

The Table Is Right and the Trade Still Loses

— The touch-probability table predicts **79.6--91.9%** and out of sample delivers **82.0--89.1%**, so the table is right
— yet the win rate seen from the entry is exactly **0.5000** — because the probability and the profit are computed
on different pairs of barriers — [Paper 423]

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September 2026

— *From thinking to syncing.* —

Abstract

A table of the probability of touching a level can hold up out of sample. And trading on that table still loses. This paper shows that both are true at once—the barriers the probability counts and the barriers the profit depends on are not the same. No new theorem or law is claimed. First, the table is right: a prediction of **79.6--91.9%** against an out-of-sample **82.0--89.1%**, inside the band (Section 2). Second, this is the core of the paper. The win rate seen from the entry is exactly **0.5000**, a different quantity from the table's **0.75--0.85** (Section 3). Third, the gap does not come from asymmetry. The distances up and down are equal, and it is that equality which gives **0.5** (Section 3). Fourth, with a cost the expectation is exactly **−c**, and the inverse computation returns the same value (Section 3). Fifth, the table holds up because of distance alone: at the same distance, upward **95.5%** against downward **92.9%**, a difference of only **2.6** points (Section 4). Sixth, the separator is where one starts and where one stops (Section 4).

Scope of this paper (scope note): No new theorem or law is claimed—touch probability (first passage probability), the optional stopping theorem, and the vocabulary of barrier options are all standard. No particular method or proposer is discussed—no existing indicator, its author, or its vendor is the subject, and none is named. Only the general form “build a table of touch probabilities for a level and trade on it” is treated. How the table is built is not evaluated—which placement of levels is best is not the subject; the table itself is taken as correct. The case with drift is not treated—the derivation of Section 3 assumes no drift and a bounded stopping time. With drift the value departs from 0.5. No prediction is claimed—no method for anticipating which level will be touched is offered. One cost model is fixed—a single charge c is paid on entry. Relation to earlier papers: Paper 422 showed that the condition named as a rule’s core does not move the result—there what should have acted did not; here what is right cannot be used. Paper 298 showed that win rate and expectation are different—here “the probability is high” and “the expectation is positive” are different. Paper 300 showed that common root and distinct root can be decided—“touching at some point in the day” and “touching before the stop” are distinct roots by that criterion. Paper 416 showed that an equal product need not give an equal result—here too, correct parts yield an incorrect conclusion. What is added is setting the prediction against the out-of-sample result to establish that the table is right, deriving the win rate from the entry as 0.5000 by the inverse ratio of distances, making explicit that this comes from symmetry rather than asymmetry, confirming by inversion that the expectation equals the cost with its sign, showing that the directional information is only 2.6 points, and placing the separator at “the starting point and the stopping rule”.

1. Notation and the Question

Setting: Take a reference level P and levels S_1, S_2 placed below it at equal spacing.

$$S_1 = P - d, \quad S_2 = P - 2d$$

The table counts, from history, the probability of touching P at least once during a day. The trade is: when price is below P , buy at S_1 , take profit at P , stop at S_2 . A single charge c is paid on entry.

Observation 1.1

Seen from S_1 , the distance to the target and to the stop are both d . $S_1 \rightarrow P$ is d and $S_1 \rightarrow S_2$ is d —the reward-to-risk ratio is 1 : 1.

Observation 1.2

So one reads it as: with a win rate above 75%, even 1 : 1 wins.As arithmetic that is correct—
 $0.75d - 0.25d = 0.5d > 0$.

Question: Is that 0.75 the win rate of this trade.

2. The Table Is Right

Computation 2.1: Build the table on the first half of the record and test it on the second.

Quantity	Value
Predicted by the table	79.6--91.9%
Measured out of sample	82.0--89.1%

The measurement falls inside the predicted band.

Observation 2.2

So the table contains no fabrication and no look-ahead.It holds outside the period it was built on—which is a strong property.

Observation 2.3

This is where the reasoning usually stops.“If the table is right, trading on it should win”—being right and being usable look like the same thing.

Observation 2.4

But what the table counts must be read exactly.It is “does price touch P at least once during the day”—the starting point is the day’s open and the window is one day.

3. From the Entry, the Win Rate Is Exactly 0.5

Computation 3.1: Write down the event the trade requires. It is: starting at S_1 , does price touch P before touching S_2 . With no drift and a bounded stopping time, the probability of touching the upper barrier first is the inverse ratio of the distances.

$$p = \frac{|S_1 - S_2|}{|P - S_1| + |S_1 - S_2|} = \frac{d}{d + d} = 0.5000$$

Observation 3.2

This 0.5 arises because the distances are equal. Not because they are unequal—symmetry is the reason for 0.5, and mistaking this leads to the belief that changing the widths would fix it.

Observation 3.3

Changing the widths does not fix it. Change the ratio of $S_1 \rightarrow P$ to $S_1 \rightarrow S_2$ and the win rate moves—but the size of the profit and loss moves by the same ratio, so the expectation does not.

Computation 3.4: Include the cost.

$$\mathbb{E} = p d - (1 - p) d - c = -c$$

With $c = 0.1d$ this gives $\mathbb{E} = -0.1000$, and inversion returns $-c$ with its sign.

Observation 3.5

The gap between 0.75 and 0.50 is not a gap in skill. Two probabilities are counting different events—a different starting point and a different stopping rule.

	Starts at	Stops when	Probability
Table	the day's open	the day ends	0.75--0.85
Trade	S_1	P or S_2 is touched	0.5000

Observation 3.6

The same shape appears synthetically. In a random walk the fraction of days touching P is 0.820—above 0.75 with no directional information at all. A high number is not by itself evidence of information.

4. The Separator

The separator: where one starts and where one stops.

Observation 4.1

The table's values are high because the distance is short. At a distance of 0.038, 94.2%; at 0.303, 56.7%—monotone. What the table measures is distance.

Observation 4.2

And there is almost no directional information. At the same distance, upward 95.5% and downward 92.9%—a difference of only 2.6 points.

Observation 4.3

So the table says “what is near is easily touched”. That is correct and it holds up—but what a trade needs is which way price will go, and that is empty.

Observation 4.4

These are distinct roots by the criterion of Paper 300. Both are called “the probability of touching P ”—one from the day's open over a day, one from S_1 to two barriers. The same name, different quantities.

Observation 4.5

Mixed, correct parts yield an incorrect conclusion. The table is right and the reward-to-risk arithmetic is right—what is not right is only the premise that the two may be multiplied together.

Observation 4.6

To be honest—0.5000 holds under no drift. With drift it departs—but the point here is not the size of the departure; it is that 0.75 is not the win rate of this trade.

Observation 4.7

One last thing—when a probability is reported, print the starting point and the stopping rule with it. “An 80% chance of touching P ” connects to no trade at all—write both and the mismatch cannot happen.

5. Roll Call and Closing

1. Predicted 79.6--91.9%, measured 82.0--89.1% (Computation 2.1): the table is right.
2. It holds out of sample (Observation 2.2): no fabrication, no look-ahead.
3. From the entry the win rate is 0.5000 (Computation 3.1): the inverse ratio of distances.
4. 0.5 comes from symmetry (Observation 3.2): not from asymmetry.
5. Changing widths does not move the expectation (Observation 3.3): the sizes move too.
6. The expectation is exactly -0.1000 (Computation 3.4): inversion gives $-c$.
7. A random walk touches on 0.820 of days (Observation 3.6): high with zero information.
8. Distance 0.038 $\rightarrow$ 94.2%, 0.303 $\rightarrow$ 56.7% (Observation 4.1): monotone.
9. Upward 95.5%, downward 92.9% (Observation 4.2): 2.6 points apart.
10. The separator is start and stop (Observation 4.4): distinct roots by Paper 300.

Closing: A table of the probability of touching a level can hold up outside the period it was built on—a prediction of 79.6--91.9% against an out-of-sample 82.0--89.1%, inside the band. There is no fabrication and no look-ahead, which is a strong property. And seen from S_1 the distance to the target and to the stop are both d , so the ratio is 1 : 1 and one reads it as “with a win rate above 75%, even 1 : 1 wins”—which as arithmetic is correct. And the trade still loses—what it requires is that, starting at S_1 , price touch P before S_2 , and with no drift and a bounded stopping

time that probability is the inverse ratio of the distances, exactly **0.5000**. That 0.5 arises because the distances are equal—symmetry is the reason, not asymmetry, and mistaking this leads to the belief that changing the widths would fix it. It does not: change the ratio and the win rate moves, but the sizes of profit and loss move by the same ratio, so the expectation does not. With a cost the expectation is exactly $-c$, giving -0.1000 for $c = 0.1d$, and inversion returns the same value with its sign. The gap is not a gap in skill—two probabilities are counting different events: the table starts at the day’s open and stops when the day ends, the trade starts at S_1 and stops when P or S_2 is touched. The same shape appears synthetically: in a random walk with no directional information at all, the fraction of days touching P is **0.820**, above 0.75. A high number is not by itself evidence of information. One thing separates them—where one starts and where one stops. The table’s values are high because the distance is short—94.2% at a distance of 0.038, 56.7% at 0.303, monotone—so what it measures is distance. And the directional information is almost nil: at the same distance, upward 95.5% against downward 92.9%, only **2.6** points apart. The table says “what is near is easily touched”, which is correct and holds up, but what a trade needs is which way price will go, and that is empty. They are distinct roots by the criterion of Paper 300—the same name over different quantities. To be honest—0.5000 holds under no drift, and with drift it departs. But the point is not the size of the departure; it is that 0.75 is not the win rate of this trade. One last thing—mixed, correct parts yield an incorrect conclusion. The table is right and the reward-to-risk arithmetic is right; what is not right is only the premise that the two may be multiplied together. When a probability is reported, print the starting point and the stopping rule with it.

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