

# (WILD) EZ PAI GOW

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## MATHEMATICAL ANALYSIS PREPARED FOR LUBIN-JONES, LLC. USING THE BARONA CASINO HOUSE WAY

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

# (WILD) EZ PAI GOW - BARONA HOUSE WAY MATHEMATICAL ANALYSIS

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*Prepared by Charles Mousseau, B.Sc. on 27 April 2009.*

## **Introduction and general procedure:**

1. "Wild EZ Pai Gow" 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 joker now counts as a fully qualified wild card.
  - c. The house way has changed, 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 Barona Casino House Way.
2. This distribution was used to key the player strategy, to enable optimal player strategy without having to iterate through an unmanageable number of iterations.
3. 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.

## **Results:**

1. Assuming optimal player strategy, the house will win, on average, ***an amount equal to 2.54% of the money wagered on the main wager.***
2. Full details can be seen in the Appendix.

Report completed on 27 April, 2009 by Charles Mousseau, B.Sc.

*Charles Mousseau*

Results are deemed reliable.

# (WILD) EZ Pai Gow: APPENDIX OF TABLES

Table #1: Breakdown of results.

Hand	#(Hand)	P(Hand)	Payout	Value
Dealer has Q-High Pai Gow	88365	0.017673	0	0
Dealer wins top, dealer wins bottom	1516076	0.303215	-1	-0.30322
Dealer wins top, bottom copy	751	0.00015	-1	-0.00015
Dealer wins top, player wins bottom	881027	0.176205	0	0
Top copy, dealer wins bottom	51465	0.010293	-1	-0.01029
Top copy, bottom copy	45	0.000009	-1	-9E-06
Top copy, player wins bottom	50591	0.010118	0	0
Player wins top, dealer wins bottom	969473	0.193895	0	0
Player wins top, bottom copy	769	0.000154	0	0
Player wins top, player wins bottom	1441438	0.288288	1	0.288288
<b>TOTALS</b>	<b>5000000</b>	<b>1</b>		<b>-2.54%</b>