

EZ Pai Gow (Q Strategy)

MATHEMATICAL ANALYSIS PREPARED FOR LUBIN-JONES, LLC. USING THE "Q STRATEGY"

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An analysis of the mathematics and statistics inherent to a proposed new casino table game.

EZ PAI GOW – Q STRATEGY MATHEMATICAL ANALYSIS

Prepared by Charles Mousseau, B.Sc. on 11 May 2009.

Introduction and general procedure:

1. “EZ Pai Gow – Q Strategy” is a variant of EZ Pai Gow, with the following differences:
 - a. The dealer now pushes all main wagers on a Queen-high Pai Gow, and no others.
 - b. The house way has changed to the so-called “Q Strategy”, as detailed in the accompanying documentation.
2. All other procedures are identical to the standard game of EZ Pai Gow, as detailed in the report filed by Lubin-Jones, LLC.

Methodologies:

1. First, a computer program was written in C# to estimate the distribution of dealer hand strengths, using the Q Strategy. This distribution was used to key the player strategy, to enable optimal player strategy without having to iterate through an unmanageable number of iterations.
2. Finally, a simulation of 5,000,000 hands was conducted to determine the house edge, accurate to 2 decimal places. Incremental results were taken every 100,000 hands, and the house edge appeared to level very rapidly compared to casino games which don't pay at even money and exhibit substantially more skew.
3. For comparison's sake, steps 1 and 2 were repeated, but replacing the “Queen-high Pai Gow push” mechanic with the standard 5% commission on winning hands.

Results:

1. Assuming optimal player strategy, the house will win, on average, ***an amount equal to 2.47% of the money wagered on the main wager*** when employing the Q Strategy with the “Queen-high Pai Gow” push mechanic and no commission.
2. By comparison, when using the Q Strategy on a Pai Gow table with the standard 5% commission on winning hands, the house will win, on average, ***an amount equal to 2.34% of the money wagered on the main wager.***
3. Full details can be seen in the Appendix.

Report completed on 11 May, 2009 by Charles Mousseau, B.Sc.

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Results are deemed reliable.

EZ Pai Gow - Q Strategy: Appendix of Tables

Table #1: Breakdown of results, Q Strategy with Queen-high Pai Gow push and no commission

Hand	#(Hand)	P(Hand)	Payout	Value
Dealer has Q-High Pai Gow	87717	0.017543	0	0
Dealer wins top, dealer wins bottom	1434980	0.286996	-1	-0.287
Dealer wins top, bottom copy	818	0.000164	-1	-0.00016
Dealer wins top, player wins bottom	947373	0.189475	0	0
Top copy, dealer wins bottom	60623	0.012125	-1	-0.01212
Top copy, bottom copy	35	0.000007	-1	-7E-06
Top copy, player wins bottom	60781	0.012156	0	0
Player wins top, dealer wins bottom	1033861	0.206772	0	0
Player wins top, bottom copies	828	0.000166	0	0
Player wins top, player wins bottom	1372984	0.274597	1	0.274597
TOTALS	5000000	1		-2.47%

Table #2: Breakdown of results, Q Strategy with standard 5% commission

Hand	#(Hand)	P(Hand)	Payout	Value
Dealer wins top, dealer wins bottom	1436146	0.287229	-1	-0.28723
Dealer wins top, bottom copy	852	0.00017	-1	-0.00017
Dealer wins top, player wins bottom	935902	0.18718	0	0
Top copy, dealer wins bottom	60696	0.012139	-1	-0.01214
Top copy, bottom copy	60	0.000012	-1	-1.2E-05
Top copy, player wins bottom	61500	0.0123	0	0
Player wins top, dealer wins bottom	1050588	0.210118	0	0
Player wins top, bottom copies	858	0.000172	0	0
Player wins top, player wins bottom	1453398	0.29068	0.95	0.276146
TOTALS	5000000	1		-2.34%