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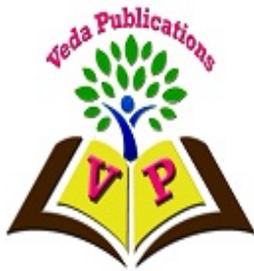
PATTERNS OF NUMERAL FORMATION IN TAI PHAKE: A DESCRIPTIVE STUDY

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ABSTRACT



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The North-East region of India is renowned for its remarkable linguistic diversity, where numerous indigenous languages coexist in close contact. Among these, the Tai Phake, a language belongs to the Tai-Kadai language family is mainly spoken in the districts of Assam and parts of Arunachal Pradesh. The present study, aims to examine the structure and formation of numerals within the language. The analysis demonstrates a systematic pattern where the language primarily follows a decimal numeral system, similar to other Tai Kadai languages. The numerals from one to ten are monomorphemic and serve as the foundation for creating higher numbers. Numerals from eleven to nineteen are formed through additive processes, while higher numerals are formed through both additive and multiplicative strategies to express numerical values. The study also identifies various categories of numerals-cardinal, ordinal, fractional, multiplicative, and approximate, each exhibiting distinct morphological and syntactic patterns. Functionally, Tai Phake numerals act as modifiers and generally occur post nominally, through descriptive analysis, this study highlights the internal logic and systematic organization of the Tai Phake numeral system. Moreover, it contributes to the broader understanding of numeral typology within the Tai-Kadai family and underscores the linguistic richness of Tai Phake, a severely endangered language of Northeast India.

Keywords: *Tai Phake, Tai Kadai Language, Numerals. Additive numerals, Multiplicative Numerals.*



1. INTRODUCTION

The Tai Phake is both the name of the language as well as of the community that speaks it. According to Grierson the Tai Phake language belongs to the Siamese-Chinese branch of Sino-Tibetan linguistic family (Grierson). However later on Benedict deconstructed the linkage of Tai languages from the Siamese-Chinese branch and established a new family called the 'Tai-Kadai' language family (Benedict). It is one of six Tai languages spoken across Northeast India which include Ahom, Aiton, Khamti, Turung, and Khamyang. Notably, Tai Phake shares significant linguistic similarities with Aiton as highlighted by Diller. Diller (1992:7 f n6) reported that there was full mutual intelligibility between Aiton and Phake, that they 'find each other's speech totally unproblematic' (Morey, *The Tai Languages of Assam: A Grammar and Text*). The language is spoken by a very limited number of speakers and mainly scattered in the Dibrugarh and Tinsukia districts of Assam, as well as in the Changlang district of Arunachal Pradesh. To estimate the current population of the group is very challenging because of the small number. However, according to the Ethnologue report of 2013, the number of Tai Phake speakers is less than 2,000. And the language is heavily influenced by the dominant languages of the region, primarily Assamese. UNESCO's 'Atlas of the World's Languages in Danger' (2009), lists Tai Phake as severely endangered due to its diminishing number of speakers. Despite their shrinking population, the Tai Phake people have shown strong determination in preserving their language and culture. One interesting aspect of their language is

their numeral system, which is mostly unknown and not well documented.

2. NUMERAL SYSTEM: A BRIEF OVERVIEW

A numeral is a word or symbol used to show a number like 'one', 'five', or 'hundred' etc. In contrast, the term 'number' can also refer to a grammatical concept that shows whether something is singular or plural (Awan, 2017). According to Wiese, although numbers go on forever, each natural language has a limit to how high it can count, based on the cultural and scientific needs of its speakers (Wiese, 2003).

All human languages have some form of numeral system used for counting and expressing numbers. These systems might use written symbols or even pictures to show quantities. A numeral system, or system of numeration, is a structured way to write numbers using a consistent set of symbols or digits. Interestingly, the same group of symbols can mean different things depending on the numeral system being used. As Comrie explains, numbers can be understood as words, phrases, or other forms that indicate quantity (Comrie, 2004). Omanchonu (2011:84) emphasizes that 'counting or numbering is an integral and inseparable part of the grammar of any language,' as meaningful linguistic discourse often relies on references to quantity, size, time, distance, and weight expressed in definite numbers (Ore)

3. NUMERALS IN TAI PHAKE

In the Tai Phake language, numerals mainly serve as adjectives, primarily describe nouns to indicate quantity. This language uses a decimal



numeral system i.e., based on ten. It does not have a vigesimal structure, which is based on twenty. Tai Phake numerals are generally divided into seven main categories including cardinal, ordinal, multiplicative, approximate, distributive, restrictive, and fractional. Each type can be further classified based on specific functions and usage patterns.

3.1. CARDINAL NUMERALS IN TAI PHAKE

A cardinal numeral refers to a word used to count and express quantity, such as one, two, and three. In Tai Phake, cardinal numerals can be divided into two types:

- (i) basic cardinal numerals and
- (ii) compound cardinal numerals.

There are two different terms for zero: *pao* and *sɔŋ*. The term *sɔŋ* is believed to come from the Sanskrit word *sunya*. The numbers from one to ten, each have unique words of representation and follow a simple pattern. Higher cardinal numerals in the language are formed by compounding.

3.1.1 BASIC CARDINAL NUMERALS

In Tai Phake, numerals from one to ten are basic cardinal numerals. Other than these, here are also a few numbers like twenty, hundred, thousand, lakh, and crore which falls under basic cardinal numerals. All basic cardinal numerals in the language are simple and follow the monosyllabic pattern like other Tai languages, except the numeral for crore, which is pronounced as *kuk te*. The basic cardinal numerals in Tai Phake are illustrated in Table: 1

TABLE 1: BASIC NUMERALS IN TAI PHAKE

Tai Phake	Gloss
<i>nun</i>	'one'
<i>sɔŋ</i>	'two'
<i>sam</i>	'three'
<i>si</i>	'four'
<i>ha</i>	'five'
<i>houk</i>	'six'
<i>seit</i>	'seven'
<i>pet</i>	'eight'
<i>kao</i>	'nine'
<i>sip</i>	'ten'
<i>sao</i>	'twenty'



<i>pak</i>	'hundred'
<i>heij</i>	'thousand'
<i>lan</i>	'lakh'
<i>kuk te</i>	'crore'

3.1.2. COMPOUND NUMERALS TAI PHAKE:

Numerals in Tai Phake are formed by the process of numeral compounding. Based on their formation process, compound numerals are classified into three different types which include additive compound numerals, multiplicative compound numerals and multiplicative-cum-additive compound numerals. Each type has its own unique characteristics and will be explored in this section.

3.1.2.1 ADDITIVE COMPOUND NUMERALS

Additive compound numerals are formed by combining two or more basic numerals to represent a sum. In Tai Phake numeral system, the numerals from 11 to 29 are constructed using a purely decimal framework, primarily through the process of compounding. This system effectively combines the basic numerals from 1 to 9 with the base numeral for 'ten' and 'twenty', known as *sip* and *sao*. The additive numerals in Tai Phake are represented in the following table:

TABLE 2: ADDITIVE COMPOUND NUMERALS IN TAI PHAKE

Additive rule	Tai Phake	Gloss
[10+1]	<i>sip et</i>	'eleven'
[10+4]	<i>sip si</i>	'forteen'
[10+5]	<i>sip ha</i>	'fifteen'
[10+8]	<i>sip pet</i>	'eighteen'
[20+3]	<i>sao sam</i>	'twenty three'
[20+6]	<i>sao houk</i>	'twenty six'
[20+9]	<i>sao kao</i>	'twenty three'

A distinct pattern emerges when dealing with higher numerals in conjunction with base numerals. Specifically, when base numerals are added to higher numerals, a morpheme 'se' is inserted between them. This insertion serves to link the two elements. For instance, in combinations such as [100+1], [100+6], and [1000+5], the presence of 'se' acts as a connective. To further illustrate this pattern, consider the following examples.

**TABLE 3: ADDITIVE COMPOUNDING OF HIGHER NUMERALS IN TAI PHAKE**

Additive rule	Tai Phake	Gloss
[100+3]	<i>pak se sam</i>	'hundred three'
[100+4]	<i>pak se si</i>	'hundred four'
[1000+5]	<i>heij se ha</i>	'thousand five'
[1000+8]	<i>heij pet</i>	'thousand eight'
[1000+25]	<i>heij se sao ha</i>	'thousand twenty five'

3.1.2.2. MULTIPLICATIVE COMPOUND NUMERALS

Multiplicative compound numerals involve the combination of numerals to express a product. In Tai Phake, the numerals from 10 to 90 are constructed through a multiplication process involving the base numeral *sip* 'ten', and other base numerals starting from *eit* 'one' to *kao* 'nine' except the numeral 'twenty' which has its own base form *sao*. Similarly, the higher numerals from 100 to 900, 1000-9000 and 100000 to 900000 are formed by multiplying the base numerals to *pak* 'hundred', *heij* 'thousand' and *lan* 'lakh' respectively. For instance, 100 x 1 = 100), (100 x 2 = 200), and this pattern continues up to nine hundred. An intriguing observation regarding numeral usage is that the numeral 'one' consistently follows higher numerals, whereas other basic numerals precede higher numerals. This distinction highlights a unique feature of numeral structure in Tai Phake. The instances of multiplicative compounds in Tai Phake are represented through the table below:

Table 4: Multiplicative Compound Numerals in Tai Phake

Multiplicative rule	Tai Phake	Gloss
[10×3]	<i>sam sip</i>	'thirty'
[10×4]	<i>si sip</i>	'forty'
[10×5]	<i>ha sip</i>	'fifty'
[10×6]	<i>houk sip</i>	'sixty'
[10×7]	<i>seit sip</i>	'seventy'
[10×8]	<i>pet sip</i>	'eighty'
[10×9]	<i>kao sip</i>	'ninty'
[100×1]	<i>pak nun</i>	'onehundred'
[100×2]	<i>soj pak</i>	'two hundred'
[100×5]	<i>ha pak</i>	'five hundred'



[1000×1]	<i>heij nun</i>	'one thousand'
[1000×3]	<i>sam heij</i>	'three thousand'
[1000×6]	<i>houk heij</i>	'six thousand'
[100000×4]	<i>si lan</i>	'four lakh'
[100000×7]	<i>seit lan</i>	'seven lakh'

3.1.2.3 MULTIPLICATIVE-CUM-ADDITIVE COMPOUND NUMERALS

The multiplicative-cum-additive compound numerals, blends both additive and multiplicative principles. These numerals are formed by combining elements that involve the processes of both multiplication as well as addition. Multiplicative-cum-additive compound numerals include specific ranges of numbers, such as those from 31 to 39, 41 to 49, and so on. This pattern goes into the thousands, covering ranges like 1001, 2001, and beyond.

- i. Decade x Basic Numerals + Basic Numerals
- ii. Basic Numerals x Century + Basic Numerals
- iii. Basic Numerals x Thousand + Basic Numerals

All the three types of numerals are illustrated below.

3.1.2.3.1 DECADE X BASIC NUMERALS + BASIC NUMERALS:

The range of numerals from 31 to 39, 41 to 49, 51 to 59, 61 to 69, 71 to 79, 81 to 89, and 91 to 99 fall into a specific category. These numbers can be viewed as structured with a blending of both basic numerals and the concept of tens. Each numeral in these ranges is formed by taking the basic digits from 1 to 9 and multiplying them by 'ten', and then adding another digit from 1 to 9. For instance,

TABLE 5: DECADE X BASIC NUMERALS + BASIC NUMERALS

Multiplicative-Cum-Additive rule	Tai Phake	Gloss
[10×3+1]	<i>sam sip et</i>	'thirty one'
[10×4+2]	<i>si sip soŋ</i>	'forty two'
[10×5+3]	<i>ha sip sam</i>	'fifty three'
[10×6+4]	<i>houk sip si</i>	'sixty four'
[10×7+5]	<i>set sip ha</i>	'seventy five'

**3.1.2.3.2 BASIC NUMERALS X CENTURY + BASIC NUMERALS**

This structure involves a systematic method where the basic numerals are first multiplied by one hundred, representing the 'century' place. Following this multiplication, the basic numerals from 1-9 are then added to the resulting product.

TABLE 6: CENTURY X BASIC NUMERALS + BASIC NUMERALS

Multiplicative-Cum-Additive rule	Tai Phake	Gloss
[100×1+1]	<i>pak se nuŋ</i>	'hundred one'
[2×100+2]	<i>soŋ pak se soŋ</i>	'two hundred two'
[3×100+4]	<i>sam pak se si</i>	'three hundred four'
[6×100+5]	<i>houk pak se ha</i>	'six hundred five'

3.1.2.3.3 BASIC NUMERALS X THOUSAND + BASIC NUMERALS

In this specific type of numeral formation, the process involves taking the basic numerals ranging from 1 to 9 and first multiplying each by one thousand, which represents the 'thousands' place following the addition of basic numerals to the resulting product.

TABLE 7: BASIC NUMERALS X THOUSAND + BASIC NUMERALS

Multiplicative-Cum-Additive rule	Tai Phake	Gloss
[1000×1+1]	<i>heij se nuŋ</i>	'thousand one'
[2×1000+4]	<i>soŋ heij se si</i>	'two thousand four'
[3×1000+7]	<i>sam heij se pet</i>	'three thousand seven'
[6×100+9]	<i>houk heij se kao</i>	'six hundred five'

3.2. ORDINAL NUMERALS

Ordinal numerals in a language indicate position or rank in a sequence, such as first, second, and third. "Ordinal numerals in Tai Phake are borrowed from the Pali language (Moran). It's worth noting that most speakers currently use only up to the fourth ordinal numeral. The table below displays the ordinal numbers in Tai Phake.



TABLE 8: ORDINAL NUMERALS IN TAI PHAKE

Tai Phake	Gloss	Pali
<i>pa tha ma</i>	'first'	<i>pa tha ma</i>
<i>tu ti ya</i>	'second'	<i>du ti ya</i>
<i>ta ti ya</i>	'third'	<i>ta ti ya</i>
<i>sa tuk tha</i>	'fourth'	<i>sa tu tha</i>
<i>pin t̃fa ma</i>	'fifth'	<i>pan t̃fa ma</i>
<i>sa tha</i>	'sixth'	<i>ca tha</i>
<i>sa ta ma</i>	'seventh'	<i>sa tta ma</i>
<i>aat tha ma</i>	'eighth'	<i>a:t tha ma</i>
<i>na wa ma</i>	'ninth'	<i>na va ma</i>
<i>ta sa ma</i>	'tenth'	<i>da sa ma</i>

3.3 MULTIPLICATIVE NUMERALS

The formation of multiplicative numerals in Tai Phake involves the morpheme *pɔk* which typically follows the base numerals. However, there is an exception to this pattern when it comes to the numeral 'one'. In this specific case, the morpheme *pɔk* is placed before the numeral.

TABLE 9 : MULTIPLICATIVE NUMERALS

Tai Phake	Gloss
<i>pɔk/ pɔk nuŋ</i>	'once'
<i>soŋ pɔk</i>	'twice'
<i>sam pɔk</i>	'thrice'
<i>sip pɔk</i>	'ten times'

3.4 APPROXIMATIVE NUMERALS

The expression "about X numeral" is constructed by incorporating the morpheme *khanka* which means 'like' to the cardinal numeral. This morphological addition allows for the creation of a comparative form that conveys an approximate quantity or resemblance. Below are examples to illustrate this formation:

**TABLE 10: APPROXIMATIVE NUMERALS**

Tai Phake	Gloss
<i>khanka kao</i>	'about nine'
<i>khanka pak nuŋ</i>	'about hundred'
<i>khanka ha heij</i>	'about thousand'

3.5 RESTRICTIVE NUMERALS

In Tai Phake, restrictive numerals are indicated by the morpheme *nai* which is used after the cardinal numerals and also follows various classifier in the language to show restrictive numerals. For example, in case of 'human beings' it follows the classifier *kun* while in case of 'inanimate objects' it follows the classifier *an*. Consider the following examples:

TABLE 11: RESTRICTIVE NUMERALS

Tai Phake	Gloss
<i>sam an nai</i>	'only three'
<i>ha an nai</i>	'only five'
<i>si kɔ nai</i>	'only four people'

3.6 DISTRIBUTIVE NUMERALS

Distributive numerals in Tai Phake are created through complete reduplication and are quite prevalent in the language. This method involves repeating the numeral to express distribution among a group. For example:

TABLE 12: DISTRIBUTIVE NUMERALS

Tai Phake	Gloss
<i>la an la an</i>	'one each'
<i>soŋ an soŋ an</i>	'two each'
<i>houk an houk an</i>	'six each'

3.7 FRACTIONAL NUMERALS:

Fractional numerals are not frequently used in Tai Phake. The only fractional numeral commonly occur in the language is *ton* 'half'. Others can be formed by the process of compounding when used in sentences. The fractional numerals are realized by the insertion is the morpheme *wak* meaning 'portion' which is again connected by the morpheme *se*. For eg:

TABLE 13: FRACTIONAL NUMERALS

Tai Phake	Gloss
<i>sam wak se wak nuj</i>	'one third'
<i>houk wak se wak nuj</i>	'one sixth'

4. CONCLUSION

From the analysis presented, it can be concluded that Tai Phake numerals predominantly adhere to a decimal system and mainly divided into seven distinct categories. one unique feature of the language is observed in its use of the numeral 'one'. In this case the number 'one' always follows the other higher numerals as well as classifier whereas in case of other base numerals, they always precede the higher numerals and the classifier in Tai Phake. The language makes use of both multiplication and addition to create compound numerals. This process often involves the connective particle *se* which plays an important role in linking the parts of compound numerals, which makes the formation clearer in communication.

Ordinal numerals in the language are primarily borrowed from Pali. Among all types of numerals, the fractional numerals are least common in the language. The only fractional numeral which is currently used in Tai Phake is *ton* 'half'.

Further research on Tai Phake numeral system could explore several avenues for deeper understanding. Moreover, analysing the role of tone and stress can also provide valuable insights into Tai Phake numerals.

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