How Long is a Year In Vimsottari Mahadasa?

The following are typical questions from my students:

> "The question is about mahadasa-periods calculation. I noticed that there are two possibilities, namely 360 and 365 days-per-year. I heard some Vedic astrologers saying that it works best with 360 day/year. Also Srimad Bhagavatam mentions 360 day/year. On the other hand I've seen some astrologers use 365 day/year (like yourself, Asutosh Ojha, Arkasomayaji - all in Prabhupada's horoscope analysis).
>
> Can you tell me the reason for this difference? What is by your experience, the proper method? Why is there a difference at all?"

Another argument has been put forward for following 360 days/year for calculating the Vimsottari Mahadasa. This was sent to me by a student in Australia:

> "I once had a conversation with a jyotishi here in Australia who told me he uses the 360 day calendar as opposed to the 365 day calendar when calculating Vimsottari dasa. *His argument was, why should we use a solar based calendar for calculating a lunar based dasa system*?"

This issue of 360 versus 365 day/year for calculating Vimsottari Mahadasa has caused a lot of confusion and unnecessary ink to flow. But it wasn't always this way, it has only become an issue in the last 100–150 years. The reason why it has become an issue, and what the real situation and solution is will become clear as we explore this controversy. Let us begin by pin-pointing what the actual issues are and then answer them:

- What is the significance of 360 versus 365 day year?
- What is the basis for determining time?
- How is the year measured?
- Is there more than one type of year, if so what are they?
- What is meant by reference to 360 and 365 day/year?
- Is the 360 day year advocated for Mahadasa usage some how "Moon" related and the 365 day year "Sun" related?
- What is the relationship between the Solar and Lunar year?
- How were calendars prepared by astrologers in pre-British India?
- How long was a year for Mahadasa calculations according to classical texts?

- Does using 360d/y give "better" results than using 365 d/y?

In the following discussion I will often call the solar year the 365 day year, but actually it is about 365.25. I shall occasionally round it off to 365 for convenience.

What is the significance of 360 versus 365 day year?

If we were to use a 360 d/y rather than a 365.25 d/y, for mahadasa calculations after some time they would become more divergent. After one year they would only be different by five days, but in six years it would be a gap of 31.5 days (counting leap years). After 35 years it would be about six months out of phase and after 70 years a whole year out of phase. Thus the older the person got the farther out of phase the mahadasas would be. Thus using the 360 d/y, Jupiter mahadasa may start at age 35 but at age 35y 6m using the regular year of 365 days. This would introduce serious difficulties in timing events especially in regards to the Bhuktis. This difficulty would only increase with age.

What is the Basis for Measuring Time?
How is the Year Measured?

Of all the Rishis who received knowledge of astrology, Parasara Rishi is considered the most important and is called the father of astrology because in Kali-yuga only his work has survived in whole. His text *Brhat Parasara Hora Sastra* is a dialogue between Parasara Rishi and his disciple Maitreya Muni. In *Srimad Bhagavatam* 3.8.8–9, Maitreya explains to Vidura how Parasara learned the *Srimad Bhagavatam* and in turn taught it to Maitreya.

Why is this important in a general discussion of the controversy over whether the year in Vimsottari Mahadasa is a 360d/y or 365d/y? The answer is that three chapters later in SB3.11, Maitreya, the great devotee-astronomer-astrologer (and disciple of Parasara), explains to Vidura how time is measured in the chapter entitled *Calculation of Time, From the Atom*. In this discussion, of which relevant portions will follow, we shall see that **the motion of the Sun is the basis of measuring time**. This has been accepted by all the Rishis and is reflected in such astronomical texts as *Surya-siddhanta* and *Siddhanta-siromani* and can be seen in the ways in which the Vedic calendar, though lunar, is calculated. More will be mentioned about the Lunar calendar being dependent on the Solar year later.

The following information is from the *Srimad Bhagavatam* 3.11.1-16, entitled *Division of Time From the Atom*. We have also included the clarifying purports ("*p*") of Srila Prabhupada for the benefit of students who do not yet have a copy of *Srimad Bhagavatam*. From a close study of these texts we shall see how really advanced the Vedic philosophy actually is and how ignorant and arrogant modern science is. If we actually want to advance, even materially, we should stick closely to the perfect knowledge contained in Vedic literatures such as the *Srimad Bhagavatam*. I have italicized certain portions of particular interest:

> "[Maitreya speaking] The material manifestation's ultimate particle, which is indivisible and not formed into a body, is called the atom. It exists always as an invisible identity, even after the dissolution of all forms. The material body is but a combination of such atoms, but it is misunderstood by the common man. (1)"

> "The atomic description of the *Srimad Bhagavatam* is almost the same as the modern science of atomism, and this is further described in the Paramanu-vada of Kanada. In modern science also, the atom is accepted as the ultimate indivisible particle of which the universe is composed. *Srimad Bhagavatam* is the full text of all descriptions of knowledge, including the theory of atomism. *The atom is the minute subtle form of eternal time.*"(1p)

[We should note that the "atom" mentioned in the Vedas is not necessarily identical to the "atom" of modern physics which is being continually broken down into sub-atomic particles.]

> "Atoms are the ultimate state of the manifest universe. When they stay in their own forms without forming different bodies, they are called the unlimited oneness. There are certainly different bodies in physical forms, but the atoms themselves form the complete manifestation. One can estimate time by measuring the movement of the atomic combination of bodies. Time is the potency of the almighty Personality of Godhead, Hari, who controls all physical movement although He is not visible in the physical world. (2–3)
>
> "Atomic time is measured according to its covering a particular atomic space. That time which covers the unmanifest aggregate of atoms is called the great time. (4)
>
> "Time and space are two correlative terms. Time is measured in terms of its covering a certain space of atoms. *Standard time is calculated in terms of the movement of the sun.* The time covered by the sun in passing over an atom is calculated as atomic time. The greatest time of all covers the entire existence of the nondual manifestation. All the planets rotate and cover space, and space is calculated in terms of atoms. Each planet has its particular orbit for rotating, in which it moves without deviation, and similarly the sun has its orbit. The complete calculation of the time of creation, maintenance and dissolution, measured in terms of the circulation of the total planetary systems until the end of creation, is known as the supreme kala." (4p)

[Note. In this purport we again see the direct connection between the planets and the time factor and thus by inference the connection to astrology. It is seen that though all the planets are important from the point of view of the time factor, still the Sun has special importance.]

> "The division of gross time is calculated as follows: two atoms make one double atom, and three double atoms make one hexatom. This hexatom is visible in the sunshine which enters through the holes of a window screen. One can clearly see that the hexatom goes up towards the sky.(5)
>
> "The atom is described as an invisible particle, but when six such atoms combine together, they are called a *trasarenu*, and this is visible in the sunshine pouring through the holes of a window screen.(5p)
>
> "The time duration needed for the integration of three *trasarenus* is called a *truti*, and one hundred *trutis* make one *vedha*. Three *vedhas* make one *lava*.(6)
>
> "It is calculated that if a second is divided into 2109.375 parts, each part is the duration of a truti, which is the time occupied in the integration of eighteen atomic particles. Such a combination of atoms into different bodies creates the

calculation of material time. *The sun is the central point for calculating all different durations.*(6p)

"The duration of time of three *lavas* is equal to one *nimesa*, the combination of three *nimesas* makes one *ksana*, five *ksanas* combined together make one *kastha*, and fifteen *kasthas* make one *laghu*. Fifteen *laghus* make one *nadika*, which is also called a *danda*. Two *dandas* make one *muhurta*, and six or seven *dandas* make one fourth of a day or night, according to human calculation.(7–8)

"The measuring pot for one *nadika*, or *danda*, can be prepared with a six-pala-weight [fourteen ounce] pot of copper, in which a hole is bored with a gold probe weighing four masa and measuring four fingers long. When the pot is placed on water, the time before the water overflows in the pot is called one *danda*. (9)

"It is advised herein that the bore in the copper measuring pot must be made with a probe weighing not more than four masa and measuring not longer than four fingers. This regulates the diameter of the hole. The pot is submerged in water, and the overflowing time is called a danda. This is another way of measuring the duration of a danda, just as time is measured by sand in a glass. It appears that in the days of Vedic civilization there was no dearth of knowledge in physics, chemistry or higher mathematics. Measurements were calculated in different ways, as simply as could be done.(9p)

"It is calculated that there are four *praharas*, which are also called *yamas*, in the day and four in the night of the human being. Similarly, fifteen days and nights are a fortnight, and there are two fortnights, white and black, in a month. The aggregate of two fortnights is one month, and that period is one complete day and night for the Pitri planets. Two of such months comprise one season, and six months comprise one complete movement of the sun from south to north. **Two solar movements make one day and night of the demigods, and that combination of day and night is one complete calendar year for the human being. The human being has a duration of life of one hundred years.**(10–12)

"Influential stars, planets, luminaries and atoms all over the universe are rotating in their respective orbits under the direction of the Supreme, represented by eternal kala.(13)

"In the *Brahma-samhita* it is stated that the sun is the eye of the Supreme and it rotates in its particular orbit of time. Similarly, beginning from the sun down to the atom, all bodies are under the influence of the kala-cakra, or the orbit of eternal time, and each of them has a scheduled orbital time of one samvatsara.(13p)

"There are five different names for the orbits of the sun, moon, stars and luminaries in the firmament, and they each have their own samvatsara.(14)

"The subject matters of physics, chemistry, mathematics, astronomy, time and space dealt with in the above verses of *Srimad-Bhagavatam* are certainly very interesting to students of the particular subject, but as far as we are concerned, we cannot explain them very thoroughly in terms of technical knowledge. The subject is summarized by the statement that above all the different branches of knowledge is the supreme control of Kala, the plenary representation of the Supreme Personality of Godhead. Nothing exists without Him, and therefore

> everything, however wonderful it may appear to our meager knowledge, is but the work of the magical wand of the Supreme Lord.
>
> "Two *paksas* comprise one month, and twelve months comprise one calendar year, **or one full orbit of the sun**. A human being is expected to live up to one hundred years. That is the way of the controlling measure of eternal time. The Brahma-samhita 5.52 affirms this control in this way:
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> "I worship Govinda, the primeval Lord, the Supreme Personality of Godhead, under whose control even the sun, which is considered to be the eye of the Lord, rotates within the fixed orbit of eternal time. The sun is the king of all planetary systems and has unlimited potency in heat and light." (14p)
>
> "O Vidura, the sun enlivens all living entities with his unlimited heat and light. He diminishes the duration of life of all living entities in order to release them from their illusion of material attachment, and he enlarges the path of elevation to the heavenly kingdom. He thus moves in the firmament with great velocity, and therefore everyone should offer him respects once every five years with all ingredients of worship." (15)
>
> "Vidura said: I now understand the life durations of the residents of the Pita planets and heavenly planets as well as that of the human beings. Now kindly inform me of the durations of life of those greatly learned living entities who are beyond the range of a *kalpa*." (16)

Thus, considering the statements of Maitreya Muni, the disciple of Parasara, that even atomic time is based on the motion of the Sun culminating in:

> "Two solar movements make one day and night of the demigods, and that combination of day and night is one complete calendar year for the human being. The human being has a duration of life of one hundred years." SB3.11.12

We can easily see that Rishis such as Parasara Muni were not confused as to how long a year was in regard to calculating the year for Mahadasa. Astronomy is a branch of astrology (gola-khandha) and the astronomical year is based on the motion of the Sun as explained above by Maitreya Rishi. Thus, it strongly suggests that the Rishis used a standard astronomical year based on the motion of the Sun (365.25 days) for calculating the Mahadasa. Below we have reproduced a table from *Bharatiya Jyotish Sastra* (History of Indian Astronomy) published by the Government of India which clearly indicates that the Rishis accepted the Sun as the standard for measuring a year.

Length of the year according to different Vedic astronomical texts (BJS vol. 2, p. 13).

	days	ghati	pala	vipala	prativipala
Vedanga Jyotisa	366				
Pitamaha Siddhanta	365	21	25		
Pulisa Siddhanta	365	15	30		
Surya Siddhanta	365	15	31	30	
Romaka Siddhanta	365	14	48		
1st Arya Siddhanta	365	15	31	15	
Brahmagupta Siddhanta	365	15	30	22	30
2nd Arya Siddhanta	365	15	31	17	06

[1 ghati = 24 minutes = 60 pala, 1 pala = 60 vipala, 1 vipala = 60 prativipala]

In previous times, say even 300–500 years ago, to be an expert astrologer in India required that the aspirant have mastered several difficult pre-requisites namely: Sanskrit, mathematics (ganitha) and astronomy (gola) before they could study astrology. This screening process meant that only the leading intellectual giants, the top 5 percentile, could even proceed to the study of astrology. Is it any wonder that the predictions of such brilliant intellects seldom went wrong? Unfortunately, with the introduction of astronomical tables, and then easily available published ephemerides, and now computer programs, has actually been a set back for the dignity of Vedic Astrology. (Also Western Astrology. It has been stated by scholars of Western Astrology, such as Robert Hand, that astrology declined in the West when ease of mathematical calculation made it accessible to greater numbers of lower intellect.)

Practically speaking, there is no longer any intellectual rigor among those beginning the study of Vedic Astrology. Astrology software requires little in the matter of brain power to master, thus the average intellectual acuity and cultural knowledge of those who want to practice Vedic Astrology has dropped precipitously. Is it any wonder then that today astrological predictions seldom come true? Not only is intellectual acuity and rigor rarely found but by the lack of training in basic astronomy, calendar making and kalpana (rituals) these students are not even sufficiently armed to figure out for themselves whether a astrological year should be 360 or 365 days long! And thus fall into confusion about how long a year should be. Because of this ignorance truly needless controversies such as this one keep cropping up when the next batch of untrained students show up. No one who had training in mathematics and spherical astronomy, as was required in the old days, would suggest using a 360 day year as the basis for astrological calculations. Astrology and astronomy are inextricably tied together, you cannot have one without the other, and a 360 day year makes absolutely no astronomical sense.

Is there more than one type of year, if so what are they?

Were there any other kinds of years beside the solar year mentioned in the Vedas? There were five astronomical measures of time: Savana (sacrificial), lunar, solar, sidereal and Jovian. Of these the Vedas only describe the first three, the other two are only in astronomical texts.

A *solar* year is the length of time from one vernal equinox to the next. Alternatively it could be the time between successive *uttarayanas* (Winter solstice) or *daksinayanas* (Summer Solstice) of the Sun. The vernal equinox (first day of spring) is the midpoint between uttarayana and daksinayanas. These solar movements define the seasons. The solar year is thus the interval of the cycle of the seasons.

The *sidereal* year as of 1989 was 365.256363 days and is used for astronomical calculations. The word "sidereal" means star based, thus a sidereal year is the length of time it takes the Sun to return to the same position relative to the stars. It is slightly different than the solar year, about 20 minutes or so. The difference is caused by the precession of the Sun, a tiny motion of the Sun along the ecliptic due to wobbling (nutation) of the Earth (heliocentric perspective). It is only about 51 seconds of arc/year but after hundreds of years it adds up. The accumulated amount is known as the ayanamsa, an important entity in Vedic astrology.

The *Jovian* year, is based on the motion of Jupiter. It is called the *Brhaspati Samvatsara* and is related to the length of time it takes Jupiter to go through all the signs of the zodiac (about 12 years). Five such cycles equal 60 years which is it self a cycle the first year of which is called Prabhava, etc. There are various ways of measuring the Jovian year. The original way was to call the time between successive heliacal rising of Jupiter as a Jovian year. Heliacal rising of a planet means that as the Sun gets close to a planet it becomes invisible to our vision for some time. Then as the Sun moves on the planet again becomes visible, this time when it first becomes visible is the heliacal rising of the planet. The interval between heliacal risings of Jupiter is about 400 days. Later, different systems came in vogue in North and South India for determining the Brhaspati Samvatsara. The Brhaspati Samvatsara is important in mundane astrology and its use is outlined in texts such as *Brhat Samhita* by Varaha Mihira (he uses the original heliacal rising definition).

The *Savana* year has its origin in the Soma-yajna. We shall discuss it and the *Lunar* year more later.

What is meant by reference to 360 and 365 day/year?

This whole controversy has arisen in modern times in relation to the calculation of Vimsottari Mahadasa. It is thus assumed that there are two options:

1. to measure a year by 360 days

2. to measure a year by 365 days.

We must carefully note here that day means the normal Vedic civil day measured from sunrise to sunrise.

In the Vedas and Puranas there is mention of a 360 day year the following quotes speak of this:

> "The wheel (of time) having twelve spokes revolve round the heavens, but it does not wear out. Oh Agni! 720 pairs of sons ride this wheel." *Rg Veda Samhita* 1.164.22 (BJS vol. 1, pp. 17-18.)

> "Twelve spoke boards, one wheel, *three navels*. Who understands these? In these are 360 Shankus (rods) put in like pegs which do not get loosened." *Rg Veda Samhita* 1.164.48 (BJS vol. 1, p. 18.)

> "A year has 360 days, a year has 720 days and nights together." *Aitareya Brahmana* 7.17 (BJS vol. 1, p. 20.)

We note that a 360 day year is not a natural division of time but rather artificial, we shall presently see that this 360 day years serves a very explicit purpose and not for general usage. The 360 day year doesn't refer to the length of a solar year (365.25 days) or lunar year (360 tithis, about 354.36 solar days). The year of 360 days is called a Savana year and used strictly for sacrificial purposes particularly for the Soma-yajna as explained in the following quote from Dikshit's *Bharatiya Jyotisha Sastra* (BJS):

> "The period between two consecutive sunrises is known as a Savana day. the term Savana has its origin in the 'Soma sacrifice.' In a soma-sacrifice the *soma* juice has three savanas, that is, it is offered three times during the period of a 'day and night.' [The term 'three navels' mentioned in the previous cryptic *Rg Veda* verse seems to refer to this.] This idea is expressed by Madhavacarya in his work *Kala Madhava* as follows:
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> 'Therefore, that which pertains to *savana* is *savana*, that which pertains to *candra* (moon) is *candra* and that which pertains to *surya* (sun) is *saura*.'
>
> "The Soma-sacrifice which is completed in one day of 24 hours is known as 'aha' in the Vedas (and it appears that the day also used to be known as 'aha'). A group of six such 'aha's is known as a 'shadaha' and five such shadahas make a 'masa' or month. Several such shadahas and masas are required to be observed in a *samvatsara-satra*, annual sacrifice, and all of them together make 360 days." (BJS vol. 1, p. 22.)

Thus we see that the Vedas and Puranas do refer to a year of 360 days but this was closely related to Vedic sacrifices and not for civil or astrological use. It is also not stated whether intercalary days were added to the end of the Savana year to make it coincide with seasons as is done with the Lunar year, or if the Savana years ran consecutively. We have discovered that the Savana year of 360 is related to the Soma-yajna therefore how did it get confused in astrological calculations? The answer to this is simple: ignorance of how people kept calendars in pre-British India. This will become clear shortly. But first let us deal with the next point:

Is the 360 day year advocated for Mahadasa usage some how *Moon* related and the 365 day year *Sun* related?

Those who advocate the 360 day year say it is Lunar while the 365 day year is Solar and say something like the following:

"I once had a conversation with a jyotishi here in Australia who told me he uses the 360 day calendar as opposed to the 365 day calendar when calculating Vimsottari dasa. *His argument was, why should we use a solar based calendar for calculating a lunar based dasa system?*"

This argument reveals several fallacies:

The first fallacy is that Vimsottari Mahadasa is "lunar based." Simply because the apparatus used for ascertaining what the mahadasa should be is based upon the Moon and Naksatras doesn't mean we should reject the standard year simply because it is based on the movement of the Sun. There are other systems of mahadasa which are not based on the Naksatras does that mean we should shift definitions for the length of the year to suit them? There is also the fact that Satyacarya has suggested that the Janma-naksatra be chosen from the stronger of the Moon or Lagna. If the Lagna were stronger then this

would not be based on the Moon. In such cases would the length of the year be a different amount? Of course I want to quickly point out that Satycarya's suggestion of using the Lagna is not followed by any astrologers and the Moon's position is universally accepted as the standard for the janma-naksatra.

The second fallacy, is the assumption that since 365.25 is a solar year, we should reject it because mahadasa is a lunar based phenomena and rather accept a 360 day year. The unspoken assumption is that a 360 day year is somehow "Lunar." As we have pointed out before the Lunar year is not 360 days long but rather 360 tithis (lunar days) long, which is about 354.36 solar days long. Thus, since the 360 day year in not "lunar" then it should not be favored and the 365.25 day year should not be rejected for being "solar."

There is a third fallacy in this argument which leads us to the next question.

What is the relationship between the Solar and Lunar year?

The third fallacy is a bit more complex. The implicit assumption is that time measured by the lunar and solar calendar somehow yield different results. If we were to use a 360 d/y rather than a 365.25 d/y, for mahadasa calculations then there would be a difference. After some time they would become more and more divergent. After one year they would only be different by five days, but in six years it would be a gap of 31.5 days (counting leap years). After 35 years it would be about six months out of phase and after 70 years a whole year out of phase. Thus the older the person got the farther out of phase the mahadasas would be. Thus using the 360 d/y Jupiter mahadasa may start at age 35 but at age 35 y 6m using the solar year. This would introduce serious difficulties in timing events especially in regards to the Bhuktis. This difficulty would only increase with age. However, contrary to the implicit assumption of the advocates of the 360 d/y, there is no such discrepancy between the Vedic Lunar calendar and the Solar calendar. **Actually the Vedic Lunar calendar is Solar** as will be seen from the following quotation from Dikshit's BJS (emphasis mine):

> "They purchased 'Soma' juice from the thirteenth month, and hence the thirteenth month is censurable". *Aitareya Brahmana*
>
> "Should the reins in the horse-sacrifice be twelve cubits in length or thirteen? The year consisting of (six) seasons is a kind of bullock whose hump is the thirteenth month. The horse-sacrifice is the best of all sacrifices. The year in the form of a bullock has got a hump (in the form of the thirteenth month)." *Aitareya Brahmana*
>
> "It is clear from the above quotations that the year was solar in the Vedic age. The natural means of measuring a year used to be one complete cycle of the seasons, just as the natural means of measuring a day was the period between two consecutive sunrises or that for measuring a month used to be the period between two full moons. The year as a unit of time could not come into being if seasons didn't exist. It is, therefore, obvious then that the year must have been solar.
>
> ". . . the seasons were naturally supposed to recur after 12 lunar months. Although, one complete cycle of seasons required 11 days more than 12 lunar months . . .[and the result of this difference of 11 days]. . . . . the lunar month which used to fall in the summer must shift to occur in the winter and later on in the rainy season and thus have gradually receded through all

> the seasons. Every month of such a calendar, like the Muharram of the Muslims, was bound to pass through all the seasons, thus completing a revolution in 33 years. [To avoid such a 33 year cycle] . . .to insert an intercalary month; and the fact that such an intercalary month used to be reckoned in the Vedic times goes to prove **that the year was solar [even] in those days.** This may appear trivial today, but it certainly was no ordinary matter that our people conceived the idea of inserting an intercalary month in those days of hoary antiquity. As a matter of fact it is extremely significant. The ancient Romans were at one time a very powerful nation, they used to regard the year as consisting of 10 months for quite a long time. . .” (BJS vol. 1, pp. 20–21)

The Vedic Lunar calendar is actually a luni-solar calendar, that is, it is not independent from the Sun. A lunar month starts with the new Moon after the Sun enters into a sign and is named in accordance to the Solar sign or sometimes to the Naksatra in which the full Moon will take place in that Lunar month, the naming conventions differ in various geographical areas of India. In any case the lunar month is tied to the solar month. How the Solar year and Lunar year are linked shall now be explained.

The Lunar year consists of 12 lunar months each consisting of 30 tithis but this does not add up to 30 solar days since in the course of a lunar month a tithi will vary from about 19 hours to 26 hours with an average length of 23h 37m 28s. The lunar month would be 29.530589 days. Because the Lunar year is 360 tithis long, that is only 354.36 solar days long after only three years it would be about one month out of phase with the solar year. However to keep it in phase with the solar year, and thus with the seasons and religious observances, a leap month (adhika-masa) is introduced. The introduction of the adhika-masa is not artificial, but a natural occurrence (Metonic cycle) because about every third year there will be experienced the phenomena of two new Moons while the Sun transits through one Rasi. And since the lunar month is defined as the length of time between successive new Moons and that there can only be one Lunar month corresponding to a solar month, the extra lunar month becomes a leap month. Thus the solar and lunar years would continue to stay in phase perpetually, their difference never being more than about 22 days. In the first year they would be out of phase by 11 days, the second year out of phase by 22 days, the third year the leap month brings them back in phase, the fourth year out of phase by 11 days, etc.

If the Vedic Lunar year were not linked to the solar year then within only a few years there would be very noticeable differences in a change of seasons in relation to the calendar. By an accumulation of about 11 days per year it would not take long before a festival associated with the summer such as Krsna Janmastami would be observed in the spring when Gaura Purnima should be observed. That would be absurd. However, there is a Lunar calendar which is independent of the Sun, the Islamic. In this calendar, based on a cycle of 30 years, 19 of which are 354 days long and 11 of which are leap years, having 355 days each. In 30 years each lunar month will have cycled through all the solar months. Thus the first month of the Muslim calendar Muharram will retrogress through the whole solar Gregorian calendar, and also through the Vedic luni-solar calendar. Returning to our argument; the Vedic lunar calendar is tied to the Sun thus the Vedic Lunar calendar is actually a Solar calendar. It will always be very close to the Solar calendar and never go out of phase as would a 360 day year which would only become more divergent with time.

How were calendars prepared by astrologers in pre-British India?

Before the British introduced the Gregorian calendar to India the general public including Jyotisa Panditas all used the Lunar Calendar. There were 12 Lunar months each having 30 tithis for a total 360 tithis a year. At regular intervals, usually according to the Metonic 19 year cycle, leap months were added every 3rd, 6th, 8th, 11th, 14th, 17th and 19th year to make the Lunar year stay in phase with the Solar year. Thus if a Vedic astrologer did someone's horoscope and was tabulating the Mahadasa the years would be measured in Lunar years each of 12 months with 30 tithis in each month for a total of 360 tithis.

With the introduction of the Gregorian calendar a confusion of terminology was introduced. People who were not Panditas and knowledgeable in astronomy, time keeping and calendar making began to call the Lunar tithi as Lunar day. This Lunar day was misconstrued to be equal to a Solar day of 24 hours. This is an extremely popular misconception. I can not say how many times I have been asked about the peculiarities of the Lunar calendar. For example, I am often asked why is it that if an ekadasi took place on a certain date then why is it that next one is not 14 days later (in some instance)? Ekadasis are 11 days after the New and Full Moon, the New and Full Moon are 14 days apart, therefore the Ekadasis should also always be 14 days apart. Why has it diverged?

The problem arises because of not understanding the intricacies of the luni-solar calendar and making the very serious blunder of equating *tithi* with day. A tithi is not equal to a solar day, and varies in length from about 19 to 26 hours depending on the velocity of the Moon. So taking this misconception a step further, people who were not steeped in Vedic calendric tradition began thinking that since old text books and manuals used by traditional Panditas talked of years with 12 months of 30 tithis and a year of 360 tithis this must be the same as years with 12 months of 30 days and 360 day years. This, then, is how we have become entangled in a useless controversy of whether the Mahadasa should be measured in 360 day years or 365 day years. This is like comparing apples with oranges, you cannot equate a tithi with a day. By doing so you get a situation in which the two systems diverge with time.

The real question should be: can we do the mahadasa in Lunar years of 360 tithis or solar years of 365 d/y. The answer is that both are correct because both are equivalent and don't diverge. The Vedic Lunar year is actually a solar year with intercalary months inserted to keep it in phase with the seasons of the solar year.

How long was a year for Mahadasa calculations according to classical texts?

In Matresvara's classical text *Phala Dipika* the learned author states in 19.4 what length of time was a year for Mahadasa calculations:

> "Note the exact position of the Sun in the zodiac at the time of birth. When the Sun in the next round arrives at the same position, it is considered as one Solar year which is also the year taken for Udu Dasa system. By sub-dividing the same, days also are calculated."

Udu Dasa means the system of Mahadasa based on Naksatras, this includes Vimsottari and others. Now, we could have quoted this at the beginning of this discussion, but we felt obliged to present a lot more evidence to show the context of how time, calendric calculations, astrological traditions, other Vedic cultural experiences and foreign

conquest combine to create an astrological controversy that should not have existed but for the lack of knowledge in Vedic cultural traditions.

Does the 360 day year give "better" results than the 365 day year?

As we have shown throughout this course (which this article is an excerpt of) you can not make a judgement based on only one variable. An astrological prediction is based on weighing many factors, synthesizing them and then coming to a conclusion. To base your conclusions on only one factor, to the exclusion of all others, is the formula for failure and you will invariably go wrong. Thus, those who claim that they achieve more accuracy and get better results by using the 360 day year are ignoring the holistic approach to astrological analysis. They should not be emulated.

There will always be someone who says that they get better results by doing some un-orthodox thing like using 360 d/y, and they will waste theirs and a lot of other's time trying to prove it. This doesn't mean that I am against research in astrology but we must not forget that astrology was not developed like physics or biology, by empirical observation, it is revealed knowledge. Thus astrological research will be of a very different nature than that employed in empirical sciences. Gargamuni didn't become a master of Jyotisa by empirical research but, according to Visnu Purana, by tapasya and satisfying Anantasesa. This suggests that research in Vedic astrology should include purification of our consciousness so that we can actually understand what the Rishis have given us as well as making ourselves receptive to the words of the Paramatma, Lord Krsna within our heart. Research in Vedic studies also implies finding out the methods advocated by the Rishis and practicing them till we reach perfection. Research in Vedic Astrology doesn't mean concocting some new methods at odds with the internal logic and philosophy of the system.

No statistical study or any other method has ever been done which could prove that the 360 d/y should be applied in Vimsottari Mahadasa. Ultimately it all boils down to the "opinion" of a small group of astrologers that their method is better. If we are going to use opinion as the criteria I prefer to accept the opinion of my superior astrology teachers and great acaryas and not those of others who are unaware of Vedic cultural traditions (the material previously presented). Aside from this I can not think of any serious astrologers who use the 360 day year. All the great Panditas that I studied with, in North, East and South India all used the regular solar year of 365 days, and so do the vast, over-whelming, majority of Vedic astrologers. And that is what I recommend that you also use.

Summary

The controversy of 360 versus 365 days per year has come into being because in this day and age those who are studying Vedic astrology are doing so without being properly educated in Vedic cultural traditions. From a study of the Vedas and astronomical texts we find that the Sun is the basis for measuring time. That the year is based on the seasons which is again based on the movement of the Sun. There are several types of years in vogue in Vedic culture. The only reference to a 360 day year was used strictly for sacrificial purposes, the *soma-yajna*, it was not a lunar or solar year, nor was it used for civil or astrological purposes. The Vedic Lunar calendar is actually Solar because it is tied to the seasons which in turn are a Solar phenomena, thus the Lunar and Solar calendars measure the same length of time and do not diverge as a function of time as does the 360d/y in comparison with the 365d/y. Confusion arose after the British introduced the Gregorian calendar into India, then Lunar tithis became mistakenly

equated with Solar days and the Lunar year of 360 tithis became confused with a solar year of 360 days. Inspite of this confusion pre-British classics in Vedic astrology such as *Phala Dipika* clearly state that the year for Mahadasa calculation is 365 day year. The claims of those who state they get better results using a 360 day year is based on ignoring the holistic approach to astrological analysis and is more or less bluff and opinion. If we must choose on the basis of opinion then choose the opinion of the Rishis and previous acaryas who are steeped in the Vedic cultural traditions of astronomy and calendric science. The previous acaryas follow the 365 day year for mahadasa calculation. We close this discussion by quoting part of a letter by the late, learned, Vedic scholar H.R. Shankar that appeared in *The Astrological Magazine*:

Some Misgivings On Calculating Mahadasa

by H.R. Shankar (*AM*, January, 1974, p.93)

"In an article appearing in the October 1973 issue of this esteemed magazine Hira Gulrajani [who advocated 360 d/y] has raised some serious doubts on the advisability of timing events guided by Vimsottari Dasa/Bhuktis in the manner in which is presently in vogue [that is 365 d/y]. He contends that there is an inherent flaw in the method of calculation and the results thus obtained are an anomaly. According to him there would be cumulative difference by as much as one month for every 6 years of age of the native between the indicated operative period under Vimsottari and that of what he terms as actual period. If we are to go with him in his line of thinking, it would turn out that a native may have to celebrate his 72 birthday even while he has yet to complete his 71st year under Vimsottari reckoning. The seed of this confusion lies apparently in the notion of the contributor is that 'The period of planets given in astrological works are rated at 30 days a month (360 days for a year of 12 months), etc.' Nothing could be more absurd than projecting, as it does, the authors of astrological works as so naive and thoroughly lacking in sense of time measure that they conceived a calendar with 360 days to a year that is untenable astronomically and ill-suited for religious and even civil purposes, let alone for timing events. Whereas, actually the same sages who have codified for us the astrological truths were also giants in the field of astronomy and have to their credit of evolving systems to compute with fine accuracy even the age of the Earth.

The basis of all our time measure is the period of our world's rotation on her axis, defined as our day. Solar days and years are marked by the consequent apparent motion of the Sun while the Moon's circuit relative to the Sun marks the lunar month. All calendars extant are mere adoptions of one of these two systems. Vimsottari being basically a stellar method, it is logical to conclude that the reference therein is to lunar months and tithis.

The synodic period of the Moon is the basis for lunar calendar. Here the reckoning is done from the day following the New Moon ending with the next New Moon. The period named as *Masa* or lunar month is divided into thirty equal tithis. A tithi is based on elongation taken by the Moon to cover a segment of 12° of an arc of the zodiac, each multiple of 12 as the difference in longitude marking the end of a tithi. Tithis are numbered Shukla (bright) 1 to Shukla 15 during the waxing Moon and Krishna (dark) 1 to Krishna 15 during the waning Moon respectively. The lunar months are named after corresponding solar months in which the initial New Moon falls. Twelve lunar months make one Samvastsara, each Samvastsara bearing a specific name commencing from

Prabhava ending with Akshaya completing a cycle of 60 years. Vimsottari cycle of 120 years corresponds to two of lunar-year cycles.

The duration of a mean tithi being equivalent to 0.98 of a day, there will be an excess of 10.875 days in a solar year over twelve months. This difference is periodically reconciled by the introduction of 'Adhika' Masa in the lunar calendar. When two new-moon-ending lunar months begin within the same solar month, the second month is termed as Sudha or real and the first one is Adhika bearing the same name. This, incidentally, results in the first day of the lunar year always falling between March 14 and April 13/14 of English calendar. In other words, the age reckoned under lunar calendar would not be different from that of counting from English calendar except for a marginal difference of few days, plus or minus.

While the method described in astrological works for calculation of Dasa and Bhuktis is in units of Tithi, Masa and Samvatsara (as being practiced by the traditional scholars belonging to old school) the purpose would be equally served even by the direct application under English calendar. Astrological predictions being indicative rather than deterministic, a difference of few days in timing would not substantially distort the prediction. For those connoisseurs who wish to delve into suksmas division, the detailed working need necessarily be linked with the phase and movement of the Moon.

One would, however, be working on very slippery ground in trying to align operative planetary periods with corresponding events. Invariably, more than one astrological contributory factor would be involved in bringing about an event. *To identify only one force, to the exclusion of other planetary factors, with unerring accuracy, as the principle contributor is more a game of guess than analysis.* Being confronted with the ayanamsa riddle most of the astrologers resort to this method of stretching and pruning the operative period to accommodate past events and then take off from that point. Though this method is widely used, individual experience and talents alone are the decisive factor when it actually clicks. . . . "

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References:

AM–Astrological Magazine, The, Bangalore, India: Raman Publications.

Dikshit, Sankar Balakrishna, 1969, 1981, *English Translation of Bharatiya Jyotish Sastra-History of Indian Astronomy (Two Volumes)*, New Delhi: Government of India Press.