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Abstract

Calendars are the order of days and dates used as guidelines for human life activities periodically. Balinese calendar system of the Saka and *Pawukon* is very important in the socio-cultural life of the Balinese people who firmly hold a concept of harmonious life. They believe that this universe will be harmonious when humans can maintain good relations with God, fellow human beings, and the universe in a balanced way. This study aims at investigating the Balinese calendar system from its underlying-philosophical perspective as well as utilized-daily practices among the Hindu Balinese life. The theory used to undertake this study is semiotics by providing a sustained and rigorous relation between the signifier (sign) and signified (meaning). By applying a descriptive qualitative research, the data was collected through literature study of the Balinese calendar library and in-depth interviews with some stakeholders of the Balinese customary community, such as priests, and Balinese calendar practitioners and observers including the writer's direct practices. The data that has been classified is analyzed by a qualitative descriptive method with an inductive-methodological paradigm which is setting up the discussion from particular principles to the general in order to obtain a conclusion. The result of data analysis is presented by the formal and informal method. The study reveals that Balinese calendar system has an important role in the social life of the Balinese Hindu community as a reference in the social and cultural life, such as determining *ala ayuning dewasa* or the bad and good time in carrying out a business or a work, tracing one's birthday, and predicting personal traits.

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1. Introduction

The calendar is usually used by the society in general as a reference to determine information about an activity. Such information is the date, day, month and year. Pradnyani (2014) defines the calendar as a composition of days and dates that are used as guidelines for human activities of life periodically. Meanwhile, according to Destra (2013) and Prawira et al (2015), a calendar is a naming system at a time period. The naming of this time period can be based on the motions of celestial bodies such as the sun and the moon and it can be called by day or date. Empedocles, the Greek philosopher (Sudharta et al, 1984: 3) views this universe consisted of four elements, such as soil, fire, water, and wind. In Hindu philosophy which is called *Sangkhya* it is stated that this universe or macro cosmos consisted of five elements which is termed as *Panca Maha Bhuta*, namely soil, fire, water, wind, and ether. These five elements of the macro cosmos are also found in the human body and other creatures or microcosmos, such as the element of soil becomes solid elements, water becomes liquid, fire becomes heat, wind or air becomes breath and other elements related to air in the creatures' body, either becomes vacuum elements. Those terms of macro and micro cosmos make that there is no difference between humans and their worlds nature and both of them affect each other. As an illustration, the world as a planet cannot be separated from the influence of other planets. The planet which is the closest to the Earth is the sun so that it gives the hardest influence (Sun-day). Then the influence of the moon that falls on Monday (Moon-day) and so forth i.e. Tuesday was influenced by Mars, Wednesday by Mercury, Thursday by Jupiter, Friday by Venus and Saturday (*Satur* - day) by Saturn (Sudharta et al, 1984: 4).

In line with the definition of the calendar, the Balinese calendar is a lunar-solar-arithmetic calendar, because its calculation systems apply solar, moon and mathematical calculations (series and looping). In the social life of the Balinese Hindu community, the calendar system originally from Java, is very important considering its position as a reference in social and cultural life, especially in determining *ala ayuning dewasa* or the bad and good time to carry out a business or a work ("Bala Bali Kalendar", 2012, para 2). Balinese have their own calendar system. Two, in fact, running in parallel are the *sasih* and *pawukon*. The *sasih* cycle is a 12-lunar month calendar system in which each month begins on the day after a new moon (*tilem*) and the middle of each month is the full moon (*purnama*). On the other hand, the *Pawukon* calendar system is believed to be indigenous to the Balinese, possibly rooted in the thousand-year-old rice-growing cycle of the island. There are six months to a *Pawukon* year, and 35 days to a *Pawukon* month. So, a *Pawukon* year is 210 days. Each *Pawukon* month is divided into many shorter cycles (weeks) that run concurrently. The most important weeks are the 3, 5, and 7-day weeks ("Balinese Calendar System," n.d., para 1).

The Hindu calendar system in Bali using the rules referred to as Balinese Saka Calendar in this system used the guidelines of 1) one day is twenty-four hours where the turn of the day occurs at sunrise; 2) one week consists of seven days where the turn of the week starts at *Redite* (Sunday) with the names of the days: *Redite*, *Soma, Anggara, Buda, Wraspati, Sukra, Saniscara;* 3) one month consists of five weeks where the turn of the month begins after the "*tilem*" (dark moon) called *penangal ping pisan*. The names of the week take the system "*Wuku*" which consisted of 30 in number; 4) one year consists of twelve months where the turn of the year is on the new year of *Saka* i.e. the date of one *Waisakha* or the *ping pisan sasih kadasa* (Pradnyani, 2014). Balinese calendars time in limited units cuts out, not in order to count them or of to add up, but to describe them, specify them, to formulate them different significances which they take according to whether one places oneself at social standings, intellectual, or religious. The first calendar is based on the interaction of cycles independent of names of days, subjected to permutation. There are ten cycles different from names of days, each comprising cycle from one to ten days. In each cycle the names are different, and all the cycles turn simultaneously. Theoretically, any day given bears ten different names, which are to it applied at the same time (a name by cycle). Fortunately, only the cycles of five, six and seven names are really important. One day indicated by three names, (i.e. offering a single combination of names resulting from the three cycles) will thus return once every two hundred ten days (5 times 6 times 7). This system does not signify which day one is, but which kind of day one is and the Balinese perceive time like divided into two categories: full days where something occurs (it is "moments" or "economic situations"), those empty, where nothing or almost nothing does happen (they are "holes") ("Balinese Calendar," n.d., para. 1).

Meanwhile, based on the source from "Balinese Calendar," n.d., para. 14, Balinese calendars give an indication of the way the Balinese actually see time. In the West, people see time as a linear progression. The World has a beginning and is destined to have an ending. The Balinese, however, see time as circular, like birth and reincarnation. Balinese music is circular too. Balinese calendars track social and natural cycles. The Saka calendar calculates lunar periods. The *Pawukon* calendar records the growth of a Balinese rice plant, 210 days,

from germination to flowering. The *Pawukon* or permutational calendar is by far the most important for the Balinese. The Saka calendar arrived with the Javanese Majapahit kingdom in the 14th century. It is still used in parts of India and has 12 lunar months; each month is called a *sasih* and has a name in Sanskrit. Every *sasih* has 30 lunar days. Each *sasih* ends on the day of the new moon called *tilem*. The next *sasih* begins the following day. Full moon, *purnama*, occurs in the middle of the month. The Saka year commences in March or early April. The last day of the lunar year is the day of the new moon of the ninth month (*tilem kasanga*). New Year's Day is called *Nyepi* and is important to all Balinese. It is the only island-wide event and one of the few ceremonies timed according to the Saka rather than the Pawukon calendar. The Saka system is about 78/79 years behind the Gregorian year. The *Pawukon* calendar, whose origin is in East Java, came with the Majapahit kingdom in the 14th century, and consists of 30 seven-day weeks, each of which has a name, and six 35-day months. The Balinese year, called an *uku*, is therefore 210 days but the years are not numbered or named like Gregorian or Saka years. The calendar is not used to measure time. Its purpose is to pinpoint certain days. There are simultaneously and concurrently ten different kinds of weeks ranging from the one-day week to the ten-day week. They follow one another in a fixed order. So, every day has ten different names, one according to each of the ten cycles. Many Balinese events are scheduled according to the particular day of a particular week.

A research conducted by Destra (2013), Pradnyani (2014), and Prawira et al (2015) related to the Balinese calendar, especially on the application of the calendar through an ICT device like a mobile phone. Destra (2013) designed the model and built a Blackberry-based information system in Balinese calendar that can be used to search information based on the calculation of Balinese *pawukuan*. The design is done by the tool-modeling system as well as the searching algorithm of the calculation of *wewaran*, *purnama* (full moon), *tilem* (dark moon) and *sasih* from a number of Balinese Calendar library. The result of the analysis found an accurate-calculated result of *wewaran*, *sasih*, *purnama* and *tilem*. In addition, the result also found the accuracy of searching the Gregorian date, *otonan*, *wuku*, and festival. A similar research was done by Pradnyani (2014) by desaigning and constructing a modeling of the Balinese calendar information system-based Android Mobile which can be used to calculate retrieval information of *padewasan* or the community schedule-activities. The design is done with the software modeling-method system as well as tracer algorithm computation of *wewarigan*, *purnama*, *tilem*, and *sasih* from a number of Balinese Calendar library. An analysis was done by testing the computation of *wewaran*, *sasih*, *purnama*, *tilem*, *otonan*, the search of *otonan* that can be accessed easily via Android. Through the application of Balinese calendar with Android-based information system, it can be used to search information of the Balinese calendar, special events, national day, and one's birthday based on the calculation of the Balinese *Saka* calendar. While, Prawira et al (2015) conducted a research on the creation of Saka calendar on Macintosh device (MAC). Making the Saka calendar on the device can facilitate the users of Macintosh (MAC) to locate, identify and learn how to determine a good day in a religious ceremony. The researchers claim that the application is in accordance with the Balinese printed-calendar which applies the dynamic calculation method of Balinese Saka calendar standardized by the Hindu Association of Indonesia (PHDI). Having conducted some trials, it was found that the advantages of the application are it can use to search *otonan* (birthday), the feasts, events, organizing events, a custom reminder, private events, *ala ayuning dewasa* (bad and good day), *pawukuan*, *wewaran*, *paringkelan*, *purnama* (full moon), *tilem* (dark moon), and *sasih*. However, the shortcomings of this application are it cannot perform forecasts, conversions, and it can only run on computers with Macintosh operating system.

This study applies the theory of semiotics which is triggered by Ferdinand de Saussure and Ogden & Richards. Mulyawan (2016: 1) states that semiotics study learns all forms of relation between sign with the representation of reality and between the users in the social life of the community. The relation between sign with the representation of reality is known as the relation between the signifier (sign) and signified (meaning). Ferdinand de Saussure (Key & Noble, 2017) explained that language is a system of communication which involves concept and sound image, where a sound image is a signifier and concept is signified. Between signifier and signified does not have correlation or a relationship. The signifier is something which is arbitrary or having nothing to do with the signifier. On the other hand, Ogden & Richards (1923) (Mulyawan, 2016: 2) add a communicator element between signifier and signified that is thought of reference. The relation between them was described in the picture as known as semiotics triangle. The stimulus of the signifier in this part is known as a linguistics element of word or sentence then processed in the brain through the concept of meaning that has been owned over the signifier then produces a response in form of referent as a signified. Therefore, between signifier and signified does not have a direct relation but associated with the concept of meaning in the brain.

All literature reviewed above give some perspective views on the system of Balinese calendar either from the perspective of its epistemology or its utility in the Balinese-community daily practices. Therefore, the present study aims at investigating the system of Balinese calendar based on the enormous values of the calendar as the local wisdom heritage and how the Balinese Hindu community utilize the calendar in their daily-life practices as a visible evidence found in the community.

2. Research Methods

This study applies a descriptive qualitative research. The data used are secondary data and primary data. Secondary data is data obtained from the results of a number of Balinese calendar library including calculation *wewarigan,* the day, *purnama,* the full moon, *tilem,* the dark moon, and *sasih,* the month. While the primary data is data obtained directly based on the writer's direct practices and the results from in-depth interviews with some stakeholders of the Balinese customary community, such as priests, and Balinese calendar practitioners and observers.

Furthermore, data were analyzed by a qualitative-descriptive method based on an inductive methodological paradigm that is, a paradigm that departs from specific to the general principles (Mahsun, 2005: 256-257). By applying a descriptive analysis method, the data that have been collected in the form of description about the Balinese calendar system and its use in the community is described in detail so that finally will be drawn a conclusion about the calendar system and its use in the Balinese daily life practices. The results are presented by formal and informal methods. According to Sudaryanto (1993: 145), the method of informal presentation is to present the results of the analysis with a description or regular words, while the method of formal presentation is the formulation with signs and symbols. According to Muhammad (2011), the symbols or signs are used to present or formulate the results of the analysis so that the meanings of rules and concepts, inter-rule and concept relations, and the rules and concepts of peculiarities can be identified and understood.

3. Results and Analysis

3.1 The Division of the Balinese Calendar System

This study concerns with analyzing the qualitative data from both secondary and primary data collected during the research. These results and analysis depart from the point of view that the earth which is only a planet in this vast horizon cannot be separated from the interplay of influence with other planets. This point of view is very relevant applied to the Balinese calendar system. The calendar system consists of two main parts, namely the *sasih* or *Saka* calendar and the *pawukon*. The ***Saka* calendar** is based on cycles of the moon or lunar cycle. Unlike the Saka, there are a total of 210 days in the *pawukon* year which consists of six months and a total 35 days to each *pawukon* month. The complex part is that every month is also then divided into 10 "weeks" (one day week to ten-day weeks concurrently) within that month. The parts of the calendar system will also affect one another in some aspects of the Balinese life such as religious ceremonies, daily-life activities, and one's personal traits. Bali which is flourishing in colorful ceremonies and what makes it even more interesting is the fact that every ceremony has a significance to not one but two of the calendars that they follow, for instance, the *Saka* (lunar calendar) and the *pawukon*. People who have various different characters because they are influenced by the pawukon calendar, such as the *sapta wara* (*sapta* means seven and *wara* means day) and the 30 *wukus* can influence one's birthday characters.

3.1.2 The Saka Calendar

The Balinese calendar is very important in the daily life of Balinese people. Unlike other calendars of its kind in the world, the Balinese calendar is very special. The Balinese dating is the conventional calendar. It is not astronomical like the Islamic calendar, nor arithmetic like the Javanese calendar, but roughly is in between. The Balinese dating resembles the *luni-diesel* calendar. Based on the position of the sun and the moon. It is said that the convention or compromise, because along the course of the date is still discussed how the calculation. There are several ways that try to be applied several years (*Nampih Sasih* system) then go back to the previous way (*Malamasa*). So, in line with the dynamics of Balinese people. In compromise, it is agreed that one-day candra = 1 solar day. In fact, one-day *candra* is not equal to the length of 1 solar day. For that, every 63 days (9 *wuku*) is set one day-solar which is equal to two days-*candra*. Today is called *pangunalatri*. Based on the pairing lunar calendar system on the basis of the moon phase of Bali calculations and astronomically, it is agreed that within 1 month of *candra* or *sasih* there are 30 days consist of 15 days before the full moon is called the *penanggal* or *suklapaksa*, followed by 15 days before new month (*tilem*) called *panglong* or *kresnakapsa*. Dates

are written from 1 in the new moon, up to 15 or full moon, using red color on printed calendar. After the full moon, the cycle returns repeated from the number 1 on the day after the full moon to 15 on the dark moon (*tilem*) using black. Table 1 below shows the list of 12 months of *sasih* and its resemble in the Gregorian calendar.

Table 1.
The 12-Balinese months of *sasih*

No	*Sasih*	Gregorian Calendar
1.	*Kasa*	July – August
2.	*Karo*	August – September
3.	*Katiga*	September – October
4.	*Kapat*	October – November
5.	*Kalima*	November – December
6.	*Kanem*	December – January
7.	*Kapitu*	January – February
8.	*Kawolu*	February – March
9.	*Kasanga*	March – April
10.	*Kadasa*	April – May
11.	*Jesta*	May – June
12.	*Sada*	June - July

Source: http://www.babadbali.com/pewarigaan/kalender-saka.htm accessed 23 April 2018

Based on this calendar, the new year of *Saka Nyepi* feast or the silent day in Bali always falls in the mid-to-end of March until the first half of April. The new year for the Balinese calendar celebrated as the *Nyepi* day, does not fall on the first *sasih* or *Kasa*, but in the tenth *sasih* or *Kadasa*. In *Nyepi* day, the number of Saka year is 78 years minus the Gregorian calendar, so that the recent *Nyepi* day which was on 17th March 2018 or 1st *Kadasa* 1940. Many *piodalan* temples in Bali are set according to Saka calendar. Some holy days are also based on *Saka*'s year, such as *Nyepi* and *Siwaratri* Holy Day. *Dewasa ayu* or the good time for various purposes of agriculture and industry is also very dependent on the year *Saka*, because the year *Saka* closely related to the travel season. On a calendar printed by Balinese calendar experts, the pioneer is Ketut Bangbang Gede Rawi as it is shown in figure 1, there is almost no room to record other events. It has already filled with all the hints and analysis of the good and bad every day. And even then, not enough, behind the calendar sheet is always printed very solid, information about many things that are closely related to the journey of the time.

Figure 1. Balinese Calendar composed by I Ketut Bambang Gde Rawi

3.1.2 The Pawukon Calendar

The *pawukon* calendar is a pure arithmetic calendar. This calendar does not record the starting number of the year and rotates cyclic *nemu gelang* without stopping. One-year *pawukon* = 210 days, divided into 7 days named

wuku which consists of 30 and each *wuku* has a name. *Pawukon* calendar does not take into account the phase of the moon or season. The new year in the *pawukon* calendar is unknown, however, the beginning of the *wuku* is known as the beginning of the *pawukon* cycle. While the end of *Watugunung wuku* is the end of one cycle *pawukon*. The beginning of this *pawukon* cycle is characterized by purifying oneself, bathing and swimming in the sea or lake, known as the holy day of *Banyu Pinaruh*. The end of the wuku is the holy day of *Sanghyang Aji Saraswati*, the goddess of knowledge on the day of *Saniscara Umanis Watugunung*. All *wewaran* meet or nemu gelang in pawukon cycle. However, for 1 year of pawukon, 210 days does not produce integers when divided by 4 or *caturwara*, 8 *astawara* and 9 *sangawara*, there are pauses in the cycles. Since most of Bali's holidays are based on the pawukon cycle, knowledge of the pawukon cycle will be helpful. Table 2 below show the list of the 30 *wukus*.

Table 2.
Names of the *Wuku*.

No	Names of the *Wuku*	No	Names of the *Wuku*
1.	*Sinta*	16.	*Paaang*
2.	*Landep*	17.	*Klurut*
3.	*Ukir*	18.	*Merakih*
4.	*Kulantir*	19.	*Tambir*
5.	*Tolu*	20.	*Medangkungan*
6.	*Gumbreg*	21.	*Matal*
7.	*Wariga*	22.	*Uye*
8.	*Warigadean*	23.	*Menail*
9.	*Julungwangi*	24.	*Perang bakat*
10.	*Sungsang*	25.	*Bala*
11.	*Dungulan*	26.	*Ugu*
12.	*Kuningan*	27.	*Wayang*
13.	*Langkir*	28.	*Kulawu*
14.	*Medangsia*	29.	*Dukut*
15.	*Pujut*	30.	*Watugunung*

Source: http://www.babadbali.com/pewarigaan/kalender-pawukon.htm accessed 23 April 2018

3.1.3 The Use of Wewaran

Unlike international day shifts starting at 00:00:00 midnight, and days in Java starting at sunset around 18:00, a day in Bali is valid since sunrise around 06:00 am until the next day before the sun began to rise. The grouping of days internationally is a week. Within a week, each day is given a name that distinguishes one day to another. In Bali the grouping is not just 7 days only, there are 1, 2, 3, until 10. Each day in the group has a name, nature, a condition, a location and a lived rhythm or *urip*. Such grouping of days in Bali is studied in the science of *wewaran*. *Wewaran* is believed to be a cosmic rhythm count which signifies a supposition that a civilized culture keeps the harmony of human rhythm with the rhythm of the universe. Despite the debatable argument about the universe throbbing rhythmically, its rhythm can be understood by people who explore the science of astrology. Therefore, studying the meaning of each rhythm and the most mysterious is the *urip*. *Urip*, is also as *neptu*. In some places in Java, the term neptu is the sum of the *urip* of *saptawara* or the seven days and the *urip* of *pancawara*. In *upakara* or a religious ritual and *bebantenan* or offering for the God, this *urip* symbolized with some *uang kepeng* or Chinese coins with a hole in the middle, and the wise Balinese people also use it to take into account the good of the day. Indeed, the calculation of the name of the day in several cycles is highly dependent on the *urip* value of both these *wewaran*. For example, *ekawara*, *dwiwara,* and *dasawara*. Similarly, the calculation of *patemon* or matchmaking between *lanang isteri* or male female, fortune, and many other aspects of life depends on the *urip*. Each Balinese script and 16 wind direction also have a *urip*. Urip is indeed mysterious and the original source of the *urip* figure itself is unknown. The table 3 below shows the *urip* of the *wewaran*. The *sapta wara* or the 7 days resembles the 7 days of the week in the international calendar: *Redite* =

Sunday, *Soma* = Monday, *Anggara* = Tuesday, *Buda* = Wednesday, *Wrespati* = Thursday, *Sukra* = Friday, *Saniscara* = Saturday.

Table 3
Urip for the *wewaran* day

No	Name of *wewaran*	Name of the day	*Urip*	No	Name of *wewaran*	Name of the day	*Urip*
1.	*Ekawara*	*1. Luang*	1	6.	*Sadwara*	*1. Tungleh*	7
						2. Aryang	6
						3. Urukung	5
						4. Paniron	8
						5. Was	9
						6. Maulu	3
2.	*Dwiwara*	*1. Menga*	4	7.	*Saptawara*	*1. Redite*	5
		2. Pepet	5			*2. Soma*	4
						3. Anggara	3
						4. Buda	7
						5. Wrespati	8
						6. Sukra	6
						7. Saniscara	9
3.	*Triwara*	*1. Pasah*	9	8.	*Astawara*	*1. Sri*	6
		2. Beteng	4			*2. Indra*	5
		3. Kajeng	7			*3. Guru*	8
						4. Yama	9
						5. Ludra	3
						6. Brahma	7
						7. Kala	1
						8. Uma	4
4.	*Caturwara*	*1. Sri*	6	9.	*Sangawara*	*1. Dungu*	5
		2. Laba	5			*2. Jangur*	8
		3. Jaya	1			*3. Gigis*	9
		4. Menala	8			*4. Nohan*	3
						5. Ogan	7
						6. Erangan	1
						7. Urungan	4
						8. Tulus	6
						9. Dadi	8
5.	*Pancawara*	*1. Umanis*	5	10.	*Dasawara*	*1. Pandita*	5
		2. Paing	9			*2. Pati*	7
		3. Pon	7			*3. Suka*	10
		4. Wage	4			*4. Duka*	4
		5. Kliwon	8			*5. Sri*	6
						6. Manuh	2
						7. Manusia	3
						8. Raja	8
						9. Dewa	9
						10. Raksasa	1

Source: http://www.babadbali.com/pewarigaan/pawewaran.htm accessed 23 April 2018

3.2 The Utility of the Balinese Calendar System

The Balinese not only do have one but also two calendars system, the Saka, and *Pawukon*, running simultaneously. These calendars systems have enormous religious significance and must be regularly consulted.

In this case, every aspect of the socio-cultural activities of the Balinese can be consulted in the Balinese calendar which is composed by the late I Ketut Bambang Gde Rawi and sons. The calendar accommodates such activities as the date of *rerainan* or the Balinese Hindu's holy days, *odalan* or temple festivals, *dewasa ayu* or the good time for agriculture and plantation, farms and fishery, equipment and weapons, constructions, various businesses, and ceremonies. In regards with a religious ceremony, it is classified into 5 categories, based on the Balinese belief, called *Panca yadnya*: 1) *Dewa yadnya,* the rites for the God, deities, and the ancestor spirits like temple festivals or *piodalan*; 2) *Manusia yadnya,* the rites for humans including *otonan* or birthday, *metatah* or tooth filling, and wedding; 3) *Pitra yadnya* the rites for the ancestors' spirit purification like funeral and cremation; 4) *Resi yadnya* the rites for holy priests and teachers like *mediksa* or purification and inauguration of new priest ; 5) *Bhuta yadnya* the rites for supra natural spirits like *mecaru* or sacrifice rites. Therefore, it is compulsory for the Balinese to consult the calendar before executing the day of the ceremony. This custom is also applied to some aspects of social activities, such as starting to build a house which is called *ngeruak, nyikut karang, then followed by memakuh* and *melaspas* ceremony when the building is completed, to build a temple started from *nyukat* ceremony, *melaspas*, *ngenteg linggih* and *mendem pedagingan* ceremonies when the building of the temple is completed.

In Consulting the calendar for executing the day of an activity or ceremony, it depends on the ceremony's classification levels which determine who is appropriate to consult with. For example, the regular activity of fixing the roof tiles and some *nista* or the lowest ceremonies level, ones can consult the printed calendar of Bambang Gde Rai as it is shown in figure 1. However, if the Ceremony is classified into *madya* or middle levels, such as *ngeruak*, *nyikut karang*, and *memakuh,* a common priest or *pemangku* has an authority to consult the calendar. Ones must consult the calendar with the pandita or the highest priest for the highest level of ceremony or *utama* such as *melaspas* and *ngenteg linggih* for the temple, *piodalan*, *otonan*, tooth filling, wedding, *mediksa*, and *mecaru*. For example, *piodalan* or a temple festival in a *banjar* or the smallest unit of a customary village every *Purnama Jesta* or the eleventh full moon of the lunar calendar which this year falls on Monday, 30th April 2018. The *piodalan* is started by some preparations such as decorating the temple with the attire of *wastra* or temple cloth, *tedung* or umbrellas, and *umbul-umbul* or flags for the shrines, as well as making *penjors* or bamboo poles decorated with young coconut and flower leaves which are suspended in front the *banjar* and the temple. The activities were done 2 days before the *piodalan* or on Saturday afternoon, 28 April 2018. Figure 2 shows the preparation of *piodalan* by the *banjar* community.

Figure 2. The *piodalan* preparation by the community member of the *banjar*

On Monday, 30 April 2018 all the member of the *banjar* wearing Balinese traditional costume, the combination of white and yellow colors as a symbol of purity, while the *wastra*, *tedung*, and *umbul-umbul* in red which are attired in the temple symbolize the God's manifestation of the God as *utpeti* or the creator as it is shown in figure 3 below.

Figure 3. The community of *Banjar* worships the God in the temple's inner courtyard

The other ceremonies carried out on the 11th month of the full moon which is considered to be a *dewasa ayu* or a good time are *mecaru* and *melaspas merajan* as well as *mendem pedagingan* and *ngenteg linggih*. These ceremonies are done after the construction of a new temple is completed which aims at purifying the temple as a place of worship. The process of construction can take several months and the family has to consult with the *pandita* or the highest priest about the day for carrying out the purification rites. Since the *purnama* or the full moon is considered as *dewasa ayu*, then the rites are carried out on 30th of April 2018. Figure 4 shows the ritual of *mecaru*.

Figure 4. *Mecaru* rituals

The process of the religious rites is conducted by the highest priest or *Pandita* and the *pemangku* is the assistance of the highest priest. Figure 5 shows the highest priest conducting the religious rites.

Figure 5. A *Pandita* is conducting the religious rite

The role of the highest priest is very central not only for determining the days of carrying out the rites but also *muput* or conducting the rites. This practice is also applied in wedding ceremony where all the ceremony series from *ngeluku* or applying the bride until *mekala-kalaan* or purification ceremony with *tri upasaksi* or 3 witnesses, i.e., *dewa saksi* or the witness from the God, *manusa saksi* or the witness from human fellow, and *manggala saksi* or the witness from the authority like *kelian adat* or the chief of the customary village and *perbekel*, the village chief. Figure 4 below shows the wedding ceremony.

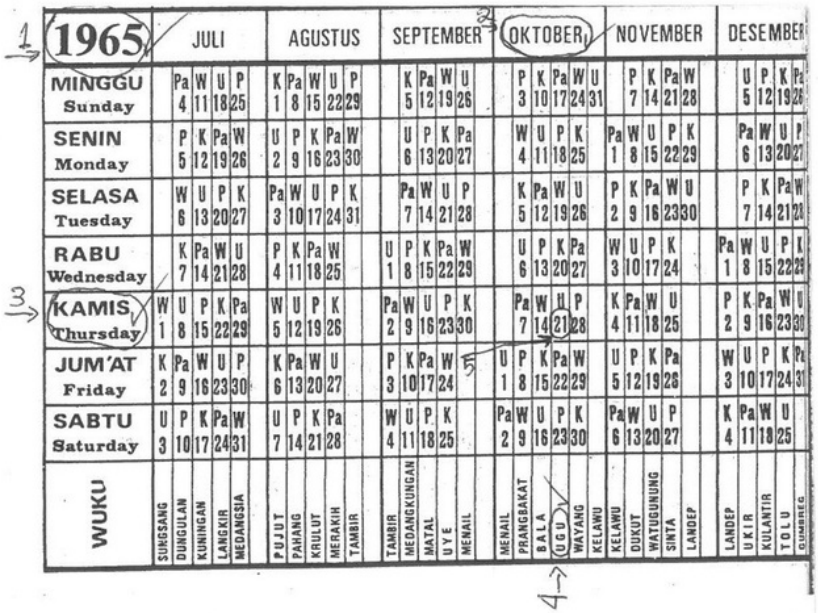
Figure 6. The groom and the bride do a photo session during the wedding ceremony

The biggest ceremony is cremation which is preceding by consulting the execution day and its peak is the procession of the *bade* or corpse tower from home to the cemetery. The procession is regarded as a journey to another world as it is shown in figure 7 below.

Figure 7. *Bade* procession as a journey to heaven

Many Balinese events are scheduled according to the particular day of a particular week. The three-day week of *tri wara* determines the traditional markets in Bali. The market shifts from one village to another on a three-day cycle like the market in Bringkit village, Mengwi sub-district. *Pekenan* or the market day is marked by a crowded situation in the market area and this situation often gives an excess of traffic jam along the main road of Kapal village as a traffic connection from Denpasar to catch the ferry in Gilimanuk harbor to Java. Another fact about this calendar system is the name of the market itself taken from the tri *wara* names, for example, in Ubud, market day is the day called *Pasah* and in Payangan it is the day called *Kajeng*. The real applied utility of the calendar is that the calendar system can be used to trace one's birthday, especially, for those who were not recorded the birthday. In Bali, this case happened to many people who were born in the early until the middle of the 20th century because there was not any civil authority office that registers the birthday. The calculation of the birthday firstly is based on the estimated year which usually can be traced from a special event took place when someone was born, such as independent day, the eruption of a mountain, revolution day in a country and others. Secondly, is the *otonan* which tell the day and the *wuku*. For example, the author was not recorded his birthday in

the Gregorian calendar when he was born. The estimated year of his birth was only a few days after the communist rebellion took place in Jakarta known as G 30 S PKI or Indonesian communist party coup 30 September 1965 and his *otonan* is on *Wrespati Ugu* or Thursday of the *wuku Ugu*. Therefore, the author was born on October 1965 and the day is Thursday *wuku Ugu* based on this data the author's date of birth can be traced as it is shown in figure 8 below.



1965	JULI	AGUSTUS	SEPTEMBER	OKTOBER	NOVEMBER	DESEMBER
MINGGU Sunday	Pa 4, W 11, U 18, P 25	K 1, Pa 8, W 15, U 22, P 29	K 5, Pa 12, W 19, U 26	P 3, K 10, Pa 17, W 24, U 31	P 7, K 14, Pa 21, W 28	U 5, P 12, K 19, Pa 26
SENIN Monday	P 5, K 12, Pa 19, W 26	U 2, P 9, K 16, Pa 23, W 30	U 6, P 13, K 20, Pa 27	W 4, U 11, P 18, K 25	Pa 1, W 8, U 15, P 22, K 29	Pa 6, W 13, U 20, P 27
SELASA Tuesday	W 6, U 13, P 20, K 27	Pa 3, W 10, U 17, P 24, K 31	Pa 7, W 14, U 21, P 28	K 5, Pa 12, W 19, U 26	P 2, K 9, Pa 16, W 23, U 30	P 7, K 14, Pa 21, W 28
RABU Wednesday	K 7, Pa 14, W 21, U 28	P 4, K 11, Pa 18, W 25	U 1, P 8, K 15, Pa 22, W 29	U 6, P 13, K 20, Pa 27	W 3, U 10, P 17, K 24	Pa 1, W 8, U 15, P 22, K 29
KAMIS Thursday	W 1, U 8, P 15, K 22, Pa 29	W 5, U 12, P 19, K 26	Pa 2, W 9, U 16, P 23, K 30	Pa 7, W 14, H 21, P 28	K 4, Pa 11, W 18, U 25	P 2, K 9, Pa 16, W 23, U 30
JUM'AT Friday	K 2, Pa 9, W 16, U 23, P 30	K 6, Pa 13, W 20, U 27	P 3, K 10, Pa 17, W 24	U 1, P 8, K 15, Pa 22, W 29	U 5, P 12, K 19, Pa 26	W 3, U 10, P 17, K 24, Pa 31
SABTU Saturday	U 3, P 10, K 17, Pa 24, W 31	U 7, P 14, K 21, Pa 28	W 4, U 11, P 18, K 25	Pa 2, W 9, U 16, P 23, K 30	Pa 6, W 13, U 20, P 27	K 4, Pa 11, W 18, U 25
WUKU	SUNGSANG, DUNGULAN, KUNINGAN, LANGKIR, MEDANGSIA	PUJUT, PAHANG, KRULUT, MERAKIH, TAMBIR	TAMBIR, MEDANGKUNGAN, MATAL, UYE, MENAIL	MENAIL, PRANGBAKAT, BALA, UGU, WAYANG, KELAWU	KELAWU, DUKUT, WATUGUNUNG, SINTA, LANDEP	LANDEP, UKIR, KULANTIR, TOLU, GUMBREG

Figure 8. Tracing the birthday using the calendar system form
Source: Kalender 301 years (in 1800 – 2100)

It needs 5 steps to trace the birthday: 1) firstly, the year is marked (1965); 2) the month (*Oktober* or October); 3) the day (Thursday); 4) the *wuku* (*Ugu*); 5) finally the date is found (21). Based on this tracery the author's date of birth is 21 October 1965. This calendar accommodates the year from 1800 until 2100 so that it can trace everyone's date of birth as long as the data required (year, month, day, and *wuku*) is identified.

4. Conclusion

The Saka Bali calendar is the solution that has been attempted by the Balinese ancestors since a long time ago to help the Balinese society determine their various timing activities. This calendar is composed based on the integrated-calculation system of revolution or the earth revolves around the sun (solar system) and evolution or the moon revolves around the earth (lunar system) as well as the elements of local calculation that are still in use today. The special features of the Saka Bali calendar can be seen in terms of various local calculations that serve as a reference for determining the best time in executing activities such as planting rice, harvesting, sailing, building houses, reference points for certain ceremonies or rituals, predicting personal traits, an anomaly weather. The existence of this calendar system enables materials obtained from the nature and they are used for ceremonies will always be available whenever needed, the various fruits will overflow when the big ceremonies will be accomplished, planting the rice will be exactly in line with the weather so that there is little chance of harvest failure, various ceremonies or custom rituals scheduled neatly, as well as various other advantages resulting in harmony between mankind with the *Sang Kala* or time in Bali.

Taken into account of the important position of the calendar system as a reference in Balinese socio-cultural life, it should be efforts of innovations from the recent generation who inherited the local genius, especially innovations in terms of *tafsir* or forecast and *dewasa ayu* or good time descriptions in order to keep up with the

times. Hopefully, this becomes an inspiration of the Balinese *wariga* or astrological experts to keep developing and harmonizing traditions and times.

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Statement of authorship
Gede Ginaya teaches English in the Tourism Department, State Polytechnic of Bali. The author has a responsibility for the conception and design of the study. The author has approved the final article.

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References

Bala Bali Kalender. (2012, January 9). Retrieved from http://www.balabali.com/id/balabali-kalender-id

Balinese Calendar System. (n.d). Retrieved from http://id.indo.com/culture/calendar.html

Balinese Calendars. (n.d.). Retrieved from https://www.murnis.com/culture/balinese-calendars

Balinese Calender. (n.d.). Retrieved from http://www.discover-bali-indonesia.com/encyclopedia-balinese-calendar.html

Destra, I. N. P. W. P. (2014). Aplikasi Sistem Kalender Bali Berbasis Mobile Application Pada Blackberry Platform. *Merpati*, *1*(1).

Kalender Pawukon Bali (n.d.). Retrieved from http://www.babadbali.com/pewarigaan/kalender-pawukon.htm

Kalender Saka Bali (n.d). Retrieved from http://www.babadbali.com/pewarigaan/kalender-saka.htm

Kalender Saka Bali: Tonggak kehidupan masyarakat dewata (2017, September 2). Retrieved from http://www.infobudaya.net/2017/09/kalender-saka-bali-tonggak-kehidupan-masyarakat-dewata/

Ketut Bambang Gde Rawi (1910-1989). (n.d.) Retrieved from http://www.babadbali.com/pewarigaan/bbgrawi.htm

Key, L. E., & Noble, B. P. (2017). *Course in general linguistics*. Macat Library.

Mahsun, M. S. (2005). *Metode penelitian bahasa: tahapan strategi, metode dan tekniknya*. PT RajaGrafindo Persada.

Manfaat Wewaran. (n.d.) Retrieved from http://www.babadbali.com/pewarigaan/pawewaran.htm

Muhammad, M. H. (2011). Metode Penelitian Bahasa. *Jogjakarta: Ar-Ruzz Media*.

Mulyawan, I Wayan. (2016). Meaning and Message of 'Jemme'. Lingual: journal of language and culture, 7(4), 76-83

Pradnyani, I. A. P. (2014). Aplikasi Kalender Bali Berbasis Mobile Application pada Android Platform. *Merpati*, *2*(1).

Prawira, I. P. C., G.M.A. Sasmita, I.P.A. Bayupati. (2015). Aplikasi Kalender Saka Bali pada Sistem Operasi Machintos. *Merpati*, *3*(2).

Rawi, I.K.B.G and Sons. (2012). Kalender Bali 2018. Sertifikat Hak Cipta No. 061741/C00201200796. ISBN: 978-602-6740-02-1.

Suarta, I. M. (2017). Revitalization of Oral Literature Tradition of Balinese Society Based Character Values As Deradicalism Effort. *International Journal of Social Sciences and Humanities (IJSSH)*, *1*(1), 8-16.

Suarta, I. M., Widana, I. W., & Citrawan, I. W. (2018). Lontar manuscript readability. *International Journal of Linguistics, Literature and Culture (IJLLC)*, *4*(2), 58-65.

Sudaryanto. (1993). *Metode dan aneka teknik analisis bahasa: pengantar penelitian wahana kebudayaan secara linguistis*. Duta Wacana University Press.

Sudharta, T.R., Hermawan, I.G.O., & Winawan, W.W. (1984). *Kalender 301 tahun*. Jakarta: Balai Pustaka.

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3) Understanding Russian Tourists' Characters in Tourism Industry of Bali (Jurnal Kepariwisataan STP Nusa Dua Bali, Vol. 9, No. 2, 20015).
4) Conflict of Interests between the Tour Guides and Foreign Representatives in Handling Russian Tourists at PT. Tiga Putrindo Lestari, Nusa Dua Bali (Jurnal Perhotelan dan Pariwisata STIPAR-Triatma Jaya, Vol. Vol 1-5, 2015).
5) Enhancing Students' Speaking Ability Using Scaffolding Technique (SOSHUM, Vol. 4, No. 3, 2018).

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