Parāśara Jyotiṣa Course

Chapter 5

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Planetary Calculations

Birth Time

पञ्चाङ्गस्थो मिश्रमानकालः पडिक्तसमाह्वयः
सूर्योदयाघातकालः सावनेष्ट उदीरितः॥१॥
pañcāṅgstho miśramānakālaḥ paḍiktasamāhvayaḥ
sūryoudayāghātakālaḥ sāvaneiṣṭa udīritaḥ ||1||

- Miśra-māna-kāla = planetary longitudes available in Pañcāṅga (almanac)
  - normally given for the time of Sunrise [and sometimes sunset] or say fixed time like 5.30 am
  - Moon position maybe for two or more times
- Pañkti means '10' (as in pañkti chandas 4x10)
  - refers to the ten variables to be determined from the pañcāṅga.
- Sāvaneiṣṭa or simply Iṣṭa Kāla refers to the time from sunrise to birth time

Longitude Calculation

dināghamantaraṁ yacca tapouryātāiṣyakaṁ hi tat|
paḍtayādhikyei yātasaṁjñameiṣyamiṣṭei'dhikei smṛtama

The time difference between the birth time and the pañcāṅga record is called Yāta Kāla (Elapsed time)

This Yāta Kāla (elapsed time) is either (a) positive or (b) negative if depending on whether (a) birth time is ahead of almanac time or (b) behind almanac time.

Example: Planetary positions are given for 5.30 am and birth is at 4.30 am, then Yāta Kāla is negative (4:30 am – 5:30' am = - 1:00) …simple math

Time Ratio & Longitude

ṛṇaṁ dhanaṁ dinādhaṁ tad guṇitaṁ grahabhuktibhiḥ|
kharasaivirhrata labdhmaṁśādhaṁ cālanaṁ phalam. | 3
paḍktigraheiṣu saṁśoudhyaṁ youjyaṁ c kramaśstadā | 4 ½

1. Time ratio = Yāta Kāla / Aho-rātra = (Birth-time – Almanac time)/ 60 ghāṭikā (or 24 hours, whichever)
   Example: If BT = 4.30 am and Almanac time is 5:30 am, then Yāta Kāla = - 1 hour (negative) and the ratio is also a negative number = – 1/24 = - 0.041667
   If BT = 7.30 am and Almanac time is 5:30 am, then Yāta Kāla = 2 hour (positive) and the ratio is a positive number = 2/24 = 0.083333
2. This is the fixed time ratio
3. Multiply this with the speed of the planets for the day to determine their motion for the Yāta Kāla (elapsed time)
   The motion can be either positive or negative depending on the ratio being positive or negative
4. Add the motion till Yāta Kāla to the planetary longitudes of the almanac to obtain planetary longitudes at birth time

Node Longitude

tātkālikagrahā vāmaṁ pātei vakrakhagei'pi tat |4 ½

1. Yāta Kāla ratio for retrograde planets and the nodes is reversed
   - If the ratio was +ve, then it is made negative and vice-versa. Rest of the process is the same as other planets for obtaining their longitude
   - This is done because the nodes and retrograde planets are moving in the reverse direction i.e. anti-zodiacal

Parāśara makes two important teachings here –

1. That the retrograde planets tend to follow the nodes (Rāhu and Ketu) instead of the luminary (Sun and Moon)
2. The nodes are always to be considered retrograde i.e. mean nodes (average) is to be used instead of true nodes

Illustration

Standard Nativity:
Date: August 7, 1963
Time: 9:15 pm
Time Zone: 5:30 East
Place: 83 E 58‘, 21 N 27'
Sambalpur, India
Pañcāṅga calculated for 5:30’ am IST

Longitude 5.30 am IST			
Pl	R	7 Aug	8 Aug
Su	Cn	20° 27' 44"	21° 25' 12"
Mo	Aq	10° 50' 48"	24° 49' 38"
Ma	Vi	13° 17' 29"	13° 54' 38"
Me	Le	12° 24' 8"	13° 55' 20"
Ju	Pi	26° 8' 32"	26° 8' 57"
Ve	Cn	14° 8' 26"	15° 22' 23"
Sa	Cp	26° 53' 30"	26° 49' 3"
Ra	Ge	25° 48' 41"	25° 45' 30"

Miśramānakāla = 5:30’ IST;
Yāta Kāla (Elapsed time) = 21:15’ - 5:30’ = 15:45’ Hrs
Ratio = 15:45’ / 24 = 0.65625

Motion Overview

Pl	Mean	07 Aug	08 Aug	24 Hr	%
Su	0° 59'	20° 27' 44"	21° 25' 12"	0° 57' 28"	97.41%
Mo	13° 11'	10° 50' 48"	24° 49' 38"	13° 58' 50"	106.05%
Ma	0° 31'	13° 17' 29"	13° 54' 38"	0° 37' 9"	119.82%
Me	1° 23'	12° 24' 8"	13° 55' 20"	1° 31' 12"	109.88%
Ju	0° 05'	26° 8' 32"	26° 8' 57"	0° 0' 25"	8.22%
Ve	1° 12'	14° 8' 26"	15° 22' 23"	1° 13' 57"	102.70%
Sa	0° 02'	26° 53' 30"	26° 49' 3"	- 0° 4' 27"	- 222.70%
Ra	0° 03'	25° 48' 41"	25° 45' 30"	- 0° 3' 11"	- 106.23%

Most planets are in their average motion except for
1. Mars which is just below 20% excess
2. Jupiter which is almost stationary > Check exact time
3. Saturn is retrograde and has minus prefix like Rāhu
4. Ketu is not listed as it is always opposite Rāhu

Planetary Longitude

Pl	R	5:30am	Motion ~	9:15 PM		Notes	
Su	Cn	20° 27' 44"	0.6285763	21.09	21° 5' 27"	D	N
Mo	Aq	10° 50' 48"	9.1747815	20.021	20° 1' 17"	D	N
Ma	Vi	13° 17' 29"	0.4062643	13.69	13° 41' 52"	D	Fast
Me	Le	12° 24' 8"	0.9975219	13.39	13° 23' 59"	D	Fair
Ju	Pi	26° 8' 32"	0.0044953	26.14	26° 8' 48"	S	Slow
Ve	Cn	14° 8' 26"	0.808757	14.94	14° 56' 58"	D	Fair
Sa	Cp	26° 53' 30"	-0.0487156	26.84	26° 50' 35"	R	Fast
Ra	Ge	25° 48' 41"	-0.0348578	25.77	25° 46' 36"	R	N

Sun 21 Cn 05' 28.32"
Moon 20 Aq 00' 21.75"
Mars 13 Vi 41' 51.89"
Mercury 13 Le 24' 12.84"
Jupiter 26 Pi 08' 49.38"
Venus 14 Cn 56' 59.25"

Saturn (R) 26 Cp 50' 34.65“
Rāhu 25 Ge 46' 35.27"
Moon must be calculated more accurately [6Hr almanac]

Various calculations for Nakṣatra

Nakṣatra

Nakṣatra

īṣṭamādhikaṁ nakṣatranyūnaṁ tadā īṣṭādityaneina jñeiyamḥ
īṣṭādvihīnaṁ ca dinarkṣanādī bhayāsaṁjñā bhavatīha tasya|
dinarkṣanāṛī kharaseiṣuśuddhā nijarkṣayuktaḥ sihatei bhabhougaḥ||5||

- Pañcāṅga always provides the start and end times of the nakṣatra
  - Nakṣatra of the day is the one that prevails at sunrise and sometime during the day, the Moon enters another nakṣatra
  - Nakṣatra Māsa = 27.32166 days
  - 1 Nakṣatra transit (average) = 24:17':09" = 60 Nakṣatra Ghāṭikā
  - 1 Nakṣatra Ghāṭikā = 1:00'43" ≅ 1 Ghāṭikā (approximation)
- Bha-yāta is the portion of nakṣatra (bha from bha-chakra) completed till the Iṣṭa kāla (birth time)

Bha-yāta

- Bha-bhoga is time taken for Moon to traverse nakṣatra.
  - Sarvarakṣa Bhoga (complete nakṣatra period)
- Bha-yāta is the sum of the nakṣatra elapsed at Miśra-mana-kāla (Pañcāṅga time) and the yāta kāla (birth time)
- Simply : Nakṣatra elapsed at Pañcāṅga time (A) + Yāta Kāla (B)
  - Where Yāta Kāla is period from Pañcāṅga time to birth time

Bha-yāta Illustration

- Illustration: In Ghāṭikā
  - (A) Day nakṣatra Ārdrā at 5:30' am (Pañcāṅga time): Elapsed 33 Ghāṭikā 45 Pala
  - (B) Yāta Kāla: Birth time minus Pañcāṅga time = 15 Ghāṭikā 10 Pala
  - Bha-yāta = (A) + (B) = 48 Ghāṭikā 55 Pala
- Illustration: In Hours
  - (A) Day nakṣatra Ārdrā at 5:30' am (Pañcāṅga time): Elapsed 13 Hours 30 minutes [Convert Ghāṭikā into Hrs]
  - (B) Yāta Kāla: Birth time minus Pañcāṅga time = 6 Hours 4 Minutes
  - Bha-yāta = (A) + (B) = 19 Hours 34 Minutes

Bha-yāta

īṣṭaṁ nyūnaṁ nakṣatramadhikaṁ tathā gatarkṣanāḍayeiti jñeiyamḥ
gatarkṣanāḍī kharaseiṣuśuddhā sūryoudyādiṣṭghṭīṣu yuktā|
bhayātasaṁjñā bhavatīha tasya nijarkṣanāḍīsahitei bhabhougaḥ ||6||

If in the previous case, the bha-yāta was more than 60 ghāṭikā or 24 hours? Then it implies that the nakṣatra in question has been traversed and next nakṣatra has started

Parāśara advises us to reduce the bha-yāta by bha-bhoga [i.e. 60 ghāṭikā (24 hours)] and the balance will give us the elapsed portion of next nakṣatra

This is applicable when Birth time is past the start of another nakṣatra

Bha-yāta Illustration

- Illustration: In Ghāṭikā
  - (A) Day nakṣatra Ārdrā at 5:30' am (Pañcāṅga time): Elapsed 33 Ghāṭikā 45 Pala
  - (B) Yāta Kāla: Birth time minus Pañcāṅga time = 35 Ghāṭikā 25 Pala
  - Bha-yāta = (A) + (B) = 69 Ghāṭikā 10 Pala
  - Implication: Bha-yāta > 60 Ghāṭikā → Ārdrā has lapsed and Moon has gone to next nakṣatra Punarvasu
  - Bha-bhoga in Punarvasu nakṣatra = (A) + (B) – 60 = 9 Ghāṭi 10 Pala

Moon Longitude

atha candraspaṣṭamāha

Śloka 7 - 9

Parāśara gives a detailed calculation for the longitude of the Moon

Although this is Gaṇita śāstra, it has been included in Horā Śāstra chapters as the practicing astrologer should be able to double check the lunar longitude

We have seen in the 'Planetary calculations' that the Moon moves fast and any iteration could give erroneous results.

It becomes imperative to double check the lunar longitude to ensure that we have the correct nakṣatra

We are not getting into the calculations as computers can do a good job these days

Moon Longitude

khakhaśūnyāṣṭaveideina gatirbhājitā|

eivaṁ cadrasya vijñeiyā rītiḥ spaṣṭatarā budhaiḥ ||9||

We have decided not to go into the gaṇita of Moon longitude, yet it is worth noting the figure 48000 as the size of nakṣatra mentioned by Parāśara

12 rāśi = 360° = 27 nakṣatra [or 28 nakṣatra]

Consider 27 nakṣatra first.

27 nakṣatra = 360° = 360 × 60 = 21600' (minutes of arc)

1 nakṣatra = 21600 ÷ 27 = 800' arc

1 nakṣatra = 800 × 60 = 48000" (seconds arc)

It is obvious that Parāśara is talking about 27 nakṣatra

these nakṣatra are applicable to the manifested universe and all beings get rakṣa (shelter and nourishment) from one of these 27 nakṣatra. Hence the name nakṣatra.

28 nakṣatra are for the four spiritual worlds and control through the Sarvatobhadra chakra.

Calculations of the Ascendant, the houses etc.

Lagna Bhāva

Ascensional Difference

Śloka 10-11

Learn some terms

- Palba is the length of the shadow of Shanku (stick - 12 angula length) at mid-day, on the day of the spring equinox in the tropical chart (sāyana chakra)
- Parāśara is fully aware of the sāyana (tropical zodiac) and advises how it is used (also Viṣṇu Purāṇa)
- The shadow is zero at the equator and will be longer for higher latitudes
- Chara khaṇḍa: ascensional difference indicating the warp in the zodiac which causes the signs to ascend for different times at different latitudes

Definition of Ascensional Difference The difference between the Right Ascension of any body and its Oblique Ascension: used chiefly as expressing the difference in time between the rising or setting of a celestial body, and six o'clock; or, six hours from the meridianal passage. To find this, add the log. tangent of the declination of the planet, to the log. tangent of the latitude of the place. The sum will be the log. sine of the Ascensional Difference. This added to the planet's Right Ascension, when in South declination (or subtracted, when in North declination), gives the Oblique Ascension of the planet. The reverse process yields the Oblique Descension.

Rising Period

laṁkoudayā vighaṭikā gajabhānyakaṁgou'śrvinaḥ|
tripakṣadahanā aitāḥ krmoutktmagatāḥ punaḥ ||12||

- Laṁkoudaya = Lanka (equator) + Udaya (rising) → rising periods of the signs at the celestial equator is in tri-pada of Viṣṇu (Rama)
- Tripada of the rāśi are 278, 299 and 323 vighāṭi which reverses for next three rāśi and alternates. This defines the rāśi as viṁśapada (odd footed) and samapada (even footed)
- Chara Khaṇḍa is also placed in this manner of viṁśapada and samapada

Viṁśapada					Samapada			
1	Meṣa	Tula	278	↓	3	Karka	Makara	323
2	Vṛṣabha	Vṛścika	299		2	Siṁha	Kumbha	299
3	Mithuna	Dhanus	323		1	Kanyā	Mīna	278

Chara khaṇḍa addition

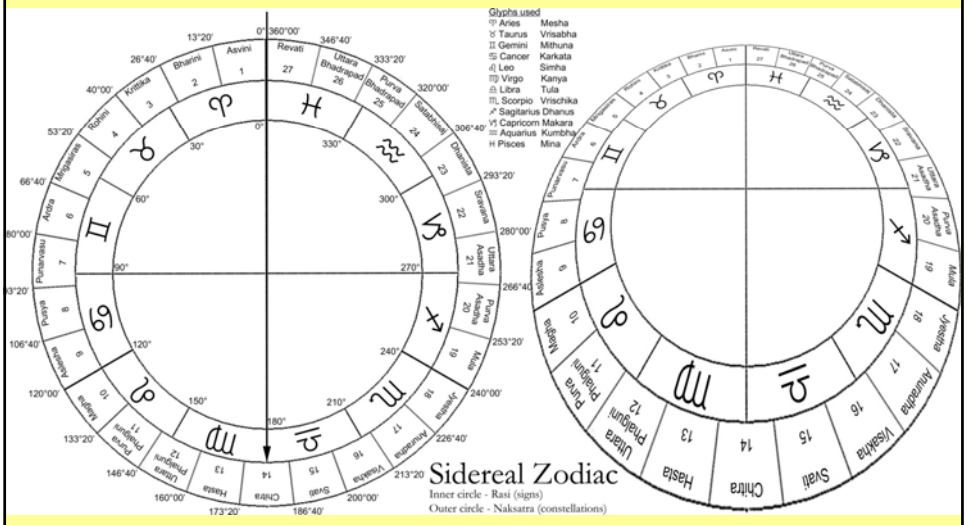
kramoutkramasthitairhīnayutāśavradalaistadā |
svoudayāḥ syuḥ krāmānmeiṣāttulādeirutkramāttāthā ||13

- Svodaya = Sva+udaya → rising times of signs in a given latitude will depend on the chara khaṇḍa obtained from shadow (or other mathematical means)
- First these are deducted from the first three rāśi periods
- then these are added in the next three rāśi (Karka to Kanyā)
- The gives the svodaya (rising times) of 6 signs [Meṣa-Kanyā] which are in direct order [-C1, -C2, -C3, +C1, +C2, +C3]
- For the next six signs Tula – Mīna, the order is reversed [+C3, +C2, +C1, -C3, -C2, -C1]

Rāśi Svodaya

Rāśi	Pada	Lanka udaya	Chara Khaṇḍa	Size
Meṣa	1	278	- C1	XXS
Vṛṣabha	2	299	- C2	XS
Mithuna	3	323	- C3	S
Karka	3	323	+ C1	M
Siṁha	2	299	+ C2	L
Kanyā	1	278	+ C3	XL
Tula	1	278	+ C3	XL
Vṛścika	2	299	+ C2	L
Dhanus	3	323	+ C1	M
Makara	3	323	- C3	S
Kumbha	2	299	- C2	XS
Mīna	1	278	- C1	XXS

Bhāva - Rāśi



Meant to be: Bhāva

Way it is: Rāśi

Ayanāṁśa

sphuṭou'rkaḥ sāyanaḥ kāryou bhuktabhougyāśaṁkāśra yei|
svīyoudayaguṇā striśṁdabhakttāḥ kālāstadāhvayāḥ ||14||
Śloka 14 - 17

- Sāyana Sūrya [Tropical Sun] longitude is obtained by adding the ayanāṁśa to the niryāna Sūrya (sidereal Sun longitude)
- Other calculations are for determining the exact Lagna Longitude, which those interested can learn while others will rely on computers
- Some argue that (1) tropical zodiac was not used at all or (2) that the sages were unaware of it → this proves both statements to be wrong
- It also proves that the sāyana Sūrya was calculated from niryāna Sūrya i.e. the Sun position was ascertained based on nakṣatra and not on the seasons or solstices

Udaya and Asta Lagna

lavādhyyaṁ tu phalaṁ śuddhamaśuddhajādirāśitaḥ|
āyanāṁśavihīnaṁ sat sphuṭaṁ lagnaṁ prajāyatei ||18||
ṣaḍrāśisahitaṁ tacca saptamaṁ bhavanaṁ matam|

- The figure obtained by previous calculations (śloka 14-17) gives the sāyana lagna (tropical ascendant)
- Deducting the ayanāṁśa from the sayana lagna, we get the niryāna lagna sphuṭa (sidereal lagna) [which is the key point in jyotiṣa]
- Add six rāśi (6×30°=180°) to the Lagna sphuṭa to get the saptama sphuṭa i.e. longitude of 7th bhāva called ashta lagna, setting point, descendant etc.
- The next śloka 19 gives alternate method to calculate the Lagna …Gaṇita

Formula

tan (Asc) = − cosA / (sinA×cosE + tanL×sinE)

A = local sidereal time in degrees

E = inclination of Earth's equatorial plane to the ecliptic or obliquity of the ecliptic.

- For values referred to the standard equinox J2000.0 use 23.4392911°, for J1950.0 use 23.4457889°

L = local latitude

- (Southern latitudes are negative, Northern positive)

- To locate in the correct quadrant (0 to 360 degrees)
  - If Ascendant < 0 then Ascendant = Ascendant + 180
  - If cos A < 0 then Ascendant = Ascendant + 180

Lagna

- 1 mfn. (for 2. see p. 895 , col. 2) adhered , adhering or clinging to , attached to , sticking or remaining in , fixed on , intent on , clasping , touching , following closely (with gen. or ifc.) MBh. Ka1v. &c. (with %{pRSThe} , %{pRSTha-tas} ; or %{pRSTha} ibc. , following on a person's heels ; with %{mArge} , sticking to i.e. following the road ; with %{hRdaye} , one who has penetrated the heart) one who has entered on a course of action , one who has begun to (inf.) Pan5cat. meeting , intersecting , cutting (said of lines) Gol. immediately ensuing Pan5cat. passed (as days) Vet. consumed by , spent in (instr.) Kuill. on Mn. vii , 127 auspicious (see comp.) furious through being in rut (an elephant) L. m. a bard or minstrel (who awakes the king in the morning) L. m. n. (ifc. f. %{A}) the point of contact or intersection (of two lines) , the point where the horizon intersects the ecliptic or path of the planets Su1ryas. VarBr2S. the point or arc of the equator which corresponds to a given point or arc of the ecliptic ib. the division of the equator which rises in succession with each sign in an oblique sphere ib. the point of the ecliptic which at a given time is upon the meridian or at the horizon (%{kSitije} , %{lagnam} , horizon Lagna ; %{madhya-lagnam} , meridian Lagna) ib. the moment of the sun's entrance into a zodiacal sign ib. the rising of the sun or of the planets ib. (in astrol.) a scheme or figure of the 12 houses or zodiacal signs (used as a horoscope) the whole of the first astrological house (also with %{zubha} , %{zobhana} , %{anukUla} &c.) an auspicious moment or time fixed upon as lucky for beginning to perform anything Ra1jat. Katha1s. Hit. [893,3] the decisive moment or time for action , decisive measure Katha1s.

Svarga (Medium Coeli or MC)

ddhurātrigataśeiṣeiṣṭghaṭayouralpaṁ tadutratam ||20||
nataṁ dinaniśourarddhṁmutratounaṁ prakīrttim |
natātpalīkṛtātpurvāparasmād bhuktabhougyataḥ ||21||
lakḍoudayaiḥ sādhyatei yallagnaṁ taddaśamābhidham |

- Parāśara gives the detailed math for calculating the Midheaven using the Unnata and Nata Kāla.
- Math: tan B = tan(A) × sec(w)
  where B = midheaven,
  A = local sidereal time in degrees,
  w = obliquity of the ecliptic.
- Midheaven is used in Bhāva Chalita Chakra and is the true sidereal position of the rāśi and graha
- For Bhāva Chakra, Midheaven is taken as 90° behind Lagna as this is the manas of the being

Narka (IC or Imum Coeli)

सषड्ये दशमे ज्ञेयं चतुर्थं द्विजसत्तम॥२२॥
saṣaḍyei daśamei jñeiyaṁ caturthaṁ dvijasattama ||22||

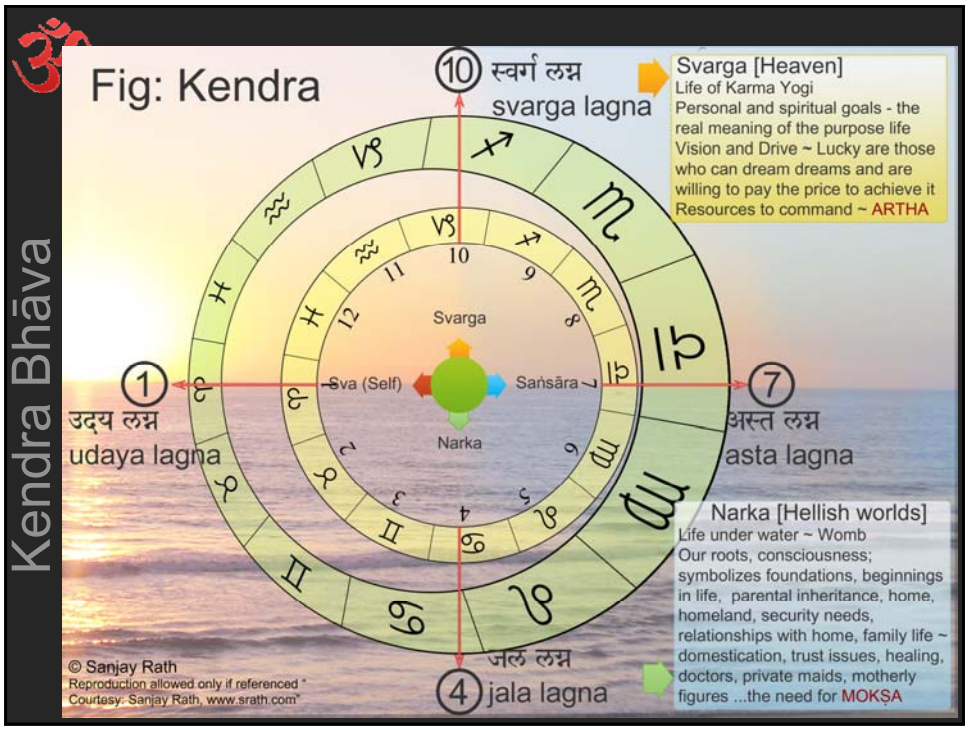
Exactly six rāśi (6×30°=180°) away from the Svarga (MC, 10th house Longitude) is the 4th house longitude

This point is called Narka and always opposes Svarga

1. Arka in the veda refers to a ray from the Sun or a flash of lightning symbolizing the power or throne of Indra, king of heaven (Svarga)
2. the sun
3. the plant Calotropis Gigantea (the larger leaves are used for sacrificial ceremonies
4. a religious ceremony
5. one who praises the gods,
6. of Indra
7. a physician Brahma Purāṇa

Narka = Na (no, negation) + Arka

Narka Song
No throne of heaven,
nor the light of Sun
nor lightening ushering
the blessed rain
No offering to honour the gods above
None to sing their hymns of praise
just men who doctor the body
not physicians who heal the same



Bhāva Chalita Chakra

lagnaṁ sukhāt sukhaṁ kāmād viśoudhya tribhirāhareit|
eikāṁśaṁ diguṇatracāpi yutrjyāllagnacaturthayouḥ ||23

Lagna longitude is deducted from the 4th house cusp [A]

And 4th house cusp is deducted from the 7th house cusp [B]

both the resultant figures are divided by three separately [A/3, B/3]

Then multiplied by one and two [A/3, A×⅔ ; B/3, B×⅔]

First set is added to the Lagna

- 2H = Lagna + A/3
- 3H = Lagna + A×⅔

Second set is added to the 4th house

- 5H = 4H + B/3
- 6H = 4H + B×⅔

Bhāva Chalita Chakra

ṣaḍbhāvāḥ sandhayaśraivaṁ purvāparāyuteirdalāt|

sasandhayaḥ ṣḍeivaṁ tei bhārdhayuktāḥ parei'pi ca ||24

- In this manner the six bhāva (madhya – cusp) are determined
- The midpoints of the bhāva cusps are the borders (bhāva saṅdhi) or junctions.
- Adding six rāśi (6×30°=180°) to each of these six bhāva madhya (cusps) and bhāva saṅdhi (junctions), the remaining six bhāva madhya and saṅdhi are determined
- Basically, the opposite longitude in the zodiac gives the other house cusps and borders