

(WILD) DYNASTY SIDE BET

MATHEMATICAL ANALYSIS PREPARED FOR LUBIN-JONES, LLC.

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An analysis of the mathematics and statistics inherent to a proposed new casino side bet.

(WILD) DYNASTY SIDE BET MATHEMATICAL ANALYSIS

Prepared by Charles Mousseau, B.Sc. on 7 April, 2009.

Introduction and general procedure:

1. The "Dynasty Side Bet" is a side bet for use with the "Queen High Push, Full Wild" version of the EZ Pai Gow game.
2. Before the cards are dealt, each player will have the opportunity to place the Dynasty Side Bet.
3. Play proceeds as normal during the hand, and the Dynasty Side Bet is resolved after the dealer reveals each player's hand:
 - a. If the player's seven card hand is at least three of a kind or better, the player's wager will win according to the supplied payable.
 - b. Otherwise, the player's Dynasty Side Bet will lose.
4. If the player is playing at least \$5, then he will also win a premium should any other player be dealt at least a straight flush, hereafter referred to as the "Envy Bonus", again paid according to the supplied payable.

Methodologies:

1. A computer program was written in C# to iterate through each possible seven-card hand that could be dealt to the dealer from a standard 53-card pai gow deck.
2. Each hand was evaluated to determine whether the hand would make a qualifying seven card hand, and that iteration logged by a counter to ultimately determine the probability of all possible outcomes.
3. The probability of each outcome was multiplied by its value to determine the house advantage for the wager.
4. A full breakdown of these results is included in the Appendix.

Results:

1. The house will win, on average, between 3.70% to 6.94% of the amount wagered on the Dynasty Side Bet.
2. The exact house edge depends on the number of other players playing, and how much the player has wagered, with a player playing alone facing a 6.94% house edge, and a player playing exactly \$5 at a full table facing a 3.70% house edge

Report completed on 22 February 2009 by Charles Mousseau, B.Sc.

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Results are deemed reliable.

(WILD) DYNASTY SIDE BET: APPENDIX OF TABLES

Table #1: Full breakdown of probabilities.

Hand	Combinations	P(Hand)	Payout	Value	Envy Odds	Envy Value	Envy\$
No Pair	23294460	0.151122321	-1	-0.151122321	0	0	\$0
One Pair	61644960	0.399920386	-1	-0.399920386	0	0	\$0
Two Pairs	31433400	0.203923524	-1	-0.203923524	0	0	\$0
Trips	13315300	0.08638273	1	0.08638273	0	0	\$0
Straight	11083940	0.071906828	2	0.143813657	0	0	\$0
Flush	6027224	0.039101489	4	0.156405957	0	0	\$0
Full Boat	5997144	0.038906346	5	0.19453173	0	0	\$0
Quads	1121024	0.00727262	10	0.072726197	0	0	\$0
Straight Flush	184832	0.001199094	15	0.017986406	2	0.00239819	\$10
Royal Flush	26132	0.000169531	25	0.00423827	10	0.00169531	\$50
Five of a Kind	14664	9.51324E-05	100	0.009513239	25	0.00237831	\$125
TOTAL:	154143080		1	-0.069368044		0.00647181	

Player Return, 0 other players **-6.94%**
 Max value of Envy Bonus **3.24%**
 Optimal Player Return **-3.70%**