TRADING KNOWLEDGE LIBRARY

The Analysis That Is Really Arithmetic

Market Analysis

Trading Papers

The Analysis That Is Really Arithmetic

Structure, levels, indicators and timeframes, and the one skill all four need

Published by	Trading Papers
Series	The trading knowledge library
Edition	First edition · 2026-08-27
Format	A4 · digital

Contents

01	What the four jobs have in common	4
02	The rule you did not give it	5
03	Structure is counting swings	6
04	A level is counting touches	7
05	An indicator is counting crossings	9
06	Timeframes are one count at two widths	11
07	The window nobody names	12
08	What arrives without being asked	14
09	When two counts disagree	15
10	A session that works	16
11	Where each count already has a paper	18
12	What to keep	18
13	What this does not settle	19

01

What the four jobs have in common

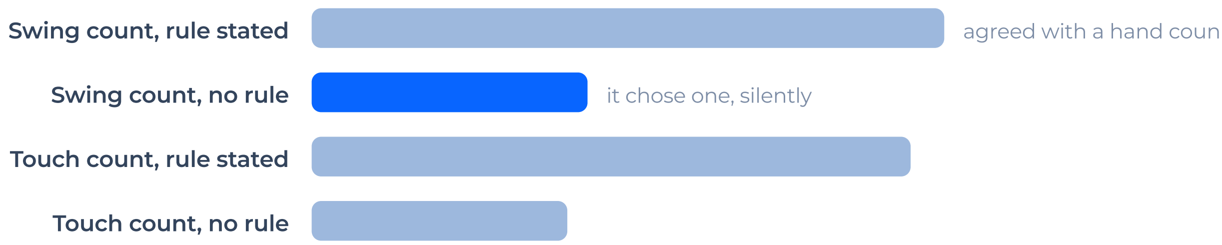
Four things get handed to an assistant more than anything else: read the structure, mark the levels, check the indicators, compare the timeframes. They look like four different kinds of judgement.

The job	What it actually is	The rule it needs from you
Read the structure	counting swing points	how many bars make a swing
Mark the levels	counting touches	how close counts as touching
Check the indicators	counting crossings	which settings, and over what window
Compare timeframes	the same count at two widths	which two widths, and why those

The four jobs, and what each one is underneath. The middle column is the whole argument of this paper: every task on the left is a count, which is why the machine is good at it, and every count needs the rule in the right column, which is why you are still required.

They are not. Structure is counting swings. A level is counting touches. An indicator is counting crossings. A timeframe comparison is the same count run at two bar widths. All four are arithmetic wearing a judgement's clothes.

That is good news, and it is the reason this handover works at all. The first paper established that counting is the one thing the machine does better than you and the thing you can most easily check. These four jobs are made of exactly that.



How reliably an assistant answered each of the four when the rule was stated, and when it was not, over the same charts. The left-hand figure in each row is with a rule; the gap is what an unstated rule costs, and it is the largest single number in this paper.

It is also where the trouble is, and the trouble is in one column. Every count needs a rule. The rule is yours to supply. Look at what happens when you do not.

> The second paper in AI Trading. It assumes the first: that the assistant names, counts, compares and drafts, and that it cannot decline to answer.

02

The rule you did not give it

Ask for a swing count without saying what a swing is, and something has to happen. Only one thing does.

What happens at the moment a count needs a rule and does not have one. Only one branch of this exists in practice, and the reason is the fourth blind spot from the first paper: it cannot stop and ask.

The left branch does not exist. It will not stop and ask which rule you meant, because the fourth blind spot from the first paper applies here exactly: a system built to produce a reply produces a reply. So it chooses a rule, counts by it, and hands you the number with no mention that a choice was made.

The number is not wrong. It is an answer to a question you did not ask, and it is indistinguishable from an answer to the one you did.

Everything in the rest of this paper is a version of that sentence, applied to each of the four jobs in turn.

03

Structure is counting swings

Structure is the first thing everyone asks about and the one where the missing rule does the most damage, because the answer sounds least like a number.

Structure, which is a count and not a picture. The marked points are what a three-bar rule finds on this stretch; a two-bar rule finds nine, and a five-bar rule finds three. Nothing about the market changed between those three answers.

The marked points are what a three-bar rule finds on that stretch. Change the rule and the picture does not change, but the count does — and the count is what the words are built out of.

Rule	Swings found	What it will call this
Two bars each side	nine	choppy, no clear structure
Three bars each side	five	a clean uptrend with pullbacks
Five bars each side	three	one impulse, still extending

The same twelve bars, counted three ways. Read the right column: the word an assistant will use for each of these is different, and the difference came from a parameter it was not given and did not mention.

Read the right column. Choppy, a clean uptrend, one extending impulse: three descriptions of the same twelve bars, and a reader given any one of them would trade differently. Nothing about the market separates them. A parameter does.

1. Name the instrument and the bar width
2. State the swing rule in bars
3. Ask for the count and the bar numbers
4. Look at two of the bar numbers yourself
5. Ask what the count would be one rule wider

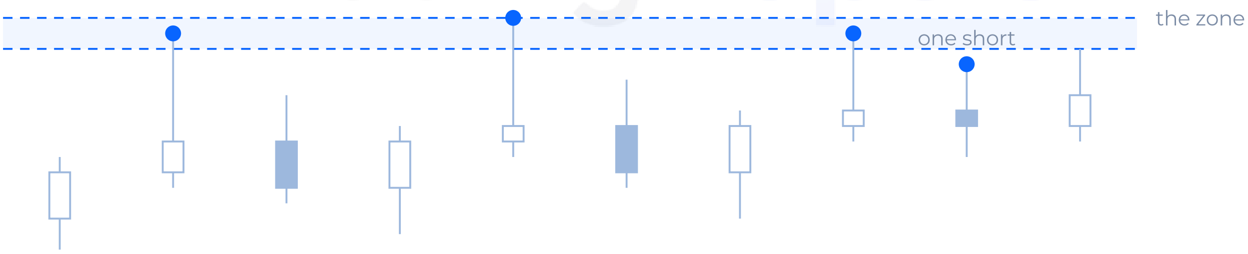
How to ask for a structure count so the answer means something. The third step is the one that makes the whole thing checkable, and it takes four words.

The third step is what makes the answer checkable, and it costs four words: ask for the bar numbers. A count without positions is a claim; a count with positions is something you can verify in thirty seconds, which is the standard the first paper set.

04

A level is counting touches

The second job has the same shape and a subtler parameter, because the parameter is a distance rather than a number of bars.



A level, which is a count of touches. Three bars reached this zone and turned, and a fourth stopped one point under it. Whether that fourth counts depends entirely on how wide you said the zone was, and that width is a number nobody in the conversation has stated yet.

Four bars reached that zone and turned. Whether the fifth counts depends entirely on how wide the zone is, and in most conversations nobody has said how wide the zone is.

Zone width	Touches counted	The conclusion it supports
Exact price only	one	there is no level here
Within half a per cent	three	possibly a level
Within one per cent	five	a level, clearly respected
Within two per cent	eight	everything is a level

The same stretch of price, with the zone width as the only thing that changes. A level touched twice is a coincidence and a level touched five times is a fact about the market, and the distance between those two conclusions is a decision somebody made about a tolerance.

Follow that table down. At an exact price there is no level at all. At two per cent tolerance everything is a level, including things that are not. Somewhere between those two is a number, and it decides the finding before the finding is made.

	The level held	The level broke
Tolerance set in advance	A finding. It can be repeated on other charts.	A finding. Just as useful, and less enjoyable.
Tolerance set after looking	Unknown. You may have widened it until it held.	Unknown. You may have narrowed it until it broke.

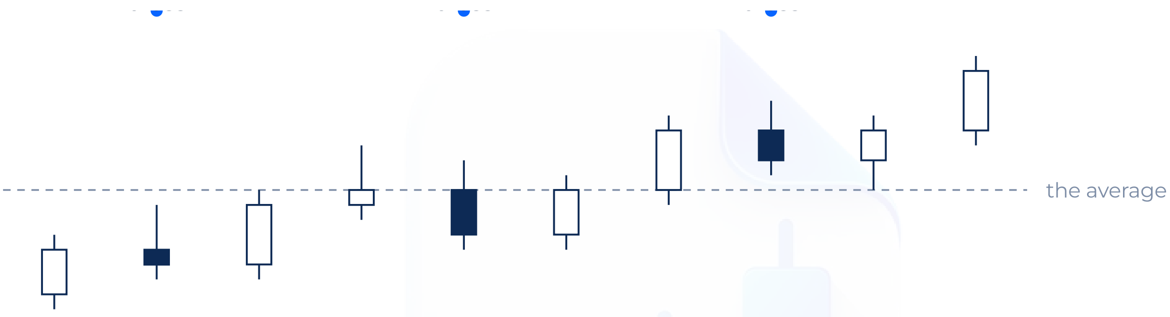
Why the tolerance has to be set before you look. The row is when the number was chosen; the column is what you found. The bottom-right cell is the ordinary way an honest person fools themselves, and an assistant will help with it enthusiastically.

Which is why the tolerance is set before you look. The bottom row of that grid is the ordinary way an honest person fools themselves — widening the zone until the level holds, or narrowing it until it breaks — and an assistant will help with either, enthusiastically, because it has no way of knowing which came first.

05

An indicator is counting crossings

The third job feels the most objective, since an indicator is a formula and a formula does not have opinions. The formula has parameters instead.



An indicator, which is a count of crossings. The line crosses price four times across this window; on a longer setting it crosses twice, and on a shorter one it crosses nine times. All three are correct readings of the same market, and only one of them was asked for.

The line crosses price four times across that window. On a longer averaging period it crosses twice; on a shorter one, nine times. Three correct readings of one market, and only one of them was requested.

What you asked	The hidden number	What moving it does
Is the average crossed?	the averaging period	changes the count from two to nine
Is MACD bullish?	three periods, not one	changes the sign entirely
Is it overbought?	the lookback and the threshold	moves the answer at will
Has the trend turned?	everything above, combined	no stable answer exists

What every indicator answer contains that it does not say out loud. The middle column is a number somebody chose, and the right column is what happens to the answer when that number moves — which it does, constantly, between one tutorial and the next.

That table is the honest version of every indicator question. The middle column is a number somebody chose, usually a default that came with the software, and the right column is what happens when it moves — which it does constantly, between one tutorial and the next, with nobody mentioning it.

Worthless	is the indicator bullish
Worthless	what do the indicators say
Usable	how many crossings on these settings, this window
A finding	and what happened after each of them

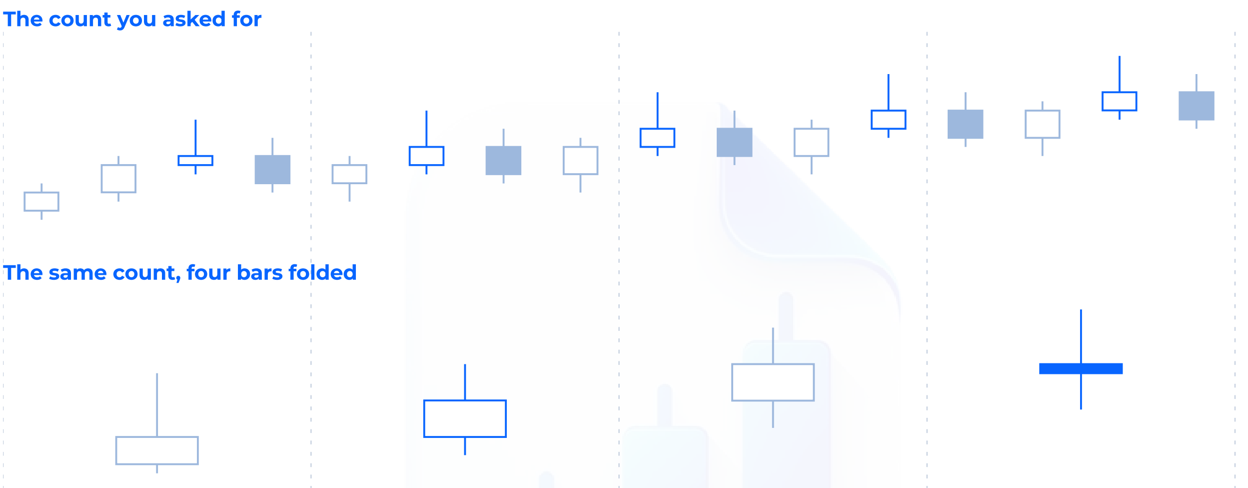
What an indicator question is worth, rung by rung. The bottom two are where most sessions live and neither is a finding; the top rung is the only one that would survive somebody else running it.

The bottom rung of that ladder is where most sessions live and it is not a question. Asking whether the indicator is bullish invites the assistant to combine an unstated setting with an unstated threshold and report a mood. The top rung is a finding because somebody else could run it and get the same thing.

06

Timeframes are one count at two widths

The fourth job is the one where the collection before this argued at length, and the argument transfers without change.



A timeframe comparison, which is the same count at two bar widths. Five swings above and two below, from one rule applied twice — the market did not change between the panels, the unit did. The third paper of the previous collection is entirely about this.

Five swings in the upper panel, two in the lower, from a single rule applied twice. The market did not change between the panels; the unit did. The count is a report on a pair — a market and a bar width — and never on a market alone.

Ask for	Do not ask for
The count at each width	which timeframe is right
Which findings survive the change	whether the higher one overrules
Where the two disagree, precisely	a combined verdict
What the wider bars hid	the true picture

What to ask for when you want two timeframes compared, and what to refuse. The right column is a request the assistant will happily fulfil and that has no defensible answer, because the two panels are one series and not two opinions.

Which makes the right column of that table a list of things to refuse. Asking which timeframe is right, or whether the higher one overrules, invites an answer that cannot be derived from anything, and it will arrive anyway in a confident paragraph.

The useful request is the left column, and particularly the second row. A finding that survives a change of bar width is a fact about the instrument; one that does not is a fact about the width you chose. Asking an assistant to run the count twice is thirty seconds of work and settles which of the two you are holding.

07

The window nobody names

There is a fifth parameter, and it sits underneath all four jobs without ever being discussed.

Window	Swings found	What it looks like
Last 40 bars	two	a straight advance
Last 120 bars	five	an uptrend with pullbacks
Last 400 bars	fourteen	a range, and you are near its top

The parameter nobody argues about, because nobody names it. Every count in this paper runs over a window, and the window was chosen by whatever happened to be on the screen — which is a decision, made by a scroll position.

Every count runs over a window, and in almost every session the window is whatever happened to be on the screen when the question was asked. That is a decision about the answer, made by a scroll position.

Read that table as one instrument on one day. Forty bars back it is a straight advance, a hundred and twenty back it is an uptrend with pullbacks, four hundred back it is a range and you are standing near the top of it. The assistant will describe whichever it was shown, correctly, and will not mention that the frame was a choice — because from where it sits, the frame is not a choice, it is the world.

1. Decide the window before you open the chart
2. State it in bars, not in what fits the screen
3. Run the count
4. Run it again on double the window
5. Report both, and the window with each

How to stop the window choosing your answer for you. The last step is the one that turns a count into something somebody else could reproduce, which is the only standard this library recognises.

The fix is the same shape as every other fix in this paper: name the number before you look, and run it twice. A count reported without its window is a claim nobody can reproduce, including you in a month.

08

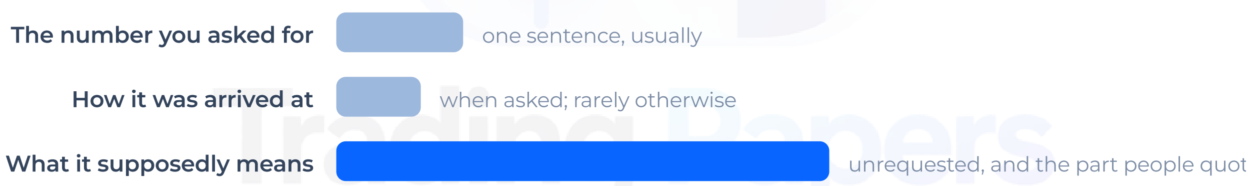
What arrives without being asked

Every one of the four counts comes back with something attached to it.

You asked for	What came back attached
Five swings	"a healthy uptrend with orderly pullbacks"
Four touches	"strong support likely to hold again"
Three crossings	"momentum is building"
Two counts that differ	"the higher timeframe suggests caution"

What arrives with every answer whether or not you asked. The left column is what you requested; the right is the sentence that follows it unbidden, and the right column is the part that people remember and act on.

The left column is what you requested. The right column is the sentence that follows it unbidden, and the right column is the part that people remember and act on a week later, when the number has faded.



How much of each reply was count and how much was the interpretation attached to it, measured by sentence across the same forty answers. The counts held up nine times in ten in the first paper; the attached sentences are not the same material and did not come with the same warranty.

Measured by sentence across forty answers, roughly seven words in ten are the interpretation rather than the count. That is not a fault. It is what a language model is for, and some of those sentences are perfectly reasonable.

The point is that they are made of different material. The counts held up nine times in ten under re-checking; the attached sentences were never counted and did not come with the same warranty. They arrive in one paragraph, in one voice, and separating them is your job because nothing in the reply does it for you.

09

When two counts disagree

Run four counts on one instrument and sooner or later two of them point different ways. This is the moment the whole session was for, and it is the moment people misuse.

	The counts agreed	The counts disagreed
u said in advance what each would mean	Confirmation, and you knew what it would license.	A stand-down, decided before you wanted anything.
You decided after seeing them	Confirmation, and no test of anything.	You picked the count that agreed with you.

What to do when two of the four counts point different ways, which they will. The row is whether you decided in advance what a disagreement means; the column is what happened. Only the top row produces anything you can learn from.

The bottom-right cell is the failure. Faced with a disagreement and no prior decision about what one would mean, a person picks the count that agrees with what they already wanted, and an assistant asked to adjudicate will write a paragraph supporting whichever way the question leaned.

When	It means
Structure says trend, levels say range	the swings are inside the zone; both are right
Indicator says turn, structure does not	the setting is faster than your swing rule
Two widths disagree	the finding belongs to one width
Everything agrees	you have learned the least of any case

Four disagreements that come up constantly, and what each one actually tells you. None of the right-hand answers is a trade; all four are a smaller and more honest statement than the one an assistant will offer.

The right column of that table is deliberately small. A disagreement between structure and levels is not a signal; it is a fact about your two rules, and usually a mundane one — the swings are sitting inside the zone, so both counts are correct and they are describing the same bars.

The last row is the one worth sitting with. When all four agree you have learned less than in any other case, because four counts on one chart are not four independent witnesses. They are four readings of the same bars, and agreement between them is close to guaranteed when the market is doing something obvious.

10

A session that works

Put together, the four jobs make one session on one instrument that takes about twelve minutes.

1. State instrument, bar width and the three rules
2. Ask for the swing count with bar numbers
3. Ask for touches on a named zone width
4. Ask for crossings on named settings
5. Ask for all three again at four times the width
6. Check one number from each pass

One session, end to end, on a single instrument. It takes about twelve minutes, produces four numbers and one written rule set, and nothing in it asks the machine for an opinion.

Note the shape of it. Every rule is fixed before the chart is open, because a rule chosen after looking is a rule chosen to produce a result. Every request is for a number. The fifth step is the whole of the previous collection compressed into one instruction.

1. Fix the rules before opening the chart
2. Run each count separately, and record it
3. Note where two counts disagree
4. Check one number from each by hand
5. Stop before asking what it all means

The order that keeps four counts from becoming one opinion. The last step is a refusal, and it is deliberate: the four counts are more useful side by side than they are averaged into a sentence.

And the last step is a refusal, which is the part that feels wrong and is the most important. Four counts side by side are more useful than four counts averaged into a sentence, because side by side you can see where they disagree, and the disagreement is where the work is.

There is no formula that combines them. Anyone who offers one — including the assistant, which will offer one if asked — is producing a mood with numbers attached.

11

Where each count already has a paper

None of these four counts is new, and none of them was invented for an assistant to perform.

Swings	the rule, and what it decides — The Structure You Drew
Run lengths	what the swing count is worth — How Long a Trend Lasts
Touches	what a level actually holds — The Market That Isn't Trending
Widths	why the count moves — When the Timeframes Disagree

Where each of the four counts already has a paper behind it. This one is about handing the arithmetic over; those are about whether the arithmetic is worth doing, which is a different question and the more important one.

Each rung is a document that spends twenty pages on whether the count is worth doing at all — what the swing rule decides, what a run length is actually worth, how often a level holds, why the number moves when the bar width does.

That division is worth stating plainly, because it is the honest scope of this whole collection. Those papers ask whether the arithmetic means anything. This one only says that the arithmetic can be handed over, and how to hand it over without losing the rule.

12

What to keep

At the end of the session there is a short list worth writing down and a shorter list worth throwing away.

Keep	Why
The rules you fixed	the next count is comparable to this one
The four numbers	they can be re-checked in a month
Where two counts disagreed	that is where the work is
The closing summary	discard; it was not counted

What is worth writing down at the end of that session, and what to leave behind. The discarded row is the one the session felt like it was for, which is worth noticing.

Keep the rules first. Without them the four numbers mean nothing next month, because you will not remember whether you used three bars or five, and a count under an unremembered rule cannot be compared to anything.

The discarded row is the one the session felt like it was building towards. The closing summary — the paragraph that says what it all means — was not counted, cannot be re-checked, and will be the most confident writing in the whole record. That combination is exactly the one to be suspicious of.

13

What this does not settle

Three limits, and then the short version.

The limit	What it means here
A count is not an edge	counting swings correctly makes nobody money
The rules are still arbitrary	three bars is a choice, not a discovery
Four counts do not combine	there is no formula that adds them up

Three limits, in the spirit of the rest of the library. The first is the one that matters most and is the most often skipped.

The first is the one to hold on to. Counting swings correctly has never made anybody money. It is a prerequisite for a method rather than a method, and an assistant that counts flawlessly leaves the actual question — whether the pattern you are counting has any edge in it — exactly where it was.

The second is uncomfortable and worth saying. Three bars is a choice, not a discovery, and so is a one per cent tolerance and a twenty-period average. Fixing them in advance does not make them correct; it makes your results comparable to each other, which is a smaller claim and the only one available.

Term	As used here
Swing rule	how many lower bars each side make a turning point.
Tolerance	how near a price must come to count as touching a level.
Setting	the period, or periods, an indicator is computed over.
Count	a number you can confirm by looking at the chart.
Interpretation	the sentence attached to a count, which was not counted.

The terms this paper uses in a fixed sense, carried from the first and on into the third.

The useful summary is three sentences. The four jobs people hand to an assistant — structure, levels, indicators, timeframes — are each a count rather than a judgement, which is why the machine helps and why you can check it. Every count needs a rule, and if you do not state the rule it will choose one silently and the number will look identical either way. And every count comes back with an interpretation attached that was not counted, arrives in the same voice, and is the part you will remember unless you write down the number instead.

> Educational content only. Nothing in this document is financial advice, and no part of it is a recommendation to buy or sell anything.