SENTIENT TRADER

10 Core Concepts
of
Hurst Cycles

By David Hickson

JM Hurst was an American engineer who, in the 1960s and '70s, was the first researcher to use the power of the modern computer to investigate cycles in financial markets. JM Hurst is widely recognized today as the 'father' of modern cyclic analysis and his ideas are generally accepted as the optimal method for trading with cycles.

In the late 1960s Hurst published a book called *"The Profit Magic of Stock Transaction Timing"*, a book which is still available today, and which has been very popular over the years. In this book, however, he only presented a small portion of his full cyclic theory.

The *"JM Hurst Cyclitec Cycles Course"* which Hurst published in the 1970s, presents the full body of his work. It is this cycles course that contains the true value of his work. That course is over 1000 pages long, and can be a daunting prospect for someone wanting to learn how to profit from Hurst Cycles.

But do not fear: this document will get you started by introducing the basic concepts.

Understanding these concepts will be your first step to becoming a Hurst Cycles expert!

At the end of this document is a convenient list of these concepts which can print out.

These 10 concepts are all you need to get started!

CONCEPT #1: WHAT ARE CYCLES?

Hurst's cyclic principles have to do with cycles which affect the price movements of financial markets.

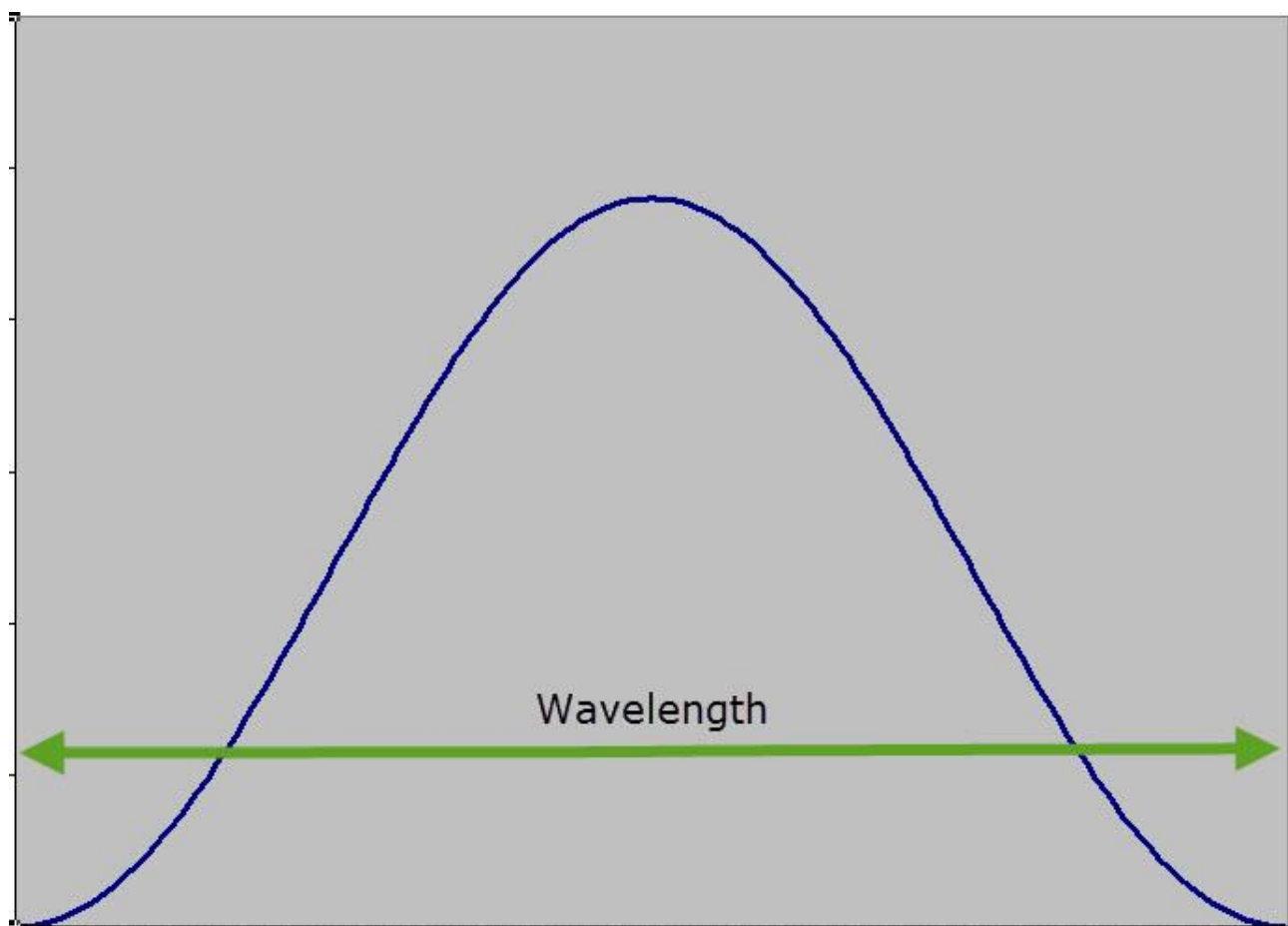"What are cycles?" you might ask.

There are many different definitions for what a cycle actually is, but for the purposes of you being able to trade profitably on the basis of Hurst's cyclic principles it is *not necessary* that you understand what a cycle actually *is*.

For the purposes of trading profitably, this is all you need to know about what a cycle is:

A cycle is something that influences the price movement of a financial market to move up towards a peak, and then to move down towards a trough (or low point). It repeats that action on a fairly regular basis.

The distance in *time* between any two troughs of the cycle is called the *wavelength* of the cycle.

Here is a picture of one simple cycle. It is a sine wave, which is often used as a representation of a cycle causing price to move up and then down:

An important point about this representation of a "cycle" is that the x-axis represents time, moving forward in time from left to right, which of course means that the cycle wavelength is expressed in time. And the y-axis represents the influence of the cycle on price – as it moves up it is influencing price to increase, as it moves down it is influencing price to decrease.

There is an important subtlety that you must grasp about this concept: Cycles **influence** price. What you see in the price movement (on a chart for instance) is the result of the cycle's influence. Cycles themselves work very accurately, but their influence on price is an inaccurate, rather messy process, which is why I often say that "the markets are not perfect". It is why analyzing a financial market is as much an art as it is a science.

CONCEPT #2: MULTIPLE CYCLES

Now that you know what a cycle is, the next basic concept that you must understand is that:

There are multiple cycles which influence the price movement of any financial market

In fact, there are an *infinite* number of cycles which influence the price movements of financial markets, but don't worry about that. You do not need to understand every single one of the infinite number of cycles! All you need to do is understand (or know) as many cycles as you possibly can.

Hurst's cyclic principles differ from many other cyclic theories, because of this simple fact: that there are multiple cycles which work simultaneously to influence the price movement of a financial market.

What is so important about the fact that there are multiple cycles that influence price movements? That is the next basic concept:

CONCEPT #3: MULTIPLE CYCLES COMBINE IN A PARTICULAR WAY

The multiple cycles that influence price movements combine in a very particular way.

We won't bother with the exact details or the mathematics here, because you don't need to understand this now, but what it is important to understand is that the cycles do combine in a particular way so as to produce this result:

- Because of the way in which cycles combine they form recognizable shapes in the price movement (see concept #8).
- The up-and-down cycle move can become very *skew* in the price movement. This means that price does not necessarily go up for half the cycle, and then move down for half the cycle. Price might move up for most of a cycle's wavelength, and then move down for a brief period of time, or vice versa.

Sometimes this "**skew-ness**" (or distorted nature if you prefer to stick to English) of the cycles as they appear in the price movement is so extensive that cycles seem to disappear from view altogether.

Here's an important point: *Cycles do not disappear*. Period.

Sometimes the influence of a particular cycle is overwhelmed by another cycle which is exerting a greater influence on price. And the cycle that is being overwhelmed might *seem* to disappear.

But it hasn't … the cycle is still there, and it will reappear sooner or later.

Many people who do not understand Hurst's cyclic principles get stuck on this concept, and often reject the whole idea of cycles in financial markets because of this. Perhaps they have "discovered" a cycle in the market and have been trading it … and then it "disappears" along with a good deal of their trading money.

Once you understand that cycles do not disappear, and are able to apply your understanding of how multiple cycles combine to produce their effect on the price movement you will not suffer from the "disappearing" cycle (or trading money) problem.

As a matter of interest this is why software programs which extract cycle information from price movements are of little benefit to your trading. They tell you what has happened in the past, and although cycles do repeat, they are *constantly changing* in ways that past cycle information cannot predict (see concept #6). You might make some profitable trades, but sooner or later the cycles are going to twist, distort, or seem to disappear, and you find yourself making losing trades.

Software programs which extract cycle information from price movements are only useful for providing a *starting point* for a cyclic analysis. That starting point is a summary of the recent cycle wavelengths. True cycle analysis comes after that. From now on please do yourself a favor: never again make trading decisions on the basis of only a list of recent cycle wavelengths.

CONCEPT #4: CONTINUOUS TIME

Now before we go into more detail about the cycles, there is something you should understand:

The cycles that influence the price movements of financial markets exist in continuous time.

The cycles that cause financial markets to move up and down affect those financial markets twenty-four hours a day, seven days a week, three hundred and sixty-five (and a quarter) days a year *regardless of whether we are actually trading* the financial market in question.

This is another reason why software programs which extract recent cycle information from price movements can be very misleading. If a trough forms in price on a Friday, and then another trough forms on a Tuesday, the software would measure that as a two-day cycle because there were two trading days between the troughs, whereas the true measure of the cycle is in fact four days. This is only a problem for the shorter cycles, but it is something to be aware of.

Now, what else do you need to understand about the multiple cycles that influence the price movements of financial markets? How are they related? Is it just an arbitrary random collection of different cycle lengths?

No, this is the next important concept.

CONCEPT #5: THE HARMONIC NOMINAL MODEL

The cycles that influence the prices of any financial market are defined in what Hurst called the ***"Nominal model"***. Here is Hurst's default nominal model (with cycles shorter than the 5 day cycle added by me):

Name of cycle (nominal)	Average wavelength in days	Average wavelength
18 year	6547.2	17.93 years
9 year	3273.6	8.96 years
54 month	1636.8	53.77 months
18 month	545.6	17.93 months
40 week	272.8	38.97 weeks
20 week	136.4	19.48 weeks
80 day	68.2	68.2 days
40 day	34.1	34.1 days
20 day	17.0	17 days
10 day	8.5	8.5 days
5 day	4.3	4.3 days
2 day	2.2	2.2 days
1 day	1.11	26.67 hours
5 hour	0.22	5.3 hours
160 minute	0.11	160 minutes
1 hour	0.037	53.3 minutes
30 minute	0.018	26.67 minutes
15 minute	0.009	13.3 minutes
7 minute	0.0045	6.6 minutes
3 minute	0.0023	3.3 minutes

A nominal model is simply a list of cycles with harmonically related wavelengths

The left hand column in the above table is the **name** of the cycle. The longest cycle that Hurst considered it necessary to analyze is, as you can see, the eighteen year cycle.

Now, the **average wavelength in days** of that cycle, as the second column shows is 6547.2 days, and the average wavelength in terms of years is 17.93 years (the third column).

We call that cycle the eighteen year cycle because it's much easier talking about the eighteen year cycle than it is talking about the seventeen point nine-three year cycle!

In that table you see the full list of cycles that Hurst defined, cycles from a length of eighteen years down to five days. In developing Sentient Trader, I have extended the concept of the nominal model down to the intraday level, and I have been able to find and define cycles all the way down to three minutes in length.

Why do we call this an *harmonic nominal model*? Simply because the wavelengths of each of these cycles is related by a very simple harmonic ratio.

For instance, the wavelength of the eighteen year cycle is related by a ratio of two to one to the wavelength of the nine year cycle.

CONCEPT #6: THE VARIATION OF CYCLES

Now that you understand that the multiple cycles which influence the price movements of financial markets are not arbitrary random cycles, but are a specific list of harmonically related cycles, we must move on to the next concept which is one of the fundamental principles of Hurst's cycle theory.

Cycles experience constant variation

This concept is most apparent as the constant variation in a cycle's *wavelength*, but in fact the amplitude of all cycles varies constantly as well. Amplitude is the strength of the cycle, or how much it is pushing price up or down.

And so, although the average length of an eighteen year cycle is 17.93 years, the *actual wavelength* of any particular eighteen year cycle will vary from that average length, it could be longer or shorter than the average wavelength. Could be, and most probably will be!

This is another reason why knowing the recent wavelength of a cycle is not sufficient information to make a trade. Because the next iteration of that cycle is likely to be shorter or longer.

Which will it be? Shorter or longer? Read on, because that question is answered by a full understanding of these basic concepts.
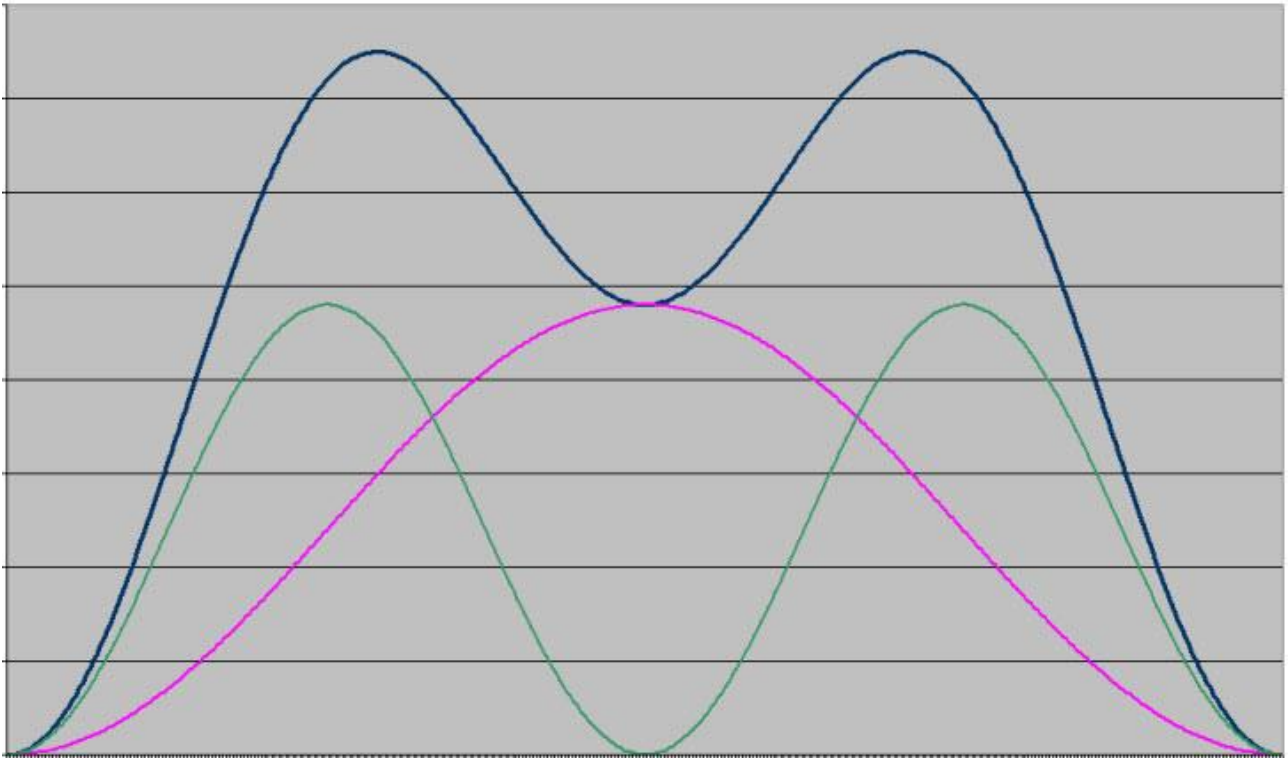
CONCEPT #7: SYNCHRONIZED TROUGHS

The next important concept that you must understand is that cycles which influence the price movements of financial markets, according to Hurst's cyclic principles, have synchronized troughs.

Cycles have synchronized troughs

We have already seen the list of cycles that are present in the nominal model, and which all work simultaneously to influence the price movements of a market. Now it is important to understand that those cycles have synchronized troughs.

That means that of course they do *not* have synchronized peaks. Here it will help in understanding this concept if we take a look at a picture. Earlier I showed you a picture of a single cycle, but now

we know there are multiple cycles that work simultaneously, and so here is a picture that shows two cycles, and the result of combining those two cycles:

One cycle is colored green, one cycle is pink. The result of combining those two cycles (and their combined effect or influence on the price movement of a market) is represented by the blue line.
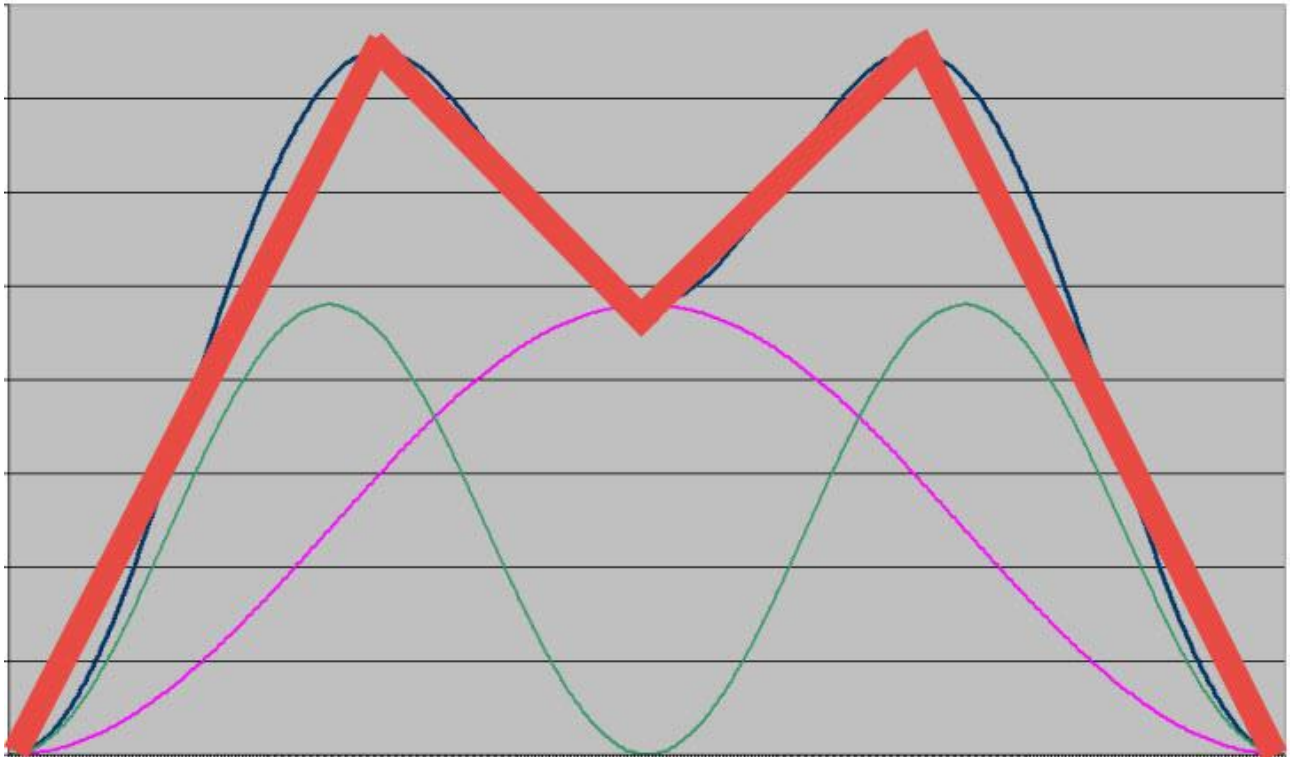
Now take a look at the peaks and the troughs of both the green and the pink cycle, and you'll see that the troughs are synchronized where possible (because they have different wavelengths it is impossible that all troughs occur at the same time), whereas the peaks are not. In other words the troughs occur at the same time, or point along the x-axis. But the peaks occur at different times.

This is a very important concept, and defines how the cycles work together to influence the price movement of a financial market. The result of the fact that there are synchronized troughs gives us a particular shape to the cycles as they manifest in the price movements of financial markets, and that is our next fundamental concept.
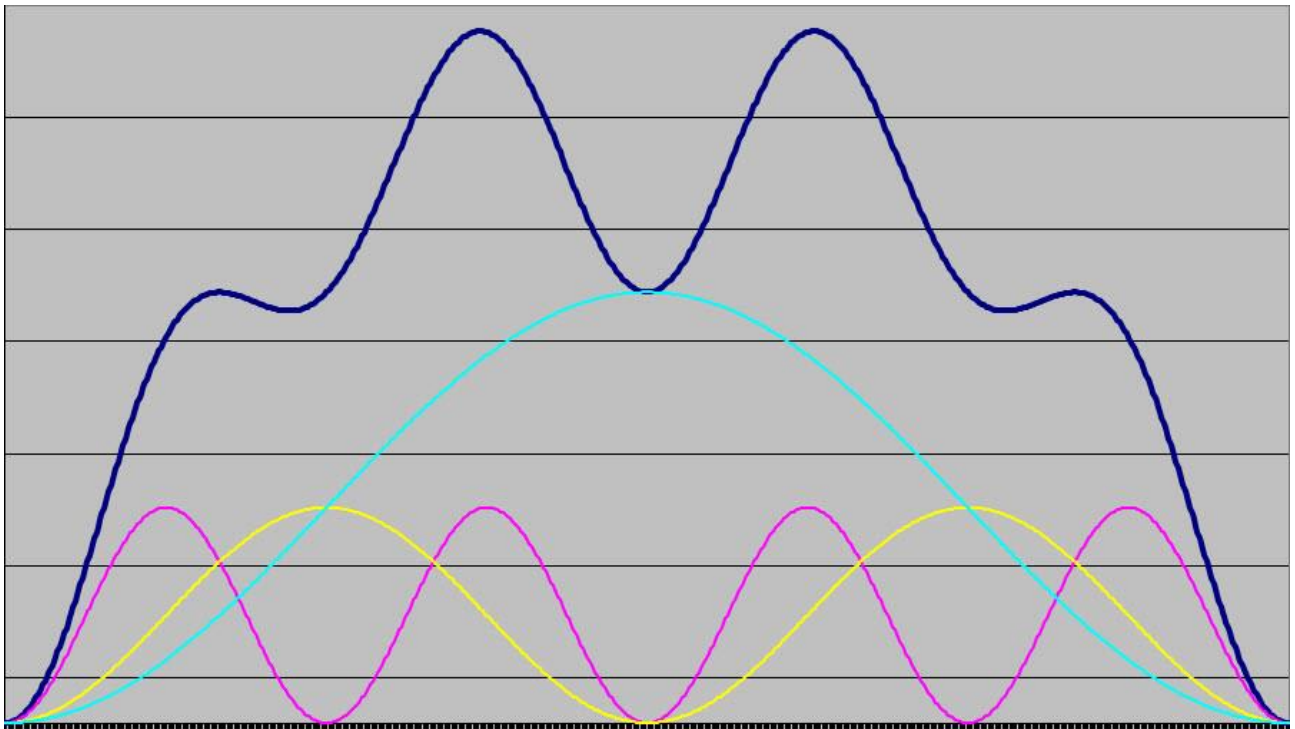
CONCEPT #8: CYCLE SHAPES

Cycles form M-shapes in price
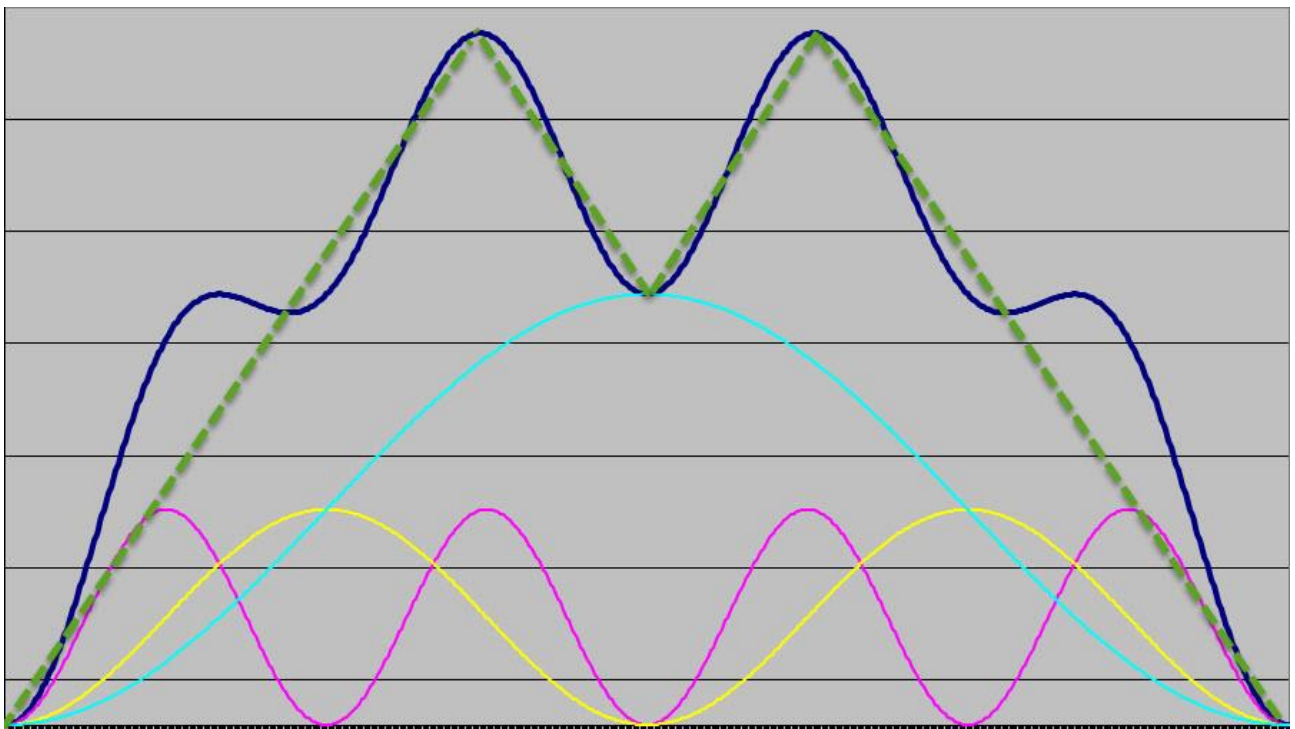
Here is that shape, highlighted in red:

It looks a little bit like a capital M. That is the shape that results from combining harmonically related cycles with synchronized troughs.
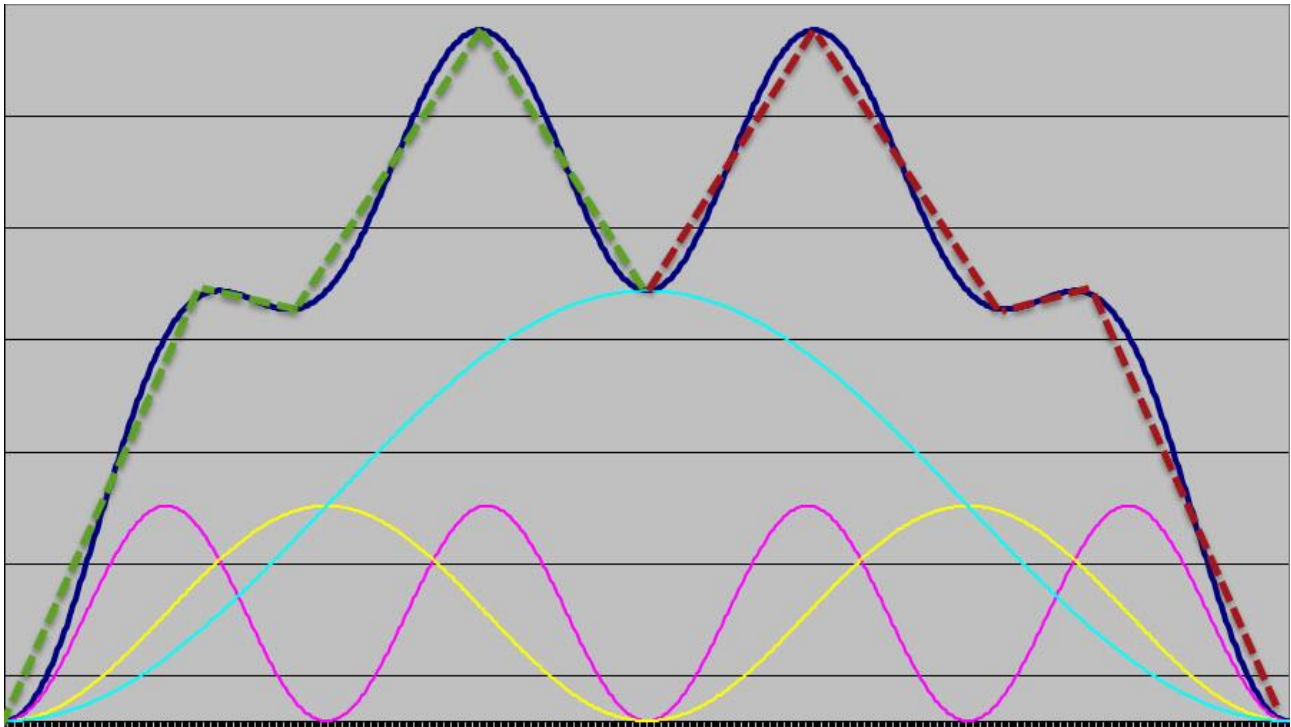
Let's take a look at combining three cycles. Here there is a pink colored, a yellow colored, and a cyan colored cycle, all of which have been combined to produce the resultant price movement which is the dark blue line at the top:

Although this shape is a little bit more complicated, you will see that it nevertheless follows the basic format of the shape of a cycle in a financial market. How many M-shapes can you see there? You probably saw this M-shape immediately:

But did you see these two M-shapes?

Now do you see what I mean by cycles being "skew" in price movement? Those are very skew M-shapes indeed, but there is good news. Cycles shapes are **not arbitrarily skew**. There is a way of knowing what sort of cycle shape to expect, which leads us to our next fundamental concept:

CONCEPT #9: UNDERLYING TREND

We know that there are multiple cycles that influence the price movements of financial markets. However, we are going to be trading one of them. We are going to choose one of those cycles, and we are going to trade that cycle. And that cycle has something called an underlying trend.

The underlying trend of a cycle is the sum total effect of all cycles longer than the cycle that we are considering

The underlying trend of your trading cycle (or any cycle for that matter) is the combined effect of all cycles longer than your trading cycle. It is as simple as that.

What do I mean by the combined effect? I mean that for each one of the cycles longer than your trading cycle you need to answer the question: *is this cycle causing price to move up or move down?* That is the effect of that cycle, and the combined effect is what you get when you combine the effect of each of the cycles!

At any time some of the cycles are influencing prices to move upwards, and some of the cycles are influencing prices to move downwards and so the combined effect of the cycles changes over time.

Underlying Trend is expressed as a simple integer number. It is calculated by looking at each cycle (longer than the cycle under consideration) in turn, and adding 1 if that cycle is moving up, and subtracting 1 if that cycle is moving down.

If the underlying trend of a particular cycle at a particular time is positive then it means that the longer cycles are pushing up, and therefore we expect the cycle to be stretched (or "skewed") upwards.

On the other hand if the underlying trend of a particular cycle at a particular time is negative then it means that the longer cycles are pushing down, and therefore we expect the cycle to be stretched (or "skewed") downwards.

Wow, that is really exciting!

Do you get it? … No?

Let me explain:

1. If we perform a cycle analysis, and know what each of the cycles is doing right now …
2. We know what they will be doing in the near future (because cycles are fairly regular) …
3. And therefore we can calculate the underlying trend for the next iteration of our trading cycle …
4. And hence we can predict the shape of the next iteration of our trading cycle

And knowing the shape of the cycle means that we can trade it!

Are you beginning to see why I say that knowing only the recent wavelength of a cycle is not enough information … it is a good starting point, but that is all it is.

Now here is the final concept that you must understand. The final piece of the puzzle.

CONCEPT #10: TIME TRANSLATION

This final concept is in fact the result of the combination of several of the other concepts:

Because of the way in which multiple cycles combine, peaks and troughs in price are "time translated"

Time translated means that they are ***displaced in time***.

So what does this mean? It means that peaks and troughs in price are displaced in time from the peaks and troughs in the actual cycle.
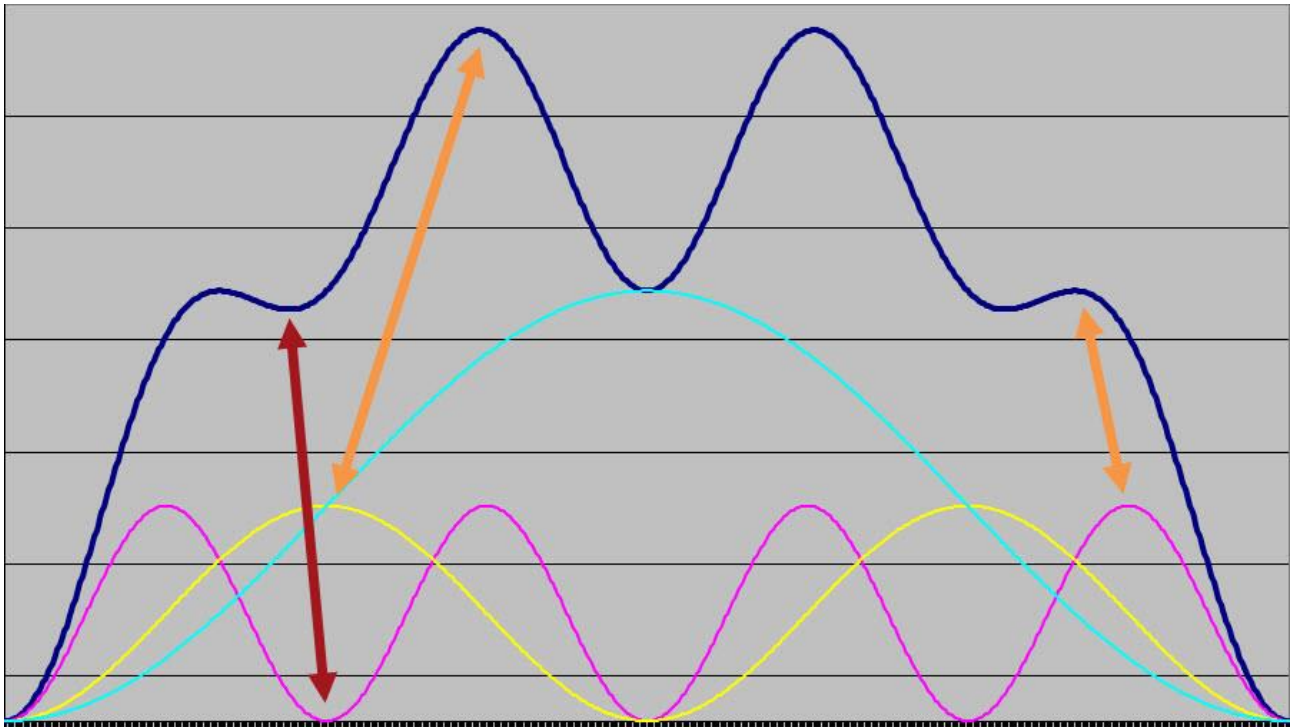
Come again? (that's an expression that means "please say that again" and it works best if you say it with a South African accent, as I do)

Peaks and Troughs in PRICE do not occur at the same time as those peaks and troughs in the actual cycles

Wait … what was a cycle again? Go back to concept #1 …

And remember that I mentioned that cycles "influence price"? We are trading the price movements, not the actual cycles … and so it is useful to know that the turning point in price might very well be displaced from the turning point in the cycle.

Here is a picture which should be familiar to you by now. Three cycles, do you see the time translation?

I have labelled with orange arrows two peaks in price which are time translated from the peaks of the cycles. If you find it confusing then look at a full cycle from trough to trough and ask yourself where the peak in the cycle is, then ask where the peak in price is over that same time period.

I have also labelled with a red arrow an example of a time translated trough. Can you see other examples of time translation in the diagram?

Where is the peak of the cyan (pale blue) colored cycle? And where is the peak in price over that time period (which is the full width of the diagram, from the cyan trough on the left to the cyan trough at the right).

Do you notice that there are in fact two equal peaks in price? Why is that? (Hint: cycles make M-shapes in price, M's have two peaks!)

Last question, just to make sure that you are really getting this: look at the left hand yellow cycle. Can you see the two peaks of the M-shape in price? Which of those two peaks is the actual peak in price? It's the second one … and that means that the peak of the yellow cycle has been time translated to the right in price. Translated to the right in price means that it happened later in price than it did in the actual cycle, because the x-axis represents time, moving forward from left to right.

OK so how does this help you? If the peaks and troughs don't occur at the same time as they do in the cycles then how on earth are we meant to make trading decisions? Here (finally) is the good news:

Time translation is not an arbitrary thing. We can know whether to expect a peak or trough early or late.

How do we do that? By working out underlying trend, and then:

When the underlying trend of a cycle is positive (or bullish) then PEAKS occur LATE, and TROUGHS occur EARLY

When the underlying trend of a cycle is negative (or bearish) then PEAKS occur EARLY, and TROUGHS occur LATE

OK quick test: remember that yellow cycle, which had a time translated peak in price to the right? That is a LATE peak … which should have occurred when the underlying trend is positive or bullish. Was that the case? Calculate the underlying trend for that yellow cycle now …

In case you forgot how to do that … you consider each of the longer cycles in turn. Fortunately that's fairly easy here: there is only one longer cycle – the cyan cycle. Is it going up or down for the duration of the leftmost yellow cycle? It is going UP, and so we calculate an underlying trend for the left yellow cycle as +1. That is a positive underlying trend, and so we expect a LATE PEAK, which is exactly what we got …

Is that all making sense?

By the way: this concept is the final nail in the coffin for software which only extracts recent cycle wavelengths. You must perform a full Hurst cycle analysis, and then apply this concept to help you to time your trades correctly. Never again trade purely on the basis of the recent wavelength of a cycle!

CONCLUSION

There you have it, or them: the 10 core concepts of Hurst Cycles that you need to get started.

The last page of this document list the concepts so that you can print them out (select to print page 15).

I sincerely hope that this is the beginning of a rewarding and profitable journey for you into the wonderful world of Hurst Cycles. Please stay in touch by connecting with us on our social sites, and make sure that you are on the mailing list for my blog (http://sentienttrader.com/hurst-trading-room/blog/) and subscribe to my podcast channel (http://0s4.com/r/HTR).

I look forward to hearing of your successful (and profitable) application of these concepts.

David Hickson

The 10 core concepts of Hurst Cycles

1

A cycle is something that influences the price movement of a financial market to move up towards a peak, and then to move down towards a trough (or low point). It repeats that action on a fairly regular basis.

2

There are multiple cycles which influence the price movement of any financial market

3

The multiple cycles that influence price movements combine in a very particular way.

4

The cycles that influence the price movements of financial markets exist in continuous time.

5

A nominal model is simply a list of cycles with harmonically related wavelengths

6

Cycles experience constant variation

7

Cycles have synchronized troughs

8

Cycles form M-shapes in price

9

The underlying trend of a cycle is the sum total effect of all cycles longer than the cycle that we are focusing upon

10

Because of the way in which multiple cycles combine, peaks and troughs in price are "time translated"