Chapter 2
Playing the Hand

2.1 Basic Strategy

Even the most occasional Player wants to avoid egregious mistakes. He is looking forward to some fun, and losing heavily is not. He would like some guidance on how best to make all those choices available and, of course, what the odds are when he does make the best choices.

Every Player has information that is actually quite pertinent to his choices: he knows the identity of the cards in his hand and he knows the value of Dealer's upcard. Even this small amount of data is enough to provide a straightforward but powerful strategy for playing each hand, one that reduces the house advantage to much less than that of any other game in the casino. That recipe for play is usually called "Basic Strategy."

Basic Strategy is defined as the class of play guidelines with the best odds, given only the values of Dealer's upcard and Player's hand; the values of his individual cards here serve only to distinguish hard hands from soft and to identify pairs for possible splitting. Basic Strategy also assumes that each split hand, after the second card is dealt to it, is played with the same guidelines as for unsplit hands. Optimal Basic Strategy is that Basic Strategy with the best odds for the specific number of decks in the shoe, here labeled D. Discussed later are small improvements in play from use of the individual values of Player's first two cards, as well as that of the second card dealt to a split hand. Chapter 3 lays out the further improvements in optimal play enabled by information on cards dealt in previous rounds.

Optimal Basic Strategy is the same for all numbers of decks between three and six; because of its independence from deck number in this range, it is frequently referred to as Generic Strategy (to follow Wong (1994, pp. 26–27) with DAS, and Vancura and Fuchs (1998, pp. 28–29) without DAS). The guidelines for Generic Strategy are shown in Table 2.1.

The prescriptions of Generic Strategy strongly reflect one overriding characteristic: Dealer's hand is weak when showing less than 7, especially 5 or 6; and is strong when showing more than 6, especially ace or 10. When Dealer is weak, Player should draw cautiously, standing on as little as 12 or 13. When Dealer is strong, Player should draw aggressively, hitting until reaching at least 17. Furthermore,

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Table 2.1 Generic Strategy (Optimal Basic Strategy for three to six decks)

Action	Hand value	When Dealer shows	
Double	11	2 through 10	
	10	2 through 9	
	9, soft 17 and 18	3 through 6	
	Soft 15 and 16	4 through 6	
	Soft 13 and 14	5 or 6	
Split		DAS allowed	DAS not allowed
	Aces and 8 + 8	Any	Any
	2 + 2 and 3 + 3	2 through 7	4 through 7
	4 + 4	5 or 6	–
	6 + 6	2 through 6	3 through 6
	7 + 7	2 through 7	2 through 7
	9 + 9	2 through 9, but not 7	2 through 9, but not 7
Stand on	13 and higher	2 or 3	
	12 and higher	4 through 6	
	17 and higehr should be higher	Ace, or 7 through 10	
	Soft 18 and higher	2,7, or 8	
	Soft 18, 3 or more cards	3 through 6	
	Soft 19 and higher	9,10, or ace	
Surrender, when available	15	10	
	16, but split 8 + 8	9, 10, or ace	

The final element of Generic Strategy is to always refuse the insurance bet

Player should double or split a number of two-card hands when Dealer is weak, while doubling or splitting very little when Dealer is strong.

The indication of strength or weakness from Dealer's upcard reflects, in turn, the fact that she is required to draw to 16 or less. A two-card hand showing a 6 is more likely than not to have a value in the range 13–16, requiring her to draw with a greater than even chance of a bust on the next card. In contrast, a hand showing a 10 (even without a blackjack) is more likely than not to have a value of 17–20, requiring her to stand and posing a strong challenge to Player.

Table 2.2 lists the first round (or "reshuffle") expected return with Optimal Basic Strategy, for four variants of the rules for pair splitting (although both DAS and resplits are allowed in most casinos). The returns, when plotted vs. the inverse number of decks, $1/D$, in Fig. 2.1, are virtually indistinguishable from straight lines. Table 2.2 also lists the slopes of the lines, recurring in Sect. 7.2.

As seen in Fig. 2.1 for the game with pair resplits and DAS, the return for an eight-deck shoe is -0.0043; the reshuffle return improves to $+0.0014$ for a single-deck shoe ($1/D = 1$). Without resplits or DAS, the single-deck return is -0.0001.

Thus, Optimal Basic Strategy in a one-deck game has nearly even odds, slightly positive or negative depending on the rules for split pairs. For the other size shoes

Table 2.2 Optimal Basic Strategy expected return vs. number of decks

D	No DAS, no resplit	No DAS, resplit,	DAS, no resplit	DAS, resplit	Surrender increment
∞	−0.6902	−0.6510	−0.5704	−0.5904	+0.0932
8	−0.6901	−0.5730	−0.4877	−0.4310	+0.0825
7	−0.5974	−0.5617	−0.4758	−0.4197	+0.0810
6	−0.5819	−0.5468	−0.4599	−0.4047	+0.0790
5	−0.5601	−0.5258	−0.4378	−0.3837	+0.0764
4	−0.5274	−0.4943	−0.4046	−0.3523	+0.0726
3	−0.4731	−0.4420	−0.3495	−0.3000	+0.0662
2	−0.3621	−0.3349	−0.2368	−0.1930	+0.0553
1	−0.0147	+0.0018	+0.1143	+0.1419	+0.0236
Slope	0.336	0.323	0.344	0.325	

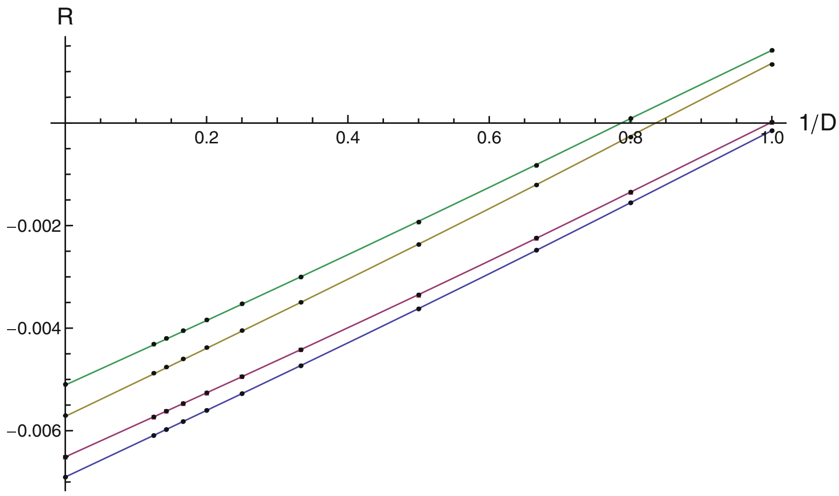

Fig. 2.1 Expected return, reshuffle round, vs. inverse number of decks (those in Table 2.2, plus 3/2 and 5/4)

typically encountered, the reshuffle return with resplits and DAS is −0.0040 for six decks and −0.0035 for four decks; without resplits or DAS the respective returns are −0.0058 and −0.0053. The return improvement from surrender, also listed in Table 2.2, decreases with decreasing deck number, from the 0.0008 for eight decks down to just 0.0002 for a single deck.

The specifics of optimal card play also vary with number of decks. Table 2.3 lists the changes in play from Generic Strategy of Table 2.1, for one and two decks. Optimal Strategy for more decks than six differs in that 4 + 4 is not split vs. Dealer's 5; soft 13 is not doubled vs. upcard 5 for more than eight decks; and, for more than 26 decks (!), soft 15 is not doubled vs. 4 (as first noted by Griffin (1999, p. 176)).

Table 2.3 Differences in Optimal Basic from Generic, one and two decks

Action	Hand value	When Dealer shows			
		$D = 2$		$D = 1$	
Double	11	Ace		Ace	
	9	2		2	
	8			5,6	
	Soft 19			6	
	Soft 17			2	
	Soft 13 and 14			4	
Split		DAS	No DAS	DAS	No DAS
	$2 + 2$				3
	$3 + 3$			8	
	$4 + 4$			4	
	$6 + 6$		2	7	2
	$7 + 7$		8	8	
Stand on	Soft 18 and higher		Ace		Ace
Surrender when available	15	Not 10		Not 10	
	16	Not 9		Not 9	

Table 2.4 Generic Strategy applied to other numbers of decks

D	Reduction in expected return × 100, Generic vs. Optimal			
	No DAS, no resplit	No DAS, resplit	DAS, no resplit	DAS, resplit
∞	0.0008	0.0008	0.0008	0.0008
3 through 6	0	0	0	0
2	0.0026	0.0026	0.0031	0.0031
1	0.0271	0.0272	0.0306	0.0310

The availability of DAS significantly increases the advantage of splitting pairs, enough so that more pairs should optimally be split than without it. Those added (at least in Generic Strategy) are $2 + 2$ and $3 + 3$ against Dealer upcards 2 and 3, $6 + 6$ against upcard 2, and $4 + 4$ against upcards 5 and 6; still more pairs are split for one and two decks. With DAS allowed, Player's expected return increases by about 0.0014 with resplits and 0.0012 without.

Conversely, applying Generic Strategy to one or two decks is only slightly suboptimal: as seen in Table 2.4, the expected return degrades by at most about -0.0003 for one deck, depending on the rules for splitting. These reductions are so small, at least for two decks, that they are entirely outweighed by the simplicity of using just a single uniform strategy for any number of decks. With one deck, however, the return improvement from Optimal rather than Generic might be enough to prompt consideration of switching; but a very serious Player may elect instead to adopt either the more complex, Composition-Dependent (but count independent) Strategy discussed below and/or a count-dependent strategy as per Chap. 5.

2.1.1 Expected Return with Variant Rules and Procedures

The rules variation most significant for Player is when Dealer does not stand on soft 17, but rather hits soft 17 and stands on soft 18 or more. Player's expected return worsens: with resplits but not DAS, by -0.0022, at least for six and eight decks. The playing strategy remains mostly the same, but with some added situations where doubling is recommended: double 11 against Dealer ace, double soft 18 against Dealer 2, double soft 15 against Dealer 4, and double soft 19 (!) against Dealer 6. These additional doubles arise from Dealer's acquiring a stronger position, so that more aggressive play is required.

The variation where soft hands cannot be doubled is more benign; here the expected return worsens by -0.0008. Not being able to resplit a split hand worsens the expected return by -0.0004.

The variation in which Dealer does not peek (i.e., does not check her hole card for possible blackjack when showing an ace or 10) requires Player to make decisions on whether to double or split without the knowledge that she does not have blackjack. As a result, optimal play changes slightly for those upcards: do not double 11 or split $8 + 8$ against Dealer 10, and split no pairs (i.e., do not split aces or $8 + 8$) against Dealer ace. The expected return worsens by -0.0011.

2.1.2 Expected Return vs. Return on Investment

Player's expected return is not the same as his "return on investment" (ROI). The former is defined as Player's average cash win or loss per hand, per unit base bet. The ROI, in contrast, is defined as the same cash increment but instead per typical amount of cash risked in playing the hand. Since hands that are doubled or split require a total bet of twice the initial bet (or more, in the event of DAS or resplitting), the expected return is clearly larger in magnitude than the ROI. A computation gives the ratio as about 1.12 for Basic Strategy play.

Although this distinction is slight for blackjack, it is highly significant in craps, where the best choice of bet has ROI of about -0.0084. But this is the result of combining an initial unit bet on the "Pass Line," having expected return of -0.014, with an equal bet on "Free Odds," allowed on an average of 2/3 of all Pass Line bets, having an expected return of zero (i.e., no house advantage in its payoff). This ROI is only a bit more unfavorable for Player than Basic Strategy in blackjack. But Player nonetheless loses an average of 0.014 units per wager, much worse than Basic Strategy.

Table 2.5 Increase in expected return from Composition-Dependent play vs. Optimal Basic Strategy (resplits, no DAS)

D	∞	8	6	4	2	1
Return increase × 100	0	0.0017	0.0028	0.0052	0.0132	0.0366

The concept of ROI will appear again in Sect. 9.1, where it plays a significant role in optimal betting.

2.2 Composition-Dependent Play

The focus thus far has been on Basic play strategies, using just the total value of Player's hand and Dealer's upcard. But in fact Player also knows the specific cards in his hand, not just their combined value. A reasonable question is whether, for example, play might be different for a hand whose first two cards are 2 and 6 than for a hand with 3 and 5, even though both have value 8. The more general question is whether the expected return can be further improved through "Composition-Dependent" play that takes account of the composition of those first two cards, not just their total value. The improvement, as seen in Table 2.5, is only slight.

Four, six, and eight-deck games have a best play strategy with only a tiny amount of composition dependence. The composition dependence of a two-deck game is greater, but still improves the return only slightly. A one-deck game benefits from playing with a Composition-Dependent Strategy, but the return increase, about 0.00037, is still of interest only to the very serious Player; his return would then range from $+0.0002$ to $+0.0018$, depending on the splitting rules. The strategy details are laid out in Sect. 7.3. Basic Strategy, of course, is defined without composition dependence; and composition *in*dependence is in fact optimal with a large number of decks, nearly so with as few as four decks.

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