

The Practicum Help Index

[Getting Started](#)

[Introduction](#)

PART I

[About Card Counting](#)

PART II

[Using the Practicum](#)

[The Strategy Window](#)

[Deck Scope](#)

PART III

[The Shelley System](#)

[Red Seven](#)

[Glossary](#)

GETTING STARTED

You may want a quick look at the [screen layout](#).

If you are new to Blackjack or card counting:

[Part I](#) tells how casino blackjack is played, discusses card counting, and compares counting systems.

[Part II](#) describes how to use the Practicum for playing blackjack.

[Part III](#) delves deeper into counting while explaining the Shelley System. This provides everything you need to learn to consistently beat the game.

If you want play advice:

The Practicum is ready to go, with the [Shelley II Full Count](#) set as the default [count set](#). The right mouse button will toggle the count set to the screen, allowing you to view the [static values](#) as you practice.

Quick Start

Select your count set (if other than Shelley II Full Count):

From program menu select STRATEGY

Click SELECT COUNT and select or enter your count set

Return to main program

All that is required to start play is to size and set your bet. A bet chip shows your current wager and is adjusted by using the bet-box, which appears underneath the bet chip before each hand.



Chip

To increase bet +



To decrease bet -

Bet Box

The bet-box shows a row of chips, of various denominations. Above each denomination is a '+' button for increasing bet size, and below a '-' button for taking back. You may use your mouse or the arrow keys to size your bets.

Arrow (cursor) key betting

The arrow keys are very quick for sizing bets during play. The right and left arrows select through the denominations, while the up and down arrows increase or decrease bet size. Highlight the unit size you plan to use, make spread decisions with the up and down arrows, and then press the enter key to set your bet.

Mouse betting

Click on the '+' above the amount you want to wager. Click on '-' to take back. After your bet is sized correctly, click on the Set Bet button at the right of the bet-box.

Once your bet is set, play begins. The bet-box is replaced by a choice box. You may use the mouse or the cursor keys for making your decisions.

Starting the Game

Once you set your bet, you are dealt a hand and given the choice to Hit, Stand, Double, or Split on the choose-box that appears under the bet-chip. Use your cursor keys or mouse to make play responses. Insurance and Surrender are also available when selected from the rules dialog box (under Rules on the main menu, see Deck Size & Variations).

Stop Play

The Practicum automatically disables various menu items once betting and play begin. To regain full menu access, select Stop Play on the main menu, under File.

Betting History

With the Deck Scope, the Practicum will remember and display your betting history for the last deck played, including after the shuffle. Once a bet is set on a new deck, though, a new history is began, erasing the previous one. The best time to use the Deck Scope, then, is after a shuffle and before placing a new bet.

INTRODUCTION

For most, blackjack is a game of chance. For some though, it is a game of skill and profit. The purpose of the Practicum is to let you apply and measure your ability to consistently win.

If you are new to the game, the Practicum allows you to acquaint yourself to blackjack and to use it just for fun, requiring no previous knowledge or skill.

There is much more for you here, though -- if you are willing to apply yourself. The Practicum is also designed to extend the systematic skill development of Ne Plus Ultra's Master Course.

You can be one of the special few who master the game, create your own luck, and pocket the rewards.

What the Practicum is

The Practicum is a full featured game of blackjack, containing unique training elements.

The Practicum allows hands-on application for your counting and strategy skills. It provides many dozens of rule variations (allowing hundreds of thousands of combinations). Selecting rule variations instantly shows specific house advantage. This may be used in game-favorability analysis and for determining bet 'offset' (at what point it becomes favorable to raise from flat betting). The Practicum uses large realistic cards and discard, and is designed for an individual player. It also provides pre or post decision advice.

The Practicum stores betting history and provides betting analysis. After playing a shoe or deck, you may switch to Deck Scope and review your last betting sequence, shown as a percentage of bankroll. This provides insight for developing betting skills and maximizing return.

Deck Scope will show the counts and betting points on its 'scope'. The deck's profit potential is revealed through a variety of unique views of the shoe. Each card in the shoe is shown optionally by denomination, count, or by groups of large or small denominations. Shuffle point and house advantage are calibrated on the scope to demarcate a deck's profit window.

What the Practicum is not

The Practicum does not focus on those elements of the game that are irrelevant to winning. Instead it encourages the building of necessary playing skills. Using 'virtual' money makes it is easy to develop careless attitudes towards bet sizing and money management. With the Practicum you can measure your bet-sizing accuracy.

The Practicum is designed for quick, concentrated play, and to teach you winning skills by extending Master Course's training elements into casino conditions.

This On-Line Help Has Three Parts:

[Section](#)

[For those who want to:](#)

Part I: Counting

- ~ Learn about card counting and the evolution of blackjack systems
- ~ Know how the game works

Part II: Program Operations

- ~ Know how to use the Practicum to play blackjack
- ~ Use the Strategy window for selecting a strategy
- ~ Use the Deck Scope for bet sizing and counting analysis

Part III: The Shelley System

- ~ Learn a new, powerful counting method
- ~ Upgrade their count and strategy
- ~ Design a custom system

PART I: About Card Counting

[Basic](#)

[Beating blackjack: what is required](#)

[Comparing card counting systems](#)

[Counting cards: overview](#)

[Effects of denominations on outcome](#)

[History of card counting](#)

[Playing blackjack](#)

[Rule percentages](#)

[Strategy](#)

[Terminology](#)

PART II: Using the Practicum

[Bet box](#)

[Cashier](#)

[Count strip](#)

[Decision box](#)

[Decision priority](#)

[Discard](#)

[Features overview](#)

[Menu](#)

[Options](#)

[Play advice](#)

[Playing blackjack](#)

[Rules plaque](#)

[Rule variations](#)

[Screen layout](#)

PART II: Using the Practicum

Strategy Window

[Advanced strategy](#)

[Basic strategy](#)

[Count set selection](#)

[Shaping an advanced strategy](#)

[Strategy window overview](#)

PART II: Using the Practicum

Deck Scope

[Features](#)

[Menu](#)

PART III: The Shelley System

[About count sets](#)

[Active count](#)

[Advanced strategy](#)

[Customizing your count system](#)

[Deck count](#)

[Deck factor](#)

[Eyeing the discard](#)

[Indices](#)

[Insurance](#)

[Measuring a count set](#)

[Surrender](#)

[Shelley count sets](#)

[Shelley terminology](#)

Red Seven



(Bishop Snyder: scanned from sketch by A Finlay)

The Red Seven count was developed by Arnold Snyder to provide a simple but strong counting system, and is described in Blackbelt for Blackjack. It uses an unbalanced count set, therefore no true count conversion is required and no indices are used.

Red Seven counting options may be set in COUNT SYSTEM VARIATIONS, under OPTIONS on the main menu. These include:

Sevens can be: red 7 equals 0, black 7 equals 1.
Alternating 7's: every other 7 equals 1, the alternating 0; or vice versa.

An augmented Basic strategy may be used:
16 verses 10 normally Hit, at the pivot or above, Stand
12 verses 3 "

Additionally:
12 verses 2 normally Hit, at the pivot +2 or above, Stand
15 verses 10 "
10 verses 10 normally Hit, at the pivot +2 or above, Double

Besides the Red Seven, Master Course will provide practice support for the Zen Count (when out of Red Seven), also developed by Arnold Snyder. Documentation for the Red Seven counting system, along with the Zen Count can be found in Blackbelt for Blackjack by Arnold Snyder.

BASIC

Standard Basic is the optimum composite strategy for making all blackjack decisions. There is only one correct Basic, though there is still some disagreement as to what it is. Basic is a table of all player's hand totals *versus* the ten possible dealer's card, showing each correct response: whether to double, split, hit, or stand. Basic is determined by one of two methods:

- 1) a priori probability calculation, or
- 2) computer simulations of the game.

Basic provides the best decision for all player hands against any possible dealer's upcard for a particular deck size or set of rules. When deck size or rules vary, so may Basic, but no changes occur as the result of previously played cards.

BEATING BLACKJACK: What Is Required



There is more to counting than just tracking cards, and the more you understand the better you will do. Here are the essentials:

I You must develop the ability to quickly and flawlessly count cards. This means that each card, as it is played, is given a value that is added to an ongoing total called the active count. This running count indicates when you have the advantage or when the house has the advantage. You do not memorize cards.

II You must be able to make instant and correct strategy decisions for hitting, splitting, doubling, or standing according to your hand total *versus* the dealer's upcard. This decision set is known as Basic, and eliminates most, but not all of the house advantage.

III You must be able to convert the active count to the deck count. This is done by dividing the active count by the number of remaining undealt cards, determined by watching the discard box and estimating to the nearest half deck. This process gives you a truer assessment of betting and playing advantage.

IV You must know how to determine specifically, the risk of loss and the correct bet sizing. You will lose more hands than you win. You win overall by betting higher when you have the advantage and betting minimally when you don't.

COMPARING COUNTING SYSTEMS

Count systems can be compared by analyzing how closely their count set values mimic the advantage or disadvantage of each card denomination (called Bet Correlation or BC). Another way is to analyze how well they respond to strategy variations (called Playing Efficiency or PE).

Count Sets That Includes Aces

	A	2	3	4	5	6	7	8	9	T	BC&PE	
Level One	-1	1	1	1	1	1	1	0	-1	-1	1.509	a.
Level Two	-1	1	2	2	2	2	1	0	-1	-2	1.595	b.
Level Three	-1	2	2	3	3	2	2	0	-1	-3	1.615	c.
Level Four	-1	2	3	3	4	3	2	1	-1	-4	1.621	d.
Level Five	-1	2	3	4	5	4	3	1	-1	-5	1.623	e.
Ultimate	-2	4	5	7	9	6	5	1	-3	-8	1.628	f.

Count Sets Requiring an Ace Side Count

	A	2	3	4	5	6	7	8	9	T	BC&PE	
Level One	0	0	1	1	1	1	1	0	-1	-1	1.503	g.
Level Two	0	1	1	2	2	2	1	0	-1	-2	1.595	h.
Level Three	0	1	2	3	3	2	2	0	-1	-3	1.603	i.
Level Four	0	2	2	3	4	3	2	1	-1	-4	1.610	j.
Level Five	0	2	3	4	5	4	3	1	-2	-5	1.613	k.
Ultimate	0	4	5	6	8	6	4	1	-2	-8	1.614	l.

- | | | | |
|----|--------------------------------|----|---------------------------|
| a. | Thorp Point Count* | g. | Griffin** |
| b. | Shelley II Full Count | h. | Griffin** |
| c. | Shelley III Full Count | i. | Shelley III Count |
| d. | Shelley IV Full Count | j. | Shelley IV Count |
| e. | Shelley V Full Count | k. | Shelley V Count |
| f. | Shelley High Full Count | l. | Shelley High Count |

Even though these may be the highest rated count sets in terms of BC and PE, there are several good systems available that use other count sets. A count system is more than just a count set, and there are other considerations: how easy is the count to use, how complete is the instruction and strategy documentation that comes with it. With the Practicum you can enter any count set and compare it to those listed above. The default in both the Practicum and Master Course is the [Shelley II Full Count](#) (see b. above), though this may be reset to any traditional count set you choose.

* From Edward O. Thorp's Beat the Dealer

** From Peter A. Griffin's Theory Of Blackjack, the original source of mathematics for BC & PE.

COUNTING CARDS: OVERVIEW

Blackjack is unique from the other casino offerings in that it is predictable. By observing what comes out of a deck, you know what remains. Each card denomination has been precisely measured for its favorability towards the player. Some work for you, some do not. By keeping track during play, you know when you have an advantage and when you do not. Simply put, you bet more when the odds favor you, and bet flat when they favor the house.

To beat the game, as a minimum, you must be able to do three things very well:

- Keep a running tally of the cards

- Convert this by deck depth

- Know the proper strategy response for every hand total

The Practicum allows you to apply these skills and Master Course provides the tools necessary to acquire these abilities, systematically, step by step, and with articulated skill assessment.

EFFECTS OF DENOMINATIONS

Generally, the large cards: the nines, tens, and the face cards which are valued at ten, work for the player. As they are removed from the deck and played, the deck becomes negative. To keep track of this, they are assigned negative numbers. The small cards are just the opposite: working against the player and are therefore given positive values to reflect their removal. Eights are neutral, and Aces work for the player in terms of betting, and against the player for playing purposes.

HISTORY OF CARD COUNTING

Basic

The first blackjack strategy was developed in 1956 by a group of US Army mathematicians using hand calculators. This made it possible for the first time to play the game with a strategy that removed nearly all of the house advantage. Later, Edward O. Thorp at MIT and Julian Braun at IBM in Chicago made further refinements to basic strategy using computers.

Ratio Counting

In the early sixties, the first mass marketed count system was published, Beat the Dealer by Edward O. Thorp. One of the more important contributions Thorp has made, among several, is in discovering that certain cards favor the player. Thorp's original system was a ratio count method. In this system the ratio of tens to non-tens (36/16) is tracked, and counted backwards as the cards are removed from the deck.

Point Counts

A simpler, forward counting method was introduced to the public in the second edition of Thorp's Beat the Dealer. This contained the Simple Point Count and the Complete Point Count where deck depth is considered. In these count sets, each denomination is assigned a value that approximates its advantage to the player, when removed from the deck. These level 1 count sets, contain values of -1, 0, or 1, representing negative, neutral and positive [advantage](#).

PLAYING CASINO BLACKJACK

The blackjack tables are arranged around a pit, where the pit boss and floormen watch the games. Table limits will vary, and rules among tables will vary. Here is what happens in a typical game:

You set down at the table in one of the six or seven playing positions. On the table is a small plaque listing [rule](#) variations and table limits, a shoe and discard for multi deck games, a chip rack, table markings stating the blackjack payoff and whether insurance is offered. There are betting circles where you place your bet. When the game starts, each player and then the dealer is dealt two cards. The dealer turns over the upcard. You compare your two cards to the upcard and make a decision to hit (draw another card) or stand. If you have a pair, you can split it into two separate hands. Or, if you have a total of 9, 10, or 11 (subject to house rules) you can double by placing a second bet up to the amount of your original, and exposing your cards to the dealer. In this case, you will be dealt one additional card only.

Of course the object is to get as close to twenty one without going over and busting. When you finish splitting, doubling, or hitting, you stand by slipping your cards just under the edge of your bet. After all players have busted or stood, the dealer's hand is played out. The dealer has fixed rules of play and makes no decisions: hit anything less than 17, stand on 17 or above. Some casinos have the dealer's hit a soft 17, while others do not. This is usually consistent to locale: for example, Northern Nevada games almost always hit soft 17.

There are face up and face down games. In the face up game (usually when there is more than four decks) you do not touch the cards and indicate your intentions through word or motion. All this is easily learned by watching a game being played. Dealer's are used to new players, and generally will be helpful. Relax and remember that it's OK to enjoy yourself.

It is important that you learn to recognize favorable playing conditions, consisting of deep deck penetration, beneficial rule variations and table limits, and a casino policy that is hassle free toward counters.

RULE PERCENTAGES

Traditionally, the effect of rules on player's advantage is found by simulating a basic strategy player using these rules:

- Single deck
- Dealer stands on soft 17
- Double on any two cards, but not after splits
- Any pair can be split with one card on Aces
- Any pair can be resplit except Aces
- No surrender or insurance

This results in a +.02 player advantage. Varying from this rule-set determines a player's comparative advantage or disadvantage. In fact though, most rules interact dynamically with deck size. Here are the static variations:

DECK SIZE

Single-deck game	0.0=
Two decks	-0.34
Four decks	-0.50
Six decks	-0.60
Eight decks	-0.66

SOFT 17

The dealer stands on soft 17	0.0=
The dealer hits soft 17	-0.19

DOUBLING DOWN

Permit Doubling:	
On any two cards	0.0=
On any number of cards	+0.20
On three cards	+0.19
After pair splitting	+0.17
No Doubling on:	
Soft totals	-0.14
Hard 9	-0.14
Hard 10	-0.56
Hard 11	-0.89

SPLITTING PAIRS

Split any pair once with one card on Aces	0.0=
Unlimited draw to split Aces	+0.14
Further splitting of pairs	
All pairs except Aces	+0.02
All pairs including Aces	+0.05
Forbid splitting Aces	-0.16

Forbid splitting any pairs -0.46

SURRENDER

No surrender 0.0=
Early surrender +0.624
Late surrender single deck +0.022
Late surrender multiple deck +0.065

BLACKJACK

Pays three to two 0.0=
Pays two to one +2.33
No blackjack bonus -2.33

INSURANCE (with counting)

No insurance 0.0=
Single Deck +0.40
Double Decks +0.20
Multiple Decks +0.08

DEALER

Dealer takes no hole card (European rules) -0.20
Dealer wins tie -9.00

STRATEGY

There are three elements needed for your playing strategy:

A count

Keeping a count gives you the means to know when the deck is favorable. Converting from an active count to the deck count, by eyeing the discard, provides a better gauge to size your bets properly.

A basic decision strategy

You have to know the correct response to every hand combination: Split, Double, Hit, or Stand. Basic strategy tells you these decisions. You need to know how rules affect your advantage, and how they affect your basic strategy chart.

An advanced strategy

Further, you will want to add additional strength to your play by knowing when to vary from basic strategy by using the deck count as a guide.

Beyond the three strategy elements listed above, you will also want to use insurance and surrender, when they are offered.

TERMINOLOGY

Blackjack Terms

- Advantage:** The percentage of favorability the player has against the house (casino).
- Bankroll:** The total amount you have to risk on playing the game. This total is used to determine your bet-unit size and betting spread.
- Bet Unit:** The size of unit or chip you bet with. A one to four betting spread for a \$25 chip player would mean the player is betting between \$25 and \$100 .
- Bust:** To lose a hand by going over twenty one.
- Double Down:** On certain hand totals, usually 9, 10, or 11, the player can optionally double his bet, but then receive only one additional card.
- Hard Hand:** A hand that has no aces and therefore only one possible total.
- Hit:** To draw another card by signaling the dealer.
- Insurance:** Optional play offered when the dealer's upcard is an ace. The player can make a side bet of half the original. If the dealer does have a blackjack, the player's original bet is lost, but the side bet wins at 2 to 1.
- Natural:** When the player's first two cards equal 21 (Ace and 10). The hand pays a 3/2 bonus. This is also called a blackjack.
- Pat Hand:** A tie between dealer and player, no win or loss.
- Soft Hand:** A hand that has an ace in it and can be added more than one way, with the ace valued as a 1 or as a 10.
- Split:** When dealt a pair, a player may make an additional equal bet, split the pairs into two separate hands, and then play out each.
- Stand:** When finished doubling, splitting, or hitting, the player signals to the dealer and stays with that hand.
- Surrender:** Optional play where you can throw in your first two cards and receive back half of your wager.

Counting Terms

- Ace Count:** Some count sets value aces as zero so that aces can be tracked separately. In this case, in addition to the regular count, a player must keep a separate side count of aces for betting, strategy, or possibly insurance purposes.
- Ace Deviation:** For each half deck remaining, there should be two aces undealt. By keeping a side count of aces, a player can tell

when there is an excess of aces, demonstrating more precisely player advantage.

- Active Count:** The running total of values a card counter keeps during play, also known as the **Running Count**.
- Basic:** The fundamental playing strategy, showing proper playing decisions for when to Hit, Double, Split, or Stand. Playing accurate Basic nullifies the majority of the casino's advantage and is an essential element of any card counting system.
- Counting Down A Deck:** A counting practice where a player counts through a complete deck of cards as quickly as possible.
- Count Set:** The collection of values assigned to each card denomination for counting purposes. (see Static Value)
- Counts:** Refers collectively to the running and true count, or to the count set values used in a card counting system.
- Deck Count:** An active running count has to be divided according to the number of undealt cards remaining in the deck or shoe. This results in an accurate indication of favorability. Also, depending on the system you use, it is known as the **Exact Count** or the **True Count**.
- Deck Depth:** Remaining deck depth is important to card counting. During play, a running total is kept of count values. This total has to be compared against the number of remaining cards.
- Running Count:** The running total of values a card counter keeps track of during play, also known as the **Active Count**.
- Shoe:** The box holding the decks of cards that dealers use in multi-deck play.
- Static Value:** Card counting works because it has been determined which cards work for the player, and those that favor the house. Each denomination is different, and is assigned a separate value for counting. These static values are added together into an active running total as the cards are dealt during play, thus showing the deck's favorability. Traditionally referred to as **point values**.
- True Count:** The running total of values a card counter keeps, divided by the number of remaining cards to be dealt. The same as **Deck Count**.

BET BOX

The bet box is used to size and set bets. The betting chip shows your current wager and is adjusted by using the bet-box, which appears underneath the bet chip before each hand.



Chip

To increase bet



To decrease bet

Bet Box

The bet-box shows a row of chips, of various denominations. Above each denomination is a '+' button for increasing bet size, and below a '-' button for taking back. You may use your mouse or the arrow keys to size your bets.

Arrow (cursor) key betting

The arrow keys are very quick for sizing bets during play. The right and left arrows select through the denominations, while the up and down arrows increase or decrease bet size. Highlight the unit size you plan to use, make spread decisions with the up and down arrows, and then press the enter key to set your bet.

Mouse betting

Click on the '+' above the amount you want to wager. Click on '-' to take back. After your bet is sized correctly, click on the Set Bet button at the right of the bet-box.

Once your bet is set, play begins. The bet-box is replaced by a choice box. You may use the mouse or the cursor keys for making your decisions.

PLAYING BLACKJACK

Once you set your bet, you are dealt a hand and given the choice to Hit, Stand, Double, or Split on the decision box that appears under your bet-chip. Insurance and Surrender are also available if selected for play.

Surrender



You can select early or late (conventional) surrender from the rules dialog box. In early surrender your hand is over when you choose to surrender, losing half of your wager. If you play late surrender and the dealer has an ace showing (or the dealer peeks under tens), you must wait until the dealer checks for a 21, in which case all of your wager is lost.

When you surrender in the Practicum, you do so by clicking on the surrender button or pressing your Esc key. If the dealer's up card is an ace you will be prompted for surrender. You may not take both insurance and surrender during the same hand.

Insurance



If the dealer has an ace showing, you will be asked if you want insurance. If your response is yes, an insurance chip will be placed near the top of the play field, representing an additional bet equal to half the original. The insurance bet is settled after the dealer checks the hole card.

Splitting

With pairs, including pairs of tens and face cards, you may split a single hand into two separate hands. The Practicum will automatically show a second chip equal to your original wager. Resplitting is limited to four hands showing. Doubling after splitting is allowed when set in the rules dialog box.

Doubling

When you choose to double down, your wager is automatically doubled and you are dealt one (and only one) additional card.

Hitting

The object of the game is to get as close to 21 without busting (going over 21) and to beat the dealer's hand. Any hand total under 21 can be hit. The Basic chart found in Strategy tells you the proper decision for any hand combination.

Standing

With a hand total of 21 the dealer will automatically complete the hand, otherwise you can choose to stand by pressing the stand button.

CASHIER

Should you run out of money during play, deposit here. The cashier will keep track of your account and your total win-loss record. The Practicum initially provides you \$10,000.00 in credit. You may want to reset this to reflect a bankroll appropriate to your style. Pressing Reset will set these figures to zero, erasing your win-loss history.

Deposit	<input type="text" value="0"/>	<input type="button" value="OK"/>
Account Balance	<input type="text" value="10000"/>	<input type="button" value="Cancel"/>
Total Winnings	<input type="text" value="1000"/>	<input type="button" value="Reset"/>

COUNT STRIP

The count strip runs horizontally along the bottom of the screen and displays ten different values:

Hands

The number of hands played.

Accuracy

Percentage of play accuracy, based on correct responses.

Active (Running) Count

The accumulated total of static values.

Deck Depth

The number of decks remaining to be dealt.

Deck Depth Factor

Deck factor *times* the number of remaining decks.

Deck (True) Count

The count derived from dividing the active (running) count by deck depth.

Ace Count

The number of aces played, shown optionally in a forward or backward count.

Ace Deviation

The number of aces varying from the norm (2 per half deck).

Ace Factor

The number of ace deviations multiplied by the ace deviation value.

Bet Count

The active (running) count, after ace adjustment and deck depth conversion.

Peek Strips

Clicking on the right mouse button will allow you to see a static values legend and a deck depth ruler.

DECISION BOX



Play decisions are made through the decision box by clicking on the appropriate button with your mouse or by using the cursor keys. **Hit** if you want to be dealt another card, **Stand** if you wish to stay at the current hand total, **Double** if you want to double your bet and receive one (only) additional card; **Split** if you want to make two hands from a pair of like cards.

The decision box automatically appears after you size and set your bet.

DECISION PRIORITY

Here is the proper order for making strategy decisions:

When Insurance or Surrender is offered, you first decide if you want to surrender or to take insurance (but not both in one hand). You then determine which type of hand you have and make your decision as describe here.

Decision Order

You have a card-combination hand (4,4:5 or 6; 7,7:T):

Double, Hit, or Stand as per Basic

Your decision is made

There are only three card-combination decisions supported in Master Course Basic: if you have (1) a pair of fours against a dealer's 5 upcard; or (2) a pair of fours against a dealer's 6; or (3) a pair of sevens against a dealer's ten-valued card. Check your Basic chart (under Strategy) for the proper responses.

You have a pair:

Split if indicated and rules allow

Continue play

Your hand is a soft hand:

Double,
Hit, or
Stand (In that order)

Your decision is made

Your hand adds to an allowed Double total:

Make numbered decision
else Double or Hit as per Basic

Your decision is made

Otherwise Hit or Stand:

Make numbered decision, or
Basic decision

Repeat until final decision is made

If a hand is a numbered decision, it takes precedent over following Basic. A numbered decision tells you when to vary from Basic.

DISCARD

The Practicum provides a discard box and a single deck, both animated. The discard box fills as cards are played. The single deck shows a rising splitline as cards are collected and placed on the bottom of the deck.

You can optionally practice with one to eight decks. The single deck animates when one deck is selected or during the last 52 cards of multiple decks. It does not display with seven or eight decks.

Practicing with a discard is essential to converting the active (running) count into a deck (true) count successfully. This is done by eyeing the discard and dividing or multiplying (see below) by the deck factor. Further, if you are using a count set that requires an ace side count, you must be able to judge the normal amount of aces for each half-deck increment as the shoe is dealt.

Ne Plus Ultra's Master Course facilitates the developing of discard these skills by breaking them into a variety of simple practice elements, and then recombining them into more advanced exercises.

Eyeing the Discard:

Count per deck	SHOE Stack Height, Indicating Decks Remaining	Count per 1/2 deck
Deck Factor 1 Divide Active Count By:		Deck Factor 2 Divide Active Count By:
6	6	12
5.5	5.5	11
5	5	10
4.5	4.5	9
4	4	8
3.5	3.5	7
3	3	6
2.5	2.5	5
2	2	4
1.5	1.5	3
1	1	2

The amount of cards remaining in a shoe is determined by watching the discard box and estimating to the nearest **half deck**

Eyeing the Single Deck:

Deck Factor 1 Multiply by	SINGLE DECK Quarter Decks Remaining	Deck Factor 2 Multiply by
1	1	2 (divide)
1.33	3/4	.67
2	1/2	1
4	1/4	2

In single decks, the number of remaining cards is estimated to the nearest **quarter deck**

Note: All single deck conversion uses multiplication with one exception: when

the deck factor is 2 and one deck remains you **divide** by two.

The conversion numbers relate to undealt cards, those remaining in the deck or shoe. For example, in a four deck game with one deck already in the discard, three decks would remain to be dealt. With a deck factor of two, you would divide the active (running) count by 6 to arrive at the deck (true) count. With a deck factor of 1, you would divide by 3.

FEATURES OVERVIEW

While the Practicum allows for quick and simple play, there are many program features you will want to incorporate into your training -- such as the Deck Scope window, Rule Variations, Accuracy Feedback, etc.

Layout

The Practicum and Master Course follow a similar layout. The discard is to the left, the play field is center screen, and the counting values show along the bottom. The Practicum differs in showing table limits and rule variations in the left, top corner. Also, session time appears on the bottom right of the screen. Accumulated session win/loss appears next to the discard, at its bottom-right and to the left of the choice box. As with Master Course, clicking on the right-mouse button displays the count set to the right of the play field, and also displays the deck-size ruler. The Practicum's menu runs along the top of the screen. See [Screen Layout](#)

Customizing

You will want to customize the Practicum to match your practice or play style. If you have previous counting experience, now is a good time to evaluate the system you use, and consider simplifying or moving up.

System Variations

The default settings match the Shelley II Full count. If you use an older system, set your strategy and count sets to match.

Accuracy Feedback

The more experienced you are, the less feedback you need. If you are new to the game, you may want a lot of time and help. Accuracy must come before speed, and you must also be diligent against slipping into lax play.

Rules & Variations

Rule sets affect strategy. Start with a rule combination that you are most likely to play against, then work with the main rule-variations such as:

- Dealer hits or stands on soft 17
- Deck size variations
- Doubling after splitting is allowed

MENU



File

Preferences

Advanced Strategy

Basic Chart

Count Selection

Deck Size

Player Bankroll

Preferences allow you to customize the program and have these settings remembered.

Stop Exercise

Use this to interrupt play at anytime.

Exit

This closes the program and allows the Practicum to do its housekeeping before shutting down.

Cashier

When (if!) you run out of money, deposit here. The cashier will keep track of your account and your total win/loss record. The Practicum initially provides you \$10,000.00 in credit. You may want to reset this to reflect a bankroll appropriate to your style. Pressing Reset will set these figures to zero, erasing your win/loss history.

Options

Count System Variations

The default setting is for the Shelley II Full count, with deck factor set to 2 and no ace side count. If you use an older counting system, you will need to set the deck factor to match that system (1 for count-per-deck, or 2 for count-per-half-deck).

Accuracy Feedback

Warm Up

All counts show along the bottom strip, and the correct decision is shown prior to play.

Practice

In practice mode you are shown the correct decision only after making an error: 1) in a dialog box that you have to click or Enter to remove, or 2) for a period of time, set here.

Test

No feed back, you're on you own.

Beep

You can set the error-beep on or off.

Strategy

Play Basic or Advanced. Advanced strategy includes indices for determining correct decisions.

Terminology

The menu or count strip titles will switch between Shelley terminology and the older traditional terms.

Red Seven

If you use the Red Seven system, make sure it is checked here. 'Red Seven' will appear in red at the top of the play field, behind the dealer's hand.

Rules

Variations and Deck Size

The Rules dialog box allows you to select any combination of rule that you may encounter. It allows literally hundreds of thousands of combinations. House (or player) advantage is instantly calculated and displayed in the total-percentage box at the bottom. This is the **offset** figure used in deck scope, and what must be overcome when counting.

Dealers

Peek and pick up order can be set. Pick up order will only be noticeable in splits (up to four hands are allowed). If you want quicker practice, uncheck 'Dealer always plays through', preventing the dealer from hitting after concluding the player hand.

Dealer speed is adjustable, and will vary by the computer you use. The slide has high resolution for rate adjustment, even though the titles are coarsely broken into very slow, slow, normal, fast, and very fast. Deck penetration is set here as a percentage of the current deck size.

Bet Limits

Set table limits here: Minimum can range from 1 to 100; Maximum, 10 to 10000, and must be larger than Minimum.

Bonuses

A variety of bonus rules can be selected and tried. Usually these variations are used in gimmick games, often joined with other, more unfavorable rules. Training support is not provided for these variations.

Strategy

The strategy window is the same as used in Master Course and described in the Master Course manual and the Master Course help files.

Deck Scope

Deck Scope displays betting and counting history.

OPTIONS

Count System Variations

Different counting systems may require different settings:

- Deck (conversion) factor
- Ace side count or no ace side count
- Aces counted forward or backward
- Ace deviation factor

If not using the Shelley System, you can reset these to match your particular system.

Accuracy Feedback

There are four settings to choose from for error feedback:

Warm up: displays all count values; does not notify you of errors.

Practice: two choices upon error, either display correct answer in a message box, or show correct decision on count strip for a set time, adjustable here (1 to 20 seconds).

Test: no correct answers are shown.

Also BEEP ON ERROR may be set for audio feedback.

Strategy

Select **Basic** or **Advanced** so the Practicum knows which strategy you are playing. The Practicum uses this to provide you with the correct play advice.

Terminology

Switches the menu and count strip between traditional and [Shelley System](#) terminology.

Red Seven

Switches program to Red Seven support. The Red Seven menu automatically limits the program to relevant features only.

PLAY ADVICE

The Practicum will monitor your play for accuracy. It determines correct responses according to the program's strategy charts. You can access the strategy charts from the main menu by selecting Strategy. Both the **Basic** and **Advanced** charts are dynamic, actively changing when you make changes to the game's rules.

Set any rule combination you want and the program will automatically provide the best strategy. The rules that directly affect the strategy charts can be found by selecting Settings from the Strategy menu. Changing rule settings in the Variations & Decksize dialog box (under Rules on the main menu) will also vary the charts.

Start with a rule combination that you are most likely to play against, then gain versatility by practicing with the main rule-variations such as:

- Dealer hits or stands on soft 17
- Deck size variations
- Doubling after splitting is allowed

You can use Accuracy Feedback (under Options on the main menu) to set the pace and type of feedback you want the Practicum to give you.

Basic Chart Exceptions

There may be occasional times when you make a seemingly correct Basic decision and then receive a message indicating you were incorrect. This can happen if you select rules that restrict certain decisions. For example, if you were to receive a pair of 9's against a dealer 4 you would (correctly) split. Then, if you were given a 2 on your first 9, you would normally double (11 against a four) as your Basic chart recommends. This could be incorrect, if doubling after splitting is not allowed.

Another example would be where you have a soft hand of A, 2, and 4 against a dealer's 6 -- and doubling is restricted to 2 card hands only. In this case with a three-card hand, you would be restricted from doubling.

Restrictive rules do not always show on the strategy charts.

RULE VARIATIONS

Rule variations are important for two reasons: 1) they affect strategy and 2) they create a house advantage that must be overcome. The Practicum provides a wide range of rule variations (even when excluding the bonus rules, and the table and dealer variations, these combine into hundreds of thousand of rule set variations). Most rules interact with deck size: as deck size changes, so does the effect of each rule. This can be seen by changing deck size and watching the other rule's percent boxes.

Fortunately, not all rules affect strategy. Basic and Advanced strategy varies with changes in deck size, and whether the dealer hits soft 17. Basic is also affected by doubling restrictions, and when doubling-after-splitting is allowed.

The combined player disadvantage of a particular rule set is relevant to betting. This negative offset must be overcome through counting and proper bet sizing. Changes made in rule variations result in changes to player advantage. The accumulated player advantage is projected next to 'Total %'. This is the 'offset' used in the deck scope window.

Rule settings for doubling include doubling on 8 to match casino rule-sets, but is not recommended or supported in Master Course Basic.

RULES PLAQUE

Those rules significant to strategy are displayed above the discard box:



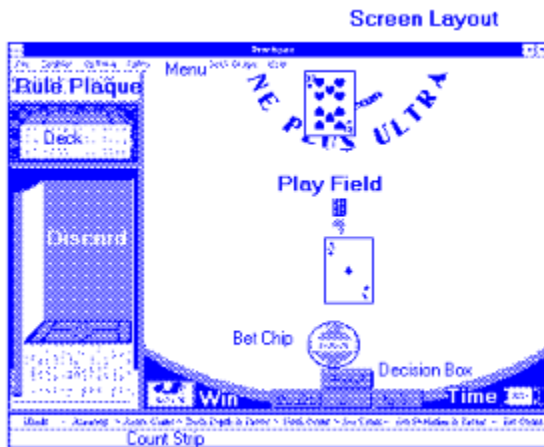
<u>Abbreviation</u>	<u>Rule</u>
H17	Dealer hits soft 17
DB8,9,10	Doubling restricted to totals of 8 to 11, 9 to 11, or 10 & 11
DAS	Double after splitting allowed
INS	Insurance
SUR	Surrender

SCREEN LAYOUT

Menu: Provides access to exercises, program features, and options

Deck & Discard: Animates as cards are played, showing deck depth

Play Field: Area where hand is dealt



Decision Box: Used to choose correct answer during exercises

or **Bet Box:** Used to size and set bet

Count Strip: Displays hand totals, count values, and deck or ace factors

Session Win Total: Shows win or loss for current session

Session Time: Shows total time for current session

ADVANCED STRATEGY SETTINGS

Advanced Chart

The [advanced strategy](#) chart appears when you select STRATEGY from the main menu and then ADVANCED from the strategy window. Selecting SETTINGS will bring up the **Variations** dialog box.

Rules and Deck Size

Like [Basic](#), advanced strategy is also affected by deck size and whether dealer hits or stands on soft 17. More fundamentally, it is affected by which count set you use. Set deck size, the soft 17 rule, and your count set before using the exercises.

The variations dialog box for the advanced strategy chart has two features that will be of interest only to those doing count set comparison or research. Deck size can be set to an INFINITE deck. You can also set ROUNDING to show the decision indices with remainders: tenths or hundredths, rather than as whole numbers. These two settings do not alter your default strategy when you return to the exercise window.

Use CANCEL to exit the variations dialog box if you want to undo any rule or range changes made there. This will not undo a count selection change, which must be done in the count-select dialog box.

BASIC STRATEGY SETTINGS

Basic Chart

From the main menu select STRATEGY, calling up the strategy window. From the new menu select BASIC. You now have a strategy chart showing the proper play decisions regarding Hitting, Standing, Doubling, or Splitting for a specific set of rules. There are 21 decisions that can vary due to rule or deck size changes, and each is outlined in black.

Rules and Deck Size

From the strategy menu, select SETTINGS, to bring up the **Basic Settings** dialog box. You can see the affect of rule and deck size variations by making changes in this dialog box, and clicking the button that is labeled SHOW. This will update the basic chart to match your new settings.

Basic strategy is affected by deck size, and whether the dealer hits soft 17 or not, and by what is allowed for doubling. Before using the exercises, set Basic to the rules and deck size appropriate for your play.

COUNT SET SELECTION

A **count set** is the group of values you use to count cards. Each of the ten denomination is assigned a zero or a positive or negative number, representing a specific percentage of favorability to the player. These static values are added together in an active (running) count as the cards are played.

The Count Select Dialog Box

This is where you select the count set you want to use. From the Strategy window menu, clicking on COUNT SELECT brings up the count set dialog box. Here you are able to:

- Scroll and select from a list of traditional count sets
- Compare playing and betting strengths
- Enter any whole-number count set
- Store up to 10 new or modified counts sets

If you are using the default count set, the Shelley II Full Count, you need not select another count set. The count set that is currently selected and being used in the program for the exercises and advanced strategy charts is displayed, under the heading of Selected Count.

Count Sets List

The list of count sets allow you to scroll and compare a range of prominent traditional counts. The list includes samples of level 1, level 2, level 3, high, and ratio counts.

Count Set Evaluation

As each count set on the list is highlighted, it is evaluated and a variety of information displayed:

- Count Balanced?:** Do positive and negative values equal *
- Cards Counted:** How many denominations are given a static count value
- Balance Value:** What is the total of the positive values
- Highest Level:** What is the largest static value assigned
- Playing Efficiency:** How well does the count follow strategy changes
- Playing Correlation:** Relates to formulating playing efficiency
- Betting Correlation:** How strong is the count for betting purposes
- PE & BC:** Total of playing efficiency and betting correlation; may be used for comparing count sets
- Variation Bet:** Here, you *input* the spread to be used
- Spread Return:** Shows variation of return from the inputted spread

*** Warning: If you select an unbalanced count set, the advanced**

strategy chart is disabled since the indices are no longer accurate.

Entering or Modifying a Count Set

A count set from the list may be loaded for modification after being highlighting and by pressing the GET SET button. Or, any whole-number count set may be entered into the ten input boxes near the bottom of the count set dialog box. Pressing the EVALUATE button will update the evaluation display.

Selecting a Count Set

Should you decide to change the count set used in the main program, use GET SET or enter the set you want and press SELECT. To select a count set directly from the list to Selected Count, double click it. If you have modified or entered a new set, one not on the list, you are not allowed to select it unless it has first been stored to the list.

The newly selected count set will replace the one displayed at the top of the dialog box. After pressing OK, it will remain the selected count set between sessions (even after turning off the computer). If you change your mind, use CANCEL before exiting the count set dialog box. When in the main exercise window, clicking the right mouse button will display the count set currently in use.

Storing a Count Set

Pressing STORE will place a new or modified count set in the list. You may store over the top of existing count sets or in the ten storage locations at the end of the count set list. The ten storage locations are long term and will be remembered by the program between sessions. Storing over existing sets lasts until exiting the Practicum. Highlight the location you want before storing.

SHAPING AN ADVANCED STRATEGY

Indices are numbers assigned to decisions. They tell at what point it becomes more favorable to vary from Basic.

The strategy window will provide up to 83 decision [indices](#). It is recommended that you decide the range and number of indices you plan to use. Not every memory is the same and not all indices are created equal. One of the advantages of having a dynamic strategy chart (one that responds to change in settings) is that you can adjust it until it conforms to your needs.

Indices Range

The indices range limits the spread of numbers (+/-) allowed on your strategy chart. For example, if you type a 6 in the input box next to INDICES RANGE, and click on SHOW, you will see only indices that fall between 6 and negative 6.

Priority

When using indices to vary Basic, the majority of added advantage comes from relative few indices. The 24 most important numbered decisions are sorted in order of gain. You can input from 1 to 24 in the box to the right of PRIORITY. Any number larger than 24 will allow all indices within range to show. The chart is colored with yellow, green, and blue, showing (in that order) the most importance numbered decisions.

The three indices used for splitting a pair of tens against the dealers 4, 5, or 6 may be considered impractical to use because of the attention this play draws. In order of importance, they are listed 20, 11, and 10 respectively.

It is certainly possible to use more indices than a few dozen, but more important is how practical is it and what, if anything is gained.

Deck Factor

This factor is used when dividing the [active \(running\) count](#) by deck depth. A level 1 count set may divide by the number of decks remaining (a deck factor of 1 for count-per-deck). On the other hand, a [level 2 count set](#) may divide the active (running) count by the number of decks remaining *times 2* (a deck factor of 2 for count-per-half-deck). Make sure that DECK FACTOR is set appropriate for your counting system.

STRATEGY WINDOW OVERVIEW

On the main menu, click once on STRATEGY. This takes you into the strategy window where you will optionally develop and pick your count set, along with a basic and advanced strategy.



Basic: Calls up the basic decision chart

Advanced: Brings up the chart for numbered decisions

Settings: Used in Basic or Advanced to set rule variations

Select Count: Shows the count set dialog box

Return: Returns you to the main exercise screen

Selecting Your Strategy

You need three things for a playing strategy:

- A count set for counting cards

- A basic decision chart for making plays

- An advanced chart for making count decisions

DECK SCOPE FEATURES

Outcome Prediction

The Deck Scope window shows the betting history for your last played shoe. It also shows the corresponding count values. The betting history and counting swings can be compared to determine if your betting is proportionate to your advantage. When counting properly, you are able to predict outcome, and your betting fluctuation should reflect this by matching the count swings.

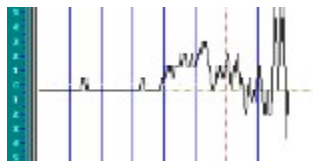
Layout

The top of the screen is dominated by an oscilloscope. On the left are its controls. Below the scope is a shoe. As the shoe is filled, the corresponding count values graphically appear on the scope, directly above each card.

To the right of the scope is the counts legend, showing the five count values: Active Count, Deck Count, Ace Count, Ace Deviation, Bet Count, and also the card order number.

The Tube

The tube is the area on the scope with the black background. This is where the various counts are displayed graphically. Each left-to-right point on the tube corresponds to the card directly underneath. The blue vertical lines mark the half deck locations. The dotted horizontal line is the rule-advantage offset. Unity, or the zero line, runs horizontally through the middle of the tube, level with the 0 mark on the scale to the left.



The 'window' of opportunity for a shoe is above the zero line and to the left of the shuffle point. The shoe's profit potential shows when the Deck (or Bet) Count transverses this area.

Scope Controls

The scope's control panel provides various means to view or manipulate the counting data.

Shuffle Point

Shuffle point may be set here for the Practicum. When the shuffle point is reached during play, and after completing any unfinished hand, the shoe is shuffled. The shuffle point ranges from 1 to 100, representing a percentage of the shoe. For example, with a two-deck shoe (104 cards), and the shuffle point set to 75, the shoe is shuffled after card number 78 is played.

Rule Advantage

The rules you play against have a combined effect, resulting in an advantage or (more likely) disadvantage for you. Proper strategy, counting, and betting allows you to overcome house advantage. *Offset* is another name for negative player advantage, and is used in regard to betting (see Betting below).

Scanning the Shoe

The Scan Shoe button causes the scope to display the count values on the tube, along with the count values shown in the counts-legend. The shoe is loaded and scanned from left to right, and in the same order that the cards were previously dealt.

Stepping through the Shoe

Underneath the Scan Shoe button are three more buttons. The clear button [|<] empties the shoe, so it can be loaded one card at a time. You may single step [>] or fast step [>>] through the shoe. This allows you to sequentially follow count value changes as each card is loaded.

Scale

The scale, running vertical to the left of the display-tube, ranges from positive 5 down to negative 5. These numbers mark percentages, and are used for showing both bet-to-bankroll ratio and player advantage.

Amplitude Knob



The count values that display on the scope may be amplified or compressed by using the amplitude knob. There are nine settings. At the three o'clock position, the count values match the numbers on the scale. With a level I count and a deck factor of 1, or a level II count with a deck factor of 2, the deck count will reflect a value twice that of the *actual* advantage (for example, the actual advantage of removing a 5 from a deck is .585, not 1). Because of this, the default amplitude is set to half size (one back from 3 o'clock as shown). At this setting the deck or bet count will match the actual advantage.

Show Bets

Your betting history displays as vertical lines on the tube, positioned above the shoe where the bets were made. They show as percentages of Bankroll, set in the Betting dialog box, discussed below; also there, bets may be set to show half or twice size.

New Deck

Below the shoe, and to the right are two buttons titled Shuffle. The second button, [>] will shuffle and load a new shoe. The left button, [|<] causes the original (last played) shoe to be reloaded.

DECK SCOPE MENU



The Deck Scope menu is as follows:

Betting

This dialog box allows you to 'size' your betting history to align with the count graph. Usually, the deck count reflects a value twice that of the actual advantage. This depends though, on the count level you are using in conjunction with the deck factor you use. The Amplitude knob's default setting is set to show count values corresponding to one half their actual value.

Bankroll

Inputted here, your bankroll size is used by the program to show your bets as percentages. You can experiment to find betting ratios to match your level of play.

While using a betting spread of 1 to four units, you may choose to keep a ratio of 50 to 1, between bankroll and maximum bet. In this case, you would require a bankroll of 200 units. A 'unit' applies to any chip denomination: 1, 5, 25, etc.

You may decide to follow the practice of sizing your betting unit to 1/200 of your bankroll, in order that each increase in bet size will represent a half-percent increase in bankroll risk. This makes it easy to follow the deck count. In this case, and assuming your playing skill warranted it, you could use a bankroll of 1000 units, while using a 5 chip as your minimum bet.

Offset

The Deck Count reflects player advantage. This is true if the rule set you play against is even. If you are playing against rules that give the house an advantage (as most combinations do) your count must be offset to reflect this. How this is done during play, when setting bets, is discussed in the Master Course manual (page 46). The Offset button, when checked, sets the various counts to fluctuate relative to the offset line rather than from the zero (even) line, thereby, showing more accurately actual advantage.

Count Select

You may experiment with various counts, comparing them on a common shoe.

Deck View

The shoe may be shown in one of four different views. Each card may be colored to reflect denomination, count value, small cards, or large cards. It is interesting how extensive like-card clumping is, in randomly generated shoes. The magnifying glass shows each card's color as the shoe is loaded or stepped through.

Practicum

Returns you to the game.

Scope View

Each of the five count values may be set on or off for scope viewing. These are

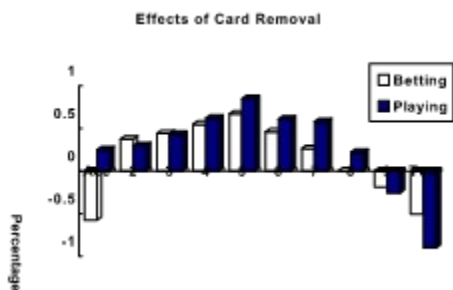
Active Count, Deck Count, Ace Count, Ace Deviation, and Bet Count. If you are not using an ace side count, for example, you may not want the last three showing. The default setting is with Deck Count only, displaying. You may want to try viewing with the Active Count on as well.

ABOUT COUNT SETS

The **static values** in a count set represent the advantage or disadvantage to the player of removing the various card denominations from the deck. Removing a 5, for example, gives the player a positive advantage, while removing a 10 (or face card) makes the remaining deck negative. All count systems are a compromise between accuracy and ease of use. The actual effect of card removal is as follows:

Card Denomination	A	2	3	4	5	6	7	8	9	T
Effect On Betting	-.575	.375	.440	.550	.670	.460	.265	.005	-.185	-.505
Effect On Playing	.250	.300	.430	.620	.850	.610	.580	.220	-.260	-.900

(Removal values from Arnold Snyder's *The Blackjack Formula*)



The purpose of counting cards is to track these fluctuations. During play, the **advantage** is in constant flux, swinging between player and house. To try and keep a running tally of the two complex sets of values shown above is not practical, to say the least. Instead, each denomination is assigned one simple whole number that approximates its combined favorability.

Generally, the large cards: the nines, tens, and the face cards which are valued at ten, work for the player. As they are removed from the deck and played, the deck becomes negative. To keep track of this, they are assigned negative numbers. The small cards are just the opposite: working against the player and are therefore given positive values to reflect their removal. Eights are neutral, and Aces work for the player in terms of betting, and against the player for playing purposes.

ACTIVE COUNT

As each card is dealt, the static values are added to each other in a running total, called the **active count**.

Here are the static values for the Shelley II Full Count. This count set assigns aces a value and consequently does not require an ace side count, as some count sets do. Each card denomination has the following static value:

Denomination:

A	2	3	4	5	6	7	8	9	T
Static Value:									
-1	1	2	2	2	2	1	0	-1	-2

PE &BC: 1.595

Static Value:	Denomination
2	Threes, Fours, Fives & Sixes
1	Twos & Sevens
0	Eights
-1	Aces & Nines
-2	Face Cards & Tens

Here is an example showing cards being dealt:

Card Dealt:	5	2	T	7	T	9	A	2
Static Value:	2	1	-2	1	-2	-1	-1	1
Active Count:	2	3	1	2	0	-1	-2	-1

Notice how the static values are totaled as each card is dealt. On the third card, a ten (**T**), negative 2 is added to the active count which at that point is **3**. Adding a **(-2)** is the same as subtracting 2. Therefore $3 + (-2) = 1$.

ADVANCED STRATEGY

An advanced strategy allows the player to gain additional advantage by varying **Basic** through the counting of cards, allowing strategy decisions to be made based on deck composition. This varied Basic consists of a table similar to standard basic, but differs in having numbers (**indices**) for some decisions. The player makes the appropriate decision by comparing the **deck count** with these numbers. These indices represent the point in deck composition, as indicated by the count, where it becomes more advantageous for the player to vary the normal Basic response.

Using Numbered Decisions

(Shelley II Full Count: four decks, dealer stands on soft 17, indices range = 6, and priority = 24)

		Strategy Numbers																			
		upcard	Ace	2	3	4	5	6	7	8	9	Ten									
player	10											4									
	11											-3									
	12		3	2	0	-2	-1														
	13		-1	-2	-3	-5	-4														
	14		-3	-4																	
	15											4									
	16										5	1									
	17																				
Ten	Ten				5	3	4														
Count Values		A	-1	2	1	3	2	4	2	5	2	6	2	7	1	8	0	9	-1	11	-2

For hit or stand decisions (hand totals of 12 to 17) that have indices, stand if the **deck count** equals or is higher than the decision number. Otherwise hit. For double/hit decisions (hand total of 10 or 11), double if the deck count is equal or higher, otherwise hit. For the split/stand decisions, split if the deck count is equals or higher, otherwise stand. For example, with hand totals of hard 10 or 11 your choice is to either Double or Hit, as per proper basic strategy:

Basic tells you to Hit with a hand total of 10 against a dealer's Ten (or a face card), but if the deck count equals or is higher than 4, you Double.

Here is another example, of a Hit or Stand decisions:

Normally, when you hold a 15 against a Ten, you Hit in order to improve your poor hand over the dealer's (probable) better hand. But if the deck has a higher number of large cards, as indicated by a high deck count, it then becomes too much of a risk. So in the case of 15 against Ten with a deck count of 4 or higher you Stand, and Hit if less.

If you hold a pair of Tens (20) you usually stand. If the deck is rich in Tens and Nines, though, as indicated by the count, there are instances where you can vary from basic and split, in an effort to make *two* good hands out of one.

With the above chart settings, if the dealer's up card is a 4, 5, or 6 and the deck count equals or is higher than 5, 3, 4 respectively, you split.

CUSTOMIZING YOUR COUNT SYSTEM

The [strategy window](#) allows you to customize your strategy.

You can't go wrong simplifying. If you are new to counting, you may want to use a simple strategy and count set. It is more important to be comfortable and proficient, than overloaded and error prone. Consider this:

Don't use an ace side count
Learn Basic for just one rule set
Wait on the advanced strategy, or restrict it to a +/- 6 range.
Use a simpler, level 1, count set

Shelley I Full Count

Denomination:

A	2	3	4	5	6	7	8	9	T
Static Value:									
-1	1	1	1	1	1	1	0	-1	-1

PE &BC: 1.509; Deck Factor = 1 (divide the active count by 1 for each remaining deck)

If on the other hand, you are ready for additional challenge, consider using a level three count set.

Shelley III Full Count

Denomination:

A	2	3	4	5	6	7	8	9	T
Static Value:									
-1	2	2	3	3	2	2	0	-1	-3

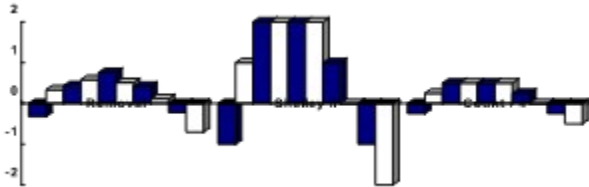
PE &BC: 1.615 Deck Factor = 2 (divide the active count by 2 for each remaining deck)

DECK COUNT

A count system tracks the effect of card removal by assigning a **static value** to each denomination. This static value must approximate the effect of removal for both betting and playing.

Denomination									
A	2	3	4	5	6	7	8	9	T
Average Effect of Removal (combined betting & playing, equal weighting, no insurance effect)									
-0.325	.338	.435	.585	.760	.510	.423	.113	-.223	-.703
Shelley II Full Count: Static Values									
-1	1	2	2	2	2	1	0	-1	-2

As cards are played, these are kept in a running tally, called the **active count**. This leaves one last process that the player must consider. As a deck or shoe is depleted, the effect of removal for each denomination increases. The advantage of having one extra ten in a few cards is much stronger than it would be if several decks remained to be played. Consequently, the active count is converted into a **deck count** by dividing according to the number of remaining cards.



In the chart above you can compare the effects of removal on the left, the static values of the Shelley II Full Count in the center, and the **count set** values after being divided, on the right. When an active count is divided during play, it is done for two reasons: one is to factor in deck depth, the other is to match the count with betting advantage.

DECK FACTOR

Count sets with higher ranges, like the [Shelley II Full Count](#), need an additional division to parallel the true advantage. This is facilitated by dividing the active count by *twice* the number of remaining decks (traditionally known as count-per-half-deck). **Deck factor** is what you multiply the number of remaining decks by. The result is used to divide the [active count](#).

In practice, estimating the amount of cards remaining in the shoe is simplified by watching the discard box and then estimating to the nearest half deck size. For example, in a six deck shoe with about one deck in the discard, there are five decks left to be dealt. This number doubled is ten, so divide the active count by ten to come up with the [deck count](#). Until you begin playing advanced strategies, you do this only when you need to determine bet size. Incidentally, with a six deck shoe, a full table, and 75% of the shoe being dealt, there would be on average, eleven rounds of play per shoe with approximately 21 cards per round.

In hand held decks the number of cards remaining is easy to see, by distinguishing the already-played cards that are kept on the bottom of the deck. For single deck you use quarter deck increments. With a deck factor of 2, single deck conversion is as follows:

Full deck	Divide by 2
3/4 deck	Multiply by .67 (estimate two thirds)
Half deck	Multiply by 1 (deck count equals active count)
1/4 deck	Multiply active count by 2

Level I count sets, those with a range of -1, 0, and 1 for static values, use 1 as a deck factor (traditionally known as count-per-deck). Another words, to get the deck (true) count, you convert the active (running) count by the number of remaining decks (see [Eyeing the Discard](#)).

INDICES

Basic tells you the most profitable decision response for any hand combination, without regard to deck composition. Each decision, though, has a point where it becomes more profitable to vary from Basic, based on deck composition. This additional precision can be added to a playing strategy by using the deck (true) count to judge decisions. **Indices** are numbers assigned to strategy decisions, indicating at what count value it becomes more favorable to vary from Basic

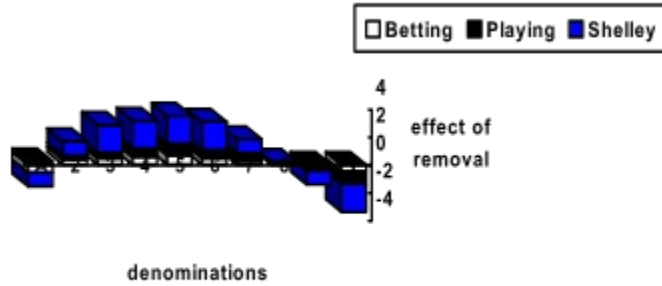
Blackjack expert, Donald Schlesinger has pointed out that most of the gain we receive when we vary from Basic when counting, comes from just a few indices. By using Peter A. Griffin's Theory of Blackjack, "Average Gains For Varying Basic Strategy", we can rate indices in order of importance:

RATING	HAND Player : Dealer	GAIN Thousandth of a %
1	16 : T	.095
2	14 : T	.050
3	15 : T	.047
4	13 : T	.036
5	13 : 2	.034
6	12 : 4	.030
7	12 : 3	.029
8	12 : 6	.028
9	13 : 3	.028
10	TT : 6	.027
11	TT : 5	.025
12	12 : 2	.023

As gain drops and effort increases, as does the probability of playing error, consideration must be given regarding how many indices to use.

MEASURING A COUNT SET

The combination of **betting correlation** and **playing efficiency** provides a standard to compare relative strength of count sets. Betting correlation measures how closely a set of count values mimic the actual advantages. Playing efficiency measures how flexible a count system is in varying basic strategy as deck composition changes. Notice how the Shelly II Full Count mimics the rise and fall of these values:



The Ace has a dual nature, working at times as a large card, and at other times as a small card. This is why some systems use a separate side count of aces.

See: Algebraic Approximation of Optimum Blackjack Strategy by Arnold Snyder,
The Theory of Blackjack by Peter A. Griffin

SHELLEY TERMINOLOGY

Shelley Term **Description & Traditional Terms**
Static value For counting, each card denomination is assigned a plus or minus value.
Traditional Terms: Point values, the denomination count value

Active count The plus and minus values are added together as each card is dealt.
Traditional Terms: Count, running count, total point count

Deck count The accumulated total is divided by the remaining deck size.
Traditional Terms: Count per deck, true count, exact count, adjusted running count

Bet count With an ace side count, adjusted is made to reflect ace deviation.
Traditional Terms: Ace adjusted count

Traditional Tags

If you have used an older system and are familiar with the terms **running** and **true** count, just remember these are the same as **active** and **deck** count. If you adjust for aces, for betting purposes, you then have the **bet** count.

THE SHELLEY COUNT SETS

Shelley I Full Count

Denomination:

A 2 3 4 5 6 7 8 9 T

Static Value:

-1 1 1 1 1 1 1 0 -1 -1

PE & BC: 1.509; Deck Factor = 1 (divide the active count by 1 for each remaining deck)

Shelley II Full Count

Denomination:

A 2 3 4 5 6 7 8 9 T

Static Value:

-1 1 2 2 2 2 1 0 -1 -2

PE & BC: 1.595; Deck Factor = 2 (divide the active count by 2 for each remaining deck)

Shelley III Full Count:

Denomination:

A 2 3 4 5 6 7 8 9 T

Static Value:

-1 2 2 3 3 2 2 0 -1 -3

PE & BC: 1.615 Deck Factor = 2 (divide the active count by 2 for each remaining deck)

Shelley High Full Count:

Denomination:

A 2 3 4 5 6 7 8 9 T

Static Value:

-2 4 5 7 9 6 5 1 -3 -8

PE & BC: 1.628 Deck Factor (not recommended for play)

Insurance

Insurance is a frequently offered side bet. When the dealer shows an ace and possibly has a natural, you have the opportunity to place a second bet up to half the size of your original bet. If the dealer does in fact have a natural, you lose your original bet, but win the side bet at 2 to 1.

You never take insurance unless you are counting. Then, you only take it when the deck count is at 3 or above.

Surrender: When to give up

If surrender is offered, you may throw in your first two cards and receive back half of your bet. There are two forms of surrender, early and late. Early surrender, allows you to surrender before the dealer checks for a natural. Late (conventional) surrender, requires the dealer to check for a blackjack first.

late SURRENDER	
DEALER'S UP CARD	
PLAYER'S HAND	2 3 4 5 6 7 8 9 10 A
15	S S S S S H H H SUR *
16	S S S S S H H H SUR *
15	S S S S S H H H SUR *
16	S S S S S H H SUR.SUR.SUR

Single Deck

Multi-Deck

Do not surrender with 8, 8. *Surrender if dealer hits soft 17.

GLOSSARY

A

Ace Adjustment converting the active (running) count to reflect an excess or shortage of aces remaining to be played

Ace Count count sets that value aces as zero require a separate side count of aces

Ace Factor a fixed number added or subtracted from the active count for each excess or shortage of remaining aces, AKA **ace adjustment factor**

Ace Norm two aces for each half deck remaining to be played, the deck becomes ace rich or ace poor in variation to this

Action total amount a player bets over a session

Active Count each denomination is assigned a static value representing its favorability towards the player; these values are kept in a continuous tally as a deck or shoe is played out, AKA **running count**

Advantage the percentage of favorability a player has over the House (casino) in relation to the total amount bet. A player who wagers 200 units, winning 101 and losing 99, on average, would demonstrate a 1 percent advantage

B

Basic a decision chart of when to hit, stand, double, or split for any hand combination

Back Counting counting down a deck or shoe when not playing

Bank the total amount of money a player has available to risk on the game

Bar when a pit boss tells a player he is no longer welcome to play blackjack

Bet Count what results from adjusting for aces, used to determine bet size, AKA **adjusted active (running) count**; **betting true count**

Betting Correlation a value representing how strong a count set works for betting purposes

Betting Spread the range of highest and lowest bets a player makes, AKA **betting ratio**

Blackjack the name of the game or a hand consisting of an ace and a ten-valued card, paying 3 to 2 in standard play; AKA **natural**; **twenty-one**

Blacks \$100.00 chips

Burn Card one or more cards taken out of play by the dealer, placed on the bottom of the deck or in the discard shoe

Bust to go over a hand total of 21; to lose a hand

C

Cage the casino's cashier location

Card Values the denomination values; aces may be valued at 1 or 11; face cards (king, queen, or jack) are valued the same as tens

Chips round, colored tokens used for gambling

Count (as verb) to keep a running tally of values assigned to each card, showing player favorability

Count (as noun) an advantage tally being kept by the player

Count Set a group of values assigned to each card denomination, usually -1,

0, & 1 for a simple count set or -2, -1, 0, 1, & 2 for **level II** count sets

Cut Card a colored plastic card inserted into a deck, indicating shuffle point

D

Deck Count an active running count, *divided* according to the number of undealt cards remaining in the deck or shoe; this results in an accurate indication of favorability; AKA the **Exact** or **True Count** depending on the system used

Deck Depth remaining deck depth is important in determining advantage during play: a running total is kept of count values, then compared against the number of remaining cards

Deck Factor when comparing the active running count to deck depth, the number of remaining decks is multiplied by this factor; usually 1 or 2 depending on the range of values in a count set, AKA **conversion factor**

Deck Depth Factor this is deck factor *times* remaining deck depth and used to convert the active (running) count to the deck (true) count; deck depth factor appears on the count strip under (deck depth &) factor

Decision numbers numbers assigned to strategy decisions, compared to the deck count in order to know when to vary from Basic; AKA **indices**

Double Down on certain hand totals, usually 9, 10, or 11, the player can optionally double the bet, but then receive only one additional card for that hand

Double Exposure a game variation where both dealer cards are shown during play

Drop Box all cash is dropped through a table slot into a box after being exchanged for chips

F

First Base the player position first dealt to, and farthest to the dealer's left

Flat Bet a player's minimum bet size; in flat betting, the player does not increase bet size

H

Hand the combination of the dealer's up card and the player's hand total

Hit to draw another card by signaling the dealer

House Advantage the percentage of advantage the casino has over the player

I

Indices numbers assigned to strategy decisions, indicating at what count value it becomes more favorable to vary from Basic

Insurance when the dealer's upcard is an ace, the player can (where allowed) make a side bet of half the original; if the dealer does have a blackjack, the player's original bet is lost, but the side bet wins at 2 to 1

L

Level II Count a count set with values ranging from negative 2 through positive 2

M

Minus Count when the count swings under zero, counting totals can be

positive or negative

Multiple Deck a deck with more than one pack of cards, usually dealt from a shoe

N

Natural a blackjack or twenty-one; a hand consisting of an ace and a ten-valued card, paying 3 to 2 in standard play

Negative Swing when your losses are greater than the predicted average, a common assurance during the ups and downs of play

O

Over Betting making bets that are larger than your bankroll and advantage warrant, eventually leading to loss of bankroll

P

Pit a playing area in the casino, a circle of blackjack tables

Pit Boss the person in charge of a playing area (the pit), responsible for overseeing the dealers and play

Playing Efficiency a value reflecting the ability of a count set to follow strategy variations

Preferential Shuffle done by a dealer who counts cards and then shuffles when the count is positive

Push when the player and dealer tie, no money is exchanged

R

Rack the tray where the dealer keeps the chips

Risk of Ruin the probability of losing all your bankroll as compared to doubling it

Round one complete hand and bet settlement for all players at the table

Rules rule variations for blackjack may vary according to location, casino, or table; each rule variation effects player advantage

Running Count the continuous tally of count-set values as each card is played

S

Seconds a form of cheating where after peeking the top card, one underneath is dealt

Settlement at the end of play the player wins or losses his bet, or ties the dealer

Soft Totals hands that contain aces, may have more than one total, since aces can be valued as 1 or 11

Shoe a plastic box from which cards are dealt; a shoe holds multiple deck, though it may also be used for single or double decks

Split if the first two cards of a hand are a pair (same denomination cards) you may optionally split them into two separate hands

Static Value a value assigned each denomination that represents its favorability towards the player (after being removed from the deck); see **count set**

Stiff an unfavorable hand total of 12 through 16

Strategy Numbers some decisions are given numbers that are compared against the deck (true) count indicating when it becomes more favorable to

vary from Basic

Surrender a rule variation that allows you to throw in your hand, receiving half of your wager back; two forms have existed: *early* and *late* -- with late surrender (allowed after the dealer checks for a natural) now sometimes offered

T

Table Limits the minimum and maximum a player is allowed to bet at a specific table

Tap Out losing all of one's bankroll

Third Base the end table position, to the dealer's far right and dealt to last

Token a tip to the dealer

True Count a count derived from converting the active (running) count by deck depth, AKA **deck count**

U

Up Card the one card shown by the dealer during play

Ace Adjustment converting the active (running) count to reflect an excess or shortage of aces remaining to be played

Ace Count count sets that value aces as zero require a separate side count of aces

Ace Factor a fixed number added or subtracted from the active count for each excess or shortage of remaining aces, AKA **ace adjustment factor**

Ace Norm two aces for each half deck remaining to be played, the deck becomes ace rich or ace poor in variation to this

Active Count each denomination is assigned a static value representing its favorability towards the player; these values are kept in a continuous tally as a deck or shoe is played out, AKA **running count**

Advantage the percentage of favorability a player has over the House (casino) in relation to the total amount bet. A player who wagers 200 units, winning 101 and losing 99, on average, would demonstrate a 1 percent advantage.

Basic a decision chart of when to hit, stand, double, or split for any hand combination

Bet Count what results from adjusting for aces, used to determine bet size,
AKA **adjusted active (running) count**, AKA **betting true count**

Betting Correlation a value representing how strong a count set works for betting purposes

Betting Spread the range of highest and lowest bets a player makes, AKA
betting ratio

Card Values the denomination values; aces may be valued at 1 or 11; face cards (king, queen, or jack) are valued the same as tens

Count (as verb) to keep a running tally of values assigned to each card, showing player favorability

Count (as noun) an advantage tally being kept by the player

Count Set a group of values assigned to each card denomination, usually
-1, 0, & 1 for a simple count set
or -2, -1, 0, 1, & 2 for **level II** count sets.

Deck Count an active running count, *divided* according to the number of undealt cards remaining in the deck or shoe; this results in an accurate indication of favorability; AKA the **Exact** or **True Count** depending on the system used

Deck Depth remaining deck depth is important in determining advantage during play: a running total is kept of count values, then compared against the number of remaining cards

Deck Factor when comparing the active running count to deck depth, the number of remaining decks is multiplied by this factor; usually 1 or 2 depending on the range of values in a count set, AKA **conversion factor**

Decision numbers numbers assigned to strategy decisions, compared to the deck count in order to know when to vary from Basic; AKA **indices**

Flat Bet a player's minimum bet size; in flat betting, the player does not increase bet size

Indices numbers assigned to strategy decisions, indicating at what count value it becomes more favorable to vary from Basic

Insurance when the dealer's upcard is an ace, the player can (where allowed) make a side bet of half the original; if the dealer does have a blackjack, the player's original bet is lost, but the side bet wins.

Level II Count a count set with values ranging from minus 2 through plus 2

Playing Efficiency a value reflecting the ability of a count set to follow strategy variations

Rules rule variations for blackjack may vary according to location, casino, or table; each rule variation effects player advantage

Running Count the continuous tally of count-set values as each card is played

Soft Totals hands that contain aces, may have more than one total, since aces can be valued as 1 or 11

Static Value a value assigned each denomination that represents its favorability towards the player (after being removed from the deck)

The static values for all ten denominations make up a **count set**

Shelley II Full Count

	Denomination:								
T	A	2	3	4	5	6	7	8	9
	Static Value:								
	-1	1	2	2	2	2	1	0	-1
	-2								

PE &BC: 1.595; Deck Factor = 2

Stiff a unfavorable hand total of 12 through 16

Strategy Numbers some decisions are given numbers that are compared against the deck (true) count indicating when it becomes more favorable to vary from Basic

Surrender a rule variation that allows you to throw in your hand (on the first two cards) and receive half of your wager back; there are two forms: *early* and *late* -- with late (conventional) surrender the dealer checks for a natural, and if having one, takes your whole wager.

True Count a count derived from converting the active (running) count by deck depth, AKA **deck count**

Zen Count the point values for the denominations are:

Denomination:	A	2	3	4	5	6	7	8	9	T
Point Value:	-1	1	1	2	2	2	1	0	0	-2

