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Table 1b: Summary of Results across Subject Pools in the 2 x 2 Game - By Rounds

Source:	Levitt, List & Reiley			
Test:	College Students		Poker (Overall)	
	1st Half	2nd Half	1st Half	2nd Half
#Pairs of Players	11	11	22	22
#Pairs of Roles	22	22	44	44
I. Minimax play at aggregate level				
Chi-square test for minimax play:				
Pursuer	<0.001	<0.001	<0.001	<0.001
Evader	<0.001	0.001	<0.001	<0.001
Joint play	<0.001	<0.001	<0.001	<0.001
II. Minimax play at individual level				
Rejections at 5 percent:				
Pursuer	36%	68%	71%	46%
Evader	55%	41%	59%	41%
Joint Play	50%	64%	77%	59%
Neither Player	23%	27%	55%	23%
III. Equality of Success Rates Across Strategies and to the Equilibrium Rate				
Rejections at 5 percent	55%	50%	55%	57%
IV. Runs Tests				
Rejections at 5 percent	23%	9%	25%	18%

Table 1b continued

Table 1b reports results for the 2x2 matrix game based on the game used by Rosenthal et al (2003). The columns correspond to the different subject pools tested, while the rows report results for each test. The last two columns report results for a similar experiment carried out by Palacios-Huerta and Volij (2007). Panel I shows p-values from Pearson's Chi-square test for goodness of fit of aggregate frequencies to minimax predictions. P-values for the marginal frequencies of the pursuer and evader are shown in the first two rows, while the third row shows p-values for combinations of plays by both players. The test uses one degree of freedom for the marginal distribution of play and three for the joint distribution. Panel II shows the percentage of the individuals (or pairs) that we reject at the 5% level for this same Chi-square test. Panel III shows the percentage of individuals for whom we reject the null hypothesis that success rates are equal across strategies and equal to the equilibrium success rate. The Pearson test statistic is also used in this case, but with winning and losing probabilities for each play rather than frequencies. Thus, it is a chi-square test with 3 degrees of freedom. Panel IV presents the percentage of players for whom we can reject the null hypothesis of no serial correlation in actions, based on the runs test of Gibbons and Chakraborti (1982) which has the following distribution:

$$f(r|n_B^i, n_R^i) = \begin{cases} 2 \binom{n_B^i - 1}{(r/2) - 1} \binom{n_R^i - 1}{(r/2) - 1} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is even} \\ \binom{n_B^i - 1}{(r-1)/2} \binom{n_R^i - 1}{(r-3)/2} + \binom{n_B^i - 1}{(r-3)/2} \binom{n_R^i - 1}{(r-1)/2} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is odd} \end{cases}$$

Where r is the number of runs, and n_B^i and n_R^i are the number of black and red choices.

The serial independence hypothesis will be rejected at the 5 percent level if there are too few or too many runs, that is if $F(r|n_B^i, n_R^i) < 0.025$ or if $F(r-1|n_B^i, n_R^i) > 0.975$ where

$$F(r|n_B^i, n_R^i) = \sum_{k=1}^r f(k|n_B^i, n_R^i).$$

Table 2b: Summary of Results across Subject Pools in the 4 x 4 Game - By Rounds

Source:	Levitt, List & Reiley							
Test:	College Students		Bridge Players		(Overall)		Soccer Pros	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
# Pairs of People	12		11		26		16	
# Pairs of Roles	24		22		52		32	
I. Minimax play at aggregate level								
Chi-square test for minimax play:								
Row Player	0.436	0.597	0.647	0.325	0.079	0.858	0.002	0.294
Column Player	0.109	0.072	0.029	0.091	0.019	0.088	0.010	<.001
Joint	0.200	0.479	0.448	0.141	0.023	0.465	0.020	0.001
II. Minimax play at individual level								
Rejections at 5 percent:								
Row Player	12.5%	16.7%	36.4%	27.7%	17.3%	21.2%	21.9%	21.9%
Column Player	25.0%	37.5%	13.6%	22.7%	17.3%	28.8%	12.5%	12.5%
Joint Play	25.0%	25.0%	22.7%	22.7%	19.2%	22.8%	15.6%	28.1%
Neither Player	4.2%	8.3%	9.1%	0.0%	1.9%	9.6%	6.3%	3.1%
III. Runs Tests								
Rejections at 5 percent	33.3%	25.0%	27.3%	18.2%	17.3%	26.9%	12.5%	6.3%

Table 2b continued

Table 2b compares the first half of play to the second half of play for the 4x4 matrix game that is based on a game developed by O'Neill (1987). Columns correspond to the different subject pools tested and to the half of play that is being analyzed. Rows report results for each test. As each pair plays 75 rounds before switching roles, the first half of play is defined as the first 38 rounds in each role while the second half of play is defined as the last 37 rounds. Panel I shows p-values from Pearson's Chi-square test for goodness of fit of aggregate frequencies to Minimax predictions. P-values for the marginal frequencies of the row and column players are shown in the first two rows, while the third row shows p-values for combinations of plays by both players. The test uses three degrees of freedom for the marginal distribution of play and fifteen for the joint distribution. Panel II shows the percentage of individuals (or pairs) that we reject at the 5% level for this same Chi-square test. For Panel III, play is divided into two - diamond plays and non-diamond plays - before being analyzed. Panel III presents the percentage of players for whom we can reject the null hypothesis of no serial correlation in actions, based on the runs test of Gibbons and Chakraborti (1982) which has the following distribution:

$$f(r|n_B^i, n_R^i) = \begin{cases} 2 \binom{n_B^i - 1}{(r/2) - 1} \binom{n_R^i - 1}{(r/2) - 1} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is even} \\ \binom{n_B^i - 1}{(r-1)/2} \binom{n_R^i - 1}{(r-3)/2} + \binom{n_B^i - 1}{(r-3)/2} \binom{n_R^i - 1}{(r-1)/2} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is odd} \end{cases}$$

Where r is the number of runs, and n_B^i and n_R^i are the number of black and red choices.

The serial independence hypothesis will be rejected at the 5 percent level if there are too few or too many runs, that is if

$$F(r|n_B^i, n_R^i) < 0.025 \text{ or if } F(r-1|n_B^i, n_R^i) > 0.975 \text{ where } F(r|n_B^i, n_R^i) = \sum_{k=1}^r f(k|n_B^i, n_R^i).$$

Table 3b: Summary of Results for Subjects Playing against Computers Programmed for Optimal or Naïve Play - By Rounds

Source: Test: Type of Player:	Computer Programmed for Optimal Play				Computer Programmed for Naïve Play			
	2 x 2		4 x 4		2 x 2		4 x 4	
	All Players		All Players		All Players		All Players	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
# Players	21		21		13		13	
# Player-Roles	42		42		26		26	
I. Minimax Play at Aggregate Level								
Chi-square test for minimax play:								
Evader/Row Player	<0.001	0.033	0.361	0.366	0.324	0.318	<0.001	<0.001
Pursuer/Column Player	<0.001	<0.001	0.090	<0.001	<0.001	<0.001	<0.001	<0.001
II. Minimax Play at Individual Level								
Rejections at 5 percent:								
Evader/Row Player	33.30%	34.40%	24.00%	50.00%	30.80%	38.50%	50.00%	50.00%
Pursuer/Column Player	34.40%	31.10%	24.00%	47.60%	42.30%	46.20%	50.00%	46.20%
III. Runs Tests								
Rejections at 5 percent	14.30%	21.40%	46.40%	46.40%	28.85%	19.20%	34.60%	38.50%
IV. Mean Player Payoff Relative to Total Payoff								
Overall	0.502	0.490	0.513	0.456	0.499	0.519	0.577	0.574
% Players who beat the computer:	10/21	9/21	13/21	4/21	6/13	9/13	12/13	13/13

Table 3b continued

Table 3b compares the first half of play to the second half of play for the computer-based experiments. The first four columns correspond to games played on the computer programmed for optimal play, while the last four columns correspond to games played on the computer programmed for naïve play. As each pair plays 75 rounds before switching roles, the first half of play is defined as the first 38 rounds in each role while the second half of play is defined as the last 37 rounds. Panel I shows p-values from Pearson’s Chi-square test for goodness of fit of the human player’s aggregate frequencies to minimax predictions. P-values for the marginal frequencies of the human player as evader (or row) and pursuer (or column) are shown in the first and second rows. The test uses one (three) degree(s) of freedom for the marginal distribution of play and three (fifteen) for the joint distribution for the 2x2 (4x4 game). Panel II shows the percentage of humans that we reject at the 5% level for this same Chi-square test. For Panel III and IV, play in the 4x4 game is divided into two – diamond plays and non-diamond plays – and then analyzed as in the 2x2 game. Panel III presents the percentage of players for whom we can reject the null hypothesis of no serial correlation in actions, based on the runs test of Gibbons and Chakraborti (1982) which has the following distribution:

$$f(r|n_B^i, n_R^i) = \begin{cases} 2 \binom{n_B^i - 1}{(r/2) - 1} \binom{n_R^i - 1}{(r/2) - 1} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is even} \\ \binom{n_B^i - 1}{(r-1)/2} \binom{n_R^i - 1}{(r-3)/2} + \binom{n_B^i - 1}{(r-3)/2} \binom{n_R^i - 1}{(r-1)/2} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is odd} \end{cases}$$

Where r is the number of runs, and n_B^i and n_R^i are the number of black and red choices.

The serial independence hypothesis will be rejected at the 5 percent level if there are too few or too many runs, that is if

$$F(r|n_B^i, n_R^i) < 0.025 \text{ or if } F(r-1|n_B^i, n_R^i) > 0.975 \text{ where } F(r|n_B^i, n_R^i) = \sum_{k=1}^r f(k|n_B^i, n_R^i).$$

Panel IV gives the average player payoff relative to the maximum potential payoff. In equilibrium, the expected payoff is 50 percent.

Table 4: Summary of Results for Computers Programmed for Optimal or Naïve Play

Source: Test: Type of Player:	Computer Programmed for Optimal Play		Computer Programmed for Naïve Play	
	2 x 2 All Players	4 x 4 All Players	2 x 2 All Players	4 x 4 All Players
# Players	21	21	13	13
# Player-Roles	42	42	26	26
I. Minimax Play at Aggregate Level				
Chi-square test for minimax play:				
Evader/Row Player	0.037	0.594	<0.001	<0.001
Pursuer/Column Player	<0.001	<0.001	<0.001	<0.001
II. Minimax Play at Individual Level				
Rejections at 5 percent:				
Evader/Row Player	75.60%	19.00%	84.60%	19.00%
Pursuer/Column Player	46.70%	47.60%	46.20%	47.60%
III. Runs Tests				
Rejections at 5 percent	21.40%	14.30%	0.00%	0.00%

Table 4 continued

Table 4 reports results for the computer-based experiments. The first two columns correspond to games played on the computer programmed for optimal play, while the last two columns correspond to games played on the computer programmed for naïve play. Panel I shows p-values from Pearson's Chi-square test for goodness of fit of the computer's aggregate frequencies to Minimax predictions. P-values for the marginal frequencies of the computer as evader (or row) and pursuer (or column) are shown in the first and second rows. The test uses one (three) degree(s) of freedom for the marginal distribution of play and three (fifteen) for the joint distribution for the 2x2 (4x4 game). Panel II shows the percentage of individual computer plays that we reject at the 5% level for this same Chi-square test. For Panels III, play in the 4x4 game is divided into two – diamond plays and non-diamond plays – and then analyzed as in the 2x2 game. Panel IV presents the percentage of players for whom we can reject the null hypothesis of no serial correlation in actions, based on the runs test of Gibbons and Chakraborti (1982) which has the following distribution:

$$f(r|n_B^i, n_R^i) = \begin{cases} 2 \binom{n_B^i - 1}{(r/2) - 1} \binom{n_R^i - 1}{(r/2) - 1} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is even} \\ \binom{n_B^i - 1}{(r-1)/2} \binom{n_R^i - 1}{(r-3)/2} + \binom{n_B^i - 1}{(r-3)/2} \binom{n_R^i - 1}{(r-1)/2} / \binom{n_B^i + n_R^i}{n_B^i} & \text{if } r \text{ is odd} \end{cases}$$

Where r is the number of runs, and n_B^i and n_R^i are the number of black and red choices.

The serial independence hypothesis will be rejected at the 5 percent level if there are too few or too many runs, that is if

$$F(r|n_B^i, n_R^i) < 0.025 \text{ or if } F(r-1|n_B^i, n_R^i) > 0.975 \text{ where } F(r|n_B^i, n_R^i) = \sum_{k=1}^r f(k|n_B^i, n_R^i).$$

Table 4b: Summary of Results for Computers Programmed for Optimal or Naïve Play - By Rounds

Source: Test: Type of Player:	Computer Programmed for Optimal Play				Computer Programmed for Naïve Play			
	2 x 2		4 x 4		2 x 2		4 x 4	
	All Players		All Players		All Players		All Players	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
# Players	21		21		13		13	
# Player-Roles	42		42		26		26	
I. Minimax Play at Aggregate Level								
Chi-square test for minimax play:								
Evader/Row Player	0.133	<0.001	0.222	0.597	<0.001	<0.001	<0.001	<0.001
Pursuer/Column Player	0.003	<0.001	0.206	<0.001	<0.001	<0.001	<0.001	<0.001
II. Minimax Play at Individual Level								
Rejections at 5 percent:								
Evader/Row Player	48.90%	71.10%	9.50%	38.10%	76.90%	69.20%	38.50%	38.50%
Pursuer/Column Player	37.80%	48.90%	0.00%	42.90%	38.50%	30.80%	53.80%	53.80%
III. Runs Tests								
Rejections at 5 percent	4.80%	16.70%	16.70%	9.50%	0.00%	3.80%	0.00%	3.80%

Table 4b continued

Table 4b compares the first half of play to the second half of play for the computer-based experiments. The first four columns correspond to games played on the computer programmed for optimal play, while the last four columns correspond to games played on the computer programmed for naïve play. As each pair plays 75 rounds before switching roles, the first half of play is defined as the first 37 rounds in each role while the second half of play is defined as the last 38 rounds. Panel I shows p-values from Pearson's Chi-square test for goodness of fit of the computer's aggregate frequencies to minimax predictions. P-values for the marginal frequencies of the computer as evader (or row) and pursuer (or column) are shown in the first and second rows. The test uses one (three) degree(s) of freedom for the marginal distribution of play and three (fifteen) for the joint distribution for the 2x2 (4x4 game). Panel II shows the percentage of individual computer plays that we reject at the 5% level for this same Chi-square test. For Panel III and IV, play in the 4x4 game is divided into two – diamond plays and non-diamond plays – and then analyzed as in the 2x2 game. Panel III presents the percentage of players for whom we can reject the null hypothesis of no serial correlation in actions, based on the runs test of Gibbons and Chakraborti (1982) which has the following distribution:

Where r is the number of runs, and n_B^i and n_R^i are the number of black and red choices.

The serial independence hypothesis will be rejected at the 5 percent level if there are too few or too many runs, that is if $F(r|n_B^i, n_R^i) < 0.025$ or if $F(r-1|n_B^i, n_R^i) > 0.975$ where

$$F(r|n_B^i, n_R^i) = \sum_{k=1}^r f(k|n_B^i, n_R^i).$$

Instructions for Hide and Seek

You and the person next to you will be playing a repeated game of pursuit and evasion, or “hide and seek”. If you are sitting at the left-hand side of your table, you are the Pursuer; if you are on the right-hand side, you are the Evader. Each of you should have two cards in front of you—a black card and a red card.

The game begins with each player privately choosing either their black or red card, and placing it face down on the table.

Next, both players will turn over their cards. If the cards do not match (i.e., one is red, the other black), then the Evader has succeeded: the Pursuer has not found him, so the Evader wins the hand. Alternatively, if the cards DO match (i.e., both are red or both are black), then the Pursuer has FOUND the Evader, but whether he actually wins the hand depends upon the die number rolled.

In this case, the monitor will randomly select a number from 1 to 6 by rolling this six-sided die. Note that each of the six numbers is equally likely to occur.

The result is determined as follows:

	<u>If the die is 1 or 2:</u>	<u>If the die is 3,4,5, or 6:</u>
If both played red:	Pursuer wins	Evader wins
If both played black:	Evader wins	Pursuer wins
If one red, one black:	No die roll, Evader wins	

Once the winner is determined, the monitor will record who won, the cards played, and the die number rolled. The player’s cards will then be returned to them, and a new round will begin.

Play will continue for a number of rounds. Each round that you win will be worth 25¢.

You will play 75 rounds. You will then switch roles and play another 75 rounds.

Each of you has a sheet of paper summarizing the rules.

Instructions for Four-Card Barry

You and the person next to you will be playing a repeated game of skill called “Four-Card Barry.” If you’re sitting to the left, you will be called the “Row” player. If you’re sitting to the right, you will be called the “Column” player.

You and your opponent compete for chips by each simultaneously playing a card: Heart, Spade, Club, or Diamond. The game begins with each player privately choosing a card, and placing it face down on the table.

Next, both players will turn over their cards.

The winner of each round will be determined as follows:

		Column plays			
		Heart	Spade	Club	Diamond
Row plays	Heart	Row	Column	Column	Row
	Spade	Column	Row	Column	Row
	Club	Column	Column	Row	Row
	Diamond	Row	Row	Row	Column

While this might seem difficult to understand, a few examples and practice rounds should make things clearer. Consider the case of both players choosing Heart. As the table denotes, the row player wins in this case.

As you can see, if both players play cards other than diamond, then Row wants the two cards to match suit, and Column wants the two cards not to match suit. If someone plays a diamond, then Row wins unless *both* players play a diamond, in which case Column wins.

Each round that you win will be worth 25¢. We will play 10 practice rounds before beginning play for real stakes.

You will play 75 rounds. You will then switch roles and play another 75 rounds.

Each of you has a sheet of paper summarizing the rules.

Instructions for Hide and Seek Versus Computer¹ Human Subject as Pursuer

You and the computer will be playing a repeated game of pursuit and evasion, or “hide and seek”. You are the pursuer, the computer is the evader. You have two cards in front of you on the computer screen, as does the computer—a black 9 and a red 9.

The game begins with both you and the computer choosing either your black or red card; you choose by clicking on the card of your choice on the computer screen.

The computer will then reveal what it played. If the cards do not match (i.e., one is red, the other black), then the Evader (computer) has succeeded: you have not found him, so the Evader wins the hand. Alternatively, if the cards DO match (i.e., both are red or both are black), then you have FOUND the Evader, but whether he actually wins the hand depends upon the die number rolled.

In this case, the computer will randomly select a number from 1 to 6 by rolling a six-sided die. Note that each of the six numbers is equally likely to occur.

The result is determined as follows:

	<u>If the die is 1 or 2:</u>	<u>If the die is 3,4,5, or 6:</u>
If both played red:	Pursuer wins	Evader wins
If both played black:	Evader wins	Pursuer wins
If one red, one black:	No die roll, Evader wins	

Once the winner is determined, the monitor will record who won, the cards played, and the die number rolled. A new round will then begin.

Play will continue for a number of rounds. Each round that you win will be worth \$1; each round that you lose will cost you a \$1.

Before play begins, we should note we have programmed the computer to play the theoretically correct strategy in this game. In addition, any deviations that your play has from this correct style of play will be taken advantage of by the computer.

¹ All instructions for the naively programmed computer are the same as for the optimally programmed computer, except that the last paragraph is omitted.

Instructions for Hide and Seek Versus Computer Human Subject as Evader

You and the computer will be playing a repeated game of pursuit and evasion, or “hide and seek”. You are the evader, the computer is the pursuer. You have two cards in front of you on the computer screen, as does the computer—a black 9 and a red 9.

The game begins with both you and the computer choosing either your black or red card; you choose by clicking on the card of your choice on the computer screen.

The computer will then reveal what it played. If the cards do not match (i.e., one is red, the other black), then the Evader (you) has succeeded: he has not found you, so the Evader wins the hand. Alternatively, if the cards DO match (i.e., both are red or both are black), then the computer has FOUND the Evader, but whether he actually wins the hand depends upon the die number rolled.

In this case, the computer will randomly select a number from 1 to 6 by rolling a six-sided die. Note that each of the six numbers is equally likely to occur.

The result is determined as follows:

	<u>If the die is 1 or 2:</u>	<u>If the die is 3,4,5, or 6:</u>
If both played red:	Pursuer wins	Evader wins
If both played black:	Evader wins	Pursuer wins
If one red, one black:	No die roll, Evader wins	

Once the winner is determined, the monitor will record who won, the cards played, and the die number rolled. A new round will then begin.

Play will continue for a number of rounds. Each round that you win will be worth \$1; each round that you lose will cost you a \$1.

Before play begins, we should note we have programmed the computer to play the theoretically correct strategy in this game. In addition, any deviations that your play has from this correct style of play will be taken advantage of by the computer.

Instructions for Four-Card Barry Versus Computer Human Subject as Row

You and the computer will be playing a repeated game of skill called “Four-Card Barry.” You are the “Row” player.

You and the computer compete for chips by each simultaneously playing a card: Heart, Spade, Club, or Diamond. The winner of each round will be determined as follows:

		Column plays			
		Heart	Spade	Club	Diamond
You play	Heart	Row	Column	Column	Row
	Spade	Column	Row	Column	Row
	Club	Column	Column	Row	Row
	Diamond	Row	Row	Row	Column

While this might seem difficult to understand, a few examples and practice rounds should make things clearer. Consider the case of both players choosing Heart. As the matrix denotes, the row player (you) wins in this case.

As you can see, if both players play cards other than diamond, then Row (you) wants the two cards to match suit, and Column (computer) wants the two cards not to match suit. If someone plays a diamond, then Row (you) wins unless *both* players play a diamond, in which case Column (computer) wins.

Each round that you win will be worth \$1. We will play 10 practice rounds before beginning play for real stakes.

Before play begins, we should note we have programmed the computer to play the theoretically correct strategy in this game. In addition, any deviations that your play has from this correct style of play will be taken advantage of by the computer.

Instructions for Four-Card Barry Versus Computer Human Subject as Column

You and the computer will be playing a repeated game of skill called “Four-Card Barry.” You are the “Column” player.

You and the computer compete for chips by each simultaneously playing a card: Heart, Spade, Club, or Diamond. The winner of each round will be determined as follows:

		You play			
		Heart	Spade	Club	Diamond
Row plays	Heart	Row	Column	Column	Row
	Spade	Column	Row	Column	Row
	Club	Column	Column	Row	Row
	Diamond	Row	Row	Row	Column

While this might seem difficult to understand, a few examples and practice rounds should make things clearer. Consider the case of both players choosing Heart. As the matrix denotes, the row player (computer) wins in this case.

As you can see, if both players play cards other than diamond, then Row (computer) wants the two cards to match suit, and Column (you) wants the two cards not to match suit. If someone plays a diamond, then Row (computer) wins unless *both* players play a diamond, in which case Column (you) wins.

Each round that you win will be worth \$1. We will play 10 practice rounds before beginning play for real stakes.

Before play begins, we should note we have programmed the computer to play the theoretically correct strategy in this game. In addition, any deviations that your play has from this correct style of play will be taken advantage of by the computer.

Soccer Player Survey 1 – Chivas USA and LA Galaxy

Player Survey

This information is completely confidential.

1. What do you think about the game we just played? Do you think your experience in soccer helped you to play this game better?
2. Does this game remind you of penalty kicks?
3. How many different penalty kick strategies do you use? Describe them.
4. Estimate what fraction of the time you use on each of the above strategies.
5. How do you decide where to direct a particular penalty kick?
6. How often do you practice penalty kicks?

Soccer Player Survey 2 – Real Salt Lake

Player Survey

This information is completely confidential.

1. What do you think about the game we just played?
2. Does this game remind you of any other games?
3. How many different penalty kick strategies do you use? Describe them.
4. Estimate what fraction of the time you use each of the above strategies.
5. How do you decide where to direct a particular penalty kick?
6. How often do you practice penalty kicks?

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL SOCCER PLAYERS
TABLE 1

		Column Player Choice				Marginal Frequencies for Row Player
		C	D	H	S	
Row Player Choice	C	0.042 (0.040) {0.0002}	0.065 (0.080) {0.0006}	0.031 (0.040) {0.0004}	0.033 (0.040) {0.0003}	0.203 (0.200) {0.0054}
	D	0.106 (0.080) {0.0007}	0.177 (0.160) {0.0007}	0.07 (0.080) {0.0004}	0.074 (0.080) {0.0002}	0.391 (0.400) {0.0109}
	H	0.039 (0.040) {0.0000}	0.072 (0.080) {0.0003}	0.039 (0.040) {0.0002}	0.037 (0.040) {0.0001}	0.187 (0.200) {0.0054}
	S	0.041 (0.040) {0.0003}	0.087 (0.080) {0.0002}	0.041 (0.040) {0.0002}	0.048 (0.040) {0.0001}	0.217 (0.200) {0.0054}
Marginal Frequencies for Column Player		.243 (0.200) {0.0054}	0.423 (0.400) {0.0109}	0.151 (0.200) {0.0054}	0.183 (0.200) {0.0054}	
N		1350				
#pairs		18				

Row p-value: 0.0029356
Column p-value: 4.46e-07
Pooled p-value: .0129736

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL SOCCER PLAYERS
TABLE 2
FREQUENCIES BY PAIR

	Row Player Choices				Column Player Choices				P-values from Chi-Squared Test on Minimax Predicted Choices		
pair	C	D	H	S	C	D	H	S	Row Player	Column Player	Both Players
1	0.133	0.533	0.173	0.160	0.253	0.307	0.213	0.227	0.118	0.387	0.024**
2	0.093	0.373	0.253	0.280	0.200	0.493	0.173	0.133	0.049**	0.312	0.000**
3	0.147	0.480	0.200	0.173	0.213	0.480	0.133	0.173	0.469	0.362	0.747
4	0.253	0.520	0.147	0.080	0.240	0.440	0.120	0.200	0.017**	0.348	0.281
5	0.133	0.573	0.160	0.133	0.267	0.427	0.160	0.147	0.023**	0.325	0.203
6	0.133	0.507	0.200	0.160	0.293	0.307	0.147	0.253	0.221	0.071*	0.203
7	0.147	0.413	0.213	0.227	0.240	0.480	0.147	0.133	0.698	0.209	0.685
8	0.267	0.387	0.120	0.227	0.120	0.467	0.253	0.160	0.224	0.179	0.451
9	0.147	0.307	0.240	0.307	0.200	0.307	0.280	0.213	0.056*	0.251	0.065*
10	0.080	0.613	0.187	0.120	0.253	0.467	0.120	0.160	0.001**	0.179	0.033**
11	0.240	0.293	0.227	0.240	0.280	0.320	0.187	0.213	0.308	0.292	0.422
12	0.200	0.333	0.307	0.160	0.200	0.467	0.187	0.147	0.127	0.579	0.723
13	0.040	0.440	0.067	0.453	0.227	0.480	0.093	0.200	0.000**	0.125	0.000**
14	0.187	0.347	0.160	0.307	0.280	0.467	0.107	0.147	0.141	0.056	0.350
15	0.147	0.333	0.373	0.147	0.253	0.360	0.213	0.173	0.003**	0.637	0.182
16	0.147	0.520	0.200	0.133	0.267	0.493	0.067	0.173	0.143	0.017**	0.001**
17	0.173	0.440	0.320	0.067	0.187	0.453	0.120	0.240	0.006**	0.308	0.017**
18	0.213	0.293	0.187	0.307	0.400	0.400	0.000	0.200	0.088*	0.000**	0.000**

Row rejections **7/18** at 5%

Column rejections **2/18** at 5%

Joint Rejections **7/18** at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL SOCCER PLAYERS
TABLE 3
EQUALITY OF WIN RATES

pair	Player	Mixtures		Win Rates		Pearson	p-value
		Diamond	Non-Diamond	Diamond	Non-Diamond		
1	R	0.533	0.467	0.825	0.657	17.176	0.001 **
	C	0.307	0.693	0.304	0.231	10.565	0.014 **
2	R	0.373	0.627	0.036	0.362	46.509	0.000 **
	C	0.493	0.507	0.730	0.789	43.676	0.000 **
3	R	0.480	0.520	0.472	0.615	4.972	0.174
	C	0.480	0.520	0.528	0.385	4.972	0.174
4	R	0.520	0.480	0.590	0.722	6.315	0.097 *
	C	0.440	0.560	0.485	0.238	5.870	0.118
5	R	0.573	0.427	0.558	0.719	11.176	0.011 **
	C	0.427	0.573	0.594	0.209	11.787	0.008 **
6	R	0.507	0.493	0.658	0.459	6.731	0.081 *
	C	0.307	0.693	0.565	0.385	4.787	0.188
7	R	0.413	0.587	0.516	0.614	1.028	0.795
	C	0.480	0.520	0.417	0.436	2.231	0.526
8	R	0.387	0.613	0.448	0.609	2.759	0.430
	C	0.467	0.533	0.457	0.450	2.315	0.510
9	R	0.307	0.693	0.826	0.654	7.204	0.066 *
	C	0.307	0.693	0.174	0.346	7.204	0.066 *
10	R	0.613	0.387	0.565	0.690	15.204	0.002 **
	C	0.467	0.533	0.571	0.225	10.926	0.012 **
11	R	0.293	0.707	0.682	0.472	8.287	0.040 **
	C	0.320	0.680	0.292	0.549	8.287	0.040 **
12	R	0.333	0.667	0.480	0.640	3.009	0.390
	C	0.467	0.533	0.371	0.450	1.898	0.594
13	R	0.440	0.560	0.576	0.667	1.315	0.726
	C	0.480	0.520	0.389	0.359	2.259	0.520
14	R	0.347	0.653	0.538	0.714	4.148	0.246
	C	0.467	0.533	0.343	0.350	2.315	0.510
15	R	0.333	0.667	0.640	0.540	2.361	0.501
	C	0.360	0.640	0.333	0.479	2.287	0.515
16	R	0.520	0.480	0.538	0.806	10.370	0.016 **
	C	0.493	0.507	0.486	0.184	10.370	0.016 **
17	R	0.440	0.560	0.636	0.667	1.426	0.699
	C	0.453	0.547	0.353	0.341	1.778	0.620
18	R	0.293	0.707	0.500	0.585	4.287	0.232
	C	0.400	0.600	0.367	0.489	1.620	0.655

Rejections: 12/36 at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL SOCCER PLAYERS
TABLE C4
RUNS ANALYSIS

Pair	Player	Choices		Runs (r)	F(r - 1)	F(r)
		Diamond	Non-Diamond			
1	R	40	35	40	0.607	0.694
	C	23	52	31	0.249	0.354
2	R	28	47	48	0.998**	0.999
	C	37	38	45	0.919	0.949
3	R	36	39	41	0.685	0.761
	C	36	39	44	0.881	0.921
4	R	39	36	41	0.685	0.761
	C	33	42	36	0.281	0.365
5	R	43	32	33	0.109	0.160
	C	32	43	41	0.747	0.817
6	R	38	37	48	0.982**	0.990
	C	23	52	38	0.903	0.937
7	R	31	44	34	0.177	0.245
	C	36	39	31	0.032	0.053
8	R	29	46	28	0.013	0.024**
	C	35	40	40	0.607	0.694
9	R	23	52	35	0.658	0.766
	C	23	52	34	0.568	0.658
10	R	46	29	37	0.489	0.590
	C	35	40	30	0.019	0.033*
11	R	22	53	28	0.103	0.153
	C	24	51	31	0.197	0.286
12	R	25	50	36	0.621	0.707
	C	35	40	34	0.129	0.186
13	R	33	42	38	0.456	0.550
	C	36	39	44	0.881	0.921
14	R	26	49	43	0.974*	0.988
	C	35	40	45	0.926	0.953
15	R	25	50	41	0.947	0.974
	C	27	48	32	0.154	0.218
16	R	39	36	33	0.083	0.125
	C	37	38	35	0.177	0.243
17	R	33	42	35	0.207	0.281
	C	34	41	45	0.932	0.958
18	R	22	53	35	0.739	0.837
	C	30	45	33	0.137	0.199

Rejections: 3/72 at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
TABLE 1

	Column Player Choice				Marginal Frequencies for Row Player
	C	D	H	S	
C	0.041 (0.040) {0.0000}	0.074 (0.080) {0.0001}	0.045 (0.040) {0.0001}	0.043 (0.040) {0.0000}	0.191 (0.200) {0.0001}
D	0.067 (0.080) {0.0002}	0.158 (0.160) {0.0000}	0.077 (0.080) {0.0000}	0.089 (0.080) {0.0001}	0.395 (0.400) {0.0001}
H	0.039 (0.040) {0.0000}	0.072 (0.080) {0.0001}	0.039 (0.040) {0.0000}	0.037 (0.040) {0.0000}	0.204 (0.200) {0.0001}
S	0.041 (0.040) {0.0000}	0.087 (0.080) {0.0001}	0.041 (0.040) {0.0000}	0.048 (0.040) {0.0001}	0.210 (0.200) {0.0002}
Marginal Frequencies for Column Player	0.200 (0.200) {0.0000}	0.387 (0.400) {0.0002}	0.188 (0.200) {0.0002}	0.225 (0.200) {0.0004}	
N	3900				
# pairs	52				
Pooled Pvalue	.0023173				

Row P-value: .253
Col P-value: .001
Pooled P-value: .002

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
TABLE 2
FREQUENCIES BY PAIR

pair	Row Player Choices				Column Player Choices				P-values from Chi-Squared Test on Minimax Predicted Choices		
	C	D	H	S	C	D	H	S	Row Player	Column Player	Joint Test
1	0.280	0.253	0.320	0.147	0.200	0.280	0.213	0.307	0.005**	0.071*	0.011**
2	0.093	0.507	0.173	0.227	0.253	0.253	0.240	0.253	0.074*	0.080*	0.206
3	0.160	0.400	0.293	0.147	0.200	0.387	0.213	0.200	0.177	0.992	0.557
4	0.187	0.453	0.133	0.227	0.227	0.413	0.160	0.200	0.469	0.825	0.787
5	0.200	0.427	0.133	0.240	0.093	0.627	0.173	0.107	0.494	0.001**	0.051*
6	0.107	0.400	0.280	0.213	0.213	0.480	0.160	0.147	0.125	0.402	0.360
7	0.160	0.453	0.120	0.267	0.093	0.547	0.227	0.133	0.158	0.017**	0.151
8	0.173	0.333	0.320	0.173	0.213	0.307	0.147	0.333	0.080*	0.024**	0.127
9	0.227	0.307	0.240	0.227	0.067	0.320	0.253	0.360	0.429	0.000**	0.027**
10	0.227	0.147	0.267	0.360	0.267	0.253	0.200	0.280	0.000**	0.044**	0.000**
11	0.133	0.453	0.147	0.267	0.253	0.413	0.133	0.200	0.177	0.429	0.488
12	0.240	0.333	0.173	0.240	0.200	0.320	0.227	0.240	0.513	0.559	0.388
13	0.173	0.453	0.173	0.200	0.173	0.307	0.227	0.293	0.785	0.143	0.685
14	0.160	0.413	0.187	0.240	0.200	0.400	0.160	0.240	0.729	0.753	0.482
15	0.213	0.413	0.213	0.160	0.160	0.453	0.187	0.200	0.857	0.753	0.685
16	0.187	0.427	0.200	0.187	0.147	0.427	0.213	0.213	0.966	0.721	0.210
17	0.173	0.493	0.120	0.213	0.200	0.347	0.187	0.267	0.224	0.519	0.532
18	0.120	0.573	0.133	0.173	0.173	0.453	0.173	0.200	0.019**	0.785	0.122
19	0.200	0.493	0.147	0.160	0.107	0.547	0.133	0.213	0.348	0.029**	0.214
20	0.253	0.440	0.133	0.173	0.093	0.613	0.120	0.173	0.348	0.001**	0.093*
21	0.173	0.373	0.173	0.280	0.253	0.413	0.147	0.187	0.381	0.525	0.463
22	0.200	0.507	0.173	0.120	0.187	0.480	0.253	0.080	0.187	0.052*	0.145
23	0.227	0.213	0.307	0.253	0.293	0.133	0.320	0.253	0.007**	0.000**	0.000**
24	0.120	0.547	0.187	0.147	0.293	0.187	0.307	0.213	0.056*	0.001**	0.004**
25	0.240	0.240	0.213	0.307	0.200	0.200	0.240	0.360	0.021**	0.001**	0.000**
26	0.067	0.440	0.200	0.293	0.240	0.493	0.093	0.173	0.017**	0.080*	0.041**
27	0.280	0.227	0.213	0.280	0.293	0.307	0.147	0.253	0.015**	0.071*	0.000**
28	0.067	0.507	0.293	0.133	0.147	0.613	0.093	0.147	0.003**	0.002**	0.000**
29	0.267	0.213	0.253	0.267	0.240	0.267	0.213	0.280	0.012**	0.094*	0.009**
30	0.187	0.387	0.267	0.160	0.187	0.427	0.173	0.213	0.500	0.912	0.366
31	0.173	0.493	0.200	0.133	0.227	0.360	0.160	0.253	0.312	0.525	0.134
32	0.147	0.493	0.187	0.173	0.187	0.373	0.293	0.147	0.387	0.209	0.782
33	0.200	0.373	0.187	0.240	0.147	0.360	0.213	0.280	0.849	0.280	0.609
34	0.120	0.067	0.360	0.453	0.227	0.387	0.147	0.240	0.000**	0.579	0.000**
35	0.160	0.467	0.133	0.240	0.120	0.573	0.173	0.133	0.296	0.019**	0.172
36	0.160	0.467	0.187	0.187	0.107	0.507	0.133	0.253	0.667	0.043**	0.003**
37	0.187	0.387	0.120	0.307	0.173	0.293	0.267	0.267	0.080*	0.125	0.254
38	0.213	0.360	0.200	0.227	0.213	0.373	0.200	0.213	0.889	0.966	0.532
39	0.227	0.413	0.173	0.187	0.240	0.360	0.200	0.200	0.889	0.825	0.966
40	0.213	0.427	0.147	0.213	0.160	0.307	0.253	0.280	0.721	0.127	0.329

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

41	0.307	0.373	0.160	0.160	0.333	0.400	0.173	0.093	0.133	0.011 **	0.157
42	0.133	0.453	0.307	0.107	0.187	0.427	0.147	0.240	0.021 **	0.601	0.137
43	0.240	0.280	0.253	0.227	0.253	0.480	0.107	0.160	0.201	0.105	0.132
44	0.173	0.387	0.307	0.133	0.307	0.387	0.093	0.213	0.101	0.035 **	0.117
45	0.240	0.200	0.280	0.280	0.227	0.213	0.267	0.293	0.005 **	0.008 **	0.000 **
46	0.333	0.533	0.040	0.093	0.213	0.440	0.173	0.173	0.000 **	0.825	0.007 **
47	0.200	0.520	0.133	0.147	0.227	0.413	0.213	0.147	0.143	0.698	0.428
48	0.253	0.387	0.267	0.093	0.187	0.453	0.053	0.307	0.071 *	0.005 **	0.001 **
49	0.133	0.480	0.213	0.173	0.187	0.333	0.120	0.360	0.362	0.005 **	0.005 **
50	0.253	0.267	0.133	0.347	0.227	0.320	0.267	0.187	0.003 **	0.362	0.058 *
51	0.173	0.453	0.240	0.133	0.253	0.320	0.213	0.213	0.381	0.494	0.470
52	0.200	0.413	0.213	0.173	0.133	0.400	0.160	0.307	0.947	0.088 *	0.122

Row Rejections: 14/52 at 5%

Col Rejections: 18/52 at 5%

Joint Rejections: 16/52 at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
TABLE 3
EQUALITY OF WIN RATES

Pair	Player	Mixtures		Win Rates		Pearson	p-value
		Diamond	Non-Diamond	Diamond	Non-Diamond		
1	R	0.253	0.747	0.737	0.589	7.694	0.053 *
	C	0.280	0.720	0.238	0.426	6.287	0.098 *
2	R	0.507	0.493	0.737	0.486	8.944	0.030 **
	C	0.253	0.747	0.526	0.339	8.593	0.035 **
3	R	0.400	0.600	0.567	0.622	0.231	0.972
	C	0.387	0.613	0.448	0.370	0.509	0.917
4	R	0.453	0.547	0.588	0.634	1.093	0.779
	C	0.413	0.587	0.452	0.341	1.037	0.792
5	R	0.427	0.573	0.406	0.814	13.398	0.004 **
	C	0.627	0.373	0.404	0.286	17.009	0.001 **
6	R	0.400	0.600	0.533	0.578	0.648	0.885
	C	0.480	0.520	0.389	0.487	3.093	0.378
7	R	0.453	0.547	0.382	0.683	9.565	0.023 **
	C	0.547	0.453	0.512	0.382	9.694	0.021 **
8	R	0.333	0.667	0.680	0.500	4.259	0.235
	C	0.307	0.693	0.348	0.481	4.556	0.207
9	R	0.307	0.693	0.783	0.519	6.806	0.078 *
	C	0.320	0.680	0.208	0.490	6.898	0.075 *
10	R	0.147	0.853	0.636	0.531	21.870	0.000 **
	C	0.253	0.747	0.211	0.536	13.870	0.003 **
11	R	0.453	0.547	0.588	0.634	1.093	0.779
	C	0.413	0.587	0.452	0.341	1.037	0.792
12	R	0.333	0.667	0.560	0.500	3.120	0.373
	C	0.320	0.680	0.458	0.471	3.509	0.320
13	R	0.453	0.547	0.676	0.585	1.861	0.602
	C	0.307	0.693	0.478	0.327	4.509	0.211
14	R	0.413	0.587	0.516	0.455	4.787	0.188
	C	0.400	0.600	0.500	0.533	4.583	0.205
15	R	0.413	0.587	0.516	0.568	1.176	0.759
	C	0.453	0.547	0.441	0.463	1.787	0.618
16	R	0.427	0.573	0.594	0.744	3.787	0.285
	C	0.427	0.573	0.406	0.256	3.787	0.285
17	R	0.493	0.507	0.595	0.421	7.009	0.072 *
	C	0.347	0.653	0.577	0.449	4.361	0.225
18	R	0.573	0.427	0.535	0.781	13.593	0.004 **
	C	0.453	0.547	0.588	0.171	14.759	0.002 **
19	R	0.493	0.507	0.568	0.737	5.426	0.143
	C	0.547	0.453	0.390	0.294	7.944	0.047 **
20	R	0.440	0.560	0.364	0.786	14.583	0.002 **
	C	0.613	0.387	0.457	0.310	15.787	0.001 **
21	R	0.373	0.627	0.500	0.660	2.037	0.565
	C	0.413	0.587	0.452	0.364	0.648	0.885

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

22	R	0.507	0.493	0.447	0.595	8.231	0.041 **
	C	0.480	0.520	0.583	0.385	8.083	0.044 **
23	R	0.213	0.787	0.875	0.492	17.370	0.001 **
	C	0.133	0.867	0.200	0.462	24.259	0.000 **
24	R	0.547	0.453	0.829	0.382	24.065	0.000 **
	C	0.187	0.813	0.500	0.344	15.565	0.001 **
25	R	0.240	0.760	0.889	0.596	11.759	0.008 **
	C	0.200	0.800	0.133	0.383	14.815	0.002 **
26	R	0.440	0.560	0.606	0.667	1.231	0.745
	C	0.493	0.507	0.351	0.368	3.306	0.347
27	R	0.227	0.773	0.529	0.310	35.722	0.000 **
	C	0.307	0.693	0.348	0.769	37.056	0.000 **
28	R	0.507	0.493	0.658	0.919	17.120	0.001 **
	C	0.613	0.387	0.283	0.103	25.120	0.000 **
29	R	0.213	0.787	0.563	0.492	14.731	0.002 **
	C	0.267	0.733	0.350	0.545	11.620	0.009 **
30	R	0.387	0.613	0.483	0.674	2.731	0.435
	C	0.427	0.573	0.469	0.349	1.343	0.719
31	R	0.493	0.507	0.649	0.632	3.306	0.347
	C	0.360	0.640	0.481	0.292	3.676	0.299
32	R	0.493	0.507	0.649	0.632	3.306	0.347
	C	0.373	0.627	0.464	0.298	2.806	0.423
33	R	0.373	0.627	0.750	0.532	3.620	0.305
	C	0.360	0.640	0.259	0.458	3.231	0.357
34	R	0.067	0.933	0.200	0.543	36.759	0.000 **
	C	0.387	0.613	0.138	0.696	25.204	0.000 **
35	C	0.467	0.533	0.486	0.750	6.944	0.074 *
	C	0.573	0.427	0.419	0.313	10.204	0.017 **
36	R	0.467	0.533	0.343	0.450	15.972	0.001 **
	C	0.507	0.493	0.605	0.595	16.806	0.001 **
37	R	0.387	0.613	0.724	0.587	1.889	0.596
	C	0.293	0.707	0.364	0.358	4.093	0.252
38	C	0.360	0.640	0.667	0.646	1.398	0.706
	C	0.373	0.627	0.321	0.362	1.194	0.754
39	R	0.413	0.587	0.548	0.523	1.481	0.687
	C	0.360	0.640	0.519	0.438	2.222	0.528
40	R	0.427	0.573	0.625	0.558	0.611	0.894
	C	0.307	0.693	0.522	0.365	4.111	0.250
41	R	0.373	0.627	0.679	0.596	0.898	0.826
	C	0.400	0.600	0.300	0.422	1.343	0.719
42	R	0.453	0.547	0.471	0.561	3.815	0.282
	C	0.427	0.573	0.563	0.419	4.037	0.257
43	R	0.280	0.720	0.524	0.722	8.889	0.031 **
	C	0.480	0.520	0.278	0.385	4.722	0.193
44	R	0.387	0.613	0.724	0.587	1.889	0.596
	C	0.387	0.613	0.276	0.413	1.889	0.596
45	R	0.200	0.800	0.800	0.500	17.083	0.001 **
	C	0.213	0.787	0.188	0.508	16.287	0.001 **

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

46	R	0.533	0.467	0.575	0.743	8.009	0.046 **
	C	0.440	0.560	0.515	0.214	8.139	0.043 **
47	R	0.520	0.480	0.538	0.583	5.333	0.149
	C	0.413	0.587	0.581	0.341	5.037	0.169
48	R	0.387	0.613	0.655	0.587	0.444	0.931
	C	0.453	0.547	0.294	0.463	3.315	0.346
49	R	0.480	0.520	0.667	0.538	3.333	0.343
	C	0.333	0.667	0.480	0.360	2.315	0.510
50	R	0.267	0.733	0.650	0.564	6.065	0.108
	C	0.320	0.680	0.292	0.471	4.139	0.247
51	R	0.453	0.547	0.735	0.683	4.898	0.179
	C	0.320	0.680	0.375	0.255	7.120	0.068 *
52	R	0.413	0.587	0.742	0.614	2.778	0.427
	C	0.400	0.600	0.267	0.378	2.315	0.510

Rejections: 36/104 at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
TABLE 4
RUNS ANALYSIS

Pair	wc	Player	Choices		Runs (r)	F(r-1)	F(r)
			Diamond	Non-Diamond			
1	0	R	19	56	29	0.374	0.519
		C	21	54	33	0.625	0.749
2	0	R	38	37	42	0.757	0.825
		C	19	56	29	0.374	0.519
3	2	R	30	45	34	0.199	0.271
		C	29	46	38	0.590	0.678
4	2	R	34	41	41	0.707	0.782
		C	31	44	36	0.327	0.416
5	1	R	32	43	30	0.026	0.044 *
		C	47	28	34	0.260	0.343
6	1	R	30	45	27	0.005	0.011 **
		C	36	39	43	0.828	0.881
7	1	R	34	41	42	0.782	0.845
		C	41	34	42	0.782	0.845
8	1	R	25	50	39	0.859	0.916
		C	23	52	41	0.983 **	0.994
9	1	R	23	52	33	0.445	0.568
		C	24	51	34	0.486	0.580
10	1	R	11	64	14	0.005	0.011 **
		C	19	56	26	0.123	0.180
11	2	R	34	41	44	0.894	0.932
		C	31	44	41	0.772	0.839
12	2	R	25	50	26	0.011	0.021 **
		C	24	51	38	0.854	0.901
13	0	R	34	41	41	0.707	0.782
		C	23	52	29	0.113	0.180
14	0	R	31	44	30	0.030	0.050 *
		C	30	45	31	0.058	0.092
15	0	R	31	44	33	0.121	0.177
		C	34	41	43	0.845	0.894
16	0	R	32	43	47	0.982 **	0.991
		C	32	43	36	0.301	0.388
17	2	R	37	38	33	0.082	0.122
		C	26	49	35	0.445	0.555
18	2	R	43	32	45	0.948	0.969
		C	34	41	32	0.058	0.092
19	0	R	37	38	37	0.322	0.408
		C	41	34	44	0.894	0.932
20	0	R	33	42	50	0.997 **	0.999
		C	46	29	33	0.158	0.226
21	2	R	28	47	45	0.983 **	0.992
		C	31	44	35	0.245	0.327

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

22	2	R	38	37	18	0.000	0.000 **
		C	36	39	37	0.326	0.413
23	0	R	16	59	32	0.984 **	0.991
		C	10	65	19	0.446	0.751
24	0	R	41	34	50	0.996 **	0.998
		C	14	61	25	0.561	0.763
25	0	R	18	57	26	0.188	0.260
		C	15	60	21	0.052	0.113
26	0	R	33	42	28	0.007	0.013 **
		C	37	38	23	0.000	0.000 **
27	1	R	17	58	29	0.625	0.780
		C	23	52	37	0.832	0.903
28	1	R	38	37	36	0.243	0.322
		C	46	29	32	0.108	0.158
29	0	R	16	59	29	0.765	0.895
		C	20	55	27	0.124	0.205
30	0	R	29	46	39	0.678	0.764
		C	32	43	32	0.071	0.109
31	0	R	37	38	44	0.878	0.919
		C	27	48	33	0.218	0.303
32	0	R	37	38	31	0.031	0.051
		C	28	47	37	0.536	0.637
33	1	R	28	47	43	0.945	0.969
		C	27	48	46	0.995 **	0.998
34	1	R	5	70	11	0.349	1.000
		C	29	46	47	0.993 **	0.997
35	2	R	35	40	36	0.254	0.335
		C	43	32	40	0.666	0.747
36	2	R	35	40	35	0.186	0.254
		C	38	37	36	0.243	0.322
37	0	R	29	46	46	0.987 **	0.993
		C	22	53	37	0.888	0.943
38	0	R	27	48	36	0.495	0.588
		C	28	47	41	0.862	0.913
39	0	R	31	44	41	0.772	0.839
		C	27	48	36	0.495	0.588
40	0	R	32	43	52	1.000 **	1.000
		C	23	52	36	0.766	0.832
41	0	R	28	47	36	0.442	0.536
		C	30	45	37	0.449	0.548
42	0	R	34	41	34	0.136	0.195
		C	32	43	35	0.224	0.301
43	0	R	21	54	36	0.899	0.934
		C	36	39	40	0.597	0.685
44	0	R	29	46	42	0.888	0.927
		C	29	46	39	0.678	0.764
45	0	R	15	60	29	0.887	0.971
		C	16	59	32	0.984 **	0.991

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

46	0	R	40	35	54	1.000**	1.000
		C	33	42	41	0.725	0.798
47	1	R	39	36	29	0.010	0.018**
		C	31	44	42	0.839	0.890
48	1	R	29	46	36	0.396	0.489
		C	34	41	30	0.021	0.036*
49	0	R	36	39	35	0.180	0.246
		C	25	50	28	0.039	0.063
50	0	R	20	55	26	0.081	0.124
		C	24	51	34	0.486	0.580
51	0	R	34	41	38	0.437	0.530
		C	24	51	40	0.947	0.968
52	0	R	31	44	40	0.695	0.772
		C	30	45	30	0.035	0.058

Rejections: 19/208 at 5%

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
SMART COMPUTER

TABLE 1

	Smart Computer Choice				Marginal	
	C	D	H	S	Frequencies	
Player Choice	C	0.038 (0.04) {0.0000}	0.090 (0.08) {0.0002}	0.044 (0.04) {0.0001}	0.043 (0.04) {0.0001}	0.215 (0.20) {0.0003}
	D	0.076 (0.08) {0.0001}	0.161 (0.16) {0.0000}	0.087 (0.08) {0.0001}	0.069 (0.08) {0.0002}	0.392 (0.40) {0.0001}
	H	0.033 (0.04) {0.0001}	0.084 (0.08) {0.0001}	0.043 (0.04) {0.0001}	0.037 (0.04) {0.0001}	0.197 (0.20) {0.0000}
	S	0.043 (0.04) {0.0001}	0.079 (0.08) {0.0000}	0.038 (0.04) {0.0000}	0.036 (0.04) {0.0001}	0.196 (0.20) {0.0001}
Marginal Frequencies for Computer	0.190 (0.20) {0.0002}	0.413 (0.40) {0.0002}	0.212 (0.20) {0.0002}	0.185 (0.20) {0.0003}		
N	3150					
#pairs	42					

Player p-value: .2029981
Computer p-value: .0326885

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 2
FREQUENCIES BY PAIR

										P-values from Chi-Squared Test on Minimax Predicted Values		
		Player				Computer						
pair	wc	C	D	H	S	C	D	H	S	Player	Comp	Joint
1	yes	0.280	0.493	0.227	0.000	0.160	0.440	0.080	0.320	0.000**	0.008**	0.000**
2	yes	0.160	0.440	0.227	0.173	0.107	0.360	0.240	0.293	0.698	0.059*	0.377
3	no	0.133	0.293	0.253	0.320	0.333	0.293	0.240	0.133	0.016**	0.011**	0.001**
4	no	0.147	0.493	0.173	0.187	0.147	0.400	0.267	0.187	0.387	0.423	0.782
5	no	0.320	0.440	0.160	0.080	0.133	0.400	0.213	0.253	0.008**	0.423	0.203
6	no	0.240	0.373	0.173	0.213	0.240	0.320	0.213	0.227	0.785	0.545	0.729
7	yes	0.160	0.427	0.133	0.280	0.200	0.427	0.253	0.120	0.187	0.308	0.577
8	yes	0.280	0.373	0.187	0.160	0.293	0.413	0.147	0.147	0.362	0.143	0.507
9	no	0.187	0.413	0.187	0.213	0.173	0.293	0.427	0.107	0.972	0.000**	0.001**
10	no	0.373	0.253	0.187	0.187	0.267	0.440	0.080	0.213	0.001**	0.059*	0.007**
11	no	0.227	0.387	0.267	0.120	0.107	0.453	0.120	0.320	0.224	0.009**	0.206
12	no	0.307	0.360	0.187	0.147	0.293	0.373	0.213	0.120	0.127	0.118	0.030**
13	no	0.173	0.440	0.227	0.160	0.133	0.347	0.253	0.267	0.698	0.177	0.304
14	no	0.227	0.387	0.187	0.200	0.213	0.307	0.213	0.267	0.947	0.330	0.835
15	no	0.187	0.360	0.253	0.200	0.227	0.387	0.320	0.067	0.698	0.006**	0.002**
16	no	0.240	0.360	0.253	0.147	0.213	0.373	0.253	0.160	0.387	0.601	0.416
17	no	0.187	0.320	0.227	0.267	0.213	0.373	0.227	0.187	0.362	0.912	0.225
18	no	0.173	0.520	0.173	0.133	0.253	0.307	0.267	0.173	0.179	0.201	0.099*
19	no	0.200	0.467	0.227	0.107	0.107	0.413	0.240	0.240	0.224	0.212	0.210
20	no	0.253	0.227	0.213	0.307	0.213	0.547	0.120	0.120	0.012**	0.031**	0.010**
21	no	0.147	0.587	0.173	0.093	0.160	0.533	0.067	0.240	0.007**	0.011**	0.003**
22	no	0.280	0.320	0.187	0.213	0.293	0.400	0.107	0.200	0.292	0.088*	0.010**
23	no	0.107	0.480	0.253	0.160	0.133	0.427	0.307	0.133	0.105	0.052*	0.065*
24	no	0.213	0.240	0.280	0.267	0.173	0.493	0.120	0.213	0.030**	0.224	0.067*
25	no	0.093	0.520	0.227	0.160	0.333	0.413	0.160	0.093	0.050**	0.009**	0.006**
26	no	0.253	0.467	0.093	0.187	0.200	0.347	0.160	0.293	0.101	0.221	0.233
27	no	0.213	0.267	0.187	0.333	0.133	0.387	0.240	0.240	0.017**	0.407	0.304
28	no	0.320	0.240	0.200	0.240	0.160	0.480	0.107	0.253	0.013**	0.105	0.045**
29	no	0.307	0.160	0.173	0.360	0.133	0.347	0.360	0.160	0.000**	0.006**	0.000**
30	no	0.200	0.093	0.347	0.360	0.067	0.693	0.107	0.133	0.000**	0.000**	0.000**
31	no	0.173	0.453	0.120	0.253	0.187	0.413	0.280	0.120	0.234	0.179	0.206
32	no	0.067	0.627	0.160	0.147	0.133	0.307	0.333	0.227	0.000**	0.017**	0.003**
33	yes	0.173	0.440	0.240	0.147	0.227	0.320	0.267	0.187	0.525	0.362	0.564
34	yes	0.200	0.400	0.160	0.240	0.253	0.387	0.107	0.253	0.753	0.143	0.583
35	no	0.253	0.387	0.173	0.187	0.147	0.480	0.240	0.133	0.698	0.209	0.939
36	no	0.360	0.133	0.267	0.240	0.093	0.600	0.187	0.120	0.000**	0.003**	0.000**
37	yes	0.120	0.640	0.040	0.200	0.133	0.600	0.160	0.107	0.000**	0.005**	0.000**
38	yes	0.253	0.333	0.213	0.200	0.213	0.400	0.187	0.200	0.579	0.988	0.532
39	yes	0.133	0.493	0.107	0.267	0.227	0.493	0.187	0.093	0.041**	0.101	0.055*
40	yes	0.240	0.373	0.267	0.120	0.187	0.413	0.280	0.120	0.187	0.179	0.206

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

41	no	0.240	0.547	0.120	0.093	0.107	0.440	0.307	0.147	0.010**	0.031**	0.023**
42	no	0.240	0.427	0.187	0.147	0.253	0.307	0.253	0.187	0.601	0.280	0.163

Player rejections: 17/42

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

TABLE 3 with player only

EQUALITY OF WIN RATES

Pair	Player's Role	wc	Mixtures		Win Rates		Pearson	p-value
			Diamond	Non-Diamond	Diamond	Non-Diamond		
1	R	yes	0.493	0.507	0.622	0.579	2.870	0.412
2	C	yes	0.440	0.560	0.455	0.452	1.398	0.706
3	R	no	0.293	0.707	0.727	0.472	8.926	0.030**
4	C	no	0.493	0.507	0.459	0.447	3.694	0.296
5	R	no	0.440	0.560	0.606	0.571	0.639	0.887
6	C	no	0.373	0.627	0.357	0.489	2.056	0.561
7	R	yes	0.427	0.573	0.500	0.512	2.981	0.394
8	C	yes	0.373	0.627	0.321	0.362	1.194	0.754
9	R	no	0.413	0.587	0.742	0.500	4.537	0.209
10	C	no	0.253	0.747	0.368	0.321	8.565	0.036**
11	R	no	0.387	0.613	0.586	0.652	0.611	0.894
12	C	no	0.360	0.640	0.444	0.417	0.759	0.859
13	R	no	0.440	0.560	0.667	0.714	3.306	0.347
14	C	no	0.387	0.613	0.310	0.522	3.898	0.273
15	R	no	0.360	0.640	0.370	0.521	7.176	0.066*
16	C	no	0.360	0.640	0.444	0.417	0.759	0.859
17	R	no	0.320	0.680	0.542	0.706	4.972	0.174
18	C	no	0.520	0.480	0.462	0.639	12.148	0.007**
19	R	no	0.467	0.533	0.571	0.550	1.898	0.594
20	C	no	0.227	0.773	0.471	0.241	17.426	0.001**
21	R	no	0.587	0.413	0.386	0.516	23.787	0.000**
22	C	no	0.320	0.680	0.333	0.294	5.056	0.168
23	R	no	0.480	0.520	0.611	0.769	6.056	0.109
24	C	no	0.240	0.760	0.278	0.333	10.009	0.018**
25	R	no	0.520	0.480	0.615	0.611	4.565	0.207
26	C	no	0.467	0.533	0.371	0.450	1.898	0.594
27	R	no	0.267	0.733	0.550	0.527	7.176	0.066*
28	C	no	0.240	0.760	0.611	0.386	10.065	0.018**
29	R	no	0.160	0.840	0.750	0.540	19.787	0.000**
30	C	no	0.093	0.907	0.714	0.191	48.731	0.000**
31	R	no	0.453	0.547	0.647	0.683	2.315	0.510
32	C	no	0.627	0.373	0.362	0.607	19.620	0.000**
33	R	yes	0.440	0.560	0.697	0.643	2.222	0.528
34	C	yes	0.400	0.600	0.300	0.356	1.620	0.655
35	R	no	0.387	0.613	0.483	0.630	1.843	0.606
36	C	no	0.133	0.867	0.500	0.277	28.287	0.000**
37	R	yes	0.640	0.360	0.438	0.778	28.583	0.000**
38	C	yes	0.333	0.667	0.360	0.500	3.843	0.279
39	R	yes	0.493	0.507	0.459	0.553	6.778	0.079*
40	C	yes	0.373	0.627	0.357	0.426	0.556	0.907
41	R	no	0.547	0.453	0.634	0.647	7.231	0.065*
42	C	no	0.427	0.573	0.219	0.256	8.454	0.038**

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

Rejections : 12/42 at 5%

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

TABLE 3 with Computer

EQUALITY OF WIN RATES

Pair	Player	Role	wc	Mixtures		Win Rates		Pearson	p-value
				Diamond	Non-Diamond	Diamond	Non-Diamond		
1	P	row	yes	0.493	0.507	0.622	0.579	2.870	0.412
	C	column		0.440	0.560	0.424	0.381	0.648	0.885
2	P	column	yes	0.440	0.560	0.455	0.452	1.398	0.706
	C	row		0.360	0.640	0.444	0.604	2.954	0.399
3	P	row	no	0.293	0.707	0.727	0.472	8.926	0.030 **
	C	column		0.293	0.707	0.273	0.528	8.926	0.030 **
4	P	column	no	0.493	0.507	0.459	0.447	3.694	0.296
	C	row		0.400	0.600	0.433	0.622	3.565	0.312
5	P	row	no	0.440	0.560	0.606	0.571	0.639	0.887
	C	column		0.400	0.600	0.433	0.400	0.139	0.987
6	P	column	no	0.373	0.627	0.357	0.489	2.056	0.561
	C	row		0.320	0.680	0.583	0.549	2.648	0.449
7	P	row	yes	0.427	0.573	0.500	0.512	2.981	0.394
	C	column		0.427	0.573	0.500	0.488	2.981	0.394
8	P	column	yes	0.373	0.627	0.321	0.362	1.194	0.754
	C	row		0.413	0.587	0.710	0.614	1.694	0.638
9	P	row	no	0.413	0.587	0.742	0.500	4.537	0.209
	C	column		0.293	0.707	0.364	0.415	3.704	0.295
10	P	column	no	0.253	0.747	0.368	0.321	8.565	0.036 **
	C	row		0.440	0.560	0.788	0.571	5.972	0.113
11	P	row	no	0.387	0.613	0.586	0.652	0.611	0.894
	C	column		0.453	0.547	0.353	0.390	1.259	0.739
12	P	column	no	0.360	0.640	0.444	0.417	0.759	0.859
	C	row		0.373	0.627	0.571	0.574	0.444	0.931
13	P	row	no	0.440	0.560	0.667	0.714	3.306	0.347
	C	column		0.347	0.653	0.423	0.245	6.287	0.098 *
14	P	column	no	0.387	0.613	0.310	0.522	3.898	0.273
	C	row		0.307	0.693	0.609	0.538	3.676	0.299
15	P	row	no	0.360	0.640	0.370	0.521	7.176	0.066 *
	C	column		0.387	0.613	0.586	0.500	6.065	0.108
16	P	column	no	0.360	0.640	0.444	0.417	0.759	0.859
	C	row		0.373	0.627	0.571	0.574	0.444	0.931
17	P	row	no	0.320	0.680	0.542	0.706	4.972	0.174
	C	column		0.373	0.627	0.393	0.319	1.565	0.667
18	P	column	no	0.520	0.480	0.462	0.639	12.148	0.007 **
	C	row		0.307	0.693	0.217	0.558	13.926	0.003 **
19	P	row	no	0.467	0.533	0.571	0.550	1.898	0.594
	C	column		0.413	0.587	0.484	0.409	1.009	0.799
20	P	column	no	0.227	0.773	0.471	0.241	17.426	0.001 **
	C	row		0.547	0.453	0.805	0.588	16.537	0.001 **
21	P	row	no	0.587	0.413	0.386	0.516	23.787	0.000 **
	C	column		0.533	0.467	0.675	0.429	22.454	0.000 **

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

22	P	column	no	0.320	0.680	0.333	0.294	5.056	0.168
	C	row		0.400	0.600	0.733	0.667	3.056	0.383
23	P	row	no	0.480	0.520	0.611	0.769	6.056	0.109
	C	column		0.427	0.573	0.438	0.209	6.648	0.084 *
24	P	column	no	0.240	0.760	0.278	0.333	10.009	0.018 **
	C	row		0.493	0.507	0.865	0.500	17.398	0.001 **
25	P	row	no	0.520	0.480	0.615	0.611	4.565	0.207
	C	column		0.413	0.587	0.484	0.318	2.194	0.533
26	P	column	no	0.467	0.533	0.371	0.450	1.898	0.594
	C	row		0.347	0.653	0.500	0.633	2.065	0.559
27	P	row	no	0.267	0.733	0.550	0.527	7.176	0.066 *
	C	column		0.387	0.613	0.310	0.565	6.343	0.096 *
28	P	column	no	0.240	0.760	0.611	0.386	10.065	0.018 **
	C	row		0.480	0.520	0.694	0.436	7.398	0.060 *
29	P	row	no	0.160	0.840	0.750	0.540	19.787	0.000 **
	C	column		0.347	0.653	0.115	0.592	16.676	0.001 **
30	P	column	no	0.093	0.907	0.714	0.191	48.731	0.000 **
	C	row		0.693	0.307	0.904	0.435	62.898	0.000 **
31	P	row	no	0.453	0.547	0.647	0.683	2.315	0.510
	C	column		0.413	0.587	0.387	0.295	2.037	0.565
32	P	column	no	0.627	0.373	0.362	0.607	19.620	0.000 **
	C	row		0.307	0.693	0.261	0.673	12.509	0.006 **
33	P	row	yes	0.440	0.560	0.697	0.643	2.222	0.528
	C	column		0.320	0.680	0.417	0.294	4.722	0.193
34	P	column	yes	0.400	0.600	0.300	0.356	1.620	0.655
	C	row		0.387	0.613	0.690	0.652	1.528	0.676
35	P	row	no	0.387	0.613	0.483	0.630	1.843	0.606
	C	column		0.480	0.520	0.417	0.436	2.231	0.526
36	P	column	no	0.133	0.867	0.500	0.277	28.287	0.000 **
	C	row		0.600	0.400	0.889	0.400	39.306	0.000 **
37	P	row	yes	0.640	0.360	0.438	0.778	28.583	0.000 **
	C	column		0.600	0.400	0.600	0.200	27.083	0.000 **
38	P	column	yes	0.333	0.667	0.360	0.500	3.843	0.279
	C	row		0.400	0.600	0.700	0.444	5.787	0.122
39	P	row	yes	0.493	0.507	0.459	0.553	6.778	0.079 *
	C	column		0.493	0.507	0.541	0.447	6.778	0.079 *
40	P	column	yes	0.373	0.627	0.357	0.426	0.556	0.907
	C	row		0.413	0.587	0.677	0.545	1.389	0.708
41	P	row	no	0.547	0.453	0.634	0.647	7.231	0.065 *
	C	column		0.440	0.560	0.455	0.286	3.083	0.379
42	P	column	no	0.427	0.573	0.219	0.256	8.454	0.038 **
	C	row		0.307	0.693	0.696	0.788	12.287	0.006 **

APPENDIX TABLES
1. 4CARD BARRY
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 4 with player only
RUNS ANALYSIS

Pair	Player's Role	WC	Choices		Runs (r)	F(r)	F(r - 1)
			Diamond	Non-Diamond			
1	R	yes	37	38	21	0.000**	0.000
2	C	yes	33	42	30	0.039*	0.023
3	R	no	22	53	42	0.999	0.998**
4	C	no	37	38	53	1.000	1.000**
5	R	no	33	42	26	0.003**	0.002
6	C	no	28	47	29	0.051	0.030
7	R	yes	32	43	45	0.969	0.948
8	C	yes	28	47	38	0.721	0.637
9	R	no	31	44	33	0.177	0.121
10	C	no	19	56	25	0.123	0.067
11	R	no	29	46	37	0.590	0.489
12	C	no	27	48	36	0.588	0.495
13	R	no	33	42	33	0.146	0.099
14	C	no	29	46	36	0.489	0.396
15	R	no	27	48	28	0.038*	0.022
16	C	no	27	48	27	0.022**	0.011
17	R	no	24	51	21	0.001**	0.000
18	C	no	39	36	27	0.005**	0.003
19	R	no	35	40	29	0.019**	0.011
20	C	no	17	58	21	0.033*	0.014
21	R	no	44	31	42	0.890	0.839
22	C	no	24	51	39	0.947	0.901
23	R	no	36	39	24	0.001**	0.000
24	C	no	18	57	29	0.648	0.490
25	R	no	39	36	38	0.506	0.413
26	C	no	35	40	42	0.835	0.770
27	R	no	20	55	18	0.000**	0.000
28	C	no	18	57	21	0.018**	0.007
29	R	no	12	63	25	1.000	0.917
30	C	no	7	68	15	1.000	0.562
31	R	no	34	41	40	0.707	0.622
32	C	no	47	28	37	0.637	0.536
33	R	yes	33	42	35	0.281	0.207
34	C	yes	30	45	35	0.358	0.271
35	R	no	29	46	15	0.000**	0.000
36	C	no	10	65	16	0.151	0.097
37	R	yes	48	27	38	0.767	0.689
38	C	yes	25	50	39	0.916	0.859
39	R	yes	37	38	31	0.051	0.031
40	C	yes	28	47	39	0.803	0.721
41	R	no	41	34	42	0.845	0.782
42	C	no	32	43	50	0.999	0.998**

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

TABLE 4 with Computer

RUNS ANALYSIS

Pair	Player	Role	WC	Non-Diamond		Diamond Runs (r)	F (r)	F (r - 1)
1	P	row	yes	37	38	21	0.000**	0.000
	C	column		33	42	37	0.456	0.365
2	P	column	yes	33	42	30	0.039*	0.023
	C	row		27	48	25	0.006**	0.003
3	P	row	no	22	53	42	0.999	0.998**
	C	column		22	53	29	0.237	0.153
4	P	column	no	37	38	53	1.000	1.000**
	C	row		30	45	30	0.058	0.035
5	P	row	no	33	42	26	0.003**	0.002
	C	column		30	45	42	0.908	0.863
6	P	column	no	28	47	29	0.051	0.030
	C	row		24	51	32	0.371	0.286
7	P	row	yes	32	43	45	0.969	0.948
	C	column		32	43	29	0.026*	0.014
8	P	column	yes	28	47	38	0.721	0.637
	C	row		31	44	34	0.245	0.177
9	P	row	no	31	44	33	0.177	0.121
	C	column		22	53	32	0.530	0.436
10	P	column	no	19	56	25	0.123	0.067
	C	row		33	42	42	0.858	0.798
11	P	row	no	29	46	37	0.590	0.489
	C	column		34	41	35	0.265	0.195
12	P	column	no	27	48	36	0.588	0.495
	C	row		28	47	44	0.983	0.969*
13	P	row	no	33	42	33	0.146	0.099
	C	column		26	49	36	0.645	0.555
14	P	column	no	29	46	36	0.489	0.396
	C	row		23	52	34	0.658	0.568
15	P	row	no	27	48	28	0.038*	0.022
	C	column		29	46	41	0.888	0.830
16	P	column	no	27	48	27	0.022**	0.011
	C	row		28	47	33	0.260	0.185
17	P	row	no	24	51	21	0.001**	0.000
	C	column		28	47	31	0.128	0.082
18	P	column	no	39	36	27	0.005**	0.003
	C	row		23	52	24	0.011**	0.006
19	P	row	no	35	40	29	0.019**	0.011
	C	column		31	44	25	0.002**	0.001
20	P	column	no	17	58	21	0.033*	0.014
	C	row		41	34	36	0.348	0.265
21	P	row	no	44	31	42	0.890	0.839
	C	column		40	35	32	0.087	0.055
22	P	column	no	24	51	39	0.947	0.901

APPENDIX TABLES

1. 4CARD BARRY

PROFESSIONAL POKER PLAYERS

SMART COMPUTER

	C	row		30	45	26	0.005**	0.003
23	P	row	no	36	39	24	0.001**	0.000
	C	column		32	43	37	0.481	0.388
24	P	column	no	18	57	29	0.648	0.490
	C	row		37	38	37	0.408	0.322
25	P	row	no	39	36	38	0.506	0.413
	C	column		31	44	36	0.416	0.327
26	P	column	no	35	40	42	0.835	0.770
	C	row		26	49	27	0.029*	0.015
27	P	row	no	20	55	18	0.000**	0.000
	C	column		29	46	40	0.830	0.764
28	P	column	no	18	57	21	0.018**	0.007
	C	row		36	39	38	0.506	0.413
29	P	row	no	12	63	25	1.000	0.917
	C	column		26	49	30	0.124	0.082
30	P	column	no	7	68	15	1.000	0.562
	C	row		52	23	32	0.445	0.354
31	P	row	no	34	41	40	0.707	0.622
	C	column		31	44	29	0.030*	0.017
32	P	column	no	47	28	37	0.637	0.536
	C	row		23	52	23	0.006**	0.003
33	P	row	yes	33	42	35	0.281	0.207
	C	column		24	51	25	0.016**	0.008
34	P	column	yes	30	45	35	0.358	0.271
	C	row		29	46	43	0.957	0.927
35	P	row	no	29	46	15	0.000**	0.000
	C	column		36	39	46	0.970	0.950*
36	P	column	no	10	65	16	0.151	0.097
	C	row		45	30	38	0.639	0.548
37	P	row	yes	48	27	38	0.767	0.689
	C	column		45	30	38	0.639	0.548
38	P	column	yes	25	50	39	0.916	0.859
	C	row		30	45	33	0.199	0.137
39	P	row	yes	37	38	31	0.051	0.031
	C	column		37	38	41	0.757	0.680
40	P	column	yes	28	47	39	0.803	0.721
	C	row		31	44	38	0.605	0.512
41	P	row	no	41	34	42	0.845	0.782
	C	column		33	42	34	0.207	0.146
42	P	column	no	32	43	50	0.999	0.998**
	C	row		23	52	39	0.970	0.937

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
TABLE 1

		EVADER CHOICE		Marginal Frequencies for Pursuer
		B	R	
PURSUER CHOICE	B	0.201 (0.11) {0.0016}	0.271 (0.22) {0.0009}	0.472 (0.33) {0.0024}
	R	0.209 (0.22) {0.0002}	0.319 (0.44) {0.0022}	0.528 (0.67) {0.0024}
Marginal Frequencies For Evader		0.410 (0.33) {0.0013}	0.590 (0.67) {0.0013}	

Pursuer p value: 0
 Evader p value: 0
 Overall p value: 0

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
TABLE 2
FREQUENCIES BY PAIR

pair	screen	wc	Pursuer	Evader	Joint Frequencies				pvalue
			R	R	BB	BR	RB	RR	
1	yes	0	0.507**	0.573*	0.213	0.280	0.213	0.293	0.007**
2	yes	0	0.640	0.680	0.107	0.253	0.213	0.427	0.936
3	no	0	0.493**	0.480**	0.267	0.240	0.253	0.240	0.000**
4	no	0	0.413**	0.507**	0.280	0.307	0.213	0.200	0.000**
5	yes	0	0.533**	0.573*	0.280	0.187	0.147	0.387	0.000**
6	yes	0	0.533**	0.507**	0.120	0.347	0.373	0.160	0.000**
7	no	0	0.333**	0.573*	0.293	0.373	0.133	0.200	0.000**
8	no	0	0.493**	0.800**	0.067	0.440	0.133	0.360	0.000**
9	no	0	0.467**	0.573*	0.213	0.320	0.213	0.253	0.001**
10	no	0	0.560*	0.693	0.133	0.307	0.173	0.387	0.250
11	yes	0	0.600	0.533**	0.213	0.187	0.253	0.347	0.024**
12	yes	0	0.480**	0.520**	0.253	0.267	0.227	0.253	0.000**
13	yes	2	0.480**	0.440**	0.293	0.227	0.267	0.213	0.000**
14	yes	2	0.560*	0.507**	0.227	0.213	0.267	0.293	0.004**
15	no	0	0.493**	0.520**	0.253	0.253	0.227	0.267	0.000**
16	no	0	0.587	0.480**	0.227	0.187	0.293	0.293	0.002**
17	no	0	0.507**	0.613	0.227	0.267	0.160	0.347	0.006**
18	no	0	0.533**	0.480**	0.267	0.200	0.253	0.280	0.000**
19	yes	1	0.613	0.560*	0.160	0.227	0.280	0.333	0.185
20	yes	1	0.640	0.707	0.160	0.200	0.133	0.507	0.165
21	yes	0	0.413**	0.773*	0.147	0.440	0.080	0.333	0.000**
22	yes	0	0.547**	0.520**	0.173	0.280	0.307	0.240	0.004**
23	no	0	0.507**	0.520**	0.253	0.240	0.227	0.280	0.000**
24	no	0	0.547**	0.640	0.147	0.307	0.213	0.333	0.147
25	no	0	0.427**	0.707	0.160	0.413	0.133	0.293	0.000**
26	no	0	0.720	0.680	0.147	0.133	0.173	0.547	0.107
27	yes	1	0.493**	0.667	0.227	0.280	0.107	0.387	0.002**
28	yes	1	0.520**	0.573*	0.187	0.293	0.240	0.280	0.017**
29	no	0	0.507**	0.520**	0.267	0.227	0.213	0.293	0.000**
30	no	0	0.440**	0.533*	0.213	0.347	0.253	0.187	0.000**
31	yes	0	0.667	0.680	0.107	0.227	0.213	0.453	0.996
32	yes	0	0.560*	0.653	0.120	0.320	0.227	0.333	0.147
33	yes	0	0.440**	0.440**	0.280	0.280	0.280	0.160	0.000**
34	yes	0	0.333**	0.547**	0.333	0.333	0.120	0.213	0.000**
35	no	0	0.520**	0.667	0.200	0.280	0.133	0.387	0.021**
36	no	0	0.707	0.747	0.067	0.227	0.187	0.520	0.435
37	no	1	0.480**	0.453**	0.267	0.253	0.280	0.200	0.000**
38	no	1	0.547**	0.493**	0.240	0.213	0.267	0.280	0.001**
39	no	0	0.600	0.947**	0.027	0.373	0.027	0.573	0.000**
40	no	0	0.720	0.653	0.133	0.147	0.213	0.507	0.401
41	no	0	0.533**	0.507**	0.227	0.240	0.267	0.267	0.002**
42	no	0	0.467**	0.533**	0.253	0.280	0.213	0.253	0.000**
43	no	1	0.627	0.547**	0.187	0.187	0.267	0.360	0.105
44	no	1	0.440**	0.640	0.227	0.333	0.133	0.307	0.000**

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
TABLE 3
EQUALITY OF WIN RATES

pair	wc	Player	B		R		Pearson	p-value
			Success	Fail	Success	Fail		
1	0	P	0.147	0.347	0.040	0.467	13.856	0.003**
		E	0.280	0.147	0.533	0.040	11.413	0.010**
2	0	P	0.067	0.293	0.147	0.480	0.607	0.895
		E	0.253	0.067	0.520	0.147	0.067	0.995
3	0	P	0.160	0.347	0.067	0.427	14.267	0.003**
		E	0.360	0.160	0.413	0.067	15.373	0.002**
4	0	P	0.213	0.373	0.067	0.347	31.033	0.000**
		E	0.280	0.213	0.440	0.067	24.013	0.000**
5	0	P	0.200	0.267	0.120	0.400	18.504	0.000**
		E	0.227	0.200	0.440	0.120	17.656	0.001**
6	0	P	0.080	0.387	0.040	0.493	10.744	0.013**
		E	0.413	0.080	0.467	0.040	13.213	0.004**
7	0	P	0.213	0.453	0.040	0.293	43.787	0.000**
		E	0.213	0.213	0.533	0.040	26.199	0.000**
8	0	P	0.040	0.467	0.080	0.413	17.571	0.001**
		E	0.160	0.040	0.720	0.080	12.249	0.007**
9	0	P	0.187	0.347	0.080	0.387	19.911	0.000**
		E	0.240	0.187	0.493	0.080	15.386	0.002**
10	0	P	0.107	0.333	0.120	0.440	3.956	0.266
		E	0.200	0.107	0.573	0.120	2.927	0.403
11	0	P	0.173	0.227	0.147	0.453	10.899	0.012**
		E	0.293	0.173	0.387	0.147	12.827	0.005**
12	0	P	0.200	0.320	0.120	0.360	21.159	0.000**
		E	0.280	0.200	0.400	0.120	18.613	0.000**
13	2	P	0.187	0.333	0.067	0.413	19.384	0.000**
		E	0.373	0.187	0.373	0.067	23.010	0.000**
14	2	P	0.133	0.307	0.080	0.480	6.771	0.080*
		E	0.360	0.133	0.427	0.080	10.063	0.018**
15	0	P	0.133	0.373	0.120	0.373	10.770	0.013**
		E	0.347	0.133	0.400	0.120	8.199	0.042**
16	0	P	0.160	0.253	0.133	0.453	8.211	0.042**
		E	0.360	0.160	0.347	0.133	14.794	0.002**
17	0	P	0.160	0.333	0.080	0.427	12.634	0.005**
		E	0.227	0.160	0.533	0.080	10.166	0.017**
18	0	P	0.160	0.307	0.080	0.453	11.091	0.011**
		E	0.360	0.160	0.400	0.080	14.794	0.002**
19	1	P	0.093	0.293	0.120	0.493	1.204	0.752
		E	0.347	0.093	0.440	0.120	3.879	0.275
20	1	P	0.067	0.293	0.107	0.533	1.294	0.730
		E	0.227	0.067	0.600	0.107	2.194	0.533
21	0	P	0.107	0.480	0.147	0.267	24.347	0.000**
		E	0.120	0.107	0.627	0.147	8.379	0.039**
22	0	P	0.107	0.347	0.160	0.387	5.871	0.118
		E	0.373	0.107	0.360	0.160	8.546	0.036**

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS

23	0	P	0.133	0.360	0.120	0.387	9.407	0.024**
		E	0.347	0.133	0.400	0.120	8.199	0.042**
24	0	P	0.080	0.373	0.093	0.453	5.936	0.115
		E	0.280	0.080	0.547	0.093	1.796	0.616
25	0	P	0.120	0.453	0.093	0.333	19.513	0.000**
		E	0.173	0.120	0.613	0.093	7.093	0.069*
26	0	P	0.133	0.147	0.187	0.533	8.006	0.046*
		E	0.187	0.133	0.493	0.187	5.923	0.115
27	1	P	0.173	0.333	0.040	0.453	18.099	0.000**
		E	0.160	0.173	0.627	0.040	20.439	0.000**
28	1	P	0.160	0.320	0.080	0.440	11.786	0.008**
		E	0.267	0.160	0.493	0.080	9.934	0.019**
29	0	P	0.200	0.293	0.053	0.453	21.557	0.000**
		E	0.280	0.200	0.467	0.053	21.120	0.000**
30	0	P	0.093	0.467	0.093	0.347	18.613	0.000**
		E	0.373	0.093	0.440	0.093	6.553	0.088*
31	0	P	0.053	0.280	0.227	0.440	4.573	0.206
		E	0.267	0.053	0.453	0.227	4.187	0.242
32	0	P	0.027	0.413	0.107	0.453	10.629	0.014*
		E	0.320	0.027	0.547	0.107	4.329	0.228
33	0	P	0.253	0.307	0.053	0.387	40.251	0.000**
		E	0.307	0.253	0.387	0.053	40.251	0.000**
34	0	P	0.227	0.440	0.027	0.307	46.989	0.000**
		E	0.227	0.227	0.520	0.027	31.354	0.000**
35	0	P	0.107	0.373	0.120	0.400	7.273	0.064*
		E	0.227	0.107	0.547	0.120	1.899	0.594
36	0	P	0.040	0.253	0.133	0.573	1.731	0.630
		E	0.213	0.040	0.613	0.133	3.197	0.362
37	1	P	0.173	0.347	0.067	0.413	17.147	0.001**
		E	0.373	0.173	0.387	0.067	19.616	0.000**
38	1	P	0.187	0.267	0.080	0.467	15.591	0.001**
		E	0.320	0.187	0.413	0.080	17.854	0.000**
39	0	P	0.027	0.373	0.173	0.427	7.581	0.056*
		E	0.027	0.027	0.773	0.173	27.639	0.000**
40	0	P	0.093	0.187	0.213	0.507	4.071	0.254
		E	0.253	0.093	0.440	0.213	3.429	0.330
41	0	P	0.133	0.333	0.107	0.427	7.234	0.065*
		E	0.360	0.133	0.400	0.107	9.394	0.024**
42	0	P	0.200	0.333	0.107	0.360	22.149	0.000**
		E	0.267	0.200	0.427	0.107	18.163	0.000**
43	1	P	0.133	0.227	0.080	0.547	6.329	0.097*
		E	0.307	0.133	0.467	0.080	6.946	0.074*
44	1	P	0.080	0.480	0.107	0.333	19.963	0.000**
		E	0.280	0.080	0.533	0.107	1.063	0.786

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
TABLE 4
RUNS ANALYSIS

Pair	WC	Player	Choices		Runs	F(r)	F(r - 1)
			R	B			
1	0	P	38	37	28	0.010**	0.005
		E	43	32	24	0.001**	0.000
2	0	P	48	27	30	0.100	0.064
		E	51	24	32	0.371	0.286
3	0	P	37	38	38	0.501	0.408
		E	36	39	28	0.010**	0.005
4	0	P	31	44	47	0.993	0.986**
		E	38	37	35	0.243	0.177
5	0	P	40	35	31	0.055	0.033
		E	43	32	24	0.001**	0.000
6	0	P	40	35	24	0.001**	0.000
		E	38	37	33	0.122	0.082
7	0	P	25	50	32	0.310	0.231
		E	43	32	43	0.917	0.873
8	0	P	37	38	37	0.408	0.322
		E	60	15	19	0.030*	0.011
9	0	P	35	40	30	0.033*	0.019
		E	43	32	39	0.666	0.575
10	0	P	42	33	36	0.365	0.281
		E	52	23	30	0.249	0.180
11	0	P	45	30	37	0.548	0.449
		E	40	35	34	0.186	0.129
12	0	P	36	39	33	0.125	0.083
		E	39	36	32	0.083	0.053
13	2	P	36	39	43	0.881	0.828
		E	33	42	33	0.146	0.099
14	2	P	42	33	33	0.146	0.099
		E	38	37	31	0.051	0.031
15	0	P	37	38	40	0.680	0.592
		E	39	36	44	0.921	0.881
16	0	P	44	31	32	0.121	0.080
		E	36	39	45	0.950	0.921
17	0	P	38	37	31	0.051	0.031
		E	46	29	24	0.002**	0.001
18	0	P	40	35	53	1.000	1.000**
		E	36	39	41	0.761	0.685
19	1	P	46	29	31	0.108	0.068
		E	42	33	40	0.725	0.641
20	1	P	48	27	30	0.100	0.064
		E	53	22	21	0.002**	0.001
21	0	P	31	44	36	0.416	0.327
		E	58	17	29	0.780	0.625
22	0	P	41	34	21	0.000**	0.000
		E	39	36	45	0.950	0.921
23	0	P	38	37	43	0.878	0.825

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS

		E	39	36	45	0.950	0.921
24	0	P	41	34	29	0.021**	0.011
		E	48	27	36	0.588	0.495
25	0	P	32	43	36	0.388	0.301
		E	53	22	29	0.237	0.153
26	0	P	54	21	25	0.052	0.027
		E	51	24	33	0.486	0.371
27	1	P	37	38	44	0.919	0.878
		E	50	25	29	0.105	0.063
28	1	P	39	36	39	0.597	0.506
		E	43	32	41	0.817	0.747
29	0	P	38	37	40	0.680	0.592
		E	39	36	45	0.950	0.921
30	0	P	33	42	35	0.281	0.207
		E	40	35	30	0.033*	0.019
31	0	P	50	25	33	0.415	0.310
		E	51	24	19	0.000**	0.000
32	0	P	42	33	38	0.550	0.456
		E	49	26	41	0.957	0.921
33	0	P	33	42	29	0.023**	0.013
		E	33	42	30	0.039*	0.023
34	0	P	25	50	30	0.156	0.105
		E	41	34	33	0.136	0.092
35	0	P	39	36	30	0.032*	0.018
		E	50	25	37	0.800	0.707
36	0	P	53	22	35	0.837	0.738
		E	56	19	23	0.040*	0.019
37	1	P	36	39	35	0.246	0.180
		E	34	41	26	0.003**	0.001
38	1	P	41	34	42	0.845	0.782
		E	37	38	38	0.501	0.408
39	0	P	45	30	28	0.020**	0.011
		E	71	4	6	0.018**	0.006
40	0	P	54	21	25	0.052	0.027
		E	49	26	33	0.354	0.259
41	0	P	40	35	38	0.516	0.422
		E	38	37	42	0.825	0.757
42	0	P	35	40	40	0.694	0.607
		E	40	35	36	0.335	0.254
43	1	P	47	28	37	0.637	0.536
		E	41	34	32	0.092	0.058
44	1	P	33	42	36	0.365	0.281
		E	48	27	39	0.842	0.767

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER

TABLE 1

		COMPUTER CHOICE		Marginal Frequencies for Player
		B	R	
PLAYER CHOICE	B	0.163 (0.111) {0.0009}	0.284 (0.222) {0.0011}	0.447 (0.333) {0.0020}
	R	0.208 (0.222) {0.0003}	0.344 (0.444) {0.0017}	0.552 (0.667) {0.0020}
Marginal Frequencies For Computer		0.361 (0.333) {0.0006}	0.628 (0.667) {0.0006}	

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 2
FREQUENCIES BY PAIR

pair	wc	Player Role	Marginal Frequencies		Joint Frequencies				jpvalue
			Player	Computer	BB	BR	RB	RR	
			R	R					
1	yes	pursuer	0.560 *	0.573 *	0.160	0.280	0.267	0.293	0.064 *
2	yes	evader	0.773 *	0.733	0.093	0.133	0.173	0.600	0.051 *
3	no	pursuer	0.507 **	0.693	0.213	0.280	0.093	0.413	0.003 **
4	no	evader	0.787 **	0.733	0.067	0.147	0.200	0.587	0.077 *
5	no	pursuer	0.587	0.507 **	0.173	0.240	0.320	0.267	0.010 **
6	no	evader	0.653	0.520 **	0.173	0.173	0.307	0.347	0.059 *
7	yes	pursuer	0.467 **	0.787 **	0.120	0.413	0.093	0.373	0.000 **
8	yes	evader	0.693	0.547 **	0.160	0.147	0.293	0.400	0.134
9	no	pursuer	0.587	0.720	0.133	0.280	0.147	0.440	0.335
10	no	evader	0.400 **	0.493 **	0.227	0.373	0.280	0.120	0.000 **
11	no	pursuer	0.560 *	0.613	0.160	0.280	0.227	0.333	0.185
12	no	evader	0.587	0.600	0.240	0.173	0.160	0.427	0.004 **
13	no	pursuer	0.533 **	0.720	0.120	0.347	0.160	0.373	0.059 *
14	no	evader	0.547 **	0.533 **	0.187	0.267	0.280	0.267	0.012 **
15	no	pursuer	0.640	0.680	0.120	0.240	0.200	0.440	0.954
16	no	evader	0.800 **	0.640	0.040	0.160	0.320	0.480	0.043 **
17	no	pursuer	0.533 **	0.707	0.120	0.347	0.173	0.360	0.063 *
18	no	evader	0.440 **	0.347 **	0.280	0.280	0.373	0.067	0.000 **
19	no	pursuer	0.587	0.587	0.147	0.267	0.267	0.320	0.187
20	no	evader	0.720	0.680	0.093	0.187	0.227	0.493	0.789
21	no	pursuer	0.387 **	0.760 *	0.147	0.467	0.093	0.293	0.000 **
22	no	evader	0.667	0.627	0.080	0.253	0.293	0.373	0.316
23	no	pursuer	0.467 **	0.600	0.160	0.373	0.240	0.227	0.001 **
24	no	evader	0.707	0.587	0.147	0.147	0.267	0.440	0.327
25	no	pursuer	0.627	0.640	0.120	0.253	0.240	0.387	0.789
26	no	evader	0.653	0.600	0.147	0.200	0.253	0.400	0.641
27	no	pursuer	0.373 **	0.747	0.200	0.427	0.053	0.320	0.000 **
28	no	evader	0.427 **	0.480 **	0.307	0.267	0.213	0.213	0.000 **
29	no	pursuer	0.200 **	0.867 **	0.093	0.707	0.040	0.160	0.000 **
30	no	evader	0.480 **	0.453 **	0.280	0.240	0.267	0.213	0.000 **
31	no	pursuer	0.387 **	0.747	0.160	0.453	0.093	0.293	0.000 **
32	no	evader	0.600	0.547 **	0.160	0.240	0.293	0.307	0.085 *
33	yes	pursuer	0.587	0.680	0.200	0.213	0.120	0.467	0.030 **
34	yes	evader	0.547 **	0.413 **	0.253	0.200	0.333	0.213	0.000 *
35	no	pursuer	0.653	0.640	0.133	0.213	0.227	0.427	0.936
36	no	evader	0.267 **	0.413 **	0.440	0.293	0.147	0.120	0.000 **
37	yes	pursuer	0.413 **	0.747	0.160	0.427	0.093	0.320	0.000 **
38	yes	evader	0.547 **	0.493 **	0.187	0.267	0.320	0.227	0.001 **
39	yes	pursuer	0.533 **	0.653	0.173	0.293	0.173	0.360	0.097 *
40	yes	evader	0.867 **	0.827 **	0.027	0.107	0.147	0.720	0.000 **
41	no	pursuer	0.147 **	0.853 **	0.120	0.733	0.027	0.120	0.000 **
44	no	evader	0.693	0.627	0.147	0.160	0.227	0.467	0.522

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER

Note: If player plays badly, computer plays badly.

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
Table 3 with Player only
EQUALITY OF WIN RATES

pair	wc	Player's Role	B		R		Pearson	p-value
			Success	Fail	Success	Fail		
1	yes	P	0.080	0.360	0.080	0.480	5.537	0.136
2	yes	E	0.187	0.040	0.520	0.253	8.301	0.040**
3	no	P	0.133	0.360	0.107	0.400	9.394	0.024**
4	no	E	0.173	0.040	0.667	0.120	6.887	0.076*
5	no	P	0.147	0.267	0.067	0.520	8.713	0.033**
6	no	E	0.213	0.133	0.507	0.147	4.187	0.242
7	yes	P	0.080	0.453	0.067	0.400	16.324	0.001**
8	yes	E	0.187	0.120	0.533	0.160	3.763	0.288
9	no	P	0.027	0.387	0.133	0.453	7.697	0.053*
10	no	E	0.507	0.093	0.373	0.027	28.603	0.000**
11	no	P	0.120	0.320	0.107	0.453	4.689	0.196
12	no	E	0.280	0.133	0.507	0.080	6.051	0.109
13	no	P	0.053	0.413	0.120	0.413	9.304	0.026**
14	no	E	0.360	0.093	0.427	0.120	4.933	0.177
15	no	P	0.093	0.267	0.147	0.493	0.484	0.922
16	no	E	0.173	0.027	0.640	0.160	6.617	0.085*
17	no	P	0.067	0.400	0.080	0.453	8.751	0.033**
18	no	E	0.440	0.120	0.427	0.013	22.007	0.000**
19	no	P	0.080	0.333	0.133	0.453	2.349	0.503
20	no	E	0.227	0.053	0.560	0.160	1.063	0.786
21	no	P	0.120	0.493	0.093	0.293	26.841	0.000**
22	no	E	0.293	0.040	0.573	0.093	3.467	0.325
23	no	P	0.120	0.413	0.067	0.400	14.396	0.002**
24	no	E	0.227	0.067	0.613	0.093	3.184	0.364
25	no	P	0.080	0.293	0.160	0.467	0.831	0.842
26	no	E	0.240	0.107	0.560	0.093	2.953	0.399
27	no	P	0.173	0.453	0.093	0.280	30.621	0.000**
28	no	E	0.413	0.160	0.373	0.053	21.943	0.000**
29	no	P	0.080	0.720	0.067	0.133	86.267	0.000**
30	no	E	0.307	0.213	0.413	0.067	25.247	0.000**
31	no	P	0.080	0.533	0.147	0.240	32.987	0.000**
32	no	E	0.293	0.107	0.520	0.080	3.763	0.288
33	yes	P	0.133	0.280	0.120	0.467	4.470	0.215
34	yes	E	0.333	0.120	0.467	0.080	6.463	0.091*
35	no	P	0.067	0.280	0.133	0.520	0.291	0.962
36	no	E	0.467	0.267	0.227	0.040	68.241	0.000**
37	yes	P	0.120	0.467	0.147	0.267	23.756	0.000**
38	yes	E	0.360	0.093	0.493	0.053	7.954	0.047**
39	yes	P	0.080	0.387	0.067	0.467	8.481	0.037**
40	yes	E	0.107	0.027	0.693	0.173	13.753	0.003**
41	no	P	0.093	0.760	0.027	0.120	103.354	0.000**
42	no	E	0.227	0.080	0.547	0.147	0.459	0.928

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 3 with computer
EQUALITY OF WIN RATES

Pair	wc	Player	Role	B		R		Pearson	p-value
				Success	Fail	Success	Fail		
1	yes	P	pursuer	0.080	0.360	0.080	0.480	5.537	0.136
		C		0.347	0.080	0.493	0.080	4.689	0.196
2	yes	P	evader	0.187	0.040	0.520	0.253	8.301	0.040 **
		C		0.040	0.227	0.253	0.480	7.299	0.063 *
3	no	P	pursuer	0.133	0.360	0.107	0.400	9.394	0.024 **
		C		0.173	0.133	0.587	0.107	7.234	0.065 *
4	no	P	evader	0.173	0.040	0.667	0.120	6.887	0.076 *
		C		0.040	0.227	0.120	0.613	3.184	0.364
5	no	P	pursuer	0.147	0.267	0.067	0.520	8.713	0.033 **
		C		0.347	0.147	0.440	0.067	11.799	0.008 **
6	no	P	evader	0.213	0.133	0.507	0.147	4.187	0.242
		C		0.133	0.347	0.147	0.373	8.816	0.032 **
7	yes	P	pursuer	0.080	0.453	0.067	0.400	16.324	0.001 **
		C		0.133	0.080	0.720	0.067	13.856	0.003 **
8	yes	P	evader	0.187	0.120	0.533	0.160	3.763	0.288
		C		0.120	0.333	0.160	0.387	6.309	0.098 *
9	no	P	pursuer	0.027	0.387	0.133	0.453	7.697	0.053 *
		C		0.253	0.027	0.587	0.133	3.069	0.381
10	no	P	evader	0.507	0.093	0.373	0.027	28.603	0.000 **
		C		0.093	0.413	0.027	0.467	15.103	0.002 **
11	no	P	pursuer	0.120	0.320	0.107	0.453	4.689	0.196
		C		0.267	0.120	0.507	0.107	3.043	0.385
12	no	P	evader	0.280	0.133	0.507	0.080	6.051	0.109
		C		0.133	0.267	0.080	0.520	5.923	0.115
13	no	P	pursuer	0.053	0.413	0.120	0.413	9.304	0.026 **
		C		0.227	0.053	0.600	0.120	2.104	0.551
14	no	P	evader	0.360	0.093	0.427	0.120	4.933	0.177
		C		0.093	0.373	0.120	0.413	6.141	0.105
15	no	P	pursuer	0.093	0.267	0.147	0.493	0.484	0.922
		C		0.227	0.093	0.533	0.147	0.716	0.870
16	no	P	evader	0.173	0.027	0.640	0.160	6.617	0.085 *
		C		0.027	0.333	0.160	0.480	4.149	0.246
17	no	P	pursuer	0.067	0.400	0.080	0.453	8.751	0.033 **
		C		0.227	0.067	0.627	0.080	4.406	0.221
18	no	P	evader	0.440	0.120	0.427	0.013	22.007	0.000 **
		C		0.120	0.533	0.013	0.333	38.027	0.000 **
19	no	P	pursuer	0.080	0.333	0.133	0.453	2.349	0.503
		C		0.333	0.080	0.453	0.133	2.349	0.503
20	no	P	evader	0.227	0.053	0.560	0.160	1.063	0.786
		C		0.053	0.267	0.160	0.520	0.523	0.914
21	no	P	pursuer	0.120	0.493	0.093	0.293	26.841	0.000 **
		C		0.120	0.120	0.667	0.093	12.441	0.006 **
22	no	P	evader	0.293	0.040	0.573	0.093	3.467	0.325

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER

		C		0.040	0.333	0.093	0.533	4.316	0.229
23	no	P	pursuer	0.120	0.413	0.067	0.400	14.396	0.002 **
		C		0.280	0.120	0.533	0.067	5.653	0.130
24	no	P	evader	0.227	0.067	0.613	0.093	3.184	0.364
		C		0.067	0.347	0.093	0.493	3.879	0.275
25	no	P	pursuer	0.080	0.293	0.160	0.467	0.831	0.842
		C		0.280	0.080	0.480	0.160	0.446	0.931
26	no	P	evader	0.240	0.107	0.560	0.093	2.953	0.399
		C		0.107	0.293	0.093	0.507	2.953	0.399
27	no	P	pursuer	0.173	0.453	0.093	0.280	30.621	0.000 **
		C		0.080	0.173	0.653	0.093	23.421	0.000 **
28	no	P	evader	0.413	0.160	0.373	0.053	21.943	0.000 **
		C		0.160	0.360	0.053	0.427	16.183	0.001 **
29	no	P	pursuer	0.080	0.720	0.067	0.133	86.267	0.000 **
		C		0.053	0.080	0.800	0.067	27.124	0.000 **
30	no	P	evader	0.307	0.213	0.413	0.067	25.247	0.000 **
		C		0.213	0.333	0.067	0.387	27.099	0.000 **
31	no	P	pursuer	0.080	0.533	0.147	0.240	32.987	0.000 **
		C		0.173	0.080	0.600	0.147	3.133	0.372
32	no	P	evader	0.293	0.107	0.520	0.080	3.763	0.288
		C		0.107	0.347	0.080	0.467	6.026	0.110
33	yes	P	pursuer	0.133	0.280	0.120	0.467	4.470	0.215
		C		0.187	0.133	0.560	0.120	5.730	0.126
34	yes	P	evader	0.333	0.120	0.467	0.080	6.463	0.091 *
		C		0.120	0.467	0.080	0.333	21.891	0.000 **
35	no	P	pursuer	0.067	0.280	0.133	0.520	0.291	0.962
		C		0.293	0.067	0.507	0.133	0.523	0.914
36	no	P	evader	0.467	0.267	0.227	0.040	68.241	0.000 **
		C		0.267	0.320	0.040	0.373	47.593	0.000 **
37	yes	P	pursuer	0.120	0.467	0.147	0.267	23.756	0.000 **
		C		0.133	0.120	0.600	0.147	7.684	0.053 *
38	yes	P	evader	0.360	0.093	0.493	0.053	7.954	0.047 **
		C		0.093	0.413	0.053	0.440	12.686	0.005 **
39	yes	P	pursuer	0.080	0.387	0.067	0.467	8.481	0.037 **
		C		0.267	0.080	0.587	0.067	4.084	0.253
40	yes	P	evader	0.107	0.027	0.693	0.173	13.753	0.003 **
		C		0.027	0.147	0.173	0.653	8.893	0.031 **
41	no	P	pursuer	0.093	0.760	0.027	0.120	103.354	0.000 **
		C		0.053	0.093	0.827	0.027	33.849	0.000 **
42	no	P	evader	0.227	0.080	0.547	0.147	0.459	0.928
		C		0.080	0.293	0.147	0.480	0.587	0.899

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 4: player only
RUNS ANALYSIS

Choices									
pair	Player's Role	wc	B	R	Runs (r)	F(r)	F(r - 1)		
1	P	1	33	42	21	0.000**	0.000		
2	E	1	17	58	4	0.000**	0.000		
3	P	0	37	38	55	1.000	1.000**		
4	E	0	16	59	33	0.991	0.991**		
5	P	0	31	44	27	0.009**	0.004		
6	E	0	26	49	28	0.048*	0.029		
7	P	1	40	35	40	0.694	0.607		
8	E	1	23	52	34	0.658	0.568		
9	P	0	31	44	32	0.121	0.080		
10	E	0	45	30	26	0.005**	0.003		
11	P	0	33	42	35	0.281	0.207		
12	E	0	31	44	39	0.695	0.605		
13	P	0	35	40	34	0.186	0.129		
14	E	0	34	41	31	0.058	0.036		
15	P	0	27	48	43	0.980	0.961*		
16	E	0	15	60	23	0.301	0.168		
17	P	0	35	40	48	0.992	0.984**		
18	E	0	42	33	24	0.001**	0.000		
19	P	0	31	44	31	0.080	0.050		
20	E	0	21	54	26	0.085	0.053		
21	P	0	46	29	23	0.001**	0.000		
22	E	0	25	50	31	0.231	0.156		
23	P	0	40	35	41	0.770	0.694		
24	E	0	22	53	24	0.017**	0.009		
25	P	0	28	47	29	0.051	0.030		
26	E	0	26	49	27	0.029*	0.015		
27	P	0	47	28	41	0.913	0.862		
28	E	0	43	32	40	0.747	0.666		
29	P	0	60	15	31	1.000	0.983**		
30	E	0	39	36	41	0.761	0.685		
31	P	0	46	29	24	0.002**	0.001		
32	E	0	30	45	47	0.995	0.990**		
33	P	1	31	44	31	0.080	0.050		
34	E	1	34	41	36	0.348	0.265		
35	P	0	26	49	30	0.124	0.082		
36	E	0	55	20	28	0.280	0.205		
37	P	1	44	31	45	0.975	0.957*		
38	E	1	34	41	53	1.000	1.000		
39	P	1	35	40	47	0.984	0.972*		
40	E	1	10	65	13	0.016**	0.004		
41	P	0	64	11	17	0.163	0.063		
42	E	0	23	52	24	0.011**	0.006		

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER
TABLE 4 with computer
RUNS ANALYSIS

Pair	Player	Player's Role	wc	Choices		Runs	F(r)	F(r - 1)
				R	B			
1	P	pursuer	1	42	33	21	0.000 **	0.000
	C			32	43	20	0.000 **	0.000
2	P	evader	1	58	17	4	0.000 **	0.000
	C			20	55	29	0.405	0.279
3	P	pursuer	0	38	37	55	1.000	1.000 **
	C			23	52	38	0.937	0.903
4	P	evader	0	59	16	33	0.991	0.991 **
	C			20	55	26	0.124	0.080
5	P	pursuer	0	44	31	27	0.009 **	0.004
	C			37	38	40	0.680	0.592
6	P	evader	0	49	26	28	0.048 *	0.029
	C			36	39	41	0.761	0.685
7	P	pursuer	1	35	40	40	0.694	0.607
	C			16	59	33	0.988	0.988 **
8	P	evader	1	52	23	34	0.658	0.568
	C			34	41	44	0.932	0.894
9	P	pursuer	0	44	31	32	0.121	0.080
	C			21	54	30	0.400	0.311
10	P	evader	0	30	45	26	0.005 **	0.003
	C			38	37	40	0.680	0.592
11	P	pursuer	0	42	33	35	0.281	0.207
	C			29	46	39	0.764	0.678
12	P	evader	0	44	31	39	0.695	0.605
	C			30	45	32	0.137	0.092
13	P	pursuer	0	40	35	34	0.186	0.129
	C			21	54	32	0.625	0.533
14	P	evader	0	41	34	31	0.058	0.036
	C			35	40	36	0.335	0.254
15	P	pursuer	0	48	27	43	0.980	0.961 *
	C			24	51	37	0.854	0.770
16	P	evader	0	60	15	23	0.301	0.168
	C			27	48	38	0.767	0.689
17	P	pursuer	0	40	35	48	0.992	0.984 **
	C			22	53	34	0.738	0.657
18	P	evader	0	33	42	24	0.001 **	0.000
	C			49	26	26	0.015 **	0.008
19	P	pursuer	0	44	31	31	0.080	0.050
	C			31	44	27	0.009 **	0.004
20	P	evader	0	54	21	26	0.085	0.053
	C			24	51	37	0.854	0.770
21	P	pursuer	0	29	46	23	0.001 **	0.000
	C			18	57	30	0.730	0.648

APPENDIX TABLES
2. HIDE AND SEEK
PROFESSIONAL POKER PLAYERS
SMART COMPUTER

22	P	evader	0	50	25	31	0.231	0.156
	C			28	47	40	0.862	0.803
23	P	pursuer	0	35	40	41	0.770	0.694
	C			30	45	38	0.639	0.548
24	P	evader	0	53	22	24	0.017 **	0.009
	C			31	44	54	1.000	1.000 **
25	P	pursuer	0	47	28	29	0.051	0.030
	C			27	48	32	0.218	0.154
26	P	evader	0	49	26	27	0.029 **	0.015
	C			30	45	43	0.944	0.908
27	P	pursuer	0	28	47	41	0.913	0.862
	C			19	56	29	0.519	0.374
28	P	evader	0	32	43	40	0.747	0.666
	C			39	36	41	0.761	0.685
29	P	pursuer	0	15	60	31	1.000	0.983 **
	C			10	65	19	0.400	0.096
30	P	evader	0	36	39	41	0.761	0.685
	C			41	34	33	0.136	0.092
31	P	pursuer	0	29	46	24	0.002 **	0.001
	C			19	56	28	0.374	0.287
32	P	evader	0	45	30	47	0.995	0.990 **
	C			34	41	57	1.000	1.000 **
33	P	pursuer	1	44	31	31	0.080	0.050
	C			24	51	25	0.016 **	0.008
34	P	evader	1	41	34	36	0.348	0.265
	C			44	31	36	0.416	0.327
35	P	pursuer	0	49	26	30	0.124	0.082
	C			27	48	32	0.218	0.154
36	P	evader	0	20	55	28	0.280	0.205
	C			44	31	22	0.000 **	0.000
37	P	pursuer	1	31	44	45	0.975	0.957 *
	C			19	56	28	0.374	0.287
38	P	evader	1	41	34	53	1.000	1.000 **
	C			38	37	52	1.000	0.999 **
39	P	pursuer	1	40	35	47	0.984	0.972 *
	C			26	49	41	0.957	0.921
40	P	evader	1	65	10	13	0.016 **	0.004
	C			13	62	26	0.918	0.890
41	P	pursuer	0	11	64	17	0.163	0.063
	C			11	64	19	0.297	0.071
42	P	evader	0	52	23	24	0.011 **	0.006
	C			28	47	29	0.051	0.030

APPENDIX TABLES

1. HIDE & SEEK

WORLD-CLASS BRIDGE PLAYERS

TABLE 1

		Evader Choice		Marginal Frequencies For Pursuer
		B	R	
Pursuer Choice	B	0.148 (0.11) {0.0011}	0.252 (0.22) {0.0009}	0.400 (0.33) {0.0033}
	R	0.232 (0.22) {0.0003}	0.368 (0.44) {0.0024}	0.600 (0.67) {0.0033}
Marginal Frequencies For Evader		0.380 (0.33) {0.0019}	0.620 (0.67) {0.0019}	
N		1050		
# pairs		7		

APPENDIX TABLES

1. HIDE & SEEK

WORLD-CLASS BRIDGE PLAYERS

FREQUENCIES BY PAIR

Pair	Pursuer	Evader	Joint Frequencies				p-value
	R	R	BB	BR	RB	RR	
1	0.600	0.453 **	0.240	0.160	0.307	0.293	0.000 **
2	0.453 **	0.520 **	0.293	0.253	0.187	0.267	0.000 **
3	0.573 *	0.747	0.107	0.320	0.147	0.427	0.156
4	0.680	0.680	0.107	0.213	0.213	0.467	0.985
5	0.667	0.813 **	0.080	0.253	0.107	0.560	0.052 *
6	0.680	0.587	0.107	0.213	0.307	0.373	0.348
7	0.800 **	0.573 *	0.080	0.120	0.347	0.453	0.024 **
8	0.613	0.520 **	0.187	0.200	0.293	0.320	0.039 **
9	0.427 **	0.640	0.200	0.373	0.160	0.267	0.000 **
10	0.667	0.627	0.107	0.227	0.267	0.400	0.796
11	0.667	0.440 **	0.187	0.147	0.373	0.293	0.001 **
12	0.520 **	0.680	0.147	0.333	0.173	0.347	0.059 *
13	0.507 **	0.640	0.133	0.360	0.227	0.280	0.010 **
14	0.547 **	0.760 *	0.093	0.360	0.147	0.400	0.031 **

APPENDIX TABLES

1. HIDE & SEEK

WORLD-CLASS BRIDGE PLAYERS

RUNS TESTS

Pair	Player	Runs	Choices		F(r)	F(r - 1)
			R	B		
1	P	36	45	30	0.449	0.358
	E	35	41	34	0.265	0.195
2	P	36	34	41	0.348	0.265
	E	41	36	39	0.761	0.685
3	P	36	43	32	0.388	0.301
	E	22	19	56	0.019 **	0.010
4	P	27	51	24	0.053	0.029
	E	27	24	51	0.053	0.029
5	P	27	50	25	0.039 *	0.021
	E	17	14	61	0.013 **	0.004
6	P	34	51	24	0.580	0.486
	E	25	31	44	0.002 **	0.001
7	P	15	60	15	0.001 **	0.000
	E	38	32	43	0.575	0.481
8	P	38	46	29	0.678	0.590
	E	38	36	39	0.506	0.413
9	P	35	32	43	0.301	0.224
	E	34	27	48	0.390	0.303
10	P	39	50	25	0.916	0.859
	E	36	28	47	0.536	0.442
11	P	32	50	25	0.310	0.231
	E	41	42	33	0.798	0.725
12	P	39	39	36	0.597	0.506
	E	33	24	51	0.486	0.371
13	P	38	38	37	0.501	0.408
	E	39	27	48	0.842	0.767
14	P	45	41	34	0.958	0.932
	E	31	18	57	0.855	0.731

APPENDIX TABLES

1. 4CARD BARRY

WORLD-CLASS BRIDGE PLAYERS

TABLE 1

		Column Player Choice				Marginal
		C	D	H	S	Frequencies for
Row Player Choice	C	0.045 (0.040) {0.0001}	0.058 (0.080) {0.0006}	0.039 (0.040) {0.0000}	0.044 (0.040) {0.0001}	0.186 (0.200) {0.0003}
	D	0.091 (0.080) {0.0003}	0.157 (0.016) {0.0001}	0.074 (0.080) {0.0001}	0.086 (0.080) {0.0001}	0.408 (0.400) {0.0002}
	H	0.046 (0.040) {0.0001}	0.083 (0.080) {0.0001}	0.037 (0.040) {0.0001}	0.045 (0.040) {0.0001}	0.212 (0.200) {0.0003}
	S	0.048 (0.040) {0.0002}	0.071 (0.080) {0.0002}	0.044 (0.040) {0.0001}	0.032 (0.040) {0.0002}	0.195 (0.200) {0.0001}
Marginal Frequencies for Column		0.230 (0.200) {0.0007}	0.368 (0.400) {0.0008}	0.194 (0.200) {0.0001}	0.207 (0.200) {0.0002}	
N		1650				
#pairs		22				
Row p-value		0.362023				
Column p-value		0.006097				
Pooled p-value		0.494905				

APPENDIX TABLES

1. 4CARD BARRY

WORLD-CLASS BRIDGE PLAYERS

FREQUENCIES BY PAIR

Pair	Row Player Choices				Column Player Choices				P-values from Chi-Squared Test on Minimax Predictions		
	C	D	H	S	C	D	H	S	Row Player	Column Player	Both Players
1	0.160	0.413	0.173	0.253	0.253	0.373	0.080	0.293	0.579	0.020 **	0.175
2	0.013	0.440	0.093	0.453	0.240	0.387	0.240	0.133	0.000 **	0.407	0.000 **
3	0.427	0.253	0.200	0.120	0.320	0.173	0.253	0.253	0.000 **	0.001 **	0.000 **
4	0.213	0.320	0.253	0.213	0.107	0.400	0.227	0.267	0.494	0.158	0.377
5	0.320	0.280	0.240	0.160	0.240	0.320	0.293	0.147	0.026 **	0.105	0.005 **
6	0.187	0.427	0.293	0.093	0.187	0.440	0.187	0.187	0.052 *	0.919	0.166
7	0.133	0.347	0.227	0.293	0.267	0.093	0.320	0.320	0.125	0.000 **	0.000 **
8	0.120	0.547	0.187	0.147	0.320	0.467	0.133	0.080	0.056 *	0.004 **	0.032 **
9	0.147	0.507	0.187	0.160	0.213	0.413	0.187	0.187	0.276	0.972	0.583
10	0.200	0.493	0.147	0.160	0.160	0.600	0.147	0.093	0.348	0.004 **	0.050 **
11	0.173	0.373	0.200	0.253	0.280	0.227	0.253	0.240	0.690	0.021 **	0.366
12	0.107	0.613	0.187	0.093	0.160	0.373	0.200	0.267	0.001 **	0.494	0.035 **
13	0.147	0.333	0.213	0.307	0.307	0.307	0.187	0.200	0.101	0.113	0.069 *
14	0.040	0.573	0.253	0.133	0.133	0.480	0.160	0.227	0.000 **	0.292	0.000 **
15	0.253	0.387	0.213	0.147	0.360	0.413	0.107	0.120	0.525	0.002 **	0.029 **
16	0.187	0.453	0.133	0.227	0.187	0.413	0.160	0.240	0.469	0.729	0.942
17	0.227	0.320	0.320	0.133	0.307	0.267	0.120	0.307	0.036 **	0.003 **	0.002 **
18	0.213	0.413	0.333	0.040	0.227	0.333	0.173	0.267	0.001 **	0.387	0.065 *
19	0.173	0.427	0.213	0.187	0.240	0.493	0.147	0.120	0.912	0.127	0.140
20	0.307	0.240	0.213	0.240	0.147	0.373	0.293	0.187	0.021 **	0.209	0.145
21	0.187	0.373	0.267	0.173	0.200	0.307	0.213	0.280	0.545	0.251	0.764
22	0.160	0.440	0.107	0.293	0.213	0.453	0.187	0.147	0.059 *	0.630	0.086 *

APPENDIX TABLES

1. 4CARD BARRY

WORLD-CLASS BRIDGE PLAYERS

RUNS ANALYSIS

Pair	Player	Runs	Choices		F(r)	F(r - 1)
			Diamond	Non-Diamond		
1	R	41	31	44	0.839	0.772
	C	45	28	47	0.992	0.983 **
2	R	45	33	42	0.963	0.939
	C	44	29	46	0.975	0.957 *
3	R	22	19	56	0.019 **	0.010
	C	16	13	62	0.010 **	0.005
4	R	45	24	51	1.000	0.999 **
	C	43	30	45	0.944	0.908
5	R	36	21	54	0.934	0.899
	C	28	24	51	0.084	0.053
6	R	32	32	43	0.109	0.071
	C	41	33	42	0.798	0.725
7	R	24	26	49	0.004 **	0.002
	C	15	7	68	1.000	0.562
8	R	36	41	34	0.348	0.265
	C	34	35	40	0.186	0.129
9	R	40	38	37	0.680	0.592
	C	36	31	44	0.416	0.327
10	R	45	37	38	0.949	0.919
	C	47	45	30	0.995	0.990 **
11	R	43	28	47	0.969	0.945
	C	24	17	58	0.167	0.113
12	R	53	46	29	1.000	1.000 **
	C	42	28	47	0.945	0.913
13	R	33	25	50	0.415	0.310
	C	37	23	52	0.903	0.832
14	R	32	43	32	0.109	0.071
	C	39	36	39	0.597	0.506
15	R	36	29	46	0.489	0.396
	C	29	31	44	0.030 *	0.017
16	R	41	34	41	0.782	0.707
	C	27	31	44	0.009 **	0.004
17	R	35	24	51	0.693	0.580
	C	33	20	55	0.836	0.724
18	R	44	31	44	0.957	0.930
	C	36	25	50	0.707	0.621
19	R	37	32	43	0.481	0.388
	C	37	37	38	0.408	0.322
20	R	36	18	57	0.998	0.996 **
	C	33	28	47	0.260	0.185
21	R	38	28	47	0.721	0.637
	C	33	23	52	0.568	0.445
22	R	28	33	42	0.013 **	0.007
	C	36	34	41	0.348	0.265