

How to win Professional Poker

A probability-grounded handbook for low-stakes No-Limit Hold'em,
built on a seven-card engine and twenty thousand simulated careers.

Winfield

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Chapter 1 — The 52-Card Decomposition: 1,326 Hands, 169 Names

Every poker decision begins with an act of counting. A 52-card deck deals exactly 1,326 distinct two-card starting hands, and once suits are treated as interchangeable — as they are before the flop — those 1,326 hands collapse into 169 strategically unique classes ([Wikipedia¹](#)). The 169 classes split into 13 pocket pairs, 78 suited non-pair hands, and 78 offsuit non-pair hands, and the deal respects strict frequencies: a pocket pair arrives once every 17 hands (5.88 percent), a suited hand 23.53 percent of the time, and an offsuit unpaired hand the remaining 70.59 percent ([Wikipedia²](#)).

The class structure carries unequal weight. Each pocket pair is 6 combinations, each suited hand 4, each offsuit hand 12. This 6-4-12 arithmetic is the quiet engine behind every range calculation in this book: when an opponent's range is described as "all pairs, all suited aces," that phrase resolves to an exact combination count, and the count — not the label — is what sets the probabilities.

The engine behind this book builds the full decomposition from scratch. It enumerates all 2,598,960 five-card hands and reproduces the published frequency table exactly: 40 straight flushes (4 of them royal), 624 four-of-a-kinds, 3,744 full houses, 5,108 flushes, 10,200 straights, 54,912 three-of-a-kinds, 123,552 two pairs, 1,098,240 one-pair hands, and 1,302,540 unpaired high-card hands ([Wikipedia³](#)). The same evaluator, pointed at the seven-card game every hold'em player actually plays, was run for ten million Monte Carlo deals and landed within two hundredths of a percentage point of the exact seven-card distribution on every category — a distribution whose 133,784,560 total combinations are independently confirmed by [Durango Bill's enumeration⁴](#) and the [Wizard of Odds tables⁵](#). The full comparison table appears in the appendix.

Two numbers from the seven-card game deserve to be memorized, because they recalibrate intuition trained on five-card folklore. First, with seven cards to work with, a player finishes with at least one pair about 82.6 percent of the time — high-card hands are only 17.4 percent of outcomes ([Wikipedia³](#)). Second, two pair — not one pair — is the most common "made something" class after one pair itself, at 23.5 percent. The board pairs often; a lone top pair is far more fragile at a nine-way table than it looks heads-up.

Why does the decomposition matter for a low-stakes player? Because the entire strategic edifice — ranges, equities, pot odds, position — is downstream of these counts. A player who knows that AK is 16 combinations while AA is 6 knows, before any read or tell, that an opponent who "either has AK or aces" is holding AK almost three times as often. That is not psychology. That is division.

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Chapter 2 — Equity: The Only Number a Hand Owns

A poker hand does not have a strength. It has an equity: the fraction of the pot it would claim, on average, if all cards were dealt to the river with no further betting. Equity is the game's exchange rate between cards and money, and every profitable decision is, at bottom, a comparison between equity and price.

The engine prices equity by exact enumeration where feasible and seeded Monte Carlo elsewhere, and its outputs reproduce the published benchmarks. Aces over kings — the classic cooler — runs 82.8 percent for the aces across 400,000 simulated runouts, in agreement with the exact 82.4 percent win / 0.5 percent tie enumeration published by [RiverOdds](#)⁶ and the 81.95 / 18.05 equity split at [CardFight](#)⁷. The famous "race" — pair against two overcards — is genuinely close: QQ against AK suited is 53.9 percent in the engine, matching [CardFight's](#)⁸ 53.95, and QQ against AK offsuit rises to 57.2 percent, matching the 57/43 figure in [GrindLab's equity guide](#)⁹.

Domination is the pattern that funds winning players. AK against AQ — same top card, weaker kicker — is not a race at all: the engine makes AKo a 74.0 percent favorite over AQo, in line with the 73.7 / 26.3 enumeration at [RiverOdds](#)¹⁰ and the 71.3 percent win / 4.6 percent tie breakdown at [TryBluff](#)¹¹. The dominated hand is drawing at roughly a quarter of the pot, which is why the textbook example of a dominated hand is precisely this matchup ([Pokercine](#)¹²). Low-stakes games are full of players who call raises with AJ and A9 and cannot fold when an ace flops; domination converts that habit into a steady tax.

A few more engine benchmarks, each within a point of the published record: AA against a random hand holds 85.1 percent ([CryptoPokerDB](#)¹³ lists approximately 85); KK against AKo holds 70.1 percent ([HoldemCalc](#)¹⁴ lists 70/30); AK suited against pocket deuces is a true coin flip at 50.1 percent, the source of the phrase "flipping" ([HoldemCalc](#)¹⁴); and AA against 87 suited — the hand low-stakes players most love to defend — still holds 76.9 percent.

The lesson compresses to one sentence: equity edges in poker are small and arrive constantly. A 55/45 edge looks trivial in a single hand and is a fortune across ten thousand of them. The entire professional posture — patience, position, price — exists to harvest small equity edges at volume while refusing to pay for the large negative ones.

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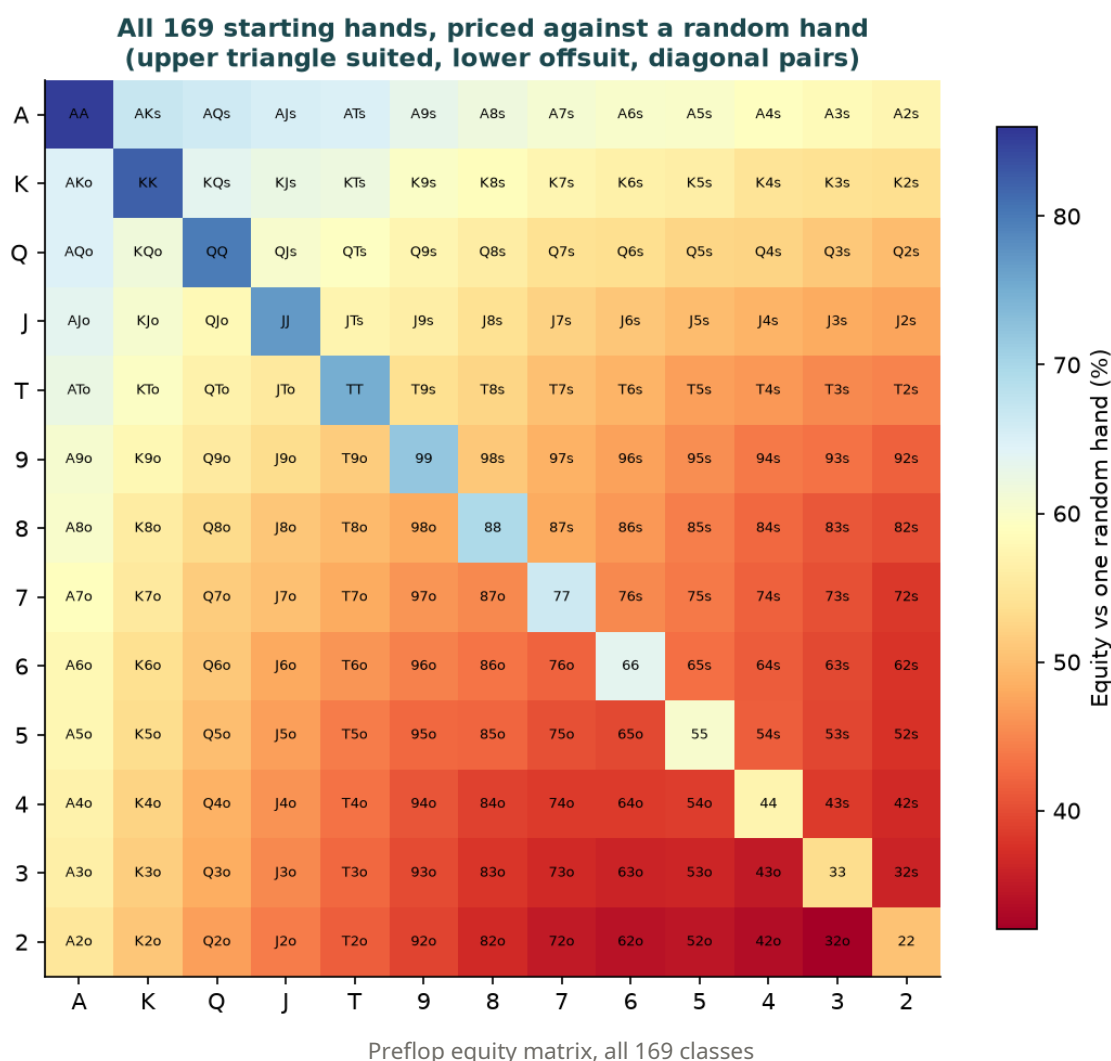
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Chapter 3 — The Preflop Matrix: Position Is a Price

Every one of the 169 hand classes was priced against a random hand by the engine, forty thousand runouts per class. The result is the matrix below — the book's single most load-bearing exhibit.

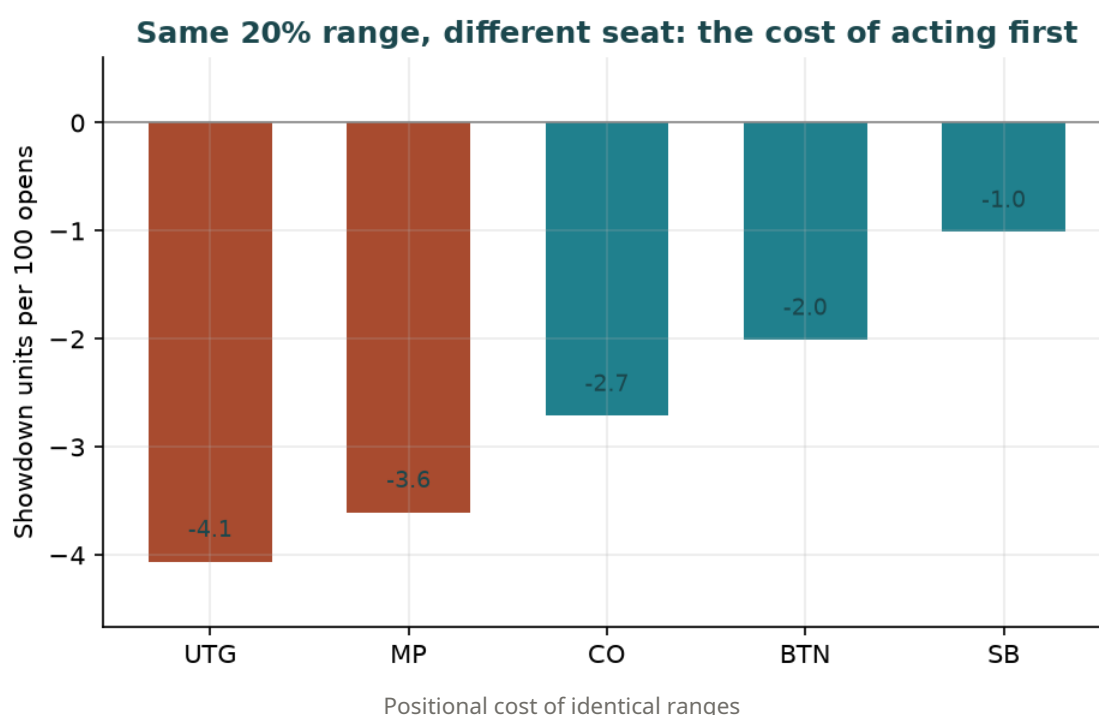


The gradient tells the story. Pairs run down the diagonal and dominate their neighborhoods: AA at 85.2 percent, KK at 82.4, QQ at 79.9, down through TT at 75.0 — figures that agree with the published single-opponent table at [Beat The Fish](#)¹⁵ (AA 85, KK 82, QQ 80, TT 75). The upper-right and lower-left corners rot quickly: 32 offsuit is the true equity floor at 32.1 percent. The famous "worst hand," 72 offsuit, actually ranks 164th of 169 by raw equity at 35.1 percent — five hands are worse against a random caller — but it earns its reputation through unplayability: it makes

weak pairs, no straights without two more exact cards, and never a nut flush. [Upswing Poker](#)¹⁶ names it the worst starting hand for exactly this reason. Raw equity is not playability, and the matrix must be read with that correction in mind.

Only 89 of the 169 classes beat a random hand at all. A player dealt uniformly and playing everything is, by construction, average — and after rake, average loses. Folding is not a concession; it is the mechanism by which a range acquires an edge.

The second exhibit prices position. The engine ran a deliberately simplified showdown model — every seat opens the same top-20-percent range, later seats call only within a tighter top-15-percent band, no blinds, no postflop betting — to isolate a single variable: how many players remain to act behind the opener. The cost gradient is unmistakable.



The identical range that loses 4.1 showdown units per 100 opens from under the gun loses only 1.0 from the small blind, purely because fewer live players remain to pick up a strong hand behind. This is a toy model — the appendix documents its assumptions — but the direction and rough magnitude of the gradient it isolates are exactly why every published opening standard widens by seat. [Run It Once](#)¹⁷ publishes raise-first-in ranges of 16 percent under the gun, 20.4 in middle position, 24.9 in the cutoff, 40.9 on the button, and 47.8 in the small blind. [Preflop Wizard's](#)¹⁸ six-max GTO baseline agrees: roughly 14 to 16 percent under the gun rising to 40 to 45 on the button, with opens sized 2.2 to 3 big blinds and the big blind defending 40 to 55 percent against them.

Live games run tighter still from early seats. Upswing's published live nine-handed chart opens just 10.2 percent under the gun against 18.5 percent for online six-max under the gun, while the

button stays near 41 to 43 percent in both formats ([Upswing Poker](#)¹⁹). The doctrine for a low-stakes live player is therefore mechanical, not artistic:

Seat	Open range (approx.)	Character
UTG / UTG+1	10–16%	Pairs 55+, big suited aces, AJo+, KQo, best suited broadways
Middle	18–20%	Add medium suited connectors, ATo, KJo
Cutoff	24–27%	Add suited gappers, weaker suited aces
Button	40–45%	Any pair, any suited ace, most broadways, connectors
Small blind	35–48%	Wide but disciplined; raise-or-fold preferred

The ranges are cited from the sources above; the reason they work is the one the toy model isolated. Position is not a style preference. It is a price, and the matrix pays it or collects it on every hand.

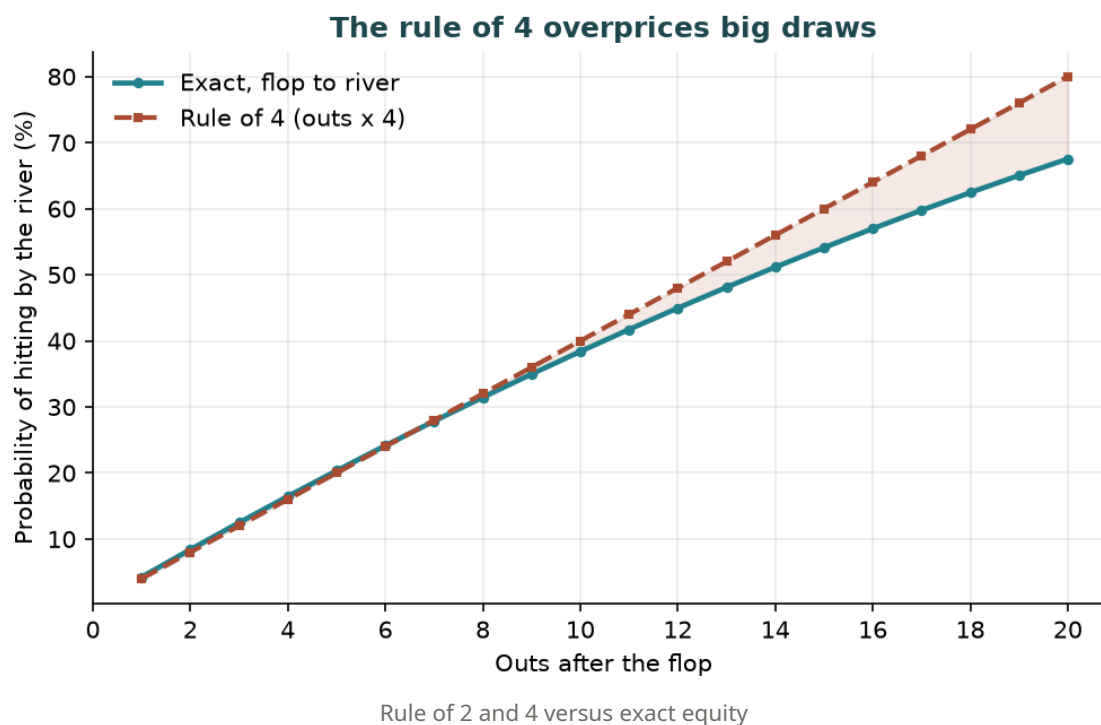
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Chapter 4 — Pot Odds and the Rule of 2 and 4

Poker's most important formula fits on a napkin. The price of a call is the call divided by the pot after the call goes in; if equity exceeds that price, the call profits ([GTO Wizard](#)²⁰). Facing a \$10 bet into a \$30 pot, the call is 10 into a final pot of 50 — a 20 percent price. [Upswing Poker](#)²¹ teaches the identical form: pot odds percentage equals call divided by final pot. Everything else in this chapter is a method for producing the equity side of that comparison fast enough to use at a live table.

The standard shortcut is the rule of 2 and 4: with two cards to come, multiply outs by four to estimate equity; with one card to come, multiply by two ([PokerStars Learn](#)²²). The engine priced the rule against exact enumeration across the full range of out-counts, and the verdict is: trust it in the middle, correct it at the edges.



From the flop, the rule is nearly exact where it is used most. Four outs (a gutshot) prices at 16.47 percent exactly versus 16 by the rule; eight outs (open-ended straight draw) at 31.45 versus 32; nine outs (flush draw) at 34.97 versus 36. These engine figures match the published accuracy table at [The Poker Bank](#)²³ to the decimal. But the rule inflates as outs grow: twelve outs is really 44.96 percent (the rule says 48), fifteen outs is 54.12 (the rule says 60, a 5.9-point overstatement also documented by [The Poker Bank](#)²³), and a hypothetical twenty outs would be 67.5 percent,

not 80. Monster draws are strong; they are not as strong as the arithmetic of a beginner suggests. On the turn the bias reverses: nine outs among 46 unseen cards is 19.57 percent exactly, so the rule of 2's estimate of 18 slightly underprices every one-card draw ([Wikipedia's worked example](#)²⁴ shows the same small gap in the other direction from the flop).

The doctrine, then: multiply by four up to about nine outs and subtract a point; above twelve outs, multiply by three instead of four; on the turn, multiply by two and add a point. Those three corrections reproduce exact equity within about one percentage point everywhere a real hand lives, and a quick-reference draw chart of the common cases is published at [888poker](#)²⁵. Implied odds extend the same ledger forward: a call slightly worse than its immediate price becomes correct when hitting the draw reliably wins additional bets, which is why deep stacks favor draws and short stacks favor made hands. For the formally inclined, the full expected-value treatment — outs, equity, and price as one equation — is worked in the [MIT poker theory course materials](#)²⁶.

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Chapter 5 — Ranges, Not Hands

The single largest conceptual upgrade available to a low-stakes player costs nothing and requires no memorization: stop putting an opponent on a hand and start putting them on a range — the weighted set of all hands consistent with their actions so far. A range is not a guess. It is an inventory, and the 6-4-12 combination arithmetic of Chapter 1 makes it countable.

The engine's range-versus-range benchmark makes the idea concrete. A button opening the top 42 percent of hands and getting called by a big blind defending the top 25 percent arrives at the flop with only 44.4 percent of the equity — the caller's tighter range outweighs the opener's positional initiative in raw card strength. The button's compensation is position and the right to bluff first, which is the entire postflop game in miniature: equity says one thing, leverage says another, and the profit lives in the gap.

Range thinking also disciplines hand reading. When a tight player raises under the gun, the inventory is small: [Run It Once's](#)¹⁷ 16-percent UTG range is roughly 55+, A2s+, K9s+, Q9s+, J9s+, T8s+, 98s, 87s, 76s, AJo+, KQo. A flop of K-7-2 rainbow hits that range hard and misses a big-blind defending range almost entirely — which is why the raiser can bet small and often on such boards, as Chapter 6 formalizes. Conversely, a board of 6-5-4 two-tone belongs to the caller's suited connectors far more than to the raiser's big cards. Neither read requires psychic ability; both fall out of the combination counts.

Hand-group shorthand still has a place at the table. The tiered rankings popularized in Phil Hellmuth's *Play Poker Like the Pros* — a top group of AA, KK, AKs, QQ, AK, followed by JJ, TT, 99, then 88, 77, AQs, AQ — remain a serviceable one-second filter for a beginner deciding whether to enter a raised pot ([Wikipedia](#)²). But groups are training wheels. The destination is the habit of asking, on every street: which hands would this opponent have played exactly this way, how many combinations of each survive the board, and what does this bet price against that inventory?

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Chapter 6 — Postflop Doctrine: Texture, C-Bets, and the Check-Raise

Postflop play at low stakes reduces to a small doctrine built on two solver-era concepts: range advantage and nut advantage. Range advantage — having the stronger inventory overall on a given board — governs how often to bet. Nut advantage — owning more of the very strongest hands — governs how big, because size is only credible when backed by the top of a range and only valuable when fold equity matters ([GTO Wizard](#)²⁷).

The texture rules follow directly, as laid out in the same solver analysis ([GTO Wizard](#)²⁷):

- Dry boards (K-7-2 rainbow, A-8-3 rainbow) favor small, frequent continuation bets. There are few draws to deny, fold equity is cheap, and the preflop raiser's range advantage is already priced in. A quarter-to-third pot bet with nearly the entire range is the standard play.
- Wet boards (J-T-8 two-tone, 9-8-6 two-tone) favor larger, more selective bets. Fold equity is genuinely valuable when many turn cards change the leader, so the bets grow — but on the very wettest boards both ranges are similarly "nuttied," which caps how large the sizing can credibly go.
- When the caller's range holds the nut advantage — low connected boards that smash the big blind's defending range — the raiser's correct response is to shrink the bet or check, because a range full of middling hands anchors the optimal sizing downward.

The check-raise is the defender's counterweight, and at low stakes it is wildly underused as a bluff and over-respected as a value signal. Against the population's small-bet-everything c-bet strategy, check-raising boards that favor the caller's range — with draws and with sets alike — puts immediate pressure on the vast majority of a raiser's range that missed the flop. The engine's seven-card frequencies from Chapter 1 quantify "missed": any unpaired starting hand finishes the five-card board unpaired about 17.4 percent of the time and reaches only one pair another 43.8 percent ([Wikipedia](#)³) — most hands, most boards, most of the time, are one-pair-or-worse. Whoever applies pressure to that truth first collects.

Live low-stakes games add one more doctrine line: bet bigger with value than any chart says. Live games are loose, passive, and inelastic — callers respond to their own cards, not to the price ([SplitSuit](#)²⁸). Where online opens run 2 to 2.5 big blinds, live opens routinely run 4 to 5 ([CoinPoker](#)²⁹), and SplitSuit documents live raises of 5 to 7 times the blind and sometimes 10. Against inelastic callers, thin value bets and oversized value bets are the engine of the win rate, and elaborate multi-street bluffs are a leak. The population folds too little to be bluffed and calls too wide to be respected.

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Chapter 7 — GTO and Exploitation: When to Be Unbalanced

Game-theory-optimal play is a defensive technology. A balanced strategy — one whose value bets and bluffs arrive in ratios that make an opponent indifferent between calling and folding — cannot be exploited, and against tough, well-balanced opposition it protects a win rate (GTO Wizard³⁰). The solver era settled several old arguments in the process: solvers never make "advertising plays," deliberately burning value in one hand to shape an image for later ones, and balance properly understood is a means of denying exploitation, not an end in itself (GTO Wizard³⁰).

But the same analysis is blunt about the other direction, and it is the direction that matters at low stakes: against weak, exploitable opponents, "you do not want to be balanced" — the profitable strategy is to be imbalanced in a way that maximally exploits their imbalances (GTO Wizard³⁰). Every leak in the population data of Chapter 12 is an invitation: against players who call too much, bluff almost never and value bet relentlessly thin; against players who fold too much to aggression, attack every capped range; against limpers, isolate with a raise and take the initiative they surrendered.

The practical synthesis for a low-stakes professional is a two-layer strategy. The base layer is a sound, roughly balanced default — the position-indexed ranges of Chapter 3, the texture-indexed sizings of Chapter 6 — which guarantees no opponent is quietly farming the strategy while attention is elsewhere. The exploit layer deviates from that base exactly as far as an observed, specific leak justifies, and no further. Deviations sized to reads, not moods; that is the entire art. The solver research's closing verdict applies to every rule in this book: old rules of thumb are useful guidelines with real exceptions, not iron laws (GTO Wizard³⁰).

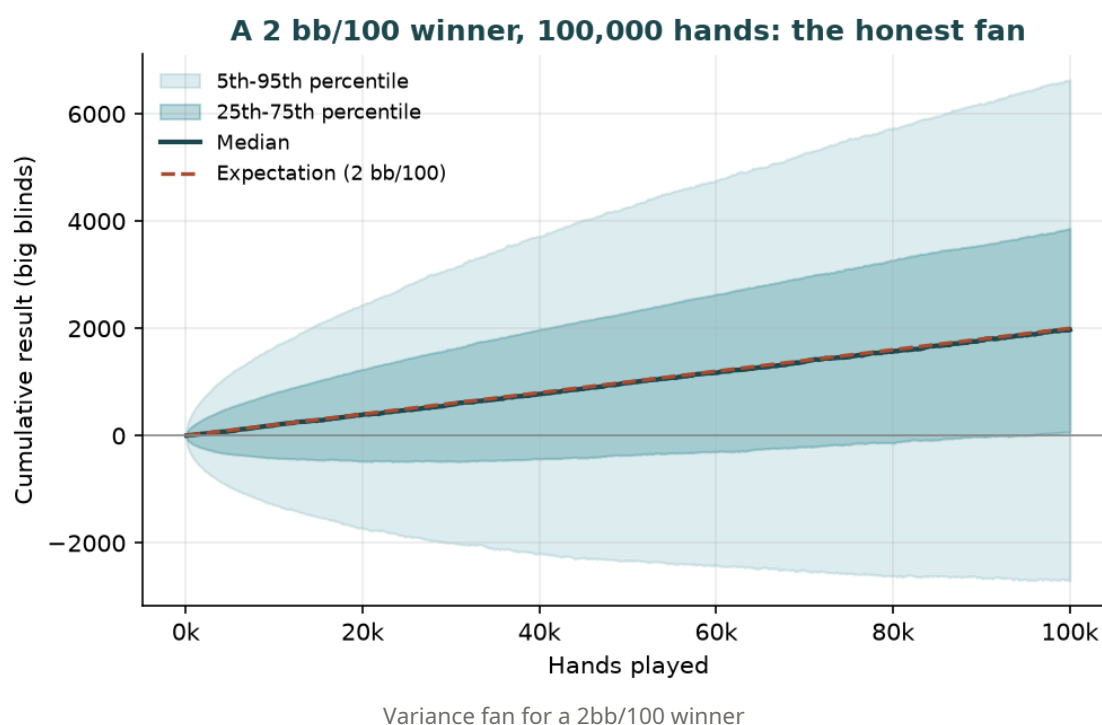
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Chapter 8 — Variance: The 50,000-Hand Truth

Everything before this chapter concerned the size of the edge. This chapter concerns the noise around it, and the noise is enormous. Published standard-deviation benchmarks for no-limit hold'em cash games cluster near 100 big blinds per 100 hands for online six-max and roughly 80 to 120 for live games ([PokerCharts](#)³¹), with style pushing the figure across a wide band — tighter full-ring profiles run 60 to 80 while loose-aggressive six-max styles reach 130 to 160 ([PokerLog](#)³², [SolverNote](#)³³).

The engine simulated a disciplined live-style profile — a true win rate of 2 big blinds per 100 with a standard deviation of 90 per 100 — across twenty thousand independent careers. The fan below is what a genuine winning player's first hundred thousand hands actually look like.



The numbers deserve to be stated plainly. At ten thousand hands, the mean result is plus 187 big blinds — but the fifth percentile is minus 1,284, and 42 percent of these winning players are losing money. At fifty thousand hands, 31 percent still show a loss, and the median career has already survived a maximum drawdown of 1,866 big blinds. Even at one hundred thousand hands, 24 percent of true 2bb/100 winners remain in the red, the fifth-percentile career sits 2,705 big blinds below zero, and one career in a hundred has endured a drawdown exceeding 6,292 big blinds — sixty-three buy-ins. A stronger 5bb/100 winner fares better but is not exempt: 11

percent are still losing at fifty thousand hands, with a median max drawdown near 1,499.

The break-even player's fan is crueler still: at one hundred thousand hands the ninety-ninth-percentile drawdown reaches 7,863 big blinds, and by symmetry half of all break-even careers show a profit — which is how losing players stay convinced they are winners. The published record agrees with the simulation on every axis: [888poker](#)³⁴ notes that even a true minus-2bb/100 loser has a 21.5 percent chance of showing profit over a large sample, [PokerStars Learn](#)³⁵ recommends 50,000 to 100,000 hands before treating a win rate as reliable, and [PokerCharts](#)³⁶ estimates roughly 250,000 hands to statistically confirm a 4bb/100 edge.

Three professional conclusions follow. First, no session, week, or month contains information about skill; the sample sizes are off by orders of magnitude. Second, results-based strategy changes — tightening after losses, gambling after wins — are noise chasing noise. Third, the emotional experience of a long downswing is a certainty of the profession, not a signal of failure; the fan chart shows it happening to mathematically guaranteed winners. What win rate is worth the ride? At live low stakes the achievable band is wide: 5 to 20 big blinds per 100 at \$1/2 is cited as realistic for strong players ([Deuces Cracked](#)³⁷), the best low-stakes players are credited with 20 to 40 ([PokerNews](#)³⁸), and anything above zero after rake already beats the field ([BlackRain79](#)³⁹).

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Chapter 9 — Bankroll Law

Chapter 8 established the size of the storms; this chapter sizes the ship. The bankroll is not spending money that happens to be at a poker table. It is dedicated risk capital whose only function is to make ruin arithmetically improbable while the edge does its slow work.

The published standards are consistent: 20 to 40 buy-ins for live cash play, 30 to 50 for online cash, and 100 to 400 buy-ins for tournaments, whose payout concentration inflates variance several-fold ([Gambling Bet](#)⁴⁰). The engine's drawdown table converts those conventions into probabilities rather than folklore. A 25-buy-in roll at 100 big blinds per buy-in is 2,500 big blinds; the simulated 2bb/100 winner's median hundred-thousand-hand career endures a 2,519-big-blind maximum drawdown, and the ninetieth-percentile career endures 4,274. In other words, 25 buy-ins is the floor at which a genuine winner more likely than not survives the journey intact, and 40-plus buy-ins is where the ninetieth-percentile storm stops being fatal. This book's field-test standard is therefore 25 buy-ins minimum for the stake being played, with a hard stop-loss review — not of strategy, of game selection and stake — any time the roll falls below 20.

Three laws complete the doctrine. First, the bankroll is denominated in buy-ins at the current stake, so moving up when the roll justifies it and moving down when it does not are the same law applied in both directions; the down-move is the one that separates professionals from former professionals. Second, the roll is segregated: it does not pay rent, and rent money never tops it up mid-downswing, because a roll that can be refilled on tilt is not a risk-control instrument but an allowance. Third, rake pressure scales inversely with stakes — live rooms commonly take 10 percent capped at \$5 to \$7 plus dealer tips, a structurally heavier tax than online's 4 to 6 percent capped lower ([Deuces Cracked](#)³⁷) — so the lowest live stakes must be beaten by a wider raw margin before the first big blind of profit appears. The bankroll laws exist precisely so the player can keep sitting in the good game while the arithmetic grinds through the noise.

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Chapter 10 — Tells, Table Image, and Live Craft

Live poker's information layer rewards systematic observation, and the systematic literature is small enough to master. Its founding document is Mike Caro's *Book of Poker Tells*, whose Great Law compresses the entire field into two sentences: players are either acting or they aren't; if they are acting, decide what they want and disappoint them ([Caro's Book of Poker Tells](#)⁴¹). The corollary is the underlying rule of most tells — weak means strong, strong means weak. Players holding weak hands stare opponents down and slam chips; players holding monsters look away, toss chips softly, and become suspiciously friendly ([Wikipedia](#)⁴²). The classic instance is the chip-grab: an opponent reaching for chips before action arrives is usually performing strength to prevent a bet, not preparing one ([PokerNews](#)⁴³).

The modern extension of Caro is Zachary Elwood's trilogy — *Reading Poker Tells*, *Verbal Poker Tells*, and *Exploiting Poker Tells*, over 48,000 copies sold across eight languages ([ReadingPokerTells.com](#)⁴⁴). Elwood's most bankable patterns at low stakes: bet hesitation on the river signals strength; a player who studies an opponent before calling is gathering information, not agonizing ([ReadingPokerTells.com testimonial](#)⁴⁵); a player announcing that a hand is "garbage" usually does not hold garbage; shrugs from bettors generally indicate strength and relaxation; and recreational bluffers choose the smallest amount they believe will do the job, making unusually small river bets from passive players disproportionately bluffy ([review of Exploiting Poker Tells](#)⁴⁶).

Two disciplines keep tells in proportion. First, tells adjust decisions at the margin; they never override the range-and-price arithmetic of Chapters 4 through 6. A read is worth a borderline call or an extra thin value bet, not a strategy. Second, the observation must run in both directions: a low-stakes player develops a fixed physical routine — same posture, same chip motion, same timing for every action, strong or weak — so that the table's Caro readers find nothing to read. Table image completes the craft. In loose-passive live pools the practical image goal is not deception but clarity of reputation: a player seen folding for an hour gets called less when the stack finally goes in, which is one more reason the tight ranges of Chapter 3 pay twice.

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Chapter 11 — Tournament Adjustments: ICM

Cash-game chips are money; tournament chips are not. The Independent Chip Model — the Malmuth-Harville method, first developed by David Harville in a 1973 horse-racing paper and rediscovered for poker by Mason Malmuth in 1987 — converts stacks into dollar equity by treating each player's share of the chips as their probability of finishing first and recursing down the payout ladder ([Wikipedia](#)⁴⁷). The model takes exactly two inputs, stacks and payouts, and applies only to tournaments; a \$500 cash stack is simply worth \$500 ([PokerNews](#)⁴⁸).

ICM's one operational consequence dominates all others: losing chips always costs more in dollar equity than winning the same chips gains ([GTO Lab](#)⁴⁹). The gap is the risk premium, quantified by the bubble factor — and a bubble factor of 1.5 means a spot that chip-counting math prices as a break-even coin flip actually requires 60 percent equity to call ([GTO Gecko](#)⁵⁰). Near the money bubble the premium spikes, tightening correct calling ranges dramatically while rewarding healthy stacks that attack the medium stacks who can least afford confrontation ([BBZPoker](#)⁵¹). Under ICM, folding is not zero expected value as it is in a cash game: surviving while someone else busts raises a player's dollar equity without playing a hand ([BBZPoker](#)⁵²).

The field-test translation for low-stakes daily tournaments is a three-line doctrine. Call all-ins near the bubble as if every flip needed 60 percent, because with a typical bubble factor it does. Attack medium stacks and avoid tangling with short stacks who are already priced to gamble. And once heads-up arrives, revert fully to cash-game aggression — second-place money is locked, chip EV and dollar EV converge, and the ICM tax disappears ([GTO Gecko](#)⁵⁰). Final-table deal negotiations run on the same arithmetic: an ICM chop values stacks by the model rather than by naive chip proportion, and knowing the difference is worth real money exactly once per tournament ([PokerStars Learn](#)⁵³).

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Chapter 12 — The Field Test: Protocol and Predictions

Every book in this series ends the same way: the doctrine goes to a real table, at the lowest stakes available, with predictions registered before the first hand. Poker's field test is the richest in the series because the opposition is human, and the human opposition at low stakes is measured.

The population data first. The average online player voluntarily puts money in about 22 percent of hands; the average live \$1/2 player runs about 37 percent — nearly 70 percent loser ([PokerNews](#)⁵⁴). The archetypal live \$1/2 player enters 35 percent of pots but raises only 6.1 percent of hands, a limp-first profile covering nearly 29 percentage points of range ([PokerNews](#)⁵⁵). Limping is directly measured as a losing strategy: a 1.35-million-hand analysis of \$0.05/\$0.10 online play found limping from the lojack lost about 120 big blinds per 100 hands, while raising the same position's hands profited ([Medium](#)⁵⁶). Winning players run tight-aggressive profiles by contrast — full-ring winners cluster around 11/8 to 16/14 VPIP/PFR ([PokerCopilot](#)⁵⁷), while a live database of winning regulars centers near 31/20, looser but still relentlessly aggressive ([Hand2Note](#)⁵⁸).

The venue map, for a Maryland-based test. MGM National Harbor operates a 53-table room running no-limit cash games around the clock ([MGM National Harbor](#)⁵⁹), with no-limit games from \$1/3 up to \$5/10 and daily tournaments from \$150 to \$500 ([PokerNews](#)⁶⁰); typical spread is around eleven \$1/3 tables with buy-ins capped \$100 to \$500 and rake of 10 percent to \$5 plus a promotional drop ([Poker.org](#)⁶¹). Live! Casino & Hotel Maryland runs 50 tables plus a high-limit Poker Penthouse, and hosts the 2026 Maryland State Poker Championship with \$1.1 million guaranteed across 16 events ([Live! Casino](#)⁶²). Horseshoe Baltimore remains active, having hosted the 2026 WSOP Circuit with buy-ins from \$400 to \$2,200 ([WSOP](#)⁶³). For the lowest-variance start, local guidance is to begin at the lowest reliably running table — \$1/2 at Live! and MGM ([MarylandReporter.com](#)⁶⁴).

The home-game lane is also legal and capped. Maryland legalized social home poker in 2016 ([Baltimore Fishbowl](#)⁶⁵), under conditions codified at § 9-1C-01: host aged 21 or over, at most one game per week at a private residence, players sharing a preexisting social relationship, no fee charged, and no more than \$1,000 wagered by all players combined in any 24-hour period ([Justia](#)⁶⁶). Online poker remains forbidden in the state ([PokerNews](#)⁶⁷).

The protocol has two stages.

Stage 1 — play-money calibration, 500 hands. Free online play, six-max, with a written decision log: for every voluntarily played hand, record position, hand class, action, and the range-and-price justification in one line. The goal is not profit — play-money opposition is

unrepresentative — but mechanical fluency: zero open-limps, position-indexed opens matching the Chapter 3 table, and rule-of-2-and-4 pricing (with corrections) applied on every draw.

Stage 2 — live micro-stakes, 300 hands minimum across at least three sessions. Either a legal home game inside the \$ 9-1C-01 limits or the smallest casino game running, bankrolled at 25 buy-ins for the stake per Chapter 9, at a live pace of 25 to 35 hands per hour ([Deuces Cracked](#)⁶⁸) — roughly ten to twelve table hours.

Registered predictions, falsifiable in the log:

1. Hand mix. Pocket pairs will arrive within noise of once per 17 hands (about 18 of 300), suited hands near 23.5 percent, per the dealing frequencies of Chapter 1 ([Wikipedia](#)²).
2. Playable volume. Doctrine ranges will voluntarily play roughly 20 percent of dealt hands averaged over all seats — about 60 of 300 — against a table field averaging closer to the live-population 35 to 37 percent ([PokerNews](#)⁵⁴).
3. Opposition texture. The field will open-limp more hands than it raises, with multiway limped pots the default state, matching the measured 6.1 percent raise / 35 percent play profile ([PokerNews](#)⁵⁵).
4. Result band, stated honestly. Three hundred hands carry a standard deviation near 90 big blinds per 100, so the 90 percent confidence band on the session total spans roughly plus-or-minus 250 big blinds around a small positive mean. No skill conclusion of any kind will be drawn from the money result, per Chapter 8; the test passes or fails on process metrics.
5. Leak ledger. Every deviation from doctrine will be logged and priced — an open-limp is a known-negative play measured at scale ([Medium](#)⁵⁶), a missed value bet against an inelastic caller is the costliest live error class ([SplitSuit](#)²⁸) — and the post-test review ranks leaks by estimated EV cost per 100 hands.

What would falsify the doctrine itself? Not a losing result — Chapter 8 establishes that 300 hands cannot falsify anything about EV. The doctrine fails if its process claims fail: if the population plays tight-aggressive instead of loose-passive, if position-indexed ranges prove unexecutable at live speed, or if the pricing shortcuts misprice real draws by more than the tolerances of Chapter 4. Those are the claims this book stakes its spine on, and they are checkable in an evening.

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Chapter 13 — Appendix: The Engine and the Tables

All computation was performed by the poker module of the gamestats codebase built for this series: a seven-card evaluator with exact five-card enumeration, a seeded Monte Carlo equity engine, the 169-class preflop matrix, a positional showdown model, and a variance simulator. Every figure is reproducible from fixed seeds noted below.

Seven-card validation, 10,000,000 Monte Carlo deals (seed 7) against the exact distribution of all 133,784,560 seven-card hands ([Wikipedia](#)³):

Category	Engine (%)	Exact (%)
Straight flush (incl. royal)	0.0307	0.0311
Four of a kind	0.1705	0.1681
Full house	2.5963	2.5961
Flush	3.0234	3.0255
Straight	4.6172	4.6194
Three of a kind	4.8341	4.8299
Two pair	23.4995	23.4955
One pair	43.8092	43.8225
High card	17.4191	17.4119

Benchmark matchups, 400,000 trials each (seed 13), equity for the first-listed hand: AA v KK 0.828; AA v random 0.851; KK v AKo 0.701; QQ v AKs 0.539; QQ v AKo 0.572; AKs v 22 0.501; AKo v 22 0.469; AKo v AQo 0.740; AA v 87s 0.769; TT v 98s 0.812; AJo v KQs 0.558. Published comparisons appear in Chapter 2.

Preflop matrix, 40,000 trials per class (seed 11), heads-up versus a random hand — selected rows: AA 0.852, KK 0.824, QQ 0.799, JJ 0.771, TT 0.750, 99 0.720, 88 0.695, AKs 0.670, 77 0.663, AQs 0.660; floor: 32o 0.321, 42o 0.335, 62o 0.342, 52o 0.345, 43o 0.351, with 72o at 0.351 ranking 164th of 169. Exactly 89 of 169 classes exceed 0.500.

Positional model assumptions (Chapter 3 chart): nine seats dealt; the seat under study opens a fixed top-20-percent range; each seat behind calls only with a top-15-percent hand; no blinds are posted; all entered hands check to showdown. The model isolates one variable — players left to act — and is not an EV estimate for real play, where blinds, position postflop, and betting change

every magnitude. Doctrine ranges of different widths per seat cannot be compared on this model at all, since a wider range mechanically opens weaker hands.

Range-versus-range benchmark (seed 37, 300,000 trials): button top-42 percent versus big-blind top-25 percent, button equity 0.4441.

Variance simulation (seed 31): 20,000 careers per configuration, 100-hand blocks drawn normally, standard deviation 90bb/100. Key rows for the 2bb/100 winner — 10,000 hands: mean +187, 5th percentile -1,284, probability of loss 0.42; 50,000: mean +979, p5 -2,306, P(loss) 0.31, median max drawdown 1,866; 100,000: mean +1,959, p5 -2,705, P(loss) 0.24, drawdown p50/p90/p99 2,519/4,274/6,292. Break-even player at 100,000 hands: drawdown p99 7,863. 5bb/100 winner at 50,000 hands: P(loss) 0.11.

Rule of 2 and 4, exact two-card equities from the flop (47 unseen cards): 4 outs 16.47 percent (rule: 16); 8 outs 31.45 (32); 9 outs 34.97 (36); 12 outs 44.96 (48); 15 outs 54.12 (60); 20 outs 67.53 (80). One-card case, 9 outs on the turn: 19.57 exact against the rule's 18. Published accuracy tables agree ([The Poker Bank](#)²³).

The five-card enumeration, the seven-card frequencies, the matchup equities, and the rule-of-2-and-4 table are all locked by automated tests in the codebase; the tests fail if any future change to the evaluator moves a single count. That is what "professional" means throughout this series: not a promise of winning sessions, but numbers that were checked before they were believed.

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