100	100

Table B7
Poisson, One Variable Cumulative
Mean 6 to 7

mean

x	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
0	0	0	0	0	0	0	0	0	0	0
1	2	1	1	1	1	1	1	1	1	1
2	6	5	5	5	4	4	4	3	3	3
3	14	13	13	12	11	11	10	9	9	8
4	27	26	25	24	22	21	20	19	18	17
5	43	41	40	38	37	35	34	33	31	30
6	59	57	56	54	53	51	50	48	46	45
7	73	72	70	69	67	66	64	63	61	60
8	84	83	81	80	79	78	77	75	74	73
9	91	90	89	89	88	87	86	85	84	83
10	95	95	94	94	93	93	92	92	91	90
11	98	98	97	97	97	96	96	96	95	95
12	99	99	99	99	98	98	98	98	98	97
13	100	100	99	99	99	99	99	99	99	99
14	100	100	100	100	100	100	100	100	99	99
15	100	100	100	100	100	100	100	100	100	100

Table B8
Poisson, One Variable Cumulative
Mean 7 to 8

mean

x	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0
1	1	1	1	1	0	0	0	0	0	0
2	3	3	2	2	2	2	2	2	1	1
3	8	7	7	6	6	6	5	5	5	4
4	16	16	15	14	13	12	12	11	11	10
5	29	28	26	25	24	23	22	21	20	19
6	43	42	41	39	38	36	35	34	33	31
7	58	57	55	54	52	51	50	48	47	45
8	72	70	69	68	66	65	63	62	61	59
9	82	81	80	79	78	76	75	74	73	72
10	89	89	88	87	86	85	84	84	83	82
11	94	94	93	93	92	91	91	90	90	89
12	97	97	96	96	96	95	95	95	94	94
13	99	98	98	98	98	98	97	97	97	97
14	99	99	99	99	99	99	99	99	98	98
15	100	100	100	100	100	99	99	99	99	99
16	100	100	100	100	100	100	100	100	100	100

Table B9
Poisson, One Variable Cumulative
Mean 8 to 10

| | | | | | mean | | | | | |
x	8.2	8.4	8.6	8.8	9.0	9.2	9.4	9.6	9.8	10.0
2	1	1	1	1	1	1	0	0	0	0
3	4	3	3	2	2	2	2	1	1	1
4	9	8	7	6	5	5	4	4	3	3
5	17	16	14	13	12	10	9	8	8	7
6	29	27	25	23	21	19	17	16	14	13
7	43	40	37	35	32	30	28	26	24	22
8	56	54	51	48	46	43	40	38	36	33
9	69	67	64	61	59	56	53	51	48	46
10	80	77	75	73	71	68	66	63	61	58
11	87	86	84	82	80	78	76	74	72	70
12	93	92	90	89	88	86	84	83	81	79
13	96	95	94	94	93	92	90	89	88	86
14	98	97	97	96	96	95	94	94	93	92
15	99	99	98	98	98	97	97	96	96	95
16	100	99	99	99	99	99	98	98	98	97
17	100	100	100	100	99	99	99	99	99	99
18	100	100	100	100	100	100	100	100	99	99

Table B10
Poisson, One Variable Cumulative
Mean 10 to 12

| | | | | | mean | | | | | |
x	10.2	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8	12.0
3	1	1	1	1	0	0	0	0	0	0
4	3	2	2	2	2	1	1	1	1	1
5	6	5	5	4	4	3	3	3	2	2
6	12	11	10	9	8	7	6	6	5	5
7	20	19	17	16	14	13	12	11	10	9
8	31	29	27	25	23	21	20	18	17	16
9	43	41	39	36	34	32	30	28	26	24
10	56	53	51	48	46	44	41	39	37	35
11	67	65	63	60	58	56	53	51	48	46
12	77	75	73	71	69	67	64	62	60	58
13	85	83	82	80	78	76	74	72	70	68
14	91	89	88	87	85	84	82	81	79	77
15	94	94	93	92	91	90	88	87	86	84
16	97	96	96	95	94	94	93	92	91	90
17	98	98	98	97	97	96	96	95	94	94
18	99	99	99	99	98	98	98	97	97	96
19	100	99	99	99	99	99	99	98	98	98
20	100	100	100	100	100	99	99	99	99	99

Table B11
Poisson, One Variable Cumulative
Mean 12 to 14

| | | | | | mean | | | | | |
x	12.2	12.4	12.6	12.8	13.0	13.2	13.4	13.6	13.8	14.0
5	2	2	1	1	1	1	1	1	1	1
6	4	4	3	3	3	2	2	2	2	1
7	8	7	7	6	5	5	4	4	4	3
8	14	13	12	11	10	9	8	8	7	6
9	23	21	19	18	17	15	14	13	12	11
10	33	31	29	27	25	23	22	20	19	18
11	44	42	39	37	35	33	31	30	28	26
12	55	53	51	49	46	44	42	40	38	36
13	66	64	62	60	57	55	53	51	49	46
14	75	73	72	70	68	65	63	61	59	57
15	83	81	80	78	76	75	73	71	69	67
16	89	88	86	85	84	82	81	79	77	76
17	93	92	91	90	89	88	87	85	84	83
18	96	95	94	94	93	92	91	90	89	88
19	98	97	97	96	96	95	95	94	93	92
20	99	98	98	98	97	97	97	96	96	95
21	99	99	99	99	99	98	98	98	97	97
22	100	100	99	99	99	99	99	99	99	98
23	100	100	100	100	100	100	99	99	99	99

Table B12
Poisson, One Variable Cumulative
Mean 14 to 16

mean

x	14.2	14.4	14.6	14.8	15.0	15.2	15.4	15.6	15.8	16.0
6	1	1	1	1	1	1	1	1	0	0
7	3	3	2	2	2	2	1	1	1	1
8	6	5	5	4	4	3	3	3	2	2
9	10	9	8	8	7	6	6	5	5	4
10	16	15	14	13	12	11	10	9	8	8
11	24	23	21	20	18	17	16	15	14	13
12	34	32	30	28	27	25	24	22	21	19
13	44	42	40	38	36	34	33	31	29	27
14	55	53	51	49	47	45	43	41	39	37
15	65	63	61	59	57	55	53	51	49	47
16	74	72	70	68	66	64	63	61	59	57
17	81	80	78	77	75	73	71	70	68	66
18	87	86	85	83	82	81	79	77	76	74
19	92	91	90	89	88	86	85	84	83	81
20	95	94	93	93	92	91	90	89	88	87
21	97	96	96	95	95	94	93	93	92	91
22	98	98	97	97	97	96	96	95	95	94
23	99	99	99	98	98	98	97	97	97	96
24	99	99	99	99	99	99	99	98	98	98
25	100	100	100	99	99	99	99	99	99	99

Table B13
Poisson, One Variable Cumulative
Mean 16 to 18

mean

x	16.2	16.4	16.6	16.8	17.0	17.2	17.4	17.6	17.8	18.0
8	2	2	2	1	1	1	1	1	1	1
9	4	4	3	3	3	2	2	2	2	2
10	7	6	6	5	5	4	4	4	3	3
11	12	11	10	9	8	8	7	7	6	5
12	18	17	16	15	14	13	12	11	10	9
13	26	24	23	21	20	19	18	16	15	14
14	35	33	31	30	28	27	25	24	22	21
15	45	43	41	39	37	35	34	32	30	29
16	55	53	51	49	47	45	43	41	39	38
17	64	62	60	58	56	54	53	51	49	47
18	73	71	69	67	65	64	62	60	58	56
19	80	78	77	75	74	72	70	69	67	65
20	86	84	83	82	81	79	78	76	75	73

Table B14
Poisson, One Variable Cumulative
Mean 19 to 28

mean

x	19	20	21	22	23	24	25	26	27	28
10	2	1	1	0	0	0	0	0	0	0
11	3	2	1	1	0	0	0	0	0	0
12	6	4	2	2	1	1	0	0	0	0
13	10	7	4	3	2	1	1	0	0	0
14	15	10	7	5	3	2	1	1	0	0
15	21	16	11	8	5	3	2	1	1	1
16	29	22	16	12	8	6	4	2	2	1
17	38	30	23	17	12	9	6	4	3	2
18	47	38	30	23	17	13	9	6	4	3
19	56	47	38	31	24	18	13	10	7	5
20	65	56	47	39	31	24	19	14	10	7
21	73	64	56	47	39	31	25	19	14	11
22	79	72	64	56	47	39	32	25	20	15
23	85	79	72	64	56	47	39	32	26	20
24	89	84	78	71	63	55	47	40	32	26
25	93	89	84	78	71	63	55	47	40	33
26	95	92	88	83	77	70	63	55	47	40
27	97	95	92	88	83	77	70	63	55	47
28	98	97	94	91	87	82	76	70	62	55
29	99	98	96	94	91	87	82	76	69	62
30	99	99	98	96	94	90	86	81	76	69
31	100	99	98	97	96	93	90	86	81	75
32	100	100	99	98	97	95	93	90	85	81
33	100	100	99	99	98	97	95	92	89	85
34	100	100	100	99	99	98	97	95	92	89
35	100	100	100	99	99	99	98	96	94	92
36	100	100	100	100	100	99	99	98	96	94
37	100	100	100	100	100	99	99	98	97	96
38	100	100	100	100	100	100	99	99	98	97
39	100	100	100	100	100	100	100	99	99	98
40	100	100	100	100	100	100	100	100	99	99

Table B15
Poisson, One Variable Cumulative
Mean 29 to 38

x	mean 29	30	31	32	33	34	35	36	37	38
18	2	1	1	1	0	0	0	0	0	0
19	3	2	1	1	1	0	0	0	0	0
20	5	4	2	2	1	1	0	0	0	0
21	8	5	4	3	2	1	1	0	0	0
22	11	8	6	4	3	2	1	1	1	0
23	15	11	8	6	4	3	2	1	1	1
24	20	16	12	9	6	5	3	2	2	1
25	26	21	16	12	9	7	5	3	2	2
26	33	27	21	17	13	10	7	5	4	3
27	40	33	27	22	17	13	10	7	5	4
28	48	40	34	27	22	17	13	10	8	6
29	55	48	40	34	28	22	18	14	11	8
30	62	55	48	41	34	28	23	18	14	11
31	69	62	55	48	41	34	28	23	18	14
32	75	68	62	55	48	41	34	29	23	19
33	80	74	68	62	55	48	41	35	29	24
34	85	80	74	68	61	55	48	41	35	29
35	88	84	79	74	68	61	54	48	41	35
36	91	88	84	79	73	67	61	54	48	41
37	94	91	88	84	79	73	67	61	54	48
38	96	94	91	87	83	78	73	67	61	54
39	97	95	93	90	87	83	78	73	67	61
40	98	97	95	93	90	87	82	78	72	67
41	99	98	97	95	93	90	86	82	77	72
42	99	99	98	96	95	92	89	86	82	77
43	99	99	98	97	96	94	92	89	86	82
44	100	99	99	98	97	96	94	92	89	85
45	100	100	99	99	98	97	96	94	92	89
46	100	100	100	99	99	98	97	96	94	91
47	100	100	100	100	99	99	98	97	95	93
48	100	100	100	100	99	99	99	98	97	95
49	100	100	100	100	100	99	99	98	98	96
50	100	100	100	100	100	100	99	99	98	97

APPENDIX C

TWO VARIABLES

For an explanation of how to use this appendix, see chapter 9, Poisson Props.

Appendix C applies to the situation of comparing the numbers of occurrences for each of two different variables. The tables call them "Variable A" and "Variable B." It does not matter whether A or B occurs first in stime; either variable could be Variable A.

Each row is a particular number of occurrences of Variable A.

Each column header is a particular number of occurrences of Variable B. Under each column header are three columns of numbers. These numbers are percentages, and sum to 100 except for rounding. The first number is the probability that there will be more of Variable A. The second number is the probability that there will be more of Variable B. The third number is the probability of a tie.

Table 7 is reproduced at the end because it is related to the other tables in this appendix.

The information in this appendix is also available on the Links page of BJ21.com; click on Sports: Prop Tools.

Table C1
Win-Lose-Push
A is 0 to 3, B is 0 to 0.5

Var A	0.1			0.2			0.3			0.4			0.5		
0.1	9	9	83	8	17	76	7	24	69	7	30	63	6	36	58
0.2	17	8	76	15	15	70	14	22	64	13	28	59	12	34	55
0.3	24	7	69	22	14	64	20	20	60	18	26	56	17	31	52
0.4	30	7	63	28	13	59	26	18	56	24	24	52	22	29	49
0.5	36	6	58	34	12	55	31	17	52	29	22	49	27	27	47
0.6	42	5	53	39	11	50	36	15	48	34	20	46	31	25	44
0.7	47	5	48	44	10	47	41	14	45	38	19	43	36	23	42
0.8	52	4	44	48	9	43	45	13	42	42	17	41	40	21	39
0.9	56	4	40	52	8	40	49	12	39	46	16	38	43	20	37
1.0	60	4	37	56	7	36	53	11	36	50	15	36	47	18	35
1.1	63	3	34	60	7	34	56	10	33	53	13	33	50	17	33
1.2	66	3	31	63	6	31	60	9	31	57	12	31	54	15	31
1.3	69	3	28	66	6	29	63	8	29	60	11	29	57	14	29
1.4	72	3	26	69	5	26	65	8	27	62	10	27	59	13	27
1.5	74	2	23	71	5	24	68	7	25	65	10	25	62	12	26
1.6	77	2	21	73	4	22	70	7	23	67	9	24	65	11	24
1.7	79	2	19	76	4	20	73	6	21	70	8	22	67	10	23
1.8	81	2	18	78	4	19	75	5	20	72	8	21	69	10	21
1.9	82	2	16	79	3	17	77	5	18	74	7	19	71	9	20
2.0	84	1	15	81	3	16	78	5	17	76	6	18	73	8	19
2.1	85	1	14	83	3	15	80	4	16	77	6	17	75	8	18
2.2	86	1	12	84	2	14	82	4	15	79	5	16	77	7	16
2.3	88	1	11	85	2	12	83	4	14	81	5	14	78	6	15
2.4	89	1	10	86	2	11	84	3	13	82	5	13	80	6	14
2.5	90	1	9	88	2	11	85	3	12	83	4	13	81	5	13
2.6	91	1	9	89	2	10	87	3	11	84	4	12	82	5	13
2.7	91	1	8	90	2	9	88	3	10	86	4	11	84	5	12
2.8	92	1	7	90	1	8	89	2	9	87	3	10	85	4	11
2.9	93	1	7	91	1	8	89	2	8	88	3	9	86	4	10
3.0	93	1	6	92	1	7	90	2	8	89	3	9	87	4	10

Table C2
Win-Lose-Push
A is 0 to 3, B is 0.6 to 1

Var A	0.6			0.7			0.8			0.9			1.0		
0.1	5	42	53	5	47	48	4	52	44	4	56	40	4	60	37
0.2	11	39	50	10	44	47	9	48	43	8	52	40	7	56	36
0.3	15	36	48	14	41	45	13	45	42	12	49	39	11	53	36
0.4	20	34	46	19	38	43	17	42	41	16	46	38	15	50	36
0.5	25	31	44	23	36	42	21	40	39	20	43	37	18	47	35
0.6	29	29	42	27	33	40	25	37	38	23	41	36	22	44	34
0.7	33	27	40	31	31	38	29	35	37	27	38	35	25	42	33
0.8	37	25	38	35	29	37	32	32	35	30	36	34	28	39	33
0.9	41	23	36	38	27	35	36	30	34	34	34	33	31	37	32
1.0	44	22	34	42	25	33	39	28	33	37	31	32	35	34	31
1.1	48	20	32	45	23	32	42	26	31	40	29	31	38	32	30
1.2	51	19	31	48	22	30	45	25	30	43	28	29	41	30	29
1.3	54	17	29	51	20	29	48	23	29	46	26	28	43	29	28
1.4	57	16	28	54	19	28	51	21	27	49	24	27	46	27	27
1.5	59	15	26	56	17	26	54	20	26	51	23	26	49	25	26
1.6	62	14	25	59	16	25	56	19	25	54	21	25	51	24	25
1.7	64	13	23	61	15	24	59	17	24	56	20	24	54	22	24
1.8	66	12	22	64	14	22	61	16	23	59	18	23	56	21	23
1.9	68	11	21	66	13	21	63	15	22	61	17	22	58	19	22
2.0	71	10	19	68	12	20	65	14	20	63	16	21	61	18	21
2.1	72	9	18	70	11	19	67	13	19	65	15	20	63	17	20
2.2	74	9	17	72	10	18	69	12	18	67	14	19	65	16	19
2.3	76	8	16	73	10	17	71	11	17	69	13	18	67	15	18
2.4	77	7	15	75	9	16	73	11	17	71	12	17	68	14	18
2.5	79	7	14	77	8	15	74	10	16	72	11	16	70	13	17
2.6	80	6	13	78	8	14	76	9	15	74	11	15	72	12	16
2.7	82	6	13	79	7	13	77	9	14	75	10	15	73	11	15
2.8	83	5	12	81	7	13	79	8	13	77	9	14	75	11	15
2.9	84	5	11	82	6	12	80	7	13	78	9	13	76	10	14
3.0	85	5	10	83	6	11	81	7	12	79	8	12	77	9	13

Table C3
Win-Lose-Push
A is 1 to 4, B is 1 to 1.5

Var A	Variable B				
	1.1	1.2	1.3	1.4	1.5
1.1	35 35 29	33 38 28	31 41 27	30 44 27	28 46 26
1.2	38 33 28	36 36 28	34 39 27	32 42 26	30 44 25
1.3	41 31 27	39 34 27	37 37 26	35 39 26	33 42 25
1.4	44 30 27	42 32 26	39 35 26	37 37 25	35 40 25
1.5	46 28 26	44 30 25	42 33 25	40 35 25	38 38 24
1.6	49 26 25	47 29 25	44 31 24	42 34 24	40 36 24
1.7	51 25 24	49 27 24	47 29 24	45 32 24	43 34 23
1.8	54 23 23	51 25 23	49 28 23	47 30 23	45 32 23
1.9	56 22 22	54 24 22	51 26 22	49 28 22	47 31 22
2.0	58 20 21	56 23 22	54 25 22	51 27 22	49 29 22
2.1	60 19 21	58 21 21	56 23 21	54 25 21	51 27 21
2.2	62 18 20	60 20 20	58 22 20	56 24 20	54 26 20
2.3	64 17 19	62 19 19	60 21 19	58 23 20	56 25 20
2.4	66 16 18	64 18 18	62 20 19	60 21 19	58 23 19
2.5	68 15 17	66 17 18	64 18 18	61 20 18	59 22 19
2.6	70 14 17	67 16 17	65 17 17	63 19 18	61 21 18
2.7	71 13 16	69 15 16	67 16 17	65 18 17	63 20 17
2.8	73 12 15	71 14 16	69 15 16	67 17 16	65 19 17
2.9	74 11 14	72 13 15	70 14 15	68 16 16	66 18 16
3.0	76 11 14	74 12 14	72 14 15	70 15 15	68 17 15
3.1	77 10 13	75 11 14	73 13 14	71 14 15	69 16 15
3.2	78 9 12	76 11 13	75 12 13	73 13 14	71 15 14
3.3	79 9 12	78 10 12	76 11 13	74 13 13	72 14 14
3.4	81 8 11	79 9 12	77 11 12	75 12 13	74 13 13
3.5	82 8 11	80 9 11	78 10 12	77 11 12	75 12 13
3.6	83 7 10	81 8 11	79 9 11	78 10 12	76 12 12
3.7	84 7 10	82 8 10	81 9 11	79 10 11	77 11 12
3.8	85 6 9	83 7 10	82 8 10	80 9 11	78 10 11
3.9	85 6 9	84 7 9	83 8 10	81 9 10	80 10 11
4.0	86 6 8	85 6 9	84 7 9	82 8 10	81 9 10

Table C4
Win-Lose-Push
A is 1 to 4, B is 1.6 to 2

Var A	Variable B				
	1.6	1.7	1.8	1.9	2.0
1.1	26 49 25	25 51 24	23 54 23	22 56 22	20 58 21
1.2	29 47 25	27 49 24	25 51 23	24 54 22	23 56 22
1.3	31 44 24	29 47 24	28 49 23	26 51 22	25 54 22
1.4	34 42 24	32 45 24	30 47 23	28 49 22	27 51 22
1.5	36 40 24	34 43 23	32 45 23	31 47 22	29 49 22
1.6	38 38 23	36 41 23	35 43 23	33 45 22	31 47 22
1.7	41 36 23	39 39 23	37 41 22	35 43 22	33 45 21
1.8	43 35 23	41 37 22	39 39 22	37 41 22	35 43 21
1.9	45 33 22	43 35 22	41 37 22	39 39 21	38 41 21
2.0	47 31 22	45 33 21	43 35 21	41 38 21	40 40 21
2.1	49 30 21	47 32 21	45 34 21	44 36 21	42 38 20
2.2	51 28 20	49 30 20	47 32 20	46 34 20	44 36 20
2.3	54 27 20	51 29 20	50 31 20	48 33 20	46 35 20
2.4	55 25 19	53 27 19	51 29 19	50 31 19	48 33 19
2.5	57 24 19	55 26 19	53 28 19	51 30 19	50 31 19
2.6	59 23 18	57 24 18	55 26 18	53 28 19	51 30 19
2.7	61 21 18	59 23 18	57 25 18	55 27 18	53 29 18
2.8	63 20 17	61 22 17	59 24 17	57 25 18	55 27 18
2.9	64 19 16	62 21 17	61 23 17	59 24 17	57 26 17
3.0	66 18 16	64 20 16	62 21 16	60 23 17	58 25 17
3.1	68 17 15	66 19 16	64 20 16	62 22 16	60 23 16
3.2	69 16 15	67 18 15	65 19 15	64 21 16	62 22 16
3.3	70 15 14	69 17 15	67 18 15	65 20 15	63 21 15
3.4	72 14 14	70 16 14	68 17 14	67 19 15	65 20 15
3.5	73 14 13	71 15 13	70 16 14	68 18 14	66 19 14
3.6	74 13 13	73 14 12	71 15 13	69 17 14	68 18 14
3.7	76 12 12	74 13 12	72 15 13	71 16 13	69 17 14
3.8	77 11 12	75 13 12	74 14 12	72 15 13	70 16 13
3.9	78 11 11	76 12 12	75 13 12	73 14 12	72 16 13
4.0	79 10 11	78 11 11	76 12 11	74 14 12	73 15 12

Table C5
Win-Lose-Push
A is 2 to 8, B is 12 to 3

Var A	Variable B 2.2	2.4	2.6	2.8	3.0
2.2	40 40 20	37 44 19	34 48 18	31 51 18	28 55 17
2.4	44 37 19	41 41 19	37 44 18	34 48 18	31 51 17
2.6	48 34 18	44 37 18	41 41 18	38 45 18	35 48 17
2.8	51 31 18	48 34 18	45 38 18	41 41 17	38 45 17
3.0	55 28 17	51 31 17	48 35 17	45 38 17	42 42 17
3.2	58 26 16	55 29 16	51 32 16	48 35 16	45 39 16
3.4	61 23 15	58 26 16	55 30 16	51 33 16	48 36 16
3.6	64 21 15	61 24 15	58 27 15	54 30 15	51 33 15
3.8	67 19 14	64 22 14	61 25 15	58 28 15	54 31 15
4.0	70 17 13	67 20 13	64 23 14	60 25 14	57 28 14
4.2	72 16 12	69 18 13	66 21 13	63 23 13	60 26 14
4.4	75 14 11	72 16 12	69 19 12	66 21 13	63 24 13
4.6	77 13 10	74 15 11	71 17 12	68 20 12	65 22 13
4.8	79 11 10	76 13 10	73 16 11	71 18 11	68 20 12
5.0	81 10 9	78 12 10	76 14 10	73 16 11	70 19 11
5.2	82 9 8	80 11 9	78 13 10	75 15 10	72 17 11
5.4	84 8 8	82 10 8	79 12 9	77 14 10	74 15 10
5.6	85 7 7	83 9 8	81 11 8	79 12 9	76 14 9
5.8	87 7 6	85 8 7	83 10 8	81 11 8	78 13 9
6.0	88 6 6	86 7 7	84 9 7	82 10 8	80 12 8
6.2	89 5 5	87 7 6	86 8 7	84 9 7	82 11 8
6.4	90 5 5	89 6 6	87 7 6	85 8 7	83 10 7
6.6	91 4 5	90 5 5	88 6 6	86 7 6	84 9 7
6.8	92 4 4	91 5 5	89 6 5	87 7 6	86 8 6
7.0	93 3 4	92 4 4	90 5 5	89 6 5	87 7 6
7.2	94 3 3	92 4 4	91 5 4	90 6 5	88 7 5
7.4	94 3 3	93 3 4	92 4 4	91 5 4	89 6 5
7.6	95 2 3	94 3 3	93 4 4	91 4 4	90 5 5
7.8	95 2 3	94 3 3	93 3 3	92 4 4	91 5 4
8.0	96 2 2	95 2 3	94 3 3	93 4 3	92 4 4

Table C6
Win-Lose-Push
A is 2 to 8, B is 3 to 4

Var A	Variable B 3.2	3.4	3.6	3.8	4.0
2.2	26 58 16	23 61 15	21 64 15	19 67 14	17 70 13
2.4	29 55 16	26 58 16	24 61 15	22 64 14	20 67 13
2.6	32 51 16	30 55 16	27 58 15	25 61 15	23 64 14
2.8	35 48 16	33 51 16	30 54 15	28 58 15	25 60 14
3.0	39 45 16	36 48 16	33 51 15	31 54 15	28 57 14
3.2	42 42 16	39 45 16	36 48 15	34 51 15	31 54 15
3.4	45 39 16	42 42 16	39 45 15	37 48 15	34 51 15
3.6	48 36 15	45 39 15	42 42 15	40 45 15	37 48 15
3.8	51 34 15	48 37 15	45 40 15	43 43 15	40 46 14
4.0	54 31 15	51 34 15	48 37 15	46 40 14	43 43 14
4.2	57 29 14	54 32 14	51 35 14	48 37 14	46 40 14
4.4	60 27 13	57 29 14	54 32 14	51 35 14	48 38 14
4.6	63 25 13	60 27 13	57 30 13	54 33 13	51 35 14
4.8	65 23 12	62 25 13	59 28 13	57 30 13	54 33 13
5.0	67 21 12	65 23 12	62 26 12	59 28 13	56 31 13
5.2	70 19 11	67 21 12	64 24 12	62 26 12	59 29 12
5.4	72 18 11	69 20 11	67 22 11	64 24 12	61 27 12
5.6	74 16 10	71 18 10	69 20 11	66 22 11	64 25 11
5.8	76 15 9	73 17 10	71 19 10	69 21 11	66 23 11
6.0	78 13 9	75 15 9	73 17 10	71 19 10	68 21 11
6.2	79 12 8	77 14 9	75 16 9	73 18 10	70 20 10
6.4	81 11 8	79 13 8	77 14 9	75 16 9	72 18 10
6.6	83 10 7	81 12 8	78 13 8	76 15 9	74 17 9
6.8	84 9 7	82 11 7	80 12 8	78 14 8	76 15 9
7.0	85 8 6	83 10 7	82 11 7	80 13 8	78 14 8
7.2	86 8 6	85 9 6	83 10 7	81 12 7	79 13 8
7.4	88 7 5	86 8 6	84 9 6	83 11 7	81 12 7
7.6	89 6 5	87 7 6	86 9 6	84 10 6	82 11 7
7.8	90 6 5	88 7 5	87 8 6	85 9 6	83 10 6
8.0	91 5 4	89 6 5	88 7 5	86 8 6	85 9 6

Table C7
Win-Lose-Push
A is 4 to 10, B is 4 to 5

Var A	Variable B 4.2	4.4	4.6	4.8	5.0
4.2	43 43 14	40 46 14	38 49 14	36 51 13	33 54 13
4.4	46 40 14	43 43 14	41 46 13	38 49 13	36 51 13
4.6	49 38 14	46 41 13	43 43 13	41 46 13	38 49 13
4.8	51 36 13	49 38 13	46 41 13	43 43 13	41 46 13
5.0	54 33 13	51 36 13	49 38 13	46 41 13	44 44 13
5.2	56 31 13	54 34 13	51 36 13	49 39 13	46 41 13
5.4	59 29 12	56 31 12	54 34 12	51 36 12	49 39 12
5.6	61 27 12	59 29 12	56 32 12	54 34 12	51 37 12
5.8	64 25 11	61 27 12	58 30 12	56 32 12	54 35 12
6.0	66 23 11	63 26 11	61 28 11	58 30 12	56 32 12
6.2	68 22 10	65 24 11	63 26 11	61 28 11	58 30 11
6.4	70 20 10	68 22 10	65 24 11	63 26 11	60 29 11
6.6	72 19 10	70 21 10	67 23 10	65 25 10	63 27 11
6.8	74 17 9	72 19 9	69 21 10	67 23 10	65 25 10
7.0	75 16 9	73 18 9	71 20 9	69 21 10	67 23 10
7.2	77 15 8	75 16 9	73 18 9	71 20 9	69 22 10
7.4	79 14 8	77 15 8	75 17 8	73 19 9	71 20 9
7.6	80 12 7	78 14 8	76 16 8	74 17 8	72 19 9
7.8	82 11 7	80 13 7	78 14 8	76 16 8	74 18 8
8.0	83 11 6	81 12 7	79 13 7	78 15 8	76 16 8
8.2	84 10 6	83 11 6	81 12 7	79 14 7	77 15 8
8.4	85 9 6	84 10 6	82 11 6	80 13 7	79 14 7
8.6	87 8 5	85 9 6	83 10 6	82 12 6	80 13 7
8.8	88 7 5	86 9 5	85 10 6	83 11 6	81 12 6
9.0	89 7 5	87 8 5	86 9 5	84 10 6	83 11 6
9.2	89 6 4	88 7 5	87 8 5	85 9 5	84 10 6
9.4	90 6 4	89 7 4	88 7 5	86 8 5	85 10 5
9.6	91 5 4	90 6 4	89 7 4	87 8 5	86 9 5
9.8	92 5 3	91 5 4	90 6 4	88 7 4	87 8 5
10.0	92 4 3	91 5 4	90 6 4	89 7 4	88 7 5

Table C8
Win-Lose-Push
A is 4 to 10, B is 5 to 6

Var A	Variable B 5.2	5.4	5.6	5.8	6.0
4.2	31 56 13	29 59 12	27 61 12	25 64 11	23 66 11
4.4	34 54 13	31 56 12	29 59 12	27 61 12	26 63 11
4.6	36 51 13	34 54 12	32 56 12	30 58 12	28 61 11
4.8	39 49 13	36 51 12	34 54 12	32 56 12	30 58 12
5.0	41 46 13	39 49 12	37 51 12	35 54 12	32 56 12
5.2	44 44 13	41 46 12	39 49 12	37 51 12	35 53 12
5.4	46 41 12	44 44 12	42 46 12	39 49 12	37 51 12
5.6	49 39 12	46 42 12	44 44 12	42 46 12	39 49 12
5.8	51 37 12	49 39 12	46 42 12	44 44 12	42 46 12
6.0	53 35 12	51 37 12	49 39 12	46 42 12	44 44 12
6.2	56 33 11	53 35 12	51 37 12	49 40 12	46 42 12
6.4	58 31 11	56 33 11	53 35 11	51 38 11	49 40 11
6.6	60 29 11	58 31 11	56 33 11	53 36 11	51 38 11
6.8	62 27 11	60 29 11	58 31 11	56 34 11	53 36 11
7.0	64 25 10	62 27 10	60 30 11	58 32 11	55 34 11
7.2	66 24 10	64 26 10	62 28 10	60 30 10	58 32 11
7.4	68 22 9	66 24 10	64 26 10	62 28 10	60 30 10
7.6	70 21 9	68 23 9	66 24 10	64 26 10	62 28 10
7.8	72 19 9	70 21 9	68 23 9	66 25 9	64 27 10
8.0	74 18 8	72 20 9	70 21 9	68 23 9	66 25 9
8.2	75 17 8	73 18 8	71 20 9	69 22 9	67 24 9
8.4	77 16 8	75 17 8	73 19 8	71 20 8	69 22 9
8.6	78 14 7	77 16 8	75 17 8	73 19 8	71 21 8
8.8	80 13 7	78 15 7	76 16 7	74 18 8	73 19 8
9.0	81 12 6	79 14 7	78 15 7	76 17 7	74 18 8
9.2	82 12 6	81 13 6	79 14 7	77 15 7	76 17 7
9.4	84 11 6	82 12 6	80 13 6	79 14 7	77 16 7
9.6	85 10 5	83 11 6	82 12 6	80 13 6	78 15 7
9.8	86 9 5	84 10 6	83 11 6	81 12 6	80 14 6
10.0	87 8 5	85 9 5	84 10 6	83 12 6	81 13 6

Table C9
Win-Lose-Push
A is 6 to 20, B is 6 to 8

Var A	Variable B 6.0	6.5	7.0	7.5	8.0
6.0	44 44 12	39 50 11	34 55 11	29 61 10	25 66 9
6.5	50 39 11	44 44 11	39 50 11	34 55 10	30 60 10
7.0	55 34 11	50 39 11	45 45 11	40 50 10	35 55 10
7.5	61 29 10	55 34 10	50 40 10	45 45 10	40 50 10
8.0	66 25 9	60 30 10	55 35 10	50 40 10	45 45 10
8.5	70 21 9	65 26 9	60 30 10	55 35 10	50 40 10
9.0	74 18 8	69 22 8	65 27 9	60 31 9	55 36 9
9.5	78 15 7	73 19 8	69 23 8	64 27 9	59 32 9
10.0	81 13 6	77 16 7	73 20 8	68 24 8	64 28 8
10.5	84 11 5	80 14 6	76 17 7	72 20 7	68 24 8
11.0	86 9 5	83 11 5	80 14 6	76 17 7	72 21 7
11.5	89 7 4	86 9 5	83 12 5	79 15 6	75 18 7
12.0	91 6 3	88 8 4	85 10 5	82 13 5	78 16 6
12.5	92 5 3	90 7 4	87 8 4	84 11 5	81 13 5
13.0	94 4 3	92 5 3	89 7 4	87 9 4	84 11 5
13.5	95 3 2	93 4 3	91 6 3	89 8 4	86 10 4
14.0	96 3 2	94 4 2	92 5 3	90 6 3	88 8 4
14.5	96 2 1	95 3 2	94 4 2	92 5 3	90 7 3
15.0	97 2 1	96 2 2	95 3 2	93 4 2	91 6 3
15.5	98 1 1	97 2 1	96 3 2	94 4 2	93 5 2
16.0	98 1 1	97 2 1	96 2 1	95 3 2	94 4 2
16.5	98 1 1	98 1 1	97 2 1	96 2 1	95 3 2
17.0	99 1 1	98 1 1	98 1 1	97 2 1	96 3 2
17.5	99 1 0	99 1 1	98 1 1	97 2 1	97 2 1
18.0	99 0 0	99 1 0	98 1 1	98 1 1	97 2 1
18.5	99 0 0	99 0 0	99 1 1	98 1 1	98 1 1
19.0	100 0 0	99 0 0	99 1 0	99 1 1	98 1 1
19.5	100 0 0	99 0 0	99 0 0	99 1 0	98 1 1
20.0	100 0 0	100 0 0	99 0 0	99 1 0	99 1 1
20.5	100 0 0	100 0 0	99 0 0	99 0 0	99 1 0

Table C10
Win-Lose-Push
A is 6 to 20, B is 8 to 10

Var A	Variable B 8.5	9.0	9.5	10.0	10.5
6.0	21 70 9	18 74 8	15 78 7	13 81 6	11 84 5
6.5	26 65 9	22 69 8	19 73 8	16 77 7	14 80 6
7.0	30 60 10	27 65 9	23 69 8	20 73 8	17 76 7
7.5	35 55 10	31 60 9	27 64 9	24 68 8	20 72 7
8.0	40 50 10	36 55 9	32 59 9	28 64 8	24 68 8
8.5	45 45 10	41 50 10	36 55 9	32 59 9	28 63 8
9.0	50 41 10	45 45 9	41 50 9	36 55 9	32 59 9
9.5	55 36 9	50 41 9	45 45 9	41 50 9	37 54 9
10.0	59 32 9	55 36 9	50 41 9	46 46 9	41 50 9
10.5	63 28 8	59 32 9	54 37 9	50 41 9	46 46 9
11.0	67 25 8	63 29 8	59 33 8	54 37 9	50 41 9
11.5	71 22 7	67 25 8	63 29 8	59 33 8	54 37 8
12.0	75 19 7	71 22 7	67 26 8	63 30 8	58 34 8
12.5	78 16 6	74 19 7	70 23 7	66 26 7	62 30 8
13.0	81 14 5	77 17 6	74 20 6	70 23 7	66 27 7
13.5	83 12 5	80 14 5	77 17 6	73 20 6	70 24 7
14.0	86 10 4	83 12 5	80 15 5	76 18 6	73 21 6
14.5	88 9 4	85 11 4	82 13 5	79 15 5	76 18 6
15.0	89 7 3	87 9 4	85 11 4	82 13 5	79 16 5
15.5	91 6 3	89 8 3	87 9 4	84 12 4	81 14 5
16.0	92 5 3	91 6 3	88 8 3	86 10 4	84 12 4
16.5	94 4 2	92 5 3	90 7 3	88 9 4	86 10 4
17.0	95 4 2	93 5 2	92 6 3	90 7 3	88 9 4
17.5	95 3 2	94 4 2	93 5 2	91 6 3	89 8 3
18.0	96 2 1	95 3 2	94 4 2	92 5 2	91 7 3
18.5	97 2 1	96 3 1	95 3 2	94 4 2	92 6 2
19.0	97 2 1	97 2 1	96 3 2	94 4 2	93 5 2
19.5	98 1 1	97 2 1	96 2 1	95 3 2	94 4 2
20.0	98 1 1	98 1 1	97 2 1	96 3 1	95 3 2
20.5	99 1 1	98 1 1	97 2 1	97 2 1	96 3 1

Table C11
Win-Lose-Push
A is 10 to 24, B is 11 to 13

Var A	Variable B 11.0			11.5			12.0			12.5			13.0		
10.0	37	54	9	33	59	8	30	63	8	26	66	7	23	70	7
10.5	41	50	9	37	54	8	34	58	8	30	62	8	27	66	7
11.0	46	46	9	42	50	8	38	54	8	34	58	8	30	62	8
11.5	50	42	8	46	46	8	42	50	8	38	54	8	34	58	8
12.0	54	38	8	50	42	8	46	46	8	42	50	8	38	54	8
12.5	58	34	8	54	38	8	50	42	8	46	46	8	42	50	8
13.0	62	30	8	58	34	8	54	38	8	50	42	8	46	46	8
13.5	66	27	7	62	31	7	58	35	8	54	38	8	50	42	8
14.0	69	24	7	65	28	7	62	31	7	58	35	7	54	39	8
14.5	72	21	6	69	25	7	65	28	7	61	31	7	58	35	7
15.0	75	19	6	72	22	6	68	25	7	65	28	7	61	32	7
15.5	78	16	5	75	19	6	72	22	6	68	25	6	65	29	7
16.0	81	14	5	78	17	5	75	20	6	71	23	6	68	26	6
16.5	83	12	4	80	15	5	77	17	5	74	20	6	71	23	6
17.0	85	11	4	83	13	4	80	15	5	77	18	5	74	20	6
17.5	87	9	4	85	11	4	82	13	4	79	16	5	77	18	5
18.0	89	8	3	87	10	4	84	12	4	82	14	4	79	16	5
18.5	90	7	3	88	8	3	86	10	4	84	12	4	81	14	4
19.0	92	6	3	90	7	3	88	9	3	86	10	4	84	12	4
19.5	93	5	2	91	6	3	90	8	3	88	9	3	85	11	4
20.0	94	4	2	92	5	2	91	6	3	89	8	3	87	9	3
20.5	95	4	2	94	4	2	92	6	2	91	7	3	89	8	3
21.0	96	3	1	94	4	2	93	5	2	92	6	2	90	7	3
21.5	96	3	1	95	3	2	94	4	2	93	5	2	91	6	2
22.0	97	2	1	96	3	1	95	3	2	94	4	2	93	5	2
22.5	97	2	1	97	2	1	96	3	1	95	4	2	94	5	2
23.0	98	1	1	97	2	1	96	2	1	95	3	1	94	4	2
23.5	98	1	1	98	2	1	97	2	1	96	3	1	95	3	1
24.0	98	1	1	98	1	1	97	2	1	97	2	1	96	3	1
24.5	99	1	0	98	1	1	98	1	1	97	2	1	96	2	1

Table C12
Win-Lose-Push
A is 10 to 24, B is 14 to 15

Var A	Variable B 13.5			14.0			14.5			15.0			15.5		
10.0	20	73	6	18	76	6	15	79	5	13	82	5	12	84	4
10.5	24	70	7	21	73	6	18	76	6	16	79	5	14	81	5
11.0	27	66	7	24	69	7	21	72	6	19	75	6	16	78	5
11.5	31	62	7	28	65	7	25	69	7	22	72	6	19	75	6
12.0	35	58	8	31	62	7	28	65	7	25	68	7	22	72	6
12.5	38	54	8	35	58	7	31	61	7	28	65	7	25	68	6
13.0	42	50	8	39	54	8	35	58	7	32	61	7	29	65	7
13.5	46	46	8	42	50	8	39	54	7	35	57	7	32	61	7
14.0	50	42	8	46	46	8	43	50	7	39	54	7	36	57	7
14.5	54	39	7	50	43	7	46	46	7	43	50	7	39	54	7
15.0	57	35	7	54	39	7	50	43	7	46	46	7	43	50	7
15.5	61	32	7	57	36	7	54	39	7	50	43	7	46	46	7
16.0	64	29	7	61	32	7	57	36	7	54	39	7	50	43	7
16.5	68	26	6	64	29	7	61	33	7	57	36	7	54	40	7
17.0	71	23	6	67	26	6	64	30	6	60	33	7	57	36	7
17.5	74	21	6	70	24	6	67	27	6	64	30	6	60	33	7
18.0	76	19	5	73	21	6	70	24	6	67	27	6	64	30	6
18.5	79	16	5	76	19	5	73	22	5	70	24	6	67	27	6
19.0	81	15	4	78	17	5	76	19	5	73	22	5	70	25	6
19.5	83	13	4	81	15	4	78	17	5	75	20	5	72	22	5
20.0	85	11	4	83	13	4	80	15	4	78	18	5	75	20	5
20.5	87	10	3	85	12	4	82	13	4	80	16	4	77	18	5
21.0	88	9	3	87	10	3	84	12	4	82	14	4	80	16	4
21.5	90	7	3	88	9	3	86	10	3	84	12	4	82	14	4
22.0	91	6	2	90	8	3	88	9	3	86	11	3	84	13	4
22.5	92	6	2	91	7	2	89	8	3	87	9	3	85	11	3
23.0	93	5	2	92	6	2	91	7	2	89	8	3	87	10	3
23.5	94	4	2	93	5	2	92	6	2	90	7	3	89	9	3
24.0	95	3	1	94	4	2	93	5	2	91	6	2	90	7	3
24.5	96	3	1	95	4	2	94	4	2	92	5	2	91	7	2

Table 7
Chance of Having More
When Many of Both Are Expected

Expected Difference	Prob More	Prob Less
0.0	50	50
0.5	54	46
1.0	58	42
1.5	61	39
2.0	65	35
2.5	68	32
3.0	71	29
3.5	74	26
4.0	77	23

GLOSSARY

86ed

To be *86ed* out of a sportsbook is to be kicked out with a threat of arrest for trespassing if you return. Also see *bar*.

Action

Action means bets, as in "the Cowboys are getting lots of action." Having action means having a bet.

Action has a special meaning for baseball bets: It means the bet counts even if there is a change in starting pitchers. If there is a pitcher change accompanied by an odds change, the action bettor will receive the new odds. The default is that the listed pitchers must start; to have action no matter who pitches, you must specify *action* when you make your bet.

Advantage player

An *advantage player* is a bettor who is willing to make a bet only if the bet is perceived as yielding a positive EV.

Against the spread

There are two common ways of betting sides: the money line and *against the spread*.

To bet against the spread is to make a wager that will be decided by adding points to one team or the other after the game is played.

Air move

When a sportsbook changes the line on a game in response to other books' changing the line, that line change is described as an *air move*. The opposite of an air move is changing the line in response to bets received.

Angle

An *angle* is a decision rule for making bets. Unfortunately, most published angles are the result of data mining, and fail to predict results of future games.

Arbitrage

To *arbitrage* is to make a combination of bets such that if one bet loses another wins. There is an implication of having an edge, at no or low risk. *Arbitrage* can also be used as a noun.

Hedge has a similar meaning, but does not carry the implication of having an edge.

ATS

ATS is the abbreviation for *against the spread*.

Bar

To be *barred* from betting at a sportsbook is to be told that no more bets will be accepted from you. Also see *86ed*.

Bases

Bases means baseball. An alternative to saying you are betting on baseball games is to say you are betting bases.

Baskets

Baskets means basketball. An alternative to saying you are betting on basketball games is to say you are betting baskets. An alternate expression is *hoops*.

Beard

A *beard* is a person who makes sports bets for someone else; that someone else is usually a skillful handicapper. Betting for someone else is legal in Nevada if no compensation is involved.

Betting exchange

A *betting exchange* is a form of betting available on the Internet. You and another person can bet on anything you wish at whatever odds you agree upon. The winner will pay a commission to the Internet sportsbook.

Bettor

A *bettor* is an individual who makes bets. This text assumes that bettors will be making sports bets against a book.

Binomial, binomial distribution

Binomial refers to a specific mathematical distribution. When a variable takes on either of two states, the number of occurrences of each state follows a *binomial distribution*. Sports wagers are won, lost, or pushed. If you ignore pushes, the outcome of a bet is either won or lost, and the binomial applies. Total wins and total losses follow a binomial distribution.

This is important because binomial distributions have important properties that sports bettors can make use of. Most of this book involves application of the binomial distribution to sports bets.

Board

A *board* is the list of bets available in a sportsbook. In the old days, all books had actual boards on which clerks would write the latest odds. Nowadays most such boards have been replaced by electronic displays that are updated by computer, but they are still called "boards."

Bonus hustler

To offshore sportsbooks, a *bonus hustler* is someone who has opened an account for the express purpose of obtaining bonuses, and who does not intend to gamble.

Book, bookmaker

A *book* or *bookmaker* is a person or company that accepts bets against the lines created by linesmakers. Throughout this book, the bookmaker will be assumed to be legal sportsbooks, primarily in Nevada.

Bookmaking is not the same as pari-mutuel: When you make a bet with a bookmaker, the details of your bet are locked in. For example, if you bet $500 with a bookmaker on a team at 4:1 odds, and after your bet has been booked the odds drop to 3:1, you still will be paid at 4:1 if your team wins.

As nouns, book and bookmaker are interchangeable. *Book* is also used as a verb.

Bookie

The dictionary says *bookie* is the same thing as *bookmaker*, but Nevada's legal sportsbooks don't call themselves bookies. *Bookie* carries the connotation of illegality.

Buck

To a sports bettor, a *buck* is a bet size. For a bet on a dog, a buck is $100. For a bet on a favorite, a buck is whatever amount of money must be risked to win $100.

Chalk

To bet *chalk* is to bet the favorite.

Cherrypick

To *cherrypick* is to bet only those games on which you think you have an edge.

Circled

When a game is *circled*, the maximum bet on that game is lower than normal. The circling generally is due to uncertainty of some sort, perhaps the weather or an injury to a key player.

Correlated, Correlation

Correlation is the degree to which the results of two bets are related. Zero correlation means the results are not related at all. *Correlated* is the adjective form, and *correlation* is a noun. An example of two bets that are correlated is the Giants to lead at the half and the Giants to win the game. Sportsbooks do not like to write correlated parlays.

Covariance

Covariance is a mathematical measure of correlation. Another mathematical measure of correlation is the *coefficient of correlation*.

Cover

To *cover* is to beat the spread. For example, if Detroit is favored by 7 and wins the game by more than 7, Detroit is said to have "covered." If Detroit loses that game or wins by less than 7, it failed to cover.

If the underdog wins, or loses the game but by less than the spread, the dog is said to have covered.

CTR

CTR is the abbreviation for *Currency Transaction Report*. This is a form the US government requires be filled out whenever a financial institution (which includes casinos and sportsbooks) has a transaction (or a series of transactions with one individual within a 24-hour period of time) involving over $10,000 in cash.

Data mining

Data mining is derogatory. It means sorting through a huge volume of data, extracting decision rules that seem to favor one team over another, but without regard to whether or not there is any cause-and-effect relationship. Data mining is the sports-betting equivalent of sitting a huge number of monkeys down at keyboards, and then reporting on the monkeys who happened to type actual words.

Dime

A *dime* is a bet to win $1000.

Dime line

A *dime line* means the vig is ten cents per team. An easy way to recognize a dime line is to look at what would happen if you bet on both teams. If you bet both teams on a dime line, you would pay a total of ten cents of vig. The most common dime line has each team at -105. Another example of a dime line is when one team is -140 while its opponent is +130.

Dog

Dog is short for "underdog." If the better team wins the game, the dog is the team that loses.

The opposite of the dog is the *favorite*.

Dollar

A *dollar* is a bet to win $100.

Early line

The *early line* is the first line posted for a game.

Edge

Having an *edge* means having the best of it. If you make only bets on which you have an edge, you will win and you will lose but in the long haul your winnings will overwhelm your losses.

EV

EV is the abbreviation for *expected value*, the mathematical description of your edge. Advantage players discuss potential bets in terms of how much they are likely to win on average if the bet could be made over and over again. That average win is expected value to a mathematician, but bettors prefer the abbreviation EV.

EV is also used to mean even money. If a line is quoted as Chicago -3 EV, then you can bet $100 to try to win $100 on Chicago -3.

Even money

Even money means you risk a dollar to win a dollar. Even money is also expressed as EV or as PK. It could be, but is not, expressed as -100 or +100.

Exotic

Exotic bets are the same thing as prop bets.

Fade

To *fade* a bet is to accept it, as in the sportsbook fades your action.

Fan

A *fan* is somebody who bets on a team because he likes the team. To a fan, the spread is an unimportant detail.

Favorite

The *favorite* is the team that is more likely to win. If there are a large number of contestants, such as in a golf tournament, the top few contestants can all be referred to as favorites.

The opposite of the favorite is the *dog*.

FG

FG is the abbreviation for *field goal*.

Field

Betting on golf tournaments and other sports events that have a large number of entrants often allows for a bet on the *field*. The field is the group of all the entrants not listed with their own odds. The field can contain a large number of entrants, but typically each entrant has only a tiny chance of actually winning the event. If an entrant had a good chance of winning, he or she would not be lumped into the field.

Final margin

The *final margin* is a term used in this book to mean the difference between the points scored by the favorite and the points scored by the dog. If the dog won, the final margin is negative. The final margin can be compared to the line to see which team won for betting purposes.

Final score

The *final score* of the game is the actual result as determined on the field, court, diamond, etc.

Final total

The *final total* is a term used in this book to mean the sum of the point totals in a game. If San Francisco wins 35-14, then the final total is 49. In this book, the final total is not the same thing as the *total*.

Foots

Foots means football. An alternative to saying you are betting on football games is to say you are betting foots.

For 1

When the odds use the word *for*, the number on the left includes the return of your own money. For example, odds of *3 for 1* mean if you wager $1 and win, the amount you receive is $3, but only $2 of that is winnings and the other $1 is the return of your bet. *For 1* is not the same thing as *to 1*, which see.

Front running

Front running is watching betting lines via computer, and betting in the direction of line moves at a sportsbook that still shows the old number.

Futures

Futures are bets that will be decided by multiple contests, or by a contest that is more than about a week away. An example of a futures bet is a wager on whether the Yankees will win more than 92 games in the upcoming season.

Good bet

To an advantage player, a *good bet* is a bet that offers a positive EV.

Handicap

To *handicap* is to assign a probability to the likelihood of winning a contest or series of contests. A person who handicaps is a *handicapper*.

Handle

Handle is a word used by bookmakers to describe the total amount of money wagered. *Handle* usually refers to total bets over multiple games, whereas *action* usually refers to total bets on one game.

Hang

When managers of sportsbooks speak of *hanging* a line, they mean posting it for all to see and bet into.

Hedge

To *hedge* is to make a combination of bets such that if one bet loses another wins. Hedging is usually done for defensive purposes, such as betting to lock in a profit after winning the first eleven games on a twelve-team parlay. *Hedge* can be used as a noun or a verb. *Hedge* does not carry the implication of having an edge.

Arbitrage has a similar meaning, but with an implication of having an edge.

Hook

When a line on a football or basketball game includes a half point, the half point is called a *hook*.

Hoops

Hoops means basketball. An alternative to saying you are betting on basketball games is to say you are betting hoops. An alternate expression is *baskets*.

House edge

The *house edge* is another name for the *vig*.

Juice

Juice is another word for *vig*.

Laying

You are said to be *laying odds* if the amount of money you are risking is more than what you will win if the game goes your way. You are said to be *laying points* if the spread takes points away from your team. If you are laying points or laying odds, you are betting on the favorite.

The opposite of *laying* is *taking*.

Leech

A *leech* is someone who watches a computer for line moves, and when he sees one he quickly bets the appropriate team at an offshore sportsbook that has not yet moved the line. That activity is called *front running*.

Line

The *line* is the spread and terms of a bet. If the terms are standard, e.g. -110, then the line is the spread. See *spread* and see *terms*.

Linesmaker

A *linesmaker* is a person who creates lines and totals for bookmakers.

Maverick line

When a sportsbook creates its own line on a game and that line is different from the line carried by other sportsbooks, that independent line is called a *maverick line*.

Middle

To have a *middle* is to have bets on competing teams and for there to be at least one possible outcome that results in winning both bets. *Middle* applies to bets on totals as well as bets on sides.

For example, if the Cowboys are playing the Giants and you have bets on both Cowboys -4.5 and Giants +5.5, you have a middle. If the game finishes with the Cowboys winning by exactly five points, you would win both your bets.

A combination of bets that gives the possibility of a win and a push is called a *side*.

The combination of Cowboys -4 and Giants +6 could be described as a middle and two sides.

MinEdge

MinEdge is a term devised for this book. MinEdge is the minimum edge in percent that you think you have when you make a sports bet. See chapter 2, "Money Management."

MinWin

MinWin is a term devised for this book. MinWin is the minimum amount of money (in dollars or any other currency) that you want to win when you make a sports bet. See chapter 2, "Money Management."

MLB

MLB is the abbreviation for major-league baseball.

Money line

When you bet the *money line*, the winner of the game is the winner of the bet. Betting the money line is one of two common ways of betting on a side to win; the other common method of betting a side is *against the spread*.

NBA

NBA is the abbreviation for National Basketball Association.

NFL

NFL is the abbreviation for National Football League.

NHL

NHL is the abbreviation for National Hockey League.

Nickel

A *nickel* is a bet to win $500. A *big nickel* is a bet to win $5000.

Nickel line

If you bet both teams on a *nickel line*, you would pay a total of five cents of vig. An example of a nickel line is when one team is -115 while its opponent is +110.

O

In the total for a baseball or ice hockey game, sometimes there is a little *o* attached, as in 4.5o. When you see that little o you know the over is a slight favorite. Instead of both over and under being -110, the over is -120 and the under is even money.

Off

If a game is *off*, the sportsbook is no longer writing bets on it. Perhaps the game has already started, or perhaps there is major uncertainty as to the weather conditions or an injury to a key player.

Off the board

To make parlay or teaser bets on games listed on the board is called betting *off the board*. Sometimes you have two ways to bet the same combination of teams: off the board and on parlay cards. Before betting one of them, check to see if the other offers better odds or a better spread.

On the float

Online sportsbooks that need deposits from new gamblers to pay off winners are said to be working *on the float*.

Opening line

The *opening line* is the earliest line posted for a given sports event.

Originator

When a syndicate bets so much money on one game that the line moves, the *originator* is the first person to bet that game for that syndicate.

Over

To bet the *over* is to bet that the final total will exceed the total posted for betting purposes.

Pari-mutuel

In a *pari-mutuel* pool, the odds are set by the bettors. The track takes a fixed percentage of wagers off the top, and distributes the remainder to winning ticket holders. If you make a huge bet, your bet will greatly depress the odds on that betting interest. Even a small bet might depress the odds slightly.

Parlay

A *parlay* is a bet involving two or more events. You can also use the word as a verb; to *parlay* is to use the proceeds from one bet as the wager on another bet.

You can parlay sides and totals. You can mix sports in a single parlay.

All your teams must win for your parlay to win. One loser and the parlay is lost. A push on one game generally causes your parlay to convert to a parlay with one fewer game; for example a three-team parlay with two wins and a push would be paid as a two-team parlay.

Parlay card

A *parlay card* is a set of sides, totals, and prop bets printed on a special card. The numbers on the parlay card apply only to bets on the card, and might be different from bets listed on the board. Typically you must select at least three items if you want to make a bet on a parlay card.

Pick

A *pick* is a bet recommended by a handicapper.

Pick'em

Pick 'em has two meanings. It can mean the same thing as *even money*. It also can mean the spread is zero, as in "Baltimore is pick 'em against the Giants this weekend."

PK

PK is an abbreviation for *pick 'em.*

Player

If an employee of a sportsbook calls you a *player*, the implication is that you are a big bettor. Being called a player is not a compliment, but it's not as derogatory as being called a sucker.

Pleaser

A *pleaser* is the same thing as a *reverse teaser*.

Points, point spread

Points and *point spread* are alternate terms for *spread*.

Poisson, Poisson distribution

Poisson refers to a specific mathematical distribution, and is always capitalized because it is named after a person. The *Poisson distribution* is what the binomial distribution becomes when one of the two outcomes is rare.

Power ratings

Power ratings are numbers that handicappers assign to teams to estimate how likely one team is to beat the other or by how many points.

Prop bet

When major sporting events come along, some linesmakers let their imaginations run wild as they offer an interesting menu of bets, such as which player will score first. These bets are known as *prop bets* or *props* or *exotic* bets. Undoubtedly, *prop* is derived from *proposition*.

Prop sheet

A *prop sheet* is a piece of paper listing the various props offered by a sportsbook.

Public

The *public* means unsophisticated bettors. Their bets are called *public* money. The public includes fans and squares and people who make a bet just to make a game more exciting.

Puck line

The ice hockey version of betting against the spread is the *puck line*. On games in which one team is a big favorite, the puck line typically adds 1.5 goals to one team or subtracts 1.5 goals from the other team.

Punter

A *punter* is a bettor, specifically a bettor who takes on sportsbooks or racebooks. The term can be but is rarely used to refer to participants in casino games.

Push

A *push* is a tie against the spread. If you bet Tennessee +7 and Tennessee loses the game by exactly seven points, your bet is a push. Generally you get your money back on pushes. On some parlay cards, pushes lose.

Reverse teaser

A *reverse teaser* is a parlay in which each team gives up points compared to the normal spread. For a reverse teaser to win, favorites must win extra big and dogs might have to win outright. A reverse teaser is sometimes called a *pleaser*.

ROI

ROI is the abbreviation for *return on investment*.

Rounding error

When numbers are rounded off, the total of the rounded numbers sometimes differs from the total of the unrounded numbers. For example, 33.3, 33.3, and 33.4 total 100, but rounding them off yields 33, 33, and 33, which does not total 100.

Run line

The baseball version of betting against the spread is the *run line*. On games in which one team is a big favorite, the run line typically adds 1.5 runs to one team or subtracts 1.5 runs from the other team.

Scalp

This word has several meanings. One use is to bet both sides on the money line in such a way as to guarantee a profit. For example, if New York is playing Chicago and you bet New York -140 and Chicago +155, you have a 15-cent *scalp*.

Another use of *scalp* is to describe what a bookie might do if he thinks a line is going to move. Suppose a bookie takes a bet on Dallas -6 from a sharp, and predicts that other bettors soon will be calling to also place bets on Dallas. If the bookie immediately bets Dallas -6 with other bookies and simultaneously changes the line at which he accepts bets to Dallas -7, he is said to be *scalping*.

Yet another use of *scalp* is to describe a form of fraud. If one person places a bet on behalf of a second person, and the bet is made at -6.5 but is reported to the second person as -7, the first person is *scalping* the bet.

Sharp, Sharpie

A *sharp* is what sportsbooks call an *advantage player*. *Sharp* can also be used as an adjective. If someone calls you a sharp bettor, smile; you have received a compliment. (You don't have to smile if you are being 86ed.)

Side

    To bet a *side* is to bet on one team against the spread.

    Another meaning of *side* is to have bets on both opposing teams such that there is at least one score that will give you a win on one bet and a push on the other.

    For example, if the Cowboys are playing the Giants and you have bets on both Cowboys -4 and Giants +4.5, you have a side. If the game finished with the Cowboys winning by exactly four points, you win the Giants bet and push on the Cowboys. With any other result, you win one bet and lose the other, and are out the vig on one bet.

    I have never seen a word used to describe a bet combination with two ways to get a push and a win, such as Cowboys -4 and Giants +5. If nobody else has coined a word for it, I'll dub it *double-sided*.

    A bet combination that contains a way to win both bets, such as Cowboys -4.5 and Giants +5.5, is described as a *middle*.

Smart money

    Smart money is money wagered by sharps.

Soft

    When a line is called *soft*, the implication is that not many sharp bettors have looked at it. Sharp bettors making big bets tend to move lines to the point where it is difficult for other bettors to make bets with an edge. You are more likely to find good bets among soft lines.

Sportsbook, Sports Book

    Sportsbook is another word for *book*.

Split the action

    If a line *splits the action*, approximately the same number of dollars is wagered on either side.

Spread

    A *spread* is a number set by a sportsbook to allow betting at 10:11 on each of two teams. The spread is also called the *line* or the *points*.

    The spread is the number of points that must be subtracted from the final score of one team (or added to the final score of the other team) to decide the bet. For example, if Dallas is a 3-point favorite over Green Bay, then the "-3" would be called the *spread* or the *line* on that game. You could also express the spread as "Dallas -3" or "Green Bay +3."

Square

    A *square* is a sucker who has read the sports section of the local newspaper. The implication is of being informed, but using the same information in the same way as everybody else.

Straight up

    Since bets against the spread are common, you need two ways to describe which team won a game. You need to distinguish between which team actually won the game and which team won against the spread. Sometimes they are the same team and sometimes they are not. Winning *straight up* means winning without regard to the spread. A money-line bet is decided by which team wins straight up.

    Also see *against the spread*.

Sucker

    A *sucker* is a bettor who will make bad-EV bets without realizing how bad the bets are.

Syndicate

    A *syndicate* is a group of people making a joint effort to win money betting sports.

Taking

    You are said to be *taking* if you are backing the dog. *Taking odds* means the amount you are risking is less than the amount you stand to win if the game goes your way. *Taking points* means you are receiving points on the spread.

    The opposite of *taking* is *laying*.

TD

    TD is an abbreviation for *touchdown*.

Team

    Of course a *team* is a group of athletes competing against another team.

    There is another usage of *team* in sports betting: a *team* can mean a *side* or a *total* or a selection on a parlay card. For example, a four-team parlay does not have to be four sides; you can use totals instead of sides if you want. For example, you can make a four-team parlay out of two sides and two totals.

Teaser

    A *teaser* is a parlay in which each team is given extra points from the normal spread. Teasers can be bet off the board, or on parlay cards designed specifically for teaser bets.

Ten cents

    The difference between prices is sometimes expressed as if the units were pennies. A common difference is 10, which is called *ten cents*. An example of a ten-cent line is one team at -120 and the opponent at +110. If the line were to change, with the -120 team moving to -130, the amount of the change would be referred to as ten cents.

Terms

The expression *terms* is used to describe the relationship between how much you bet and how much you win. The *terms* and the *spread* comprise the *line*.

If you must bet more than the amount you are trying to win, the terms are expressed as a negative number and represent how many dollars you will have to risk in order to win $100. For example, terms of -160 mean if you buy a ticket for $160 and your team wins, you will be able to cash your winning ticket for $260.

If you stand to win more than the amount of your bet, the terms are expressed as a positive number and represent how many dollars you will win on a $100 bet. For example, terms of +240 mean if you buy a ticket for $100 and your team wins, you will be able to cash your winning ticket for $340.

The winning ticket prices reflect both the amount of your win and the amount of your bet, which is returned to you after you win.

Theoretical hold percentage

Theoretical hold percentage is an expression used by people who run sportsbooks. *Hold percentage* means the ratio of the amount of money won by the sportsbook to the handle. Adding *theoretical* changes the meaning to the percentage of the handle that the sportsbook will win if the spread never changes and each team gets equal action. When the terms are -110, the theoretical hold percentage is 4.55 percent.

To 1

When the odds use the word *to*, the number on the left is the amount you will win if your bet wins. For example, odds of *3 to 1* mean if you wager $1 and win, the amount you receive is $4, of which $3 is winnings and the other $1 is the return of your bet. *To 1* is not the same thing as *for 1*, which see.

Total

The *total* is a number set by a sportsbook for total points to be scored by both teams during a game. You can bet that the final total will exceed the total (called the "over") or that the final total will be less than the total (called the "under"). Betting overs or unders is referred to as betting totals.

Tout

A *tout* is someone who sells picks. The connotation is of someone who has no ability to pick winners but sells that ability anyway.

Twenty-cent line

A *twenty-cent line* means if you bet both teams, you would pay a total of twenty cents of vig. The most common twenty-cent line is each team being -110.

U

In the total for a baseball or ice hockey game, sometimes there is a little *u* attached, as in 9.5u. When you see that little u you know the under is a slight favorite. Instead of both over and under being -110, the under is -120 and the over is even money.

Under

To bet the *under* is to bet that the final total will fall short of the total.

Vig or vigorish

Sportsbooks generally don't give suckers a positive-expectation bet, or even a break-even bet. The *vig* or *vigorish* is the sportsbook's built-in edge over bettors. The vig is what you must overcome if you are going to win money betting on sports.

Win rate

Your *win rate* is the same thing as your *edge*.

Write

For a sportsbook to *write* a bet is to accept the bet. The term dates from pre-computer days, when bets were written by hand on slips of paper. *Write* means the same thing as *fade*.

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