MATH AND REASONING OF KUNDALI

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Abstract

Kundli or birth chart has fascinate people for long time. It's in human nature to first find out about future scope before going on any journey or adventure be it professionally or personally. This need to know about future has sometimes yielded in bas outcome as many people fall prey to conman and lose their life saving. If one understand the math and logic behind it, the problem of conman can be controlled drastically. The Mathematics of Kundli is highly involved process requiring knowledge of Astronomy, Physics, geography and Logic. Most importantly it tells about local mean time (LMT) which is time of that place. This shows that olden people have already figured out time difference of various places and did the mathematics behind it. The position of Sun, Moon, Rahu and Ketu in Planetary system shows that they used to understand planet in different way than how modern world understand it. Similarly, the fear of Shani Saade saati (7 and half years of Saturn) will go away if people understand the math behind it. Such fear about various position of planets and signs unnecessarily paralyzes the person and make him or her loose his ability to take his own decision. Such Kind of work can help generate interest among next generation of the great work done by our Rishis and rishikas in the field of astronomy and mathematics.

Keywords: Kundli, Maths, Zodiac, Astrology, Astronomy

Introduction

Finding ones future has always fascinated human beings. For this humans have consistently tried to come up with trends, pattern recognition, and premonition and even math. In Indian culture also, people use Kundli to find about future or other possibilities in life (Āryabhaṭa et al., 2018; Selin, 2008). But many a times a question arises, how accurate is this Kundli and what is the logic behind it.

Kundli in ancient India was based upon astronomy. It is the math of celestial bodies specifically, the 9 planets (Sun, Moon, Venus, Mercruy, Mars, Jupiter, Saturn, Solar eclipse and Lunar Eclipse) along with constellations in ecliptic plane (12 Zodiac signs) (Braha, 2015; Hartmann et al., 2006). The map of Kundli gives specific information about the planets, their location and position in sky at any given time and day. Through this information, old indian astrologers used to predict about the future scope of the person. Though Kundli is lot about prediction, this paper is not about the same, but more about the mathematics behind the same (Pingree, 1973; Selin, 2008).

KUNDALI:-

An astrological diagram that shows the positions of planets and other celestial bodies at the time and place of a person's birth.

Key Elements:-

Houses: The kundali is divided into 12 houses, each representing a Zodiac constellations (Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius, and Pisces), but also different area of the life (Jain, 2005; Keyes & Daniel, 1983).

Planets: The positions of the planets are noted within the house. But planet or Grah are not the same as modern denomination. (Grah in olden times means, one which changes it location as compared to other stars)

Zodiac signs: Each house is associated with a zodiac sign. This is along the ecliptic plane of earth and sun.

Nakshatras: The moon's position is also noted in terms of nakshatras. Since the moon's orbit is tilted by 5 degree, it is not exactly based in the 12 zodiac signs but sometimes present in nearby constellations called as Nakshatras.

For making birth chart or Kundli 3 data are important.

- 1) Birth place
- 2) Birth date
- 3) Birth time

Based upon the birth place and time, the zodiac sign of the person is calculated. But to ascertain the speed of all planets, ancient Indian Gurus figured out the speed of all planets, their apparent movement in sky with respect to Zodiac and based upon it, the impact on person's life.

But to figure out apparent position of all planets with respect to place of birth, one need to first calculate speed of earth.

Speed of Earth:

Earth rotates in 24 hours. Since one circle is about 360 degree, rotation every hour and every minute is given as

Rotation per hour = $360^{\circ}/24 = 15^{\circ}$ per hour

Time for 1° rotation = $60 \text{min} / 15^{\circ} = 4 \text{min per degree}$

Also earth takes 365 days to complete one revolution. That means it moves about 1 degree per day with respect to sun $(360^{\circ}/365 \text{ days} = 1 \text{ degree per day})$

Speed of Moon:

Moon revolves around earth in 29.5 days. Since one circle is about 360 degree, revolution time from one Zodiac to other one can be calculated as

Number of Zodiac = 12 in entire 360 degree.

Time to move from one Zodiac to other Zodiac by moon

= 29.5 days (for 1 revolution) / 12 Zodiac (for one revolution)

= 2.46 days per Zodiac

Need of Time and Place of Birth to Get Moon Sign:

Time and Date of birth is needed to get moon sign because we can find angle between Earth and Moon. The moon moves through the zodiac signs every 2.4 days, which means its position changes rapidly. If someone was born on a day when the moon changed his location from one sign to another, only their birth time would tell what sign moon was in when they were born.

Sun Sign and Moon Sign:

On the day of Birth, the Zodiac behind sun with respect to earth is called its sun sign. Sun Sign changes every one month only as there are 12 signs and 12 months in a year. Moon sign changes every 2.5 days approximately (Pasachoff & Percy, 2009).



Figure 1: 12 Zodiac sign in Ecliptic plane.

ASCENDANT

The ascendant or rising sign is the astrological sign on eastern horizon when person was born. It signifies a person's physical appearance, and awaking consciousness. In this ascendant there are 12 house and each house has 30° (360/12) house and 2 (24/12) hours.



Figure 2: 12 Zodiac sign and their position in Kundli chart.

CALCULATION OF ASCENDANT

For making the horoscope first of all we have to calculate ascendant which is the rising sign of the time of birth. This will be done with the help of two books Viz. table of ascendants & annual ephemeris 1993 (For the year of birth) by Lahiri. The math of ascendant is explained by an example below: Date of birth: - 10/12/1993, Time of birth: -3.50 AM IST, Place of birth: - Mumbai Step 1 Convert the IST to LMT (local Mean Time). Formula: 4 x (longitude of the city - 82°30') (4 comes from 4 minute per degree) $= 4 (72^{\circ} 50' - 82^{\circ} 30') (1 \text{ degree} = 60 \text{ minutes})$ $= 4 (-9^{\circ} 40')$ Hence 4x9 = 36 minutes and $4 \times 40^{\circ}/60^{\circ} = 2$ min and 40 seconds (40/60 convert minute is degree)Therefore total time is $36m + 2m \ 40s = 38m \ 40s$ Since this answer is in negative, deduct 38m 40s to obtain LMT. Step 2 The next step is to find out the sidereal time for the given date, time & place of birth. Sidereal time for 10^{th} December (From page 3, Table of Ascendant) 17h 14m 07s Correction to Indian sidereal time For Mumbai (From page 101, last column, Table of Ascendant) + 06sCorrection for 1993 (From page 4, Table II, Table of Ascendant) + 1m 52sSidereal time for 12 Noon ON 10.12.1993 for Mumbai 17h 16m 05s. Now, let us calculate sidereal time for the time of birth on 10.12.1993 for Mumbai: As the birth is before 12 Noon, deduct from 12h 00m 00s LMT 3h 11m 20s to give 8h 48m 40s. ---С (For afternoon birth, there is no need of this deduction. Correction to increase the time intervals

is applied straight to the LMT) Now apply correction to increase the time interval

(From page 5, Table IV, Table of Ascendants):

For 8hr + 1m 19s and For 48m + 8s

For 8hr 48 min: 1min 27s ...D

Now, add C & D. This comes to 8h 50m 07s.

Sidereal time at 12 Noon 17h 16m 05s. Less corrected time interval - 8h 50m 07s. (For birth in the afternoon, this should be added.)

Sidereal Time for the given 8h 25m 58 Ш

Now to find out the Ascendant, refer to Tables given in the book Table of Ascendants for various latitudes. Search for the latitude of Mumbai (or its nearest place, if the same is not available). On page 29, Table for Latitude 19° N is given. As given earlier, the latitude for Mumbai,

the required place of birth, is 18° 58' N (say, 19° N).

In this page, we have to search for the Ascendant for the Sidereal Time given above as, 8 hr 25 m 58 s as at E.

Ascendant for

For 8h: 24m: 6s - 100 46' and For 8h: 28m: 6s - 110 41'

Hence for 4m: 55'

('s' is the zodiac sign, Degree (°) and minute (') already explained above).

If we deduct the former from the latter, we get 4 minutes = 55 m but we need 2 minutes (8h 24 m +1 m 58' (1m 58' is approximately equal to 2') = 8h 26m. So for 2 minutes, we get 28 m (55/2: 27.5, say 28). Therefore, Ascendant for 8 h 25 m 58 s (Or say, 8h 26m) = $6s 10^{\circ} 46' + 28' = 6s 11 14'$

Step IV

Now, apply correction for Avanamasha for 1993. as per page 6 of Tables of Ascendants, which is -46'.

Therefore, Ascendant for the required birth: 6 s 11° $14' - 46' = 6s \ 10^{\circ} \ 28'$

This means, ascending sign is Libra (7), and it has travelled 10° 28'in Libra.

In a northern horoscope ascending sign is written in top center and then zodiac signs are continued anticlockwise. Later, planet are placed in the horoscope.

Once the Kundli set, planet are placed on the chart. But since it is not possible to give information about all planet movement, the discussion is only done for saade Sati of shani (7 and half years of Saturn).

Shani Sade Sati

A 7.5-years period when Saturn transits through the 12th,1st and 2nd houses from your Moon sign in your birth chart.

Saturn takes 10756 days (29 years 5 months and 17 days). There are 12 houses in birth chart. Therefore, for each house Saturn takes 10756/12 = 2.456years.

2.456 years \approx 2.5 years for each house.

Therefore, for 3 houses $2.5 \times 3 = 7.5$ years. This time period is called Shani Sade saati.

Conclusion:

The mathematics of Kundli reveal a great deal about understanding of our ancestors. There mathematics knowledge was exceptional and so was there understanding of the astronomy. But over the period of time, common man got stuck in the astrology part and forgot the value of mathematics behind it.

If one understand the mathematics of the birth chart, they may not fall prey to conman and will be more true to their life purpose. Kundli mathematics involve collaboration between astronomy, mathematics, geography and logic, which shows the complex thinking of the time.

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