MATHEMATICAL LENS TO GLIMPSE ASTROLOGY

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Abstract :

Astrology is derived from the word Aster – star and Logos – reason or logic. It is called in Sanskrit , Jyotisha or the Science of Light.

Mathematics attempts to establish an infallible foundation before establishing a system of truth , with Intelligence , Rationality & with Logical approach. . It deals with systems of calculable truth.

The objective of this paper is to study the parallel analogies between the two - discoveries of the natural phenomena , approaching with the microscopic lens. A scientific Mathematical investigation of Time gives us a clue to attempt future predictions.

Index terms :

Astrology , Horoscopes , **Vivekanand's ideology** , Celestial Mechanics , Vedic Mathematics , Vedas , Permutations & Combinations , Limits , Indeterminant forms , Cosmology , Infinity , Fermat's Last Theorem , Statistics , Probability , Correlation , Regression , Curve Fitting , Sampling , Chi – Square test

Introduction :

Swami Vivekananda believed that there is only one Self in the universe. There is only one Existence. He saw the entire universe as a manifestation of the absolute One.

That a certain subtle power , derived from nature , pervades the entire universe , and the earth we inhabit is also subject to this mysterious & subtle power is evident to all.

The various elements , encompassing all matter , are altered by the motions of this ethereal power. The acts of creation [shristi] , protection [sthiti] & destruction [Pralaya / laya] are embedded in the

womb of All- powerful time and these variations are brought about as a consequence of this subtle power.

We might inherit genetically some disease , we meet certain people , don't one feels that there is some affiliation of the present with the past ?

Though Past is history, future is a mystery , present is an enormous legacy and a rewarding gift for us to reshape our destiny.

No Science or Art is more interesting , instructive and useful to Mankind in contributing to moral and material advancement than the sublime science of Astrology.

Many of us have been taught that when we make mistakes by performing actions outside the moral code of ethics, we can simply ask forgiveness from God, which would surely be granted.
Therefore, we continue committing same mistakes again and again, which has brought us into a helpless stage, as we knowingly commit immoral actions, fully cognisant of the consequences. In spite of knowing the fact that the actions we are committing are grossly immoral, we don't have the moral strength to stop these. This is because our intellects have become amoral; our power to reason has got exhausted and our conscience has gone into hibernation. We live in the hope that either the Almighty is not looking at us or that we will be granted forgiveness for all our sins.

However, this is not how the eternal spiritual laws operate, because the universal law of Karma is the arm of the spiritual judiciary that dispenses divine justice.

Almighty does not grant forgiveness for all our sins.
Whatever Sins , we keep doing , gets accounted , in our account. Whatever deeds , we do , intentionally , or sometimes , may be unintentionally , good or bad [paap & punya] , gets credited to our account , & the debts [karj] has to be paid , in some form or the other.

Destiny and Karma :

Our lives are based on two important words - Destiny and Karma. Let's understand what exactly these two terms signify.

Destiny functions on the spiritual law of action that is subtle and cannot be influenced or manipulated by humankind.
Karma simply means to perform actions, but it is the motive or intent of the actions that determines one's destiny.

Sanchita (deeds of past life) , **Parabdha** (fruits of deeds of past lives in the present life) and **Agami** (deeds to be done in the present life) are various types of Karma .
In Horoscopes of Hindu Astrology , the Karma Bhave [10th house] , is above the destiny House [9th house] .
In simple words 'destiny' is the outcome of our own thoughts and actions or as per common proverb, "As you sow, so shall you reap."

Influences of Planets & Astrology :

The entire fabric of Astrology rests on the broad principle of Evolution. It interprets what it conceives to be the future of Man , as moulded by his pervious karmas [past deeds] and indicated by the planetary positions at the time of birth.

There is a rule in Nature and every object – Mineral , vegetable and animal must pass under this rule in all stages.The influences of Planets on Human Affairs , physical environment , mental peculiarities & spiritual aspirations , is well established scientifically .

The planets have a huge impact upon the birth chart. The Sun represents Ego or atma ; Mars – martial power ; Mercury – good & eloquent speech ; Jupiter indicates wisdom ; Venus shows voluptuous ness and gross sensual pleasures ; and Saturn indicates Sorrows & miseries.

There are different combinations of Planets , in the horoscope , giving different **permutations & combinations .** Taking into account the degrees of the planets , we could observe in the horoscope , two planets , whether forming conjunction or aspecting [drishti] or none and whether planets are in Exalted , debilitated or in Retrograde position .This could also be interpreted Mathematically , by applying the concept of **Correlation & Regression .**

Definition of Correlation , as explained to a layman , is Whenever two variables X and Y are so related that a change in one is accompanied by a change in the other , that an increase in one is accompanied by an increase or decrease in the other , then the variables , are said to be correlated.

Depending upon the correlated value [ρ] , lying between -1 & +1 , the horoscopes could be analysed , in a better way , which could be calculated by the mathematical formula , for calculating ρ .

If the value of ρ is -1 , case of Negative Perfect Correlation , two planets have negative impact on each other , or may be called enemies.

If the value is +1 , case of Positive Perfect Correlation , two planets have positive impact on each other , great friends.

If the value lies between -1 & 0 , negatively correlated , how much negative , will depend on the calculated

ρ value**.**

If the value lies between 0 & +1 , positevely correlated , how much positive impact , will depend on the calculated value of ρ **.**

Note : If the value is 0 , case of uncorrelated , two planets do NOT have impact on each other , only when neither they aspect , nor in conjunction .This will be the case , of lagna chart , of the horoscope but will not be applicable for the Rashi chart ,

But , in Real life , this will hardly be a case , as Rashi chart , will create the situations , all planets influencing each other , from time to time

If more than two planets are placed ,in conjunction or in aspect to a particular house , the concept of Correlation , could be repeated to a number of times , with different **permutations & combinations ,** of planets , positioned or aspecting the same house .

Remark : *It could be represented Graphically also , by Applying the concept of Curve Fitting & Regression.*

Importance of Astrology in Personality Development :

Swami Vivekanand' ideology was based on

" Jnana Yoga " , which is the path of knowledge or the

path of self-realization''.

Weeding out the darkness of ignorance through the light of knowledge, it can bring the 'fire' and 'light' alive by burning all the impurities of the mind. The mind does not give up its attachment to worldly pleasures unless it has tasted something greater and higher.

Self-knowledge, according to jnana-yoga, is true liberation [moksha] .

Swami Vivekanand emphasised that

*the ideal of faith to be in ourselves .

*if you think yourselves strong, strong you will be.

* One has to know that all knowledge, power, purity, and freedom are in oneself. *Stand up, be bold, and take the blame on your own shoulders.

Swami Vivekananda linked **morality with control of the mind, seeing truth, purity and unselfishness** as traits which strengthened it.

Astrology helps in making you strong , the acceptance in life , comes in your personality , that is , to accept things , which are uncontrollable , despite all efforts put, in the right direction .You reconcile with the disappointing situation , on failure . It helps you , in making God fearing , you build moral strength , stopping immoral actions , in life . A majority of humanity believes in this spiritual law , in one form or other, irrespective of religious following or inclination.

Astrology grants the serenity to accept the things which you cannot change , courage to change the things which you can , and the wisdom to know the difference.

As every human being is different from another , so do their horoscopes. Every horoscope has certain weaknesses & strengths. Reading the horoscope is not a very simple task. Definitely horoscope read thoroughly & correctly , gives you the direction in life. For instance , if a person knows what kind of disease the horoscope indicates , say heart concerning , that person might take all precautions to prevent it or might face the minimum , by reducing it , controlling diets & being regular in workouts , giving this to be the top priority.

Relation of Mathematics and Astrology :

We have already talked about the Correlation , Mathematical concept , or more precisely Statistical concept , to see the strength of planets in the horoscope.
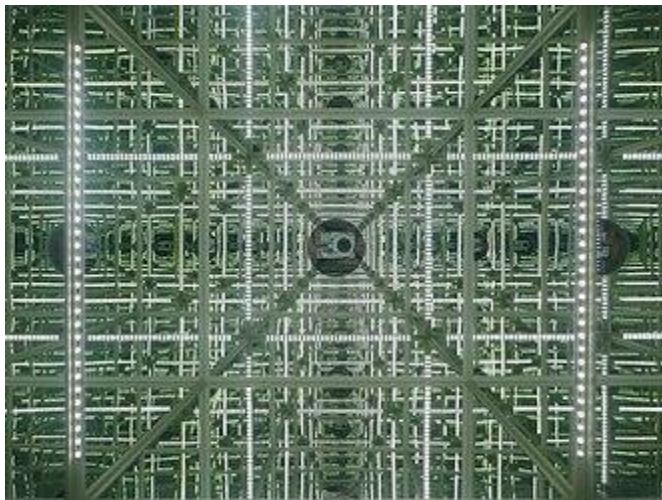
To Glimpse Astrology more through Mathematical Lens , we have to first admit the importance of the three instruments of knowledge propounded are **instincts , reason and inspiration.**

Infinity [∞] :

Mathematics is the experience of defining the physical world; spirituality is the experience of defining the spiritual world. Mathematical world is **infinite**. Even number system does not stop anywhere. Spiritual world is infinite. It transcends the notion of borders and conceptions. Mathematics cannot measure spiritual ideas. You cannot say how big soul is; how big God is, how deep your experience is.
And spirituality cannot limit mathematics. Spirituality does not distinguish between variants, cannot measure this physical world, he cannot define the physical world. It only knows and defines what mathematics cannot.

Infinity is that which is boundless, endless, or larger than any natural number. It is often denoted by the symbol ∞ .
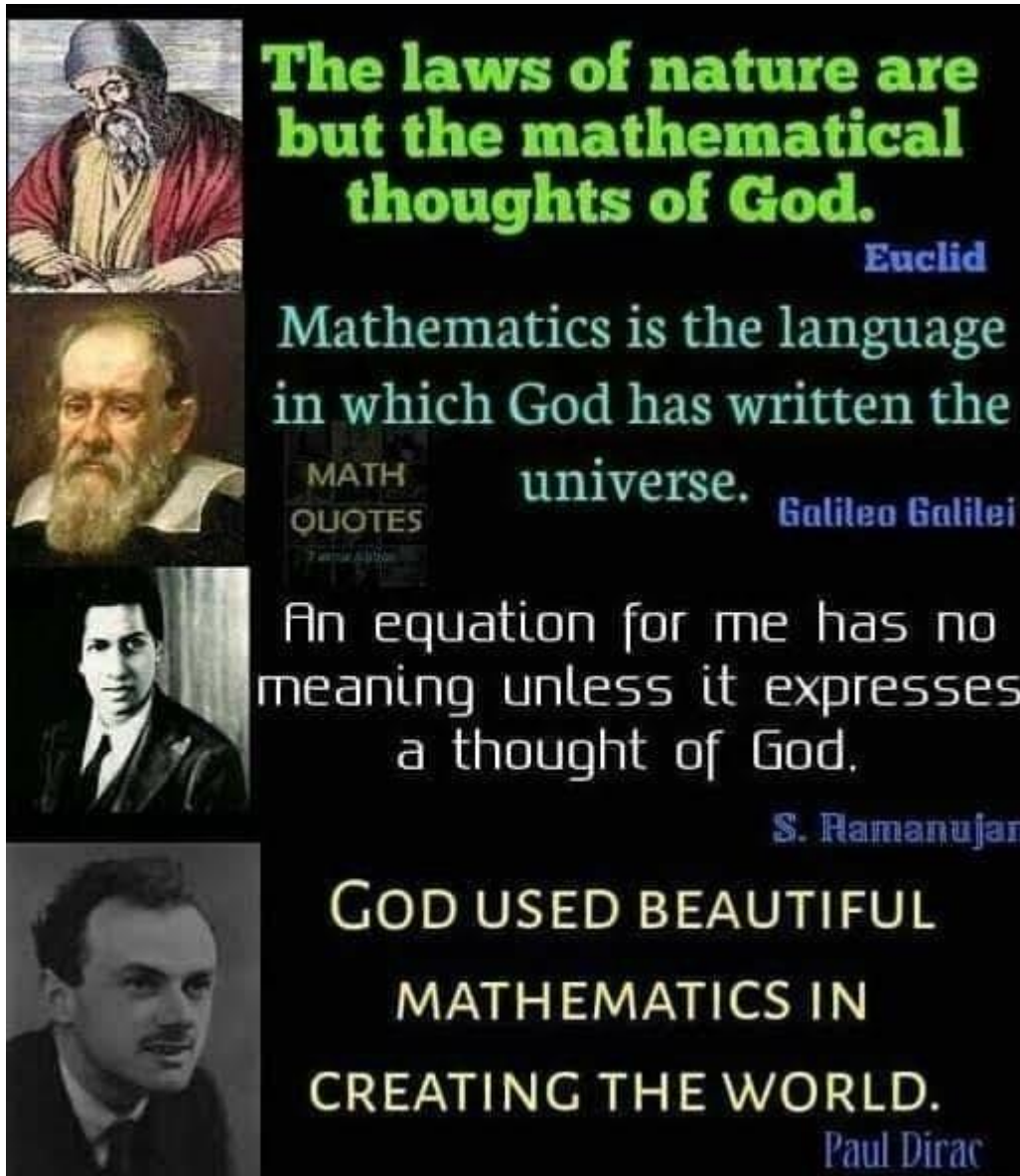
Infinity continued to be associated with endless processes.

Due to the constant light reflection between opposing mirrors, it seems that there is a boundless amount of space and repetition inside of them.

For example, if a line is viewed as the set of all of its points, their infinite number (i.e., the cardinality of the line) is larger than the number of integers. In this usage, infinity is a mathematical concept, and infinite mathematical objects , like Astrology , can be studied, manipulated, and used just like any other mathematical object.

For example, Wiles's proof of Fermat's Last Theorem implicitly relies on the existence of very large infinite sets, for solving a long-standing problem that is stated in terms of elementary arithmetic.
In physics and cosmology [brahmaand vigyaan] , the Universe is spatially infinite is well established.

A mathematically well doing person who is spiritual would be one of the most successful people in this earth.

Mathematics and astrology are closely related. Mathematics is a calculation science which is used widely in many fields, like astrology, numerology.

The greatest men of the world believed & practised Astrology. Dante declared it to be " the highest , noblest & without defect ". Kepler , Bacon , Pythagoras & Democrates were masters in Astrology. Newton was attracted to the study of Mathematics & astronomy by the contemplation of an astrological figure of the heavens.

Of course math is used in astrology to calculate the position of the planets and the House cusps of a natal chart.

The most important criteria is the **intelligence** to work backwards. The world is so huge that you cannot expect to know and learn rules for everything. But with a certain level of understanding, you can being to break all events, all relationships, all topics into 9 planets. And then, you would be able to become a brilliant astrologer. However, it would take a lot of work to reach a level where you have an idea about everything. Where you know what cancer is, what tumor is, what economics is, and how they work; so that you can use the knowledge in prediction.

The second criteria is **Rationality**. To save yourself from absurd ideologies that somehow Sun sign based monthly prediction will be hold true for entire one-twelfth of the world. To save yourself from ideas that so and so combination in the horoscope will make anyone and everyone with that combination a president. Astrology is about the cumulative effect, and not effect of one single combination.

Mathematics is required as it would enhance your skills to a great deal. But if it is not a strong point, it could be avoided. Not a big deal. If you are good at maths, life would become easy. If not, you will have to rely on software. *Maths mostly helps in research, in developing your own method of prediction.* Over time, when you've thoroughly studied astrology and had good experience, you would begin to develop your own methodology of *interpreting a horoscope*. It is there that maths helps.

There is no one combination for astrology. If you go asking people, they'll say about Mercury or Jupiter, or at times even Rahu and Ketu; but ultimately, it is only partially true, because again these are generalized laws. And cannot work for everyone.

So in conclusion, intelligence and rationality is all it would take. **Dedication** of course, but that goes unsaid as it is the basic ingredient in learning anything at all. Try to be logical and sensible. Try to question everything. Ask for proofs. Learn as a doubter and you'll learn the best. Learn as a fan, and you'll not even know where you went wrong.

Vedic Mathematics & Astrology :

Vedic mathematics is a system of Mathematics consisting of a list of 16 basic sutras or aphorisms obtained from Vedas.

They were presented by a Hindu scholar and mathematician ,Bharati Krishna Tirthaji Maharaja, during the early part of the 20th century.

The multiple-choice system of Vedic Mathematics converts maths into a playful subject .

Vedic Mathematics systematically utilizes both halves of the human brain and therefore the chances of development of intuition part of the personality are increased.

Vedic Mathematics system at a very subtle level helps us in development of the spiritual part ot personality.

When we study Vedas, it is observed that Vedic Maths and Astrology are deeply connected .

Looking into the contributions of Aryabhatta, Brahmagupta , Varahamihira, it has been understood that these personalities contributed both into the field of Vedic Maths and Astrology.

Vedic Mathematics system at a very subtle level helps us in development of the spiritual part ot personality.

These basic points of Vedic Mathematics viz., development / increasing the intuition part of the personality , using the multiple-choice system , development of the spiritual part of personality , helps in converting Astrology too into a playful subject .
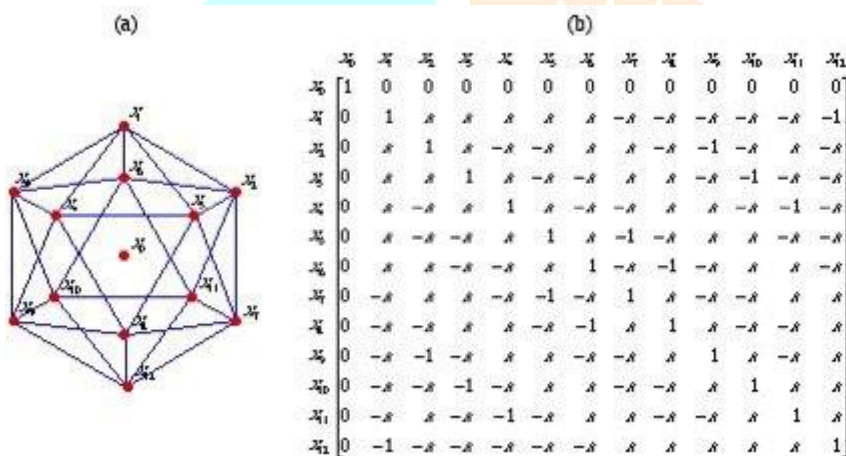
Geometry & Trigonometry in Astrology :

Astrology is basically a science of reading the start values, positional, transitional etc, based on the rotation of the earth.

Astrology deals with **projective geometry**, meaning distances to celestial bodies are inconsequential. Only their relative positions on the celestial sphere are important. In other words, only the angular differences from the Earth matter , coefficients, cosines, distance algorithms) to solve for the relationship between things; in this case, the relative age effect.

Astrologers were the data scientists of their day. We can compare the zodiac to a sentiment analysis; they strived to organize a vast amount of unstructured data into small groups based on their elapsed times or distances using a numerical value of 1, 0, -1, as observed by those moving in relation to it or not R, -R.
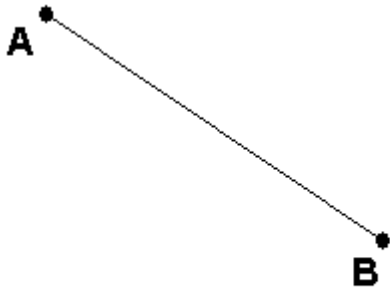
This gave them 5 possible relationship options. (See. Euclidean algorithm)

Mathematics starts with a few statements/propositions which are regarded as self-evident/true/established/mind-bogglingly obvious and builds from them.
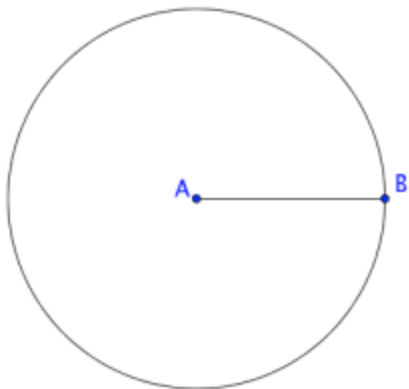
Euclid's Postulates:

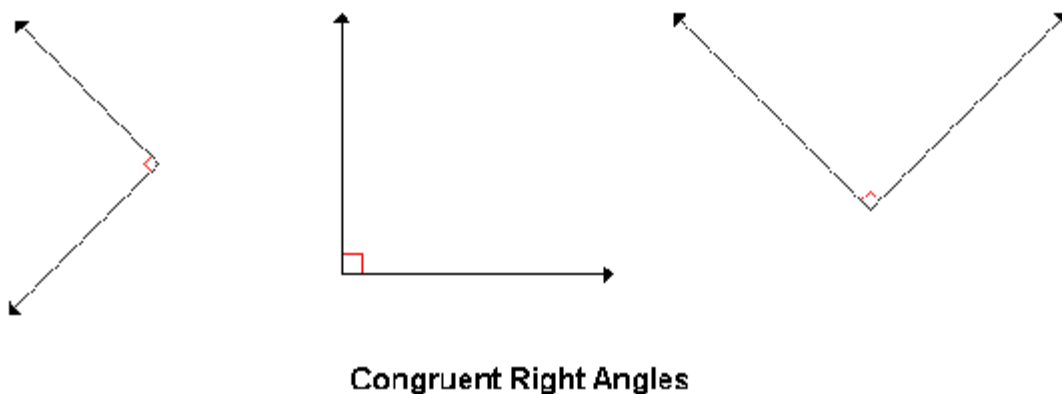1. A straight **line segment** can be drawn joining any two points.

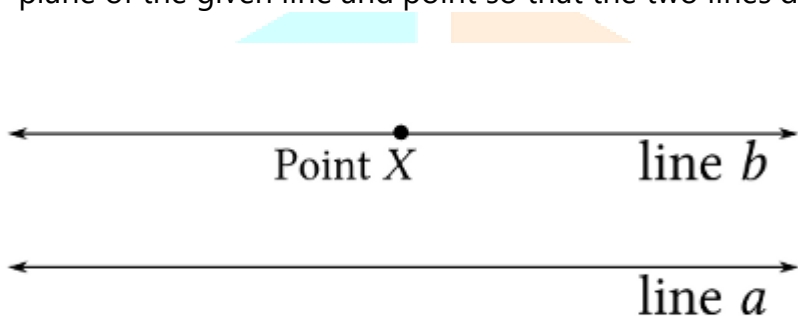2. Any straight **line segment** can be extended indefinitely in a straight **line**.

3. Given any straight line segment, a **circle** can be drawn having the segment as radius and one endpoint as the center.

4. All **right angles** are **congruent**.

Congruent Right Angles

5. Given a line and a point outside it there is exactly one line through the given point which lies in the plane of the given line and point so that the two lines do not meet.
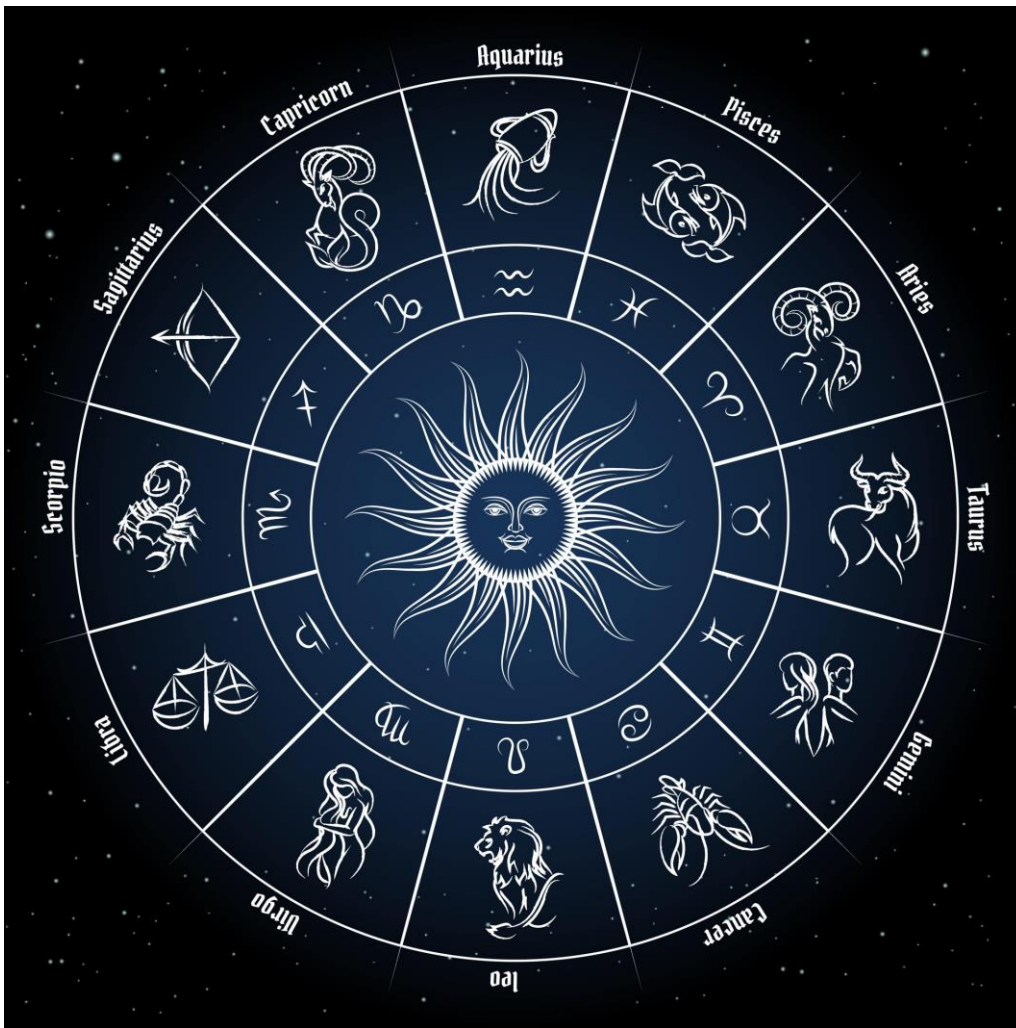

Analysing from scientific perspective, the keypoint of Astrology is **measurement** and measurement is always based on **numbers**. The numbers helped to provide accurate measurement of astrological energies pictured in any birth chart. These mathematical measurements provide a numerical description of human nature.

Looking into the birth chart, which is a representation of **mathematical model of human character**, numbers help us to draw reliable conclusions based upon the data. They help to revolutionize evaluation of parameters and help to forecast depending upon circumstances.

It is also understood that each planet is related to certain **basic elements of mathematical operations, distance , degrees , directions , etc.**, which helps us to look into their positions , impact / strength , in birth chart.

The concept of mathematics has been formulated in the form of Sutras. These Sutras have relevance to astrological applications like application of **Pythagoras theorem for calculation of positions in terms of angle**. It is also identified that astrologers define position in space by using equatorial rectangle coordinate system. This helps in computation of planetary positions.

Astronomy & Maths are inseparable from Astrology. The father of Indian Astrology, Varaha Mihira (500 A D), was not only an astrologer, he was an astronomer & mathematician par excellence. The **trignometric equation** $\text{Sin}^2 (x) + \text{Cos}^2 (x) = 1$ is attributed to this Master. (The word **Trignometry** derives from the Sanskrit

 Thrikonamithi & Geometry from Jyamithi). He wrote masterpieces in Astronomy (Pancha Siddhantika) & Astrology (Horasastra). In Astronomy and Maths, he had risen to the level of Kepler & Laplace, only to be matched by geniuses like Aryabhata, Brahmaguptha, Bhaskara, Sir Simon Newcomb, Brown & Leverier ! Long before Kepler, he had solved the **Kepler Equation** ($M = E - e.\text{Sin } E$) !

He expounded the principles of **Celestial Mechanics** long before the great Laplace propounded them in his Mechanique Celeste. He postulated that planetary longitudes can be found by the Threefold Trignometric Method of Manda Kriya (Reduction to True Anomaly), Parinathi Kriya (Reduction to Ecliptic) & Sheeghra Kriya (Reduction to Perihelion) ! He was the most brilliant amongst the Nine Gems (Nine Intellectuals), who adorned the court of King Vikramaditya. He had acquired immense spiritual powers due to Transcendental Meditation. He postulated the Helio-centric Theory of Gravitation, that all planets revolve around the Sun due to Celestial Gravity. (Soorya Jagathah Chakshu - Guruthwakarshan). He postulated that the planets traverse in elliptical orbits around the Sun, that planets move faster at Sheeghrocha (Perihelion - the point in orbit nearest to the Sun) & slower at Mandhocha - (Aphelion - the point in orbit farthest from the Sun), that in order to get the true longitudes of planets, one has to give Jya Samskaras (trignometric corrections to reduce them from

Circular to Elliptical, from Mean to True), long before the great Johannes Kepler discovered them in the Western World !

The Ninefold Temporal Strength (Kala Bala)

Kala means Time and Kala Bala means Temporal Strength or strength of time. This strength is calculated by considering the year, month, weekday, time etc of birth. The various strengths of planetary vibrations due to seasonal influences are taken into consideration and it consists of Nine Types of Strengths

1) Diurnal & Nocturnal Strength (Divaratri Bala)

2) Fortnight Strength (Paksha Bala)

3) 60 degrees Strength (Thribhaga Bala)

4) Year Strength (Abda Bala)

5) Month Strength (Masa Bala)

6) Day Strength (Vara Bala)

7) Hour Strength (Hora Bala)

8) Solstice Strength (Ayana Bala)

9) Planetary War Strength (Yuddha Bala)

Diurnal & Nocturnal Strength (Divaratri Bala)

This is the strengths of planets due to diurnal or nocturnal influences. Known as Divaratri Bala, it consist of Diurnal Strength (Diva Bala) & Nocturnal Strength (Ratri Bala).

The nocturnal planets - Moon, Saturn & Mars are powerful during midnight and powerless during midday. (Nishi Sasi Kuja Saura Sarva nJne) and 60 Shastiamsas are assigned to them at midnight as their Divaratri strength . On the contrary, the diurnal planets - Sun, Jupiter & Venus - are powerful during midday & powerless at night and 60 Shashtiamsas are assigned to them at midday as their D R strength. Powerful always is Mercury, be it day or night & always gets 60 Shastiamsas.

Midday & Midnight

While Midday is defined as the LMN (Local Mean Noon), the Seers have recommended that if the birth time is marked in LMT (Local Mean Time), it must be converted into LAT (Local Apparent Time) by applying the Equation of Time. The Midnight is when the Sun is in the Lower Meridian of the place & this is reckoned as 12 O Clock Midnight.

Equation for Divaratri Bala :

A day is 360 degrees and the Interval between Midday & Midday & vice versa is 180 degrees. LMT should be converted to LAT (Local Apparent Time) by applying the Equation of Time. Then convert Birthtime reckoned from Midnight into degrees at 15 degrees per hour (Ardha Rasi Bhaveth Hora) and apply the following rule (If birthtime in degrees exceeds 180, subtract it from 360).

Diva Bala for Sun, Jupiter and Venus = Birth Time in Degrees / 3.

Ratri Bala of Saturn, Moon & Mars = 180 - Birth Time in Degrees / 3

in Shastiamsas ,
Fortnight Strength (Paksha Bala)

Fifteen days make a Fortnight (Paksha) and a Paksha = 15 Lunar Days. When the Moon waxes it is Shukla Paksha (bright half of the lunar month) and he wanes, it is Krishna Paksha (dark half of the lunar month). During the Dark Half, the malefics are powerful and during the Bright Half, the benefics !

The Equation of Time :

The Equation of Time = Apparent Time - Mean Time.

Two major factors, the Obliquity of the Ecliptic (23.45 degrees) and the Earth's Orbital Eccentricity (.0167) are responsible for the Equation of Time, which is best illustrated by an Analemma or the Figure 8 in the heavens ! The Earth moves fastest at Perihelion (Jan 3) & slowest at Aphelion (Jul 3).

The amplitude of the Equation of Time is 9.87 minutes.

The formula for computing the Equation of Time is

$E = 9.87 \sin(2B) - 7.53 \cos(B) - 1.5 \sin(B)$

(E is in minutes)

where $B = 360$ degrees $(N - 81) / 364$

Natural Malefics (Papas) & Natural Benefics (Shubhas)

Papas are natural malefics & they are Sun, Mars, Saturn & afflicted Mercury. Shubhas are natural benefics & they are Jupiter, Venus and well associated Mercury. The waxing Moon is a benefic & the waning Moon is a malefic, viz, he is a benefic from the 8th day of the bright half of the lunar month to the 8th day of the dark half of the lunar month & a malefic in the rest of the days. The malefics (Papas) get more of Paksha Bala during the dark half of the month.

Dark & Bright Fortnights (Krishna & Shukla Pakshas)

To find out whether birth occurred during the Dark Half or the Bright Half, subtract LongSun frm LongMoon. If the difference is < 180, it is the the Bright Half (Shukla Paksha) and if > 180 degrees, it is the Dark Half (Krishna Paksha).

Equations for Paksha Bala

Paksha Bala of Benefics = LongMoon - LongSun /3

Paksha Bala of Malefics = 60 - Paksha Bala of Benefics (in Shastiamsas)

The Paksha Bala of the Moon is always to be doubled.

Equations for 60 Degrees Strength (Thribhaga Bala)

Divide Day (Ahas) & Ratri by 3 (180/3 = 60 degrees). 60 degrees is a Thribhaga.

Mercury, Sun and Saturn rule the Thribhagas of the Day

Moon, Venus & Mars rule the Thribhagas of the Night

Find out the Thribhaga when birth has occurred. Assign 60 Shastiamsas to the ruling planet of that Thribhaga. Assign 60 Shastiamsas to Jupiter, who always gets 60 Shastiamsas !

So only 2 planets gets Thribhaga Bala of 60 Shastiamsas !

Case study of Twins :

Its isn't uncommon — especially with twins born only a minute or so apart), does that mean they'll have the exact same personality?

 Case Study 1 :

Let's look at **famous twins Ann Landers and Abigail Van Buren:** both of them had the same public role and even the same job . These individuals have similar interests and have similar time lines for major life events.

Case Study 2 :

Twins **Landers and Van Buren** both share the same highly specific line of work, they also reportedly had similar interests, attended the same college, and got married on the same day in a double ceremony. So a shared birth chart will certainly make two people, well, *extra* similar.

But Sometimes Why don't the twins have the same fortune ?

So, depending how close the current rising sign is to switching, it's possible for twins to be born only a few minutes apart and end up with different rising signs. And, even though that's one difference in two otherwise identical charts, this would be enough to make them seem very different in person.

1 . What leads to the birth of twins?
a) When Jupiter, Mars, Mercury and the ascendant are in odd signs and Venus, and the Moon is in even   signs.
b)   When   strong   unfavourable   planet   aspects   the   Moon   or   the   ascendant.
c) Mercury, Jupiter and Mars are powerful and are in even signs.

2 . Why twins having the same birth chart and zodiac have an entirely different life and fortune? How does astrology work for twins?
The degree of the rising sign changes every four minutes. So the twins that were born with a difference of two to three minutes will have the same birth chart. Though all the planetary combinations are the same, they will have a different destiny. It is because the actual and underneath condition will differ as there will be at least difference of seconds in between two children.

The **divisional chart** will differ due to difference in seconds. Another reason for having a different destiny is they are born on a different orbit. The interpretation of this lies in the theory of karma. **Sanchita** (deeds of past life) , Parabdha (fruits of deeds of past lives in the present life) and **Agami** (deeds to be done in the present life) are various types of Karma. Planetary conditions only consider **Sanchita Karma** that is the karmic results or the deeds stored from the past life. Hence twins with same **Sanchita Karma** will have the same birth chart but there **Prarabdha Karma** and **Agami Karma** will be different so they will have a different destiny.

3. Why identical twins having the same birth chart and zodiac have entirely different choices and personality?
But in many cases, twins — even those who share a fully identical birth chart — actually have quite *different* personalities and interests. But how, if all their signs and placements are exactly the same?

Twins are identical as they have the **same DNA**, but the divisional chart of two children will be different as there will be differences in seconds or minutes in the birth time of both the children. Twins though

they look identical the orbit on which they are born will be different. Not all twins are going to have fully identical birth charts in the first place. That all depends on the exact time of birth for each twin, and the amount of time that passes between the first and second birth. Some astrological placements do move rather quickly — **rising signs**, for example, move one degree approximately every four minutes and move into a completely new sign about every two hours, so there's always a reasonable possibility that twins will have different ascendants. And depending on what degree a planet is in at any given moment, even the slower-moving ones could be affected by just a few minutes' difference in birth time and move into a different **house of the zodiac**, which will obviously change some areas of life for that twin.

Astrologically , it is because there **Parabdha and Agami karma** will be different, and this will lead them to live a totally different life and will have a different destiny.

Mathematically , or Precisely Statistically , the case study of twins is well understood , by applying Correlation , Regression to it.

And when the same experiment is applied to different data set , it could be examined the similarity & differences , in different cases , depending on the value of Chi – Square test , in Sampling .

Predictions Compared , done by two Astrologers , are done independently , is based on concept of Independent Variables , defined in Probability.

Independent Events are Not mutually Exclusive [disjoint] & mutually Exclusive events are not independent.

Wikipedia has a more detailed description for each one of them, therefore I will just list them and the main ideas.

Aumann's agreement theorem

Two people under certain prior conditions can not honestly disagree forever. In fact, Scott Aaronson have proved they don't have to exchange too much information to lead to an agreement. If the prior conditions are met and the disagreement lasts too long, then one side has to be dishonest.

Arrow's impossibility theorem

In short, there is no perfect voting system.

Free will theorem

Under certain assumptions, if we have free will, so does elementary particles.

Gödel's incompleteness theorems

There are statements in a sufficiently strong formal system that can't be proven true or false within the system. Some people use this to justify humans must be different from machines, since humans can prove theorems by using another formal system.

Tarski's undefinability theorem

Similar to the theorem above, it states truth in a sufficiently strong formal system can't be defined by that formal system. For people who believe people are machines, this implies people can't define truth.

The following theorems might be a stretch, but it looks like someone can use them in philosophical arguments.

CAP theorem

It shows there is no distributed system such that each machine store the same information, can operate while some machines are broken, and can operate even when some messages are lost.

Rice–Shapiro theorem

There is no algorithm to check if an infinite set have some non-trivial property.

Shannon's source coding theorem

The theorem states there is a hard bound on data compression."-

Predictions in Astrology :

Being guided by a series of observations and intuitions , it was discovered that certain Mathematical coordinates answers to the queries regarding diving of future events.

There is nothing much written about astrology, and nothing much can be written. It is not about theorems and laws. It is about understanding and wisdom. Books are tools to help you get started, but not a word of any book is used in any prediction. A scientific investigation of Time gives us a clue to attempt future predictions.

The foremost requirement is intelligent, which a lot of us lack. It is the ability to understand break down the world to 9 planets and 12 signs. Astrologers have developed this wonderful business of memorizing tricks for the most common questions. They have developed FAQ rules , without going much into the details , as things are becoming commercialized , just to earn money . If it is a love marriage, 5th and 7th must be connected. If it mars, engineer. If it is Sun, government job. And they have made a very comfortable cocoon for themselves where they can answer common questions with 70–75% accuracy and be safe.

Why predictions are not always 100% true ?

Heisenberg propounded the theory that the subatomic particles constituting matter behave in a very elusive and shifty manner so much so that it is impossible to determine with certainty, both their position and velocity at the same time. This came to be known as the **Heisenberg's Uncertainty Principle.**

Calculus , Statistics & Astrology :

How Astrological concepts , especially data collection , data analysis , conclusions drawn , viz., predictions , have Mathematical foundation or the Similarity between the Astrology & Mathematics , mainly lies with the concepts used specially in two branches of Mathematics viz., Calculus & Statistics , as discussed below :

Calculus [viz., Limits , Indeterminant forms] & Astrology :

The case study of twins could be well explained by the concept of Limits , in Calculus , [branch in Mathematics] , which explains , how & when twins born , have sometimes different fortune & sometimes same , in some aspects or many a times twins look similar.

Definition of Limits , for a layman : …

A function f (x) approaches to a limit l , as x approaches to c , that is as x takes value nearer and nearer to c , f (x) also takes value nearer and nearer to l.

Notanionally , f (x) → l , as   x → c

It says results are very near , but the value is not exact. In Mathematics , the concept of Limits , explains the concept of value approaching , but not exact .

Mathematics talk about dependent variable , independent variable , infinite values and also Indeterminant forms , all helps in making Astrology logical & understandable.

Indeterminant forms :

An undefined expression involving some operation between two quantities is called an indeterminate form **if it does not evaluate to a single number value or infinity** & An undefined expression involving some operation between two quantities is called a determinate form if it evaluates to a single number value or infinity.

The case of twins born , is well understandable , if one knows the concept of Indeterminant forms & could observe the beauty in the similarity of these two parallel analogies & conclude how Mathematics attempts to establish an infallible foundation before establishing a system of truth.

Probability & Sampling in Astrological Predictions

The one who is well aware of the subjects , the concept of **Probability & Sampling ,** in Statistics [branches of Mathematics], have a reply , well understood , as , Sampling explains about the predictions accuracy.

What is Probability ?

The Probability of an event refers to the likelihood that the event will occur .or in other words , the study of chance associated with the occurrence of events.

The probability of an event can be expressed as a percentage from 0% to 100% , or as a number between 0 and 1 .

Notationally , the probability of an event A , is represented by P (A).

- If P (A) equals zero , event A will almost definitely not occur.
- If P (A) is close to zero , there is only a small chance that event A will occur.j
- If P (A) equals 0.5 , there is 50 - 50 chance that event A will occur.
- If P (A) is close to one , there is a strong chance that event A will occur.
- If P (A) equals one , event A will almost definitely occur.

It is hard to think of any examples of real life , of interest to Statistics , in which the probability is either 0 or 1 .

Even the Probability that the Sun will come up tomorrow is less than 1.

Probability explains the concept of that an experiment performed under very identical conditions , does not yield the same result.

Example : For instance , an unbiased coin tossed twice , under very identical condition , one might get head , for the first time toss , but may get tail , for the second time. Or , if an experiment is repeated 1000 times , may get 5192 times head .

But if we tossed a coin millions of times , we would expect that the proportion of tosses that come up heads to be pretty close to ½.As the number of tosses increases , the proportion of heads approaches to ½.Therefore , we say that the probability of head is ½ . This is well explained in the concept based on Relative frequencies in Probability .

Sampling :

Also , the case study why predictions are not always very accurate , could be well understood with Mathematical lens , based on **Sampling**.

Inferential Statistics is built on the foundation of Probability theory , and has been remarkably successful in guiding opinion about the conclusions to be drawn from data.

If we Analyse the Predictions on a larger set of data [Large Sample Tests , In **Sampling**] , we talk about the predictions of the results , with 5 % level of risk , the result value falling in Critical Region or the **region of Rejection** , or falling in 95% confidence **Interval** , not with 100% certainty.

Predictions based on samples of populations are subject to **sampling error** which reflects the effects of chance and uncertainty in the sampling process. Sampling polls rely on the **law of large numbers** to measure the opinions of the whole population based only on a subset, and for this purpose the absolute size of the sample is important, but the percentage of the whole population is not important (unless it happens to be close to the sample size). The possible difference between the sample and whole population is often expressed as a **margin of error** – usually defined as the radius of a 95% confidence interval for a particular statistic. One example is the percent of people who prefer product A versus product B. When a single, global margin of error is reported for a survey, it refers to the maximum margin of error for all reported percentages using the full sample from the survey. If the statistic is a percentage, this maximum margin of error can be calculated as the radius of the confidence interval for a reported percentage of 50%. Others suggest that a poll with a random sample of 1,000 people has margin of sampling error of ±3% for the estimated percentage of the whole population.
A 3% margin of error means that if the same procedure is used a large number of times, 95% of the time the true population average will be within the sample estimate plus or minus 3%. The margin of error can be reduced by using a larger sample, however if a pollster wishes to reduce the margin of error to 1% they would need a sample of around 10,000 people.

Sometimes , the birth details , are not correctly provided

or not known completely & correctly & thus the entire process of Calculation , Analysation or inference drawn , goes wrong , putting the blame on Astrologer or Astrology .

But if there is a correct horoscope , with all details and a thorough scientific examination being done , the accuracy of predictions is 95% - 100% .

So , Mathematical Astrology is not very easy , nor is it difficult !!

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