

What Was the Gann Master Time Factor?

By Alexander Straker

The short answer is we may never know with 100% *certainty*. A lot has been written on what the Master Time Factor may or may not be. Most published information describes it as a key cycle such as the 20-year or 60-year cycle.

Over years of research and pondering Gann's hints I have personally come to believe that the Master Time Factor is more likely to be some kind of key cycle *ratio* or *set of ratios* (music based) that essentially are used universally to forecast (or backcast) by either:

- a) using simple wave form cycles individually to predict that cycle's rhythm going forward, or
- b) building a more complex summation of multiple different length wave forms as a combined forecast wave. Even 2 waves can be very effective.

A ratio could be useful both in finding the correct historical cycles to apply, and in measuring and building individual cycle forecasts.

In the mathematical structure of music, a *limited* number of simple ratios such as 1:2, 2:3, 3:4 are considered *perfect* in quality. These are known as the *Perfect Octave*, *Perfect Fourth* and *Perfect Fifth*. No other musical intervals are considered perfect in quality, all others are known as Major or minor intervals.

As well as these simple ratios, the **Golden Mean** ratio is extremely important. By understanding first how simple ratios relate to the musical term for difference in tuning 'cents', this leads us on to discover the **Golden Mean**. Note the most important simple ratio in music is the Octave at 2:1, and this is equal to *1,200 cents*. *Interesting fact that the Octave from like to like notes is a **harmonic 12**, same as a **clock face** & number of **zodiac houses** in the Astro wheel.*

The following table and explanation from **Heinz Bohlen** on his music theory website begins with an Octave and continues with a Fibonacci sequence of simple ratios (also relevant to music), then examines the equal number of cents for each new interval ratio. The number gradually approaches 833 cents. This number has its own interesting properties, for example if you double 833 this is

1666, a harmonic of 3:2 one of the important *perfect* ratios in music. Applying 833 cents is a 50% harmonic of perfection!

Musical Intervals in Cents

Base Interval	New Interval [Ratio]	New Interval [Cents]
2 : 1	3 : 2	701.96
3 : 2	5 : 3	884.36
5 : 3	8 : 5	813.69
8 : 5	13 : 8	840.53
13 : 8	21 : 13	830.25
21 : 13	34 : 21	834.17
34 : 21	55 : 34	832.68
55 : 34	89 : 55	833.25
89 : 55	144 : 89	833.03
144 : 89	233 : 144	833.11

It is quite obvious that the new-found intervals converge to a value close to 833 cents. That means nothing else than that for instance for an interval of 144:89 (833.11 cents) both the summation and the difference tone appear in again 833 cents distance from this interval:

$$55 : 89 : 144 : 233$$

$$(833 \text{ cents} + 833 \text{ cents} + 833 \text{ cents}),$$

thus creating something like a harmonic series. This implies that an 833 cents chord might sound special, despite representing a gross dissonance in traditional opinion. Reason enough to investigate this further (It is by the way unimportant which interval we choose as a starting point for the above exercise; the result is always 833 cents).

833 cents, an interval with unique properties leading to the Golden Mean

The exact value that the 833 cents interval converges to can easily be calculated. If we call the two members of the base interval A and B and the summation tone C as follows (eg 55 : 89 : 144),

$$A : B : C$$

then they have to satisfy the following conditions, with x as the sought after ratio:

$$x = C/B = B/A, \text{ and } C = A + B$$

That yields an equation

$$x = 1/x + 1$$

with the solutions

$$\begin{aligned} x_1 &= 1/2 + (5/4)^{1/2} = \mathbf{1.618034} \\ x_2 &= 1/2 - (5/4)^{1/2} = \mathbf{-0.618034} \end{aligned}$$

Of course, this is expected where we have built the ratio from the Fibonacci sequence.

From the viewpoint of music theory, both results above are identical, and one is the inverse of the other. In musical terms this means the note order is reversed so if we call them A and B, and x_1 is the ratio A : B and note A is higher in pitch than note B, then by transposing note A down an Octave (or note B up an Octave) this creates an *inversion* where note B is now the higher pitch.

$$x_1 = 1/|x_2| = 1.618034 = \mathbf{\text{Golden Mean}}$$

(End of Quoted Explanation from Heinz Bohlen)

The important thing to note here is that in order to separate the two components of the ratio we need to consider that they have an inverse relationship equal to the **Golden Mean**. This is why market applications using numerical reciprocals & conversions of Price-Time by squaring are effective, providing we understand that to make the squaring principle work, ***our scale must incorporate the Golden Mean ratio between Price and Time components considered as two multiples of a 360 degree circle/cycle.***

Fine Structure Constant and the **Golden Mean**

As it turns out the **Fine Structure Constant** of the universe, and the **Golden Mean** are essentially the same ratio, although differing harmonic expressions, FSC being 137 (**1.382**). As the Golden Speed chart scale method incorporates this ratio as a natural relationship between Price and Time, ***this aligns the chart with harmonics of the Speed of Light in Nautical Miles***, and in turn the price and time harmonics align with the natural measurements of the earth in terms of degrees of a circle, very important to achieving correct price-time harmonics. One nautical mile represents one minute of one degree of the Earth's circumference.

Speed of Light = 161,874.977 Nautical Miles / Second

By scaling with a Price : Time ratio of 1.618 in relation to a 'fixed' natural cycle (master cycles 1 year and 1 day), this effectively aligns developing Price action with harmonics of the speed of light. Unity (1, 10, 100 or 0.1, 0.01, etc) is set as the scale number itself to represent a perfect master cycle (circle = number one) and the Golden Mean ratio is achieved via *bar lengths* in time as a fraction of the 360-degree master cycle.

Important: One Nautical Mile of travel is also defined as a distance of one minute (1/60th) of a *degree* of the circumference of earth. A 360-degree circle in minutes is 360 x 60 = 21,600 = Earth circumference in Nautical Miles. According to Thomas Graydon's book *New Laws for Natural Phenomenon*:

"The mysterious constant F is equal to SqRt(18.5), or the length in Miles the Earth travels in a single second."

Graydon presents an alternative mathematics of planetary mechanics in his amazing book and shows evidence why Gravity does not exist in the form that science teaches. He also cleans up planetary mathematics with a new way of establishing numerical relationships between planetary distances and velocities. This leads him to startling new conclusions about the true nature of gravity and why planets travel an elliptical path. In calculating his planetary relationships, Graydon shows how a new Fixed constant for gravity is derived:

$$F = \text{SqRt}(18.5)$$

Converting 18.5 Miles to Nautical Miles, this gives a value for velocity of Earth of approximately **61** Nautical Miles per second. Earth travels velocity equal to a **Golden Mean** harmonic, another example of the **Golden** Speed in nature!

Speed of Light = **161,874.977** Nautical Miles / Second
Speed of Earth = **61** Nautical Miles per second

The chart below is constructed using a Golden Speed scale applying the number from Graydon's Fixed Constant Formula $F = \text{SqRt}(18.5)$, *equal to the number of miles per second earth travels, and in Nautical Miles this is a **Golden Mean** value.*

The way it is applied is as the precise number of points advance per bar and this naturally gives the chart a **Golden Mean** ratio of *price:time* considering price as distance travelled by earth in one second in nautical miles (Golden Speed!). This particular way to set up the chart scale is ideal for music ratio analysis methods as well as Gann techniques.

As an Octave in music is made up of 12 semi-tones (think keyboard black and white notes), the chart below utilizes this scale method, and *each box represents one semi-tone*. The 8 main notes of the major scale (most common to our musical system) are represented by the colored bar lengths as a musical ratio of the entire Octave. Remember this scale calculation is strictly mathematical, now take a look at how beautifully the proportions of the market are captured by this scale combined with the music ratios. This example shows only price and time ratio lengths, it is also possible to use Price-Time *vectors* of the same lengths to measure precise moves from a low to a high for example. This chart only uses horizontal and vertical ratios to avoid clutter.

Notice how the market consistently builds the exact musical note ratios in price and time, it's an **unbreakable natural phenomenon!** *Sound mathematics* and in particular the structure of music teaches us the patterns and proportions of natural growth in any living system including the market. There are many more on this chart than the ones shown below.

Gold Spot Futures scaled to reveal music interval ratios in price and time:

