

EXPOSITION OF BINOMIAL COEFFICIENT AND PINGALA-CHHANDASUTRA IN NEPALI MUSIC

A Thesis

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in

FINE ARTS

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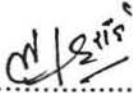
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DECLARATION

In the thesis entitled "EXPOSITION OF BINOMIAL COEFFICIENT AND PINGALACHHANDASUTRA IN NEPALI MUSIC"; I Lochan Bhattarai, hereby declare that except references to other people's work which have been duly acknowledged, this thesis is entirely my work towards the Master of Arts, Degree in Fine Art and no part of this publication or the whole has been presented for another degree elsewhere, except where due acknowledgments have been made in the text. I gave proper honor to the authors of their ideas and incorporated them in my research work by pro according to APA 7th revised edition (2022) citation and reference manual.



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LETTER OF RECOMMENDATION

This thesis entitled **EXPOSITION OF BINOMIAL COEFFICIENT AND PINGALA-CHHANDASUTRA IN NEPALI MUSIC** has been prepared by **Mrs. Lochan Bhattarai** under my guidance and supervision. I hereby recommend it in partial fulfillment of the requirements for the degree of **MASTER OF ARTS in FINE ART** for the final examination.

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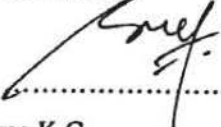


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LETTER OF APPROVAL

We certify that this thesis entitled **EXPOSITION OF BINOMIAL COEFFICIENT AND PINGALA-CHHANDASUTRA IN NEPALI MUSIC** submitted by **Mrs. Lochan Bhattarai** to the Central Department of Fine Art, Faculty of Humanities and Social Science, Central Campus Kirtipur, Tribhuvan University, in partial fulfillment of the requirements for the required degree of **MASTER OF ARTS in FINE ART** has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the said degree.


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Date: September 2, 2022

ABSTRACT

This paper examines the empirical verification of Nepali grammar in modern music. According to the Vedic tradition (Pongal's Chhanda Shastra) presenting songs with pure pronunciation according to the rules of grammar throughout the language with the binomial coefficient can be exposition and its application in Nepali modern music. When presenting the poetic creations without the classical verses and classical rules inherent in the poem in song and music, both the spoken and the written should be pronounced according to the rules of grammar and the music should be heard and presented as a script.

An experimental research study method is carried out to collect data to be analyzed and study is carried out in in-house models. Poem has been selected in different Chhanda meter i.e. Sardulavikridita, Sardulavikridita, Muktak, Anustup, Shikharini, Basanta Tilaka, Totak, Mandakranta, Prose-Poem, Matric, and Bhunjayangprayat. Selected poems are composed of songs within the Chandrasutra. The songs are written within a calculation of the binomial coefficients' expansion equations. Likewise, the composition of songs is written into eastern music notations ID.

The research is directed to deductive logical reasoning or a theory-driven approach. The specific theory is considered of Vedic tradition (Pingala Shastra) and to present songs with pure pronunciation as stated in rules of grammar throughout the language. The Pingala Shastra relation to writing a poem and composition of music as quantified in Shastra. The research is directed to exploratory, experimental and analytical types. Different varieties of the poem have been selected to test the hypothesis. Muktak, Phutakara kavita, Rubber verse poem, Loak chhanda, Martik Chhanda, Katha styles, and others have been selected. Moreover, Sardulavikridita, Anustup, Shikharini, Basanta Tilaka, Totak, Mandakranta, Bhunjayangprayat and Prose-Poem has been selected. Binomial coefficients and their expansion are the methodologies of this research. Creation composition of selected data with the help of Pingala Chhandasutra. Rhythm is needed to bring words into singing. When using rhythmic, considering the long and short letters in our vocabulary which are present in the rules, giving rhythmic to long letters automatically reveals the literal meaning and follows the principle of grammar completely. What can be understood from this is that the Nepali language is expressive. The Nepali language is a language with expressive sounds. Not every letter and word formed by the letter is pronounced in a similar sound. So, it is lyrical language. These things have been analyzed and confirmed by the research and thus the research hypothesis is proved.

The National Anthem of Nepal is suggested to be correct according to the Chhandasutra. The practice of Nepali grammar in music refers to the use of Nepali language and pronunciation, especially in the singing field. In order properly reference them correctly and follow the principle of music as well as the values of language, some Nepali classics have been selected and music composition has been presented to give justice to the language by creating music.

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ACRONYMS/ABBREVIATIONS

AD	Anno Domini
BCE	Before Common (current) Era
BS	Bikram Sambet
CE	Common (current) Era
<i>d</i>	Komel <i>dha</i>
<i>D</i>	<i>Suddha dha</i>
<i>g</i>	Komel <i>ga</i>
<i>G</i>	<i>Suddha ga</i>
G	Guru
L	Laghu
L	Long
M	Tivra ma
m	Suddha ma
MN	Music Nepal
MN	Music Nepal
n	Komel ni
N	Suddha ni
n.d.	Not date
Notation ID	notation identification
NTV	Nepal Television
<i>P</i>	Suddha pa
pa	Komel pa
r	Komel re
<i>R</i>	Suddha re
RN	Radio Nepal
S	Sa
S	Short
SL	Syllables
TV	Television

CHAPTER I

INTRODUCTION

1.1. Background of the Study

In the Vedic period, the Bhasa and Vaakaa (language and melody) of every Veda are found together. Any verse composed with a melody has lyrics attached with the verse. Notability separates it, the verse becomes detached. Detachment from the *Vaakaa* is detachment from *Bhasa*. The verse is used to pronounce the language correctly.

The Veda is an innovative thought of philosophical manuscripts invented in ancient pre-classical late-second millennium BCE. Beyond the Rig-Veda, the ancient literature in Vedic Sanskrit that has survived into the modern age includes the Samaveda, Yajurveda, and Atharvaveda, along with the embedded and layered Vedic texts such as the Brahmanas, Aranyakas, and the early Upanishads. The Brahma was written as an explanation of rituals, ceremonies, and sacrifices, and the Upanishads deliberated the approach of yoga and dhyana. Bloomfield (1899) studied and simplified the philosophy and idea of spiritual deduction. Likewise, similar research was carried out by Godan (n.d.) and Godan (1975) Bhattacharya (1977) Flood (1996), and Willims (2003) to discuss the manuscripts of Veda. Luitel (2006) translated the manuscripts of Sanskrit Vedas into the Nepali language (Bhattarai, 2016).

Research stated in the acknowledgment of Purna Prakash Nepal & Ramchandra Bhandari “the Veda is considered the oldest and most inexhaustible source of wisdom in the ground literature. The Vedas are reputed to be the source of human civilization, literature, and Aryan religion and culture, and the indispensable source of civilization sciences” Luitel, 2006).

It originates from Brahmayamal the *Sama Veda* is considered to be the third of the four Vedas and it can be heard that it is Brahmayapan. The greatest number of Veda mantras are included in Rigveda. The Samaveda is divided into two major sections. It is said that there are three divisions, i. e. Kauthumiya, Ranayaniya and Jamini. The Samaveda of the earliest form organized the music of Samaveda or saman. Samaveda is linked to music through yajna or soma Yaga (Bloomfield,

1899; Godan, 1975; Bhattacharya1977; & Flood, 1996). Furthermore, Luitel (2006) expressed his belief concerning Veda, the principle that is the origin of poetic music.

The Sama Veda is the third of the four Vedas and it can be heard within Brahmayamal (ब्रह्मयामल) from Brahma. Most of its mantras are in the Rig Veda. Only a few mantras not in the Rig Veda have been added. The Sama Veda Samhita is arranged in two primary sections and melody books. With regards to the melody (Gana), there are four styles of singing hymns: The Archica is divided into two parts: *Purvarchica and Uttarachica* (पूर्वार्चिका र उत्तरार्चिका). It is said to have three branches, *Kauthumiya, Ranayaniya and Jamini* (कौथुमीय, राणयणीय र जैमिनी). In the Sama Veda itself, it is said that the sages have composed four styles of singing hymns: *Gramageya-Gana, Veya, and Aranya and Uhya* (ग्राम-गेया-गण, वेय, अरण्य - ऊह्य). The fact that essence is the basis of music is prevalent among scholars who know the Vedas. Because of this, it is easy to say that the Sama Veda is the basis of the divine music tradition. The seven vowels namely first, second, third, fourth, fifth, sixth, and seventh seen in the song, M, G, Re, Sa, Ni, Dha, Pa. Everyone enjoys music, so it is clear that the Sama Veda has a connection with everyone's life (Luitel, 2006). The belief is that the origin of all is Samaveda.

Veda is a philosophy that says Sam is to sing. Thus, the Samaveda is made following the poetic mantra of the Veda in the skill of singing. The Samaveda was invented to imitate the use of the poetic mantras of the Vedas, which began to be performed by the short, long, and plutta of the sublime, sublime, and vowel pronunciations. The work of sublime, sublime, and vowel pronunciation began with short, long, and plut (Risal, B. & Risal S., 1990).

The Vedic verse mantra was used in the skill of the song and became the Sama Veda. It is hard to imagine words to express the Vedas, nor can any human reach the depths of the Vedas. (Bloomfield, 1899; Godan, n.d.; Godan, 1975; Bhattacharya, 1977; Flood, 1996; Willims, 2003 & Luitel, 2006). Veda is divine knowledge, and Sam is singing. The Vedic verse mantra was used in the skill of the song and became the Sama Veda. Music makes the human senses jingle. Music expresses the feeling that the power of words cannot express. The Vedas are a collection

of experiences. Words can't express the Vedas, nor can any human reach the depths of the Vedas. It is understood that there is already a lack of boundaries of knowledge, experience, duties, etc.

Therefore, in the place called 'Kinkarma Kimkarmeti Kavayotrapyatramohita:' (किंकरमा किमकर्मती कव्योत्रप्यात्रमोहिता:), in consequence, music gives direction because 'Neti-Neti' (for there is nothing beyond the) is proclaimed as human sentences are not complete in themselves. Seeing snakes dancing to the beat of musical instruments, it can be said that various non-human sentient beings in nature enjoy music. In the old stories, there are many unbelievable stories like the force of music sprouting stones, blossoming, clouds raining in the clear sky, and the sea providing a smooth path. Seeing that music has united everyone's mind in society, it seems that all the immovable music is in tune with the music. Therefore, to express the essence of the impenetrable Veda, the ancient sages explored the simple means of communication and found that music was developed (Bloomfield, 1899; Bhattacharya, 1977; Willims, 2003 & Luitel, 2006).

Seeing that music has united everyone's mind in society, it seems that all the immovable music is in tune with the music. Therefore, it gives the impression that the earliest thinkers established lyrics to music that explored a simple transmission method to express the hidden Veda principle. The emergence of successful music from the fusion of sounds from both worlds can be said to be both music factors and somewhere both seem to be music lovers (Bloomfield, 1899; Luitel, 2006).

Likewise, the Samaveda was originally written in Sanskrit (सामवेद, Samaveda). “The innovation Samaveda was Sama or Saman speak for "song" and Veda express for "divine knowledge", is the Veda of songs and chants” (Staal, 2009). The Vedas are divided into four different parts, Samaveda is part of the four Veda which is an ancient Sanskrit Vedic doctrine and is part of the original doctrine of the philosophy. The Samaveda is a separate volume of the Vedas, it is an established doctrine that has one thousand five hundred forty-nine verses. “The Samaveda doctrine confines mixed tunes, and these are undoubtedly the firstborn permanent in the world” (Nettl, Stone, Porter & Rice, 1999)¹.

¹. The musical notation is written usually immediately above, sometimes within, the line of Samaveda text, either in syllabic or a numerical form depending on the Samavedic Sakha (School).

The Vedic language of “Himashikhar, Krishna, descended on the plains of Gandaki and became popular in the vernacular as a parallel secular Sanskrit” (Darnal, 1988). Meanwhile, Maharshi Valmiki of present-day Triveni Nawalparasi wrote a secular verse. The secular verse was called circle and caste. Each circle was divided into four legs and its form or genre was determined by calculating the letters or quantities. The cosmic verse, which is determined by counting the letters, is called a circle, and the cosmic verse, which is determined by counting the quantity, is called caste. For example, Anushtup, Malini, Shikharini, etc. are verses to be counted, while Arya, etc., are verses to be quantified. Therefore, the consonants of the scriptures are short, long, and plutonic. Long and short letters before the conjunction were also considered gurus. Acharya Pingala, brother of the famous Acharya Paninika of Sanskrit grammar, composed the verses. The three-letter verse is called Gana. There are eight such groups which are as follows, Bhagan, Jagan, Sagan, Yagan, Ragan, Tagan, Magan and Nagan (Darnal, 1981; Darnal, 1988; & Panta, 1999).

The cosmic verse Anushtup, which started from Maharshi Valmiki, has now come in the form of a circle and a caste and has been evolving into 284 numbers with various peculiarities that are *Upajiti*. After the world-famous poet Valmiki composed the epic Ramayan in secular verse, Beas composed 18 Puranas, including the Mahabharata, in classical secular verse. Rhyme is the main thing in poetry. The juice is produced when rhyme and ornament are combined (Luitel, 2006 & Bhattarai, 2016).

The practice of “Nepali grammar in music refers to the use of Nepali language and pronunciation, especially in the singing genre” (Bhattarai, 2003). Language and pronunciation are two characteristics of the identical think-up that cannot be detached one from another. If only Vaka without language is presented, the song is not composed, only the rhythm is formed. Music refers to the combination of singing, playing, and dancing. Dance and instrumentation can be presented in rhythm and rhythm without language that conveys emotion through melody and rhythm which is like abstract art but in “the performance of a song, it is necessary to have language i.e. verse

Norman, K. R. (1979). *Samavedic Chant by Wayne Howard* (Book Review), *Modern Asian Studies*, 13, 3.
Wayne Howard (1977), *Samavedic Chant*, Yale University Press.
Hastings, J. (n.d.). *Encyclopaedia of Religion and Ethics* (Google Books). Vol. 7, Harvard Divinity School.

and the presentation of the song is the performance of the language and the instrumental interest” (Bhattarai, 2003).

Acceptably, singer “*Sethuram* is believed to be the first singer of Nepali songs. The *Pali* and *Newar* language used songs recorded in Calcutta, India presented as follow:

“*Jata heryoutai mera najarama rama pyara chan*” and
“*rajamati kumati*” (Nepalthunga TV, 2020).

After Sethuram came Ustad Badri and after Badri came Ustad Sayla. Folk words and folklore are used in this song.

“*Kalo theki narana kalo kathako, rato theki darako,
dinai aumcha rinadai ghumdai jovana ekai varako,
hajura karmai rissune*” Ajambergeetsangeet (2011).

After these three singers, singer Melvadevi enters Nepali modern songs. The songs sung by Melvadevi are based on classical music.

“*Auna basaum piyari mirmire jhyalaima...*” (Purano Manche, 2018).
“*Savari mero relaima....*” (Ajambergeetsangeet, 2011).

These songs are sung in a kind of thumri organ. Singer Mitrasen Thapa's song is sung in folk words and folk style

“*Mala'i khutrukkai paryo jethana timro bainile*” Ajambergeetsangeet (2011).

After this, Master Ratnadas Prakash started singing songs and it is believed that Nepali modern songs entered in this poem written by national poet Madhav Ghimire.

“*Jhamajhama pani paryo asadhako rata*”,
“*baribata bajna lage makaika pata*” (Dahal, 2011)

Ratnadas started singing Nepali poetry with his music. He supported Nepali modern singing by singing poems of Bhimanidhi Tiwari, Nirvikram Pyasi, Chittadhar Hriday, and others in his music.

*“Ma mahuri hum radha
timi ampa manjari hau” ... (Dahal, 2009)*

After the establishment of Prajatantra Nepal Radio in 1950 (2007 BS), Hari Prasad Rimal's voice was heard through Ranudevi Adhikari. His first song is said to have been sung by Shankar Lamichhane. It is a popular song sung by him.

*“Phagata eka najarama kasaile liyo mana,
jati birsum bhanchu uti samjhane jhana” ... Bhimphedi Guys (2015)*

Rimal has sung poems in his music. After this, the composer and Natikaji sang the poem of national poet Madhav Ghimire in his music.

*Nepali hami rahaunla kaham nepalai narahe,
umca'i hamro culincha kaham Himalaya narahe” (Music Nepal [MN], 2015)*

Batukrishna Jwala sang this song in the composition of lyricist Kiran Kharel around the year 2014 *“e duraka sitara”, “mero candani kaham cha” (Basudevaya, 2011).*

Similarly, the arrival of Premdhoj Pradhan again advanced modern singing.

*Ghumtima na'a'u hai amkha timi judha'una
bamdhi'e maya pheri gahro huncha phuka'una” Prem Dhoj Pradhan (1970)*

Ratna Shamsher Thapa's words echoed. Narayan Gopal's entry again brought the poet's poetry into singing.

*Jaga lamka camka he naujavana ho
aphnai dhaᅅgale namya raᅅgale desa simgarna yo” (MN, 2019)*

*“E kancha thattaima yo bainsa jana lagyo
jamdaina baca khera parkha lina aumla” (MN, 2020)*

*Bichodako pida nasaki khapna dasaiko belama,
timila'i bhetna a'umdaichu pharki ramaailo ga'umma (MN, 2012)*

Singer Fatteman Rajbhandari arrived in the year 1963 and this song of Naticaji's music composed by poet Yadav Kharel became popular.

*“Yasto pani humdo raicha jindagima kaile kaile
kasaila'i maya garne e'uta bhula garem maile” (Palati, n.d.)*

With the arrival of rhymes composed by singer Bachchukailash added another series. In modern singing, a song with a sweet feeling was born.

*“Tadha tadha janu cha sathi eka phera hamsi de'u,
chutisakeko mayamla'i sathi eka phera gamsi deu” (Himali Sworharu n.d.)*

On one hand, the practice of modern singing or recording songs was advancing, while on the other hand, the practice of singing various ballads through the Karkha Sawai rhythm was spreading in the village. The practice of singing ballads dates back to the Vedic period. Sacrifices were made, and the true character of kings was described in ballads. It was customary to sing the songs of the gods at weddings. The epic masterpieces Ramayan and Mahabharata were also made into ballads.

In ancient times, a person who sang a ballad was called a charan. In Nepal, during the reign of twenty-two and twenty-four kings, the singing, praising, and praising stage was called Bhat. This practice has come to life today in the form of *Hudkeli* and *Karkha*. Such singing is composed by

the singer himself. Nepali folk words are used in them. Later, singer Jhalakman Gandharva recorded this tradition on Radio Nepal.

*He barai bale sodhlan ni khai chora bhanlan
ranai khulyo bhandi'e" (MN, 2016)*

Along with the folk and modern songs developed in this way, while the film is being made in Nepal, the songs of the film, modern, folk, national, and hymns are being presented in different genres.

1.2. Statement of the Problem

The Sanskrit language formally incorporates poetic meters (Preisendanz, 2018). By the late Vedic era, this developed into a field of study; it was central to the composition of the pre-classical to classical literature, including the later Vedic texts. This study of Sanskrit prosody is called Chhanda's and is considered one of the six Vendanges, or limbs of Vedic studies (Franco, 2004).

Sanskrit prosody includes linear and non-linear systems (Franco, 2003). The system started with seven major meters, according to Annette Wilke and Oliver Moebus, called the "seven birds" or "seven mouths of Brihaspati", and each had its rhythm, movements, and aesthetics wherein a non-linear structure (aperiodicity) was mapped into a four-verse polymorphic linear sequence. Sanskrit syllables are classified as either Laghu (short) or Guru (long). This classification is based on a matra (literally, "count, measure, duration"), and typically a syllable that ends in a short vowel is a light syllable, while those that end in a consonant, anusvara, or visarga are heavy. The classical Sanskrit found in *Devanāgarī* (देवनागरीक) scriptures such as the Bhagavad Gita and many texts are arranged at the light and heavy syllables in them follow a rhythm, though not necessarily a rhyme (Robert, Buswell, Donald, & Lopez, 2013).

Nepali was also known by the endonym Khas Kura (खस कुरा). Devanāgarī Indo-Aryan language is a sub-branch of Eastern Pahari, also known as Garhwali and Kumaoni. Garhwali and Kumaoni

are the official languages of Nepal and used to be written as Sanskrit, Nepali, Nepal Bhasa, Tharu, Hindi, Marathi, Bhojpuri, Santhali, and others. The name Devanāgarī is made up of two Sanskrit words: deva, which means god, brahman or celestial, and nāgarī, which means city. The name is variously translated as "script of the city" (Omnihlot, 10/3/2021).

Sanskrit meters include those based on a fixed number of syllables per verse and those based on a fixed number of morae per verse (Majumdar, 1974). The Vedic Sanskrit employs fifteen meters, of which seven are common, and the most frequent are three (8-, 11- and 12-syllable lines). Classical Sanskrit deploys both linear and non-linear meters, many of which are based on syllables. Others are based on diligently crafted verses based on repeating numbers of morae (matra per foot) (Charles; Sorensen & Payne, 2011). Meter and rhythm are important parts of the Sanskrit language.

The text uses creative structures, called Stobha, to help embellish, transform or play with the words so that they fit better into a desired musical harmony. Thus, the contents of the Samaveda represent a tradition and a creative synthesis of music, sounds, meaning, and spirituality, the text was not entirely a sudden inspiration.

Nepali language, presented as songs composed in music, is to be pronounced without considering linguistic purity. Grammatical difficulties have been seen in Nepali songs and music development from the beginning. To solve such a problem, the Nepali Department of the University and the Academy of Languages and Literature, the concerned organizations, the broadcasting media, and other knowledgeable writers and intellectuals have not tried to correct it, or express their views, etc. Therefore, the following questions have been raised. How testified in Vedic tradition (rules of the Sama Veda), *Basha* cannot be pronounced correctly with *Vaakaa* throughout the music (*Pingala-Chhandashastra*)? What are the possibilities to adopt linguistic purity when presenting poetic creations in songs and music without the classical verses and classical rules inherent in poetry? And thus, the specific research question is as follow.

- How exposition of the binomial coefficient to Pingala-Chhandasutra and its application in music and songs of Nepal?

1.3. Objectives of the Study

The study's general objective is to present songs in agreement with the Vedic tradition (*Chhandashastra*) with pure pronunciation as specified in the guidelines for Nepali grammar to the regular language. Presenting the poetic creations without the classical verses and classical rules inherent in the poem in song and music, both the spoken and the written should be pronounced identically within rules of grammar and the music should be heard and presented as a script. The specific objective of the study is as follow.

- To analyze the exposition of the binomial coefficient into Pingalas-chhandasutra and its application in Nepali music.

1.4. Hypothesis of the Study

Nepali grammar has been used correctly in the music established in the Vedic period and it can be maintained accordingly in any period. By doing this, the song becomes catchy and popular among the listeners by expressing the feelings within the language and, the language stays alive. The binomial coefficient can be exposition to Pingalas-chhandasutra and its application in Nepali music is positively related is the research hypothesis of the styudy.

1.5. Significant of the Study

The work of presenting Nepali poetry in the form of songs has not been done much and the presentation of verse literature as music in audio and video theaters is negligible. Moreover, the work of presenting songs with the pure purity of language has never been done before in Nepalese history.

The official language of Nepal is Nepali which has been established not only in Nepal but also in the rest of the world. It is spoken by millions of people in *Bhaarat* too. The country officially recognizes the language as a nationally spoken and written language. If the development and expansion of the Nepali language can lead to the development of Nepali literature which in turn can be given a lyrical form leading to music, can attract new people to towards the language. On

the other hand, the fact that encroachment on language can preserve the original form of the Nepali language is also important for this study. This study will be the first in the academic history of Nepal.

1.6. Limitation of the Study

There are innumerable poems in the Nepali language while evaluating and reviewing the published works of various authors from the Nepali literature history to the present. Most of the poetry is in classical verse. Some poetry is in metrical verse. Some scriptures are in rubber verses. Some are published as liberators. Millions of poems have been made into compositions by thousands of composers and presented as songs in the Nepali language. Since it is not possible to include those numerous works of literature, only a few published works have been selected and only a few of them have been selected for experimental use and transcription, so this study is limited to the above selection.

1.7. Organization of the Study

Chapter one presented the introduction and background of the study, problem identification, study objectives, research hypothesis, the importance of this study, and limitations of this research. Similarly, in chapter two, a review of relevant works and a review of works are presented.

Similarly, the third chapter's research methodology is presented. The following have been included in the theoretical analysis: narrative and written, conceptual analysis, selection of data, and data collection. The following have been included in the research method: selection of poems, binomial expansion theorem is considered for composition to research analysis.

Likewise, in chapter four, data presentation and analysis of the study are presented. Finally, the fifth chapter includes an existing summary of the findings, conclusion, and recommendations for policy purposes.

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

In this chapter, a collection of previous experiments with various modern songs from history to the present are discussed. It includes songs recorded by different singers in different styles of music at different times and a comparative review of the presented songs by studying Nepali grammar and experimental validation of prosody in modern music and singing. The study puts an effort to find out the strengths and weaknesses of the experimentation.

2.2. Review of Related Literature

At the earlier stage of Nepali songs, originate correct pronunciation of the language. Some of the beginning time to modern era songs are reviewed in the first section the of review. In the second part of the review selected melody, has been critically examined, and presented the corrected version of the melody. The songs are written into binomial coefficient and music notation written into eastern musical notations in natural tune is considered to be the first song sung by Shetu Ram in the Nepali language around Bikram Samvat (BS) in the 1970s. The vers was written into hajaj bahar bidhanda chhanda.

yuta heryo ytai mero najarama rama pyara chan
yeta heryo ytai mero najarama rama pyara chan.... Nepalthunga TV (2020)

$ab + b^2 + ab + b^2 + ab^2 + ba + b^2 + b$
 $ab + b^2 + ab + b^2 + ab^2 + ba + b^2 + b$

उता हेच्यो उतै मेरा नजरमा राम प्यारा छन्
एता हेच्यो यतै मेरा नजरमा राम प्यारा छन् ।
|उ ता हे - च्यो ऽ ऽ| उ तै ऽ मे ऽ रा ऽ ऽ| न जर् ऽ मा - - रा ऽ| म प्या ऽ रा ऽ छन् ऽ ऽ|
|सा सा *ध सा रे ग - -| ग ग रे ग प म - -| म ग ग रे - -ग-| म ग - रे - सा - -|

The verse was written by Moti Ram Bhatta, and in his song is sung with the correct pronunciation.

Likewise, singer Melvadevi sang her first Nepali song in 1985. The songs she sang are based on classical music. This song also found correct pronunciation in her singing (Gurung, 1985).

Auna basa piyari mirmire jhyalaima

$ba^2 + ab + ab^2 + bab + b^3$

|आ उ न| ब सौँ ऽ| पि या रीऽ| मि र्मि रे| झा लै मा|
|ग ग रे| ग रे सा| ग म धप| म ध प| *ग रे सा|

savari mero relaima....

$ab^2 + b^2 + b^3$

|स ऽ वा री मे रो ऽ रे लैऽ मा|
|*गम प *नि| ध *नि प| *ग रेसा सा|

Moreover, the following songs also found correct pronunciation according to vers were written. Mitra Sen Thapa's song “mala'i khutrakkai paryo jethana timro bahinile” also had a conversational style. (Ajambergeetsangee, 2021.3.4).

mala'i khutrakkai paryo jethana timro bahinile

Lā'urē dā'ilē khasī kātyō bōsō māthi bōsō

bōsō khāna pā'inam̄ bhani yati lāmō cōsō....

$ab + b^3 + b^2 + b^2 + b^2 + b^3$

$b^2 + b^2 + ab + b^2 + b^2 + ba + b^2$

$b^2 + ba + ba + a^2 + a^2 + b^2 + b^2$

|म लाइ

|सा सा|

|खु त्रु ऽ कै पा च्यो जे ठान्| ति मो बै नी ले ऽ म लाइ|

|रे ग - सा रे ग म प| ग ग सा सा - सा सा सा|

|लाउ रे दाइ ले ख सी का ट्यो| बो सो मा थिऽ बो ऽ सो ऽ|

|सा रे म म |प प प प |ध ध ध धम| प - प -|

|बो सोऽ खा न पाइ नँ भ नी| य ति ला मो चो सो म लाइ |

|प पसा* सा* सा *नी ध प म| प ध प म ग रे सा सा|

The Vers “Ankhaa chopi narou bhani” was written by Kali Prasad Rijal, the music was composed and sung by Narayan Gopale also the accurate intonation was as follows (<https://Lyricstranslate.Com>).

Āṁkhā chōpī narō'u bhani bhannuparyācha
muṭumāthi dhuṅgā rākhi hāṁsnuparyācha....

$b^2 + b^2 + ab + a^2 + ba + ab + a$

$a^2 = ba + b^2 + b^2 + ba + ab + a$

|औं खा ऽ छो ऽ पि न ऽ| रोउ ऽ ऽ भ नि ऽ ऽ ऽ| भ ऽ चु प च्या ऽ छ ऽ|
|*प - सा ग - ध प-| प - - ग रे सा - -| ग रे रे *नि सा *नि *ध -|

|मु टु ऽ मा ऽ थि हुं ऽ| गा ऽ रा ऽ खी ऽ ऽ ऽ| हौं ऽ सु प च्या ऽ छ ऽ|
|*ध *ध ग ग - ग रे -| रे - सा - सा *ध - -| *ध - *नि रे सा- सा-|

Likewise, “Jaha chan Buddha ka aakha...” this verse was written by Bam Bahadur Thapa Jitali and the music was composed and sung by Bhakta Raj Acharya was found with perfect verse and composition with precise articulation (<https://www.youtube.com/watch?v=QcdesdTvRuI>).

Jaha chan Buddha ka aakha, Snigdha shanta ra sundar,
Tyaha cha shanti ko chetra, Mero Rashtra Manohar....

$ab + b + bab + b^2 + ba + ba + a + b^2$

$ab + a + bab + ba + b^2 + ba + ab^2$

|ज हौं छन् ऽ ऽ ऽ बु द्ध ऽ का औं ऽ खा ऽ ऽ ऽ| स्निग् ऽ ऽ ध शान् ऽ त र सुन् ऽ दर् ऽ ऽ ऽ ऽ|
|सा रे रेग ग - - म म ध प ग - प - - -| ध - - ध प ध प म - म - - - -|

|त्य हौं छ ऽ ऽ ऽ शा ऽ न्ति को क्षे ऽ त्र ऽ ऽ ऽ| मे रो ऽ ऽ ऽ रा ऽ ष्ट्र म नो ऽ हर् ऽ ऽ ऽ ऽ|
|प ध ध नि - - ध सा नि ध प प - - -| प ध म ध - म प ग रे सा- सा- - - -|

|प्राण भन्दा प्यारो लाग्छ, मेरो देश कता कता। छल्किन्छ ममता मेरो, भावगंगा जतातता।

Radio Nepal was established on April 6, 1950, after the institution of democracy in Nepal. Radio Nepal gave a break for many singers to perform their songs live. One of them the music given by Naticaji and sang by Tara Devi. The song *Phulakō thumṅā*, (फूलको थुँगा) and a number of other Nepali songs, were found to be not correct voicing and not often found to be flawed, but it is a very popular song.

Phulakō thumṅā bahēra gayō gaṅgākō pānīmā
kahilē bhēṭa hōlā hai rājai yō jindagānīmā
jharīkō pachi jhulkēkō ghāmamā nirjhara pahāḍakō
bharkharai prītī basēkō bēlā pira paryō bichōḍakō
nahāmsu bhanē sakhīlā'ī pira mai hāmsu kasari
ru'aulā rātī bhanēra āmsu mai sācuṃ kasari.... (MN,2015).

$bab + ab + aba + ab + b^3 + b^3$
 $a^2b + ba + b^2 + b^3 + b + bab^3$
 $ab^2 + a^2 + b^3 + b^2 + b + ab + b^2$
 $ba^2 + ba + ab^2 + b^2 + b + b + ab + ab^2$
 $aba + ab + ab^2 + ba + b + ba + a^2b$
 $bab + ba + aba + ba + b + ba + a^2b$

|ऽ फूलको थुँगा ऽ | ब हे र गऽ यो ऽ | गंगाको ऽ पा नी मा |
|- सा सासा रे प - | प *नि धप पम रे सा*नि | *नि सा रेम सा सा सा |

|ऽ कहिले भेटे होला हेरास जै ऽ | योजिन्दऽ गा नी मा |
|- सा सासा रे प - | प नि धप मपम रेसा *नि | *नि सा रेम सा सा सा |

|ऽ झऽ रीको पऽ छिऽ ऽ झुल् के को घाम् मा ऽ | नीर् स यो पऽ हाड् को |
|- *निसा रे*नि सा - *नि*पा - *नि सारे *नि सा रे | म प *नि धप धम प |

|भर् खर प्री ऽ ति ऽ ऽ बऽ सेको बेऽ ला ऽ | पीर् प योऽ बि छोड् को |
रेम प *नि *नि - पम | - रेम पनि पम *नि - | सा - रेम सा सा सा |

|ऽ नहा सुँ भ ऽ नेो ऽ सखी लाई पी ऽ र | मै हा सुँ क स रि |
|- *निध म प - पा | - *निध म प - मरे | *नि सा रे सा सा सा |

|S रो उँला रा S ति S | S भ S नेर आँ सुS | मै सा चुँS क स रि
|- रेम पनि नि - पमा - रे म प नि निप मरे *नि सा रेम सा सा सा|

The critical examination of this songs and corrected voicing as following hilighes lines.

|S गS योSS| ऽकहि लेS| S झरी कोS| S पछि|S भने S| S भने र S|
|-मप रे|सा*नि|-सा सा सा -|- |*निसा रे*नि|- सा *निप| प प -प| रेम *निप|

The melody by Swarsamrat Narayan Gopal is found to have accurate intonation in the songs composed by him but the pronunciation was found to be inaccurate in some songs composed by other composers. “*Ē'uṭā mānchēkō māyālē kati*” (MN, 2008, & MN, 2017).

Ē'uṭā mānchēkō māyālē kati pharaka pardacha jindagīmā

ē'uṭā sāthīkō sāthalē kati pharaka pardacha ji'unumā....

<https://genius.com/Narayan-gopal-euta-mancheko-nepali-song-lyrics>

$b^2 + b^3 + b^3 + a^2 + ab + ab^2 + bab^2$

$b^2 + b^3 + bab + a^2 + ab + ba^2 + bab$

|S एउटा मा S न्छे को S S |S मा S याउले कS S S ति| S फरक पड् दछS जिS न्द गीSS मा|

|- *पप- *ध ग रे - ग -| - धप धप गरेसा रेगमग रे - रे| - रे रेसारे गरेसा*ध धपधप गरे गरे सा|

एउटा साथीको साथले कति, फरक पर्दछ जिउनुमा ।

The vers written by Chadani Saha and composed by Deepak Jangam. Th exact intonation of this melody is revised in different line as.

|S मा S S S |या S S ले S S S |कति S |

|-धप धप | गरेसा| रेगमग| रेरे |

The song entitled “Udi jau–bhane” was composed by Shanti Thatal and sung by Aruna Lama. This was also not found to be according to grammar principles. “Udi jau–bhane,” (HiTech Entertainment Channel, 2020).

Uḍī jā'uṃ bhanē ma pakṣī hō'ina
basnu, ē lai, mana chaina....

$Ab + ba + ab + a + b^2 + ba$
 $A^3 + b + b + a^2 + ba$

|उ डी जा उँ भ ऽ ऽ ने| म पं ऽ छी होडू ऽ ऽ न|
|*प *प *ध सा गरे गरे सा -| - सारे ग प गरे गरे सा -|

|ब स् नुऽ, ए ऽ लै ऽ ऽ| ऽ मन छै ऽ न ऽ ऽ ऽ|
|रे रे सा*ध रे ग रे ग -| - प*ध - रे - सा सा -|

In this melody भऽ नेऽ ऽ ऽ: साग रेग रे सा | is the exact intonation for this song.

“Yaham phula nakhilecha”, “sadhaim jasto ‘pheri’”and “bhetinu chuttinu”. (D.L. & Entertainment 2020, Music Nepal, 2019; Music Nepal, 2020). Presenting as an example the song “sadhaim jasto ‘pheri’” breaks the grammar rule.

Saṃdhai jastō phērī, mērō sājha āyō
jīvana chaṭapaṭṭīdai, mērō mājha āyō....

$ab + b^2 + ba + b^2 + ba + b^2$
 $b^2 + ba^2b + b^2 + ba + b^2$

|स ऽ धै ज ऽ स्तो फे ऽ ऽ ऽ री ऽ ऽ ऽ ऽ|
|प ध प ग - ग ग - - - रे म - ग रे सा|
|मे रो साँ ऽ झ आ ऽ ऽ ऽ ऽ ऽ यो ऽ ऽ|
|सा रे ग प प ध प ग ध - निध निध प - - -|
|जी वन् छ ट् प टी ऽ ऽ ऽ ऽ दै ऽ ऽ ऽ|
|प ध सा* - सा* ग* रे* ग* रे ग* ग* सा* ग* रे* सा* ध|
|मे ऽ रो माँ ऽ झ आ ऽ ऽ ऽ ऽ यो ऽ ऽ|
|धसा* - रे*सा* ध प प ध प ग रे - - ध ध प-|

At the beginning of the pronunciation in correct e.g. सँ ऽ धै: The exact intonation of this is as follow. सँ धै ऽ (| प ध प |

Arun Thapa's song "Mero Geet Saba Timilai" has been mispronounced (Tlac Kshetri, 2015).

Mērō gīta sabai timīlā'ī gīta bharikā prita pani
samjhanākā sabai miṭhā miṭhā kurā
yāda bhari jati chan sabai timīlā'ī

$b^2 + ba + ab + ab^3 + ba + a^2b + ba + a^2$
 $bab^2 + ab + abab + ab$
 $ba^3 + a^3 + b + ab + ab^2$

|मे रो गी ऽ ऽ तस बै ऽ ऽ तिमि लाई ऽ ऽ ऽ ऽ |
गीत भ ऽ ऽ रिका प्रि ऽ ऽ त पनि ऽ ऽ ऽ ऽ ऽ ऽ |

|*प *प ग - - रे सा रे सा - नि *प *म *प - - |
|*प *प *ग - - रे सा रे म रे सा नि नि - - - |

|सम् झ ना ऽ ऽ कासबै ऽ ऽ | तिठा मि ऽ ठा ऽ कुरा ऽ ऽ |
|*म *म रे - सा *नि सा *प *म *ग *ग *म *प *नि - - |

|याद भ ऽ ऽ रिज ति ऽ ऽ छन् | सबै ऽ ऽ तिमि लाइ ऽ ऽ ऽ |
|*प *प प - - म रे म ग सा ग रे - रे सा - - |

गीत भ ऽ ऽ रिका was not accurate singing and they corrected this line into गीत भरि ऽ काऽ according to the grammar rule.

The classical verse is found to be broken in the song sung by Lochan Bhattarai "Hriday Choi Garen Puja". The song was written by Gyanendra Gadai and composed by Sushil Bishowkarma (Radio Nepal [RN], 2045).

Hradaya chō'ī garēṃṃ pujā dhuṅgā pō rahēchau
ōṭhamai hāmsō sukā'ī parkhē jhana ṭāḍhā bha'ēchau

$a^3 + b^2 + ab + b^2 + b^2 + b + ab^2$
 $ba + b + b^2 + ab^2 + b^2 + b + b^2 + ab^2$

|हृद य ऽ छो ई ऽ| गर्ँ ऽ पुजा ऽ ऽ ढुं| गा पो र ऽ हेछौ ऽ|
|*निसा *ग - रे सा -| *प*नि - -*ध *नि* -| *नि - *प *म *ग *प|

|ओठ मै ऽ हाँ सो ऽ|सुका ईऽ पखे ऽ झन् टा ढा ऽ भ एऽ छौ ऽ|
|सा- ग - रे ग सा| साम म ध म - -| पध पध - रे सा*नि सा|

The corrected line of the song with grammer rule, first line last word as, |र हे ऽ छौ| |ग म ग प|

The government of Nepal replaced the new National Anthem of Nepal, on 3rd August 2007. The Anthem was written by Bakul Mailya and the tune was composed by Amar Gurung. The use of Nepali grammar in music refers to the use of Nepali language and pronunciation, especially in the singing genre. Language and tune (भाषा र भाका [Bhāṣā ra bhākā]) are two sides of the identical invention that cannot be separated. If only *Vaka* without language is presented, the song is not composed but only the rhythm is formed.

In the composition of Nepali's new national Anthem, the melody has lyrics was separated from the verse. The *Bhasa and Vaakaa* (language and melody) were separated in their tune. The Anthem is presented further down with regards to formulation into binomial expansion according to Nepali grammar. The comparison of the present tune and corrected tune according to the grammar rule are presented in eastern musical notation.

सयौं थुँगा फूलका हामी, एउटै माला नेपाली
सार्वभौम भै फैलिएका, मेची-महाकाली ।

प्रकृतिका कोटी-कोटी सम्पदाको आंचल
वीरहरूका रगतले, स्वतन्त्र र अटल ।

ज्ञानभूमि, शान्तिभूमि तराई, पहाड, हिमाल
अखण्ड यो प्यारो हाम्रो मातृभूमि नेपाल ।

जाति, भाषा, धर्म, संस्कृति छन् विशाल
अग्रगामी राष्ट्र हाम्रो, जय जय नेपाल ।

Song source: https://en.wikipedia.org/wiki/Sayaun_Thunga_Phulka.

The National anthem of Nepal is written as a binomial equation as follows:

$$ab + b^2 + bab + b^2 a^2b + b^2 + b^3$$

$$baba + b + ba^2b + b^2 + ab^3$$

$$b^2ab + b^2 + b^2 + bab^2 + ba^2$$

$$ba^2b^2 + a^3b + b^2a + a + a^3$$

$$baba + b^2aba + ab^2 aba + aba$$

$$aba + b + b^2 + b^2 + b^3a + b^2a$$

$$a^3 + ba + b^2 + ba + b^2a + b + aba$$

$$ab^3 + b^2 + b^2 + a^2 + a^2 + b^2a$$

The National anthem is written in Sargam or seven notes of sur (music notation identification [Notation ID]). The symbol of Sargam that is expressed as; **Sa** is the symbol of **S**, Komel **re** is **r**, shuddha **re** is **R**, Komel **ga** is **g**, shuddha **ga** is **G**, shuddha **ma** is **m**, tivra **ma** is **M**, **pa** is **P**, Komel **dha** is **d**, shuddha **dha** is **D**, Komel **ni** is **n**, and shuddha **ni** is **N** (Sa-shadja (षड्ज), Re-rishabh (ऋशभ), Ga-gandhar (गांधार), Ma-madhyam (मध्यम), Pa-pancham (पञ्चम), Dha-dhaivat (धैवत) and Ni-nishad (निषाद), and are shortened to Sa, Ri or Re, Ga, Ma, Pa, Dha, and Ni and written as S, R, G, M, P, D, N). The composed national anthem's original tune is written in Sargam tones as follows.

$$\begin{aligned} &|g - R S - n| S - g M - P| g - R S - n|S - n P - -| \\ &|स ऽ यौं थुं ऽ गा| फूल ऽ का हा ऽ मी|, एउ ऽ टै मा ऽ ला| ने ऽ पा ली ऽ ऽ| \\ &|Sa ऽ yaũ thuñ ऽ ga| phūl ऽ ka ha ऽ mī|, eu ऽ tai ma ऽ la| ne ऽ pa lī ऽ ऽ| \end{aligned}$$

$$\begin{aligned} &|g - M P - n| S - g M - P| g - R S - n| S - - S - -| \\ &|सा ऽ र्व भौम ऽ भै|फै ऽ लि ए ऽ का|, मे ऽ ची-म ऽ हा| का ऽ ऽ ली ऽ ऽ| \\ &|Sa ऽ rva bhaum ऽ bhai| pha ऽ il ie ऽ ka|, Me ऽ cī -Ma ऽ ha| ka ऽ ऽ lī ऽ ऽ| \end{aligned}$$

$$\begin{aligned} &|P - P S - S | n S n P P P| S - S P -M| g - S g - -| \\ &|प्र ऽ कृ ति ऽ का| को ऽ टी-को ऽ टी| सम् ऽ प दा ऽ को| ओं ऽ च ल ऽ ऽ| \end{aligned}$$

|Pra 5 kṛ ti 5 ka| ko 5 ṭi- ko 5 ṭi| sam 5 pa da 5 ko| ă 5 ca la 5 5|

P – g M – S	g – n S – n	n - P m -S	g – g g - -
वीर 5 ह रू 5 का	र 5 ग त 5 ले	, स्व 5 त च्च 5 र	अ 5 ट ल 5 5
Vīr 5 ha rū 5 ka	ra 5 ga ta 5 le	, sva 5 tan tra 5 ra	a 5 ṭa la 5 5

g – R S -n	S – g M – P	g – R S – n	S - n P - -
ज्ञा 5 न भू 5 मि	, शा 5 न्ति भू 5 मि	त 5 राई, प 5 हाड	, हि 5 मा ल 5 5
Gya 5 na bhū 5 mi	, śa 5 nti bhū 5 mi	ta 5 raī, pa 5 haḍ	, hi 5 ma la 5 5

g – M P – n	S – g M – P	g – R S – n	S – S S - -
अ 5 खण् 5 ड यो	प्या 5 रो हा 5 म्रो	मा 5 तृ भू 5 मि	ने 5 पा ल 5 5
a 5 khaṅ 5 ḍa yo	pya 5 ro ha 5 mro	ma 5 tṛ bhū 5 mi	Ne 5 pa la 5 5

P – P S – S	n S n P P P	S – S P – M	g – S g - -
ब 5 हुल जा 5 ति	, भा 5 षा, ध र् म	, सं 5 स्कृ ति 5 छन्	वि 5 शा ल 5 5
Ba 5 hul ja 5 ti	, bha 5 ṣa, dha r ma	, sāṅ 5 kṛ ti 5 chan	vi 5 śa la 5 5

|P – g M – S| g – n S – n| S – S P – P| M- -g S| g - - - - -|
|अ 5 ग्र गा 5 मी| रा 5 ष्ट्र हा 5 म्रो|, ज 5 य ज 5 य| ने 5 5 पा 5 5| ल 5 5 5 5 5
|a 5 gra ga 5 mī| ra 5 ṣṭra ha 5 mro|, ja 5 ya ja 5 ya| Ne 5 5 pa 5 5| la 5 5 5 5 5

The corrected national anthem's tune is written in Sargam tones of Notation ID as follows.

g g R S S n	S – g M P P	g g R S n n	S - n P - -
स यौं 5 थुं गा 5	फूल 5 का हा मी 5	, एउ टै 5 मा ला 5	ने 5 पा ली 5 5
Sa yaũ 5 thuṅ ga 5	phūl 5 ka ha mī 5	, eu ṭai 5 ma la 5	ne 5 pa lī 5 5
g - M P - n	S - g M – P	g – R S n -	S - - S - -
सा 5 र्व भौम 5 भै	फै 5 लि ए 5 का	, मे 5 ची-म हा 5	का 5 5 ली 5 5
Sa 5 rva bhaum 5 bhai	pha 5 il ie 5 ka	, me 5 cī -Ma ha 5	ka 5 5 lī 5 5

P P P S - -	n S n P P -	S - S P - M	g – S M - -
प्र कृ ति का 5 5	को टी 5 को 5 टी	सम् 5 प दा 5 को	आं 5 च ल 5 5
Pra kṛ ti ka 5 5	ko ṭi 5 ko 5 ṭi	sam 5 pa da 5 ko	ă 5 ca la 5 5

|P – g M M S| g g n S S n| n n P M - S| g g - g - -|

वीर ऽ ह रू का ऽ	र ग त ले ऽ ऽ	, स्व तन् ऽ त्र ऽ र	अ ट ऽ ल ऽ ऽ
Vīr ऽ ha rū ka ऽ	ra ga ta le ऽ ऽ	, sva tan ऽ tra ऽ ra	a ṭa ऽ la ऽ ऽ
g R - S - n	S - g M - P	g g R S S n	S -S n S - -P P P
ज्ञा ऽ न भू ऽ मि	, शान् ऽ ति भू ऽ मि	त रा ई, प हा ड	, हि मा ऽ ल ऽ ऽ
Gya ऽ na bhū ऽ mi	, śa ऽ nti bhū ऽ mi	ta r āi, pa ha ḍ	, hi ma ऽ la ऽ ऽ

g g M P n n	S - g M - P	g - R S - n	S - S S - -
अ खण् ऽ ड यो ऽ	प्या ऽ रो हा ऽ म्रो	मा ऽ तृ भू ऽ मि	ने ऽ पा ल ऽ ऽ
a khaṅ ऽ ḍa yo ऽ	pya ऽ ro ha ऽ mro	ma ऽ tṛ bhū ऽ mi	Ne ऽ pa la ऽ ऽ

P - P S - S	n S n P P - P	S - S P P M	S S -g - -
ब ऽ हुल जा ऽ ति	, भा ऽ षा, ध र् म	, सं ऽ स्कृ ति ऽ छन्	वि ऽ शा ल ऽ ऽ
Ba hul ऽ ja ऽ ti	, bha ऽ ṣa, dha ऽ rma	, sā skṛ ti ऽ chan ऽ	vi śa ऽ la ऽ ऽ

|P - g M - S| g - n S - n| S S - P P -| M M- S- -| g - - - - g
|अ ऽ ग्र गा ऽ मी| रा ऽ ष्ट्र हा ऽ म्रो|, ज य ऽ ज य ऽ| ज य ऽ ने ऽ ऽ| पा ऽ ऽ ऽ ऽ ल्
|a ऽ gra ga ऽ mī| ra ऽ ṣṭra ha ऽ mro|, ja ya ऽ ja ya ऽ| ja ya ऽ Ne ऽ ऽ| pa ऽ ऽ ऽ ऽ la

2.3. Research Gap

Reviewing the published works of the authors from pre-modern times (1950) to the present day, it is found that most of the works are pronounced without considering linguistic purity while presenting the Nepali language as songs and music. Etymological difficulties have been seen in the development of Nepali songs and music from the foundation. Such a problem, the Nepali Department of the University and the Academy of Languages and Literature, the concerned organizations, the broadcasting media, and other knowledgeable writers and intellectuals have not tried to correct it or express their views. Therefore, detailed questions can be raised here. As expressed in Vedic tradition (rules of the Sama Veda), language cannot be pronounced correctly when composing songs or music. The question has been raised, is it not possible to adopt linguistic purity when presenting poetic creations in songs and music without the classical verses and classical rules inherent in poetry? This topic has been chosen because of the need to conduct NOBLE experimental research in the field of Nepali society to find the answer to this question.

CHAPTER III

RESEARCH METHODOLOGY

3.1. Theoretical Framework

The research is directed to the philosophy of positivism and the approach of the research is deductive logical reasoning or a theory-driven (theory experiment) approach. The specific theory is considered of Vedic tradition (Pingala Shastra) and to present songs with pure pronunciation as stated in rules of grammar throughout the language. The Pingala Shastra relation to a written poem and composition of music is quantified in *Shastra*. Nepali grammar specifically mentions two rules; they are written and spoken form. The language writes as spoken in Kathya and follows the rules of grammar in writing. Similarly, when any poem written in the Nepali language is presented as a song (music composition and singing), the song should be presented under both of the above (Kusuba, 1993 & Bhattarai, 2012).

In the period of Vedic solemn (*Anusthana*), the Sanskrit Language carries robust Mathematical ground. Meters, called Chhandas are used in Prayers, and literary works have a strict Mathematical base. Historical views claim that Panini was an immeasurable landmark in the expansion of the Sanskrit language. He was also known as an excessive Sanskrit grammarian. He wrote the master book of grammar named *Ashtadhyayi*. Panini was the younger brother of Pingala and devised the Chhanda shastra that deals with Chhanda meters. Panini is dated earlier than 500 BCE (Sarma, 1991).

Representative “Zero (0) number also to ascribed to Pingala into his discussion of binary numbers, principally represented using 0 and 1 value in modern convrearranges Pingala rearrange and used laghu and guru syllables....” ... “Pingala classification of number arrange into binary patterns starting at one, this is known as four laghu (short) syllables of a binary number (0000) which expresses the 1st arrangement, and then the nth arrangement corresponds to the binary representation of n-1, is written in reverse.” (Srimanmaharsipingalacaryapranitam,

श्रीमन्महर्षिपिंगलाचार्यप्रणितम्] 2002). Predicament pre-owned of zero dates by Halayudha from later centuries and would have been known to Halayudha but not Pingalas numbers.

As Pingala stated in his binary method to Sanskrit poems, it has given extreme outstanding to the number of 2. Pingala established that any resolve of two in everything separated by two is equal to two heightening the power of two representing the number of two's the first power as stated in Srimanmaharsipingalacaryapranitam (2002) is divisible by two, i.e:

$$2^{16} = 22^4, 232 = 22^5, 264 = 22^6 = \dots = 2^n \quad (3.1)$$

According to Sarma (1991), Ashwini (2007), and Sastri (2010) the mathematical notation has been explained in the context of prosody, and homogenous illustrations are designed according to the literature of the Vedic period. The expansion of the equation of chanting mantras is within the rhythmic functions. The expansion of the Binomial triangle is precisely named Pingala's Triangle and the series of Pingala's series. Ashwini (2007) examines "the combinations of sixteen formulas are written into the mathematical methods" in to follow equation format:

$$(a + b)^0 = 1 \quad (3.2a)$$

$$(a + b)^1 = a + b \quad (3.2b)$$

$$(a + b)^2 = a^2 + 2ab + b^2 \quad (3.2c)$$

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3 \quad (3.2d)$$

$$(a + b)^4 = a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4 \quad (3.2e)$$

$$(a + b)^5 = a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5 \quad (3.2f)$$

$$(a + b)^6 = a^6 + 6a^5b + 15a^4b^2 + 20a^3b^3 + 15a^2b^4 + 6ab^5 + b^6 \quad (3.2g)$$

$$(a + b)^n = a^n + \dots 6a^nb + \dots a^nb^b + \dots a^nb^n + \dots a^nb^n + \dots ab^n + \dots b^n \quad (3.2h)$$

Thus, this is the formation of Binomial Numbers, triangles, and Series. They are explained as follows using formulation by Rao, (2005) and Ashwini (2007) in the same way as:

$$(a + b)^n = a^n + [n!/1!(n-1)!] a^{(n-1)} b + [n(n-1)/2!(n-2)!] a^{n(n-1)} b^2 + [n(n-1)(n-2)/3!(n-3)!] a^{n(n-1)(n-2)} b^3 + [n(n-1)(n-2)(n-3)/4!(n-4)!] a^{n(n-1)(n-2)(n-3)} b^4 + \dots + b^n \quad (3.3)$$

There is a stance of an identical triangular array of binomial coefficients, known as Meru-prastara, in Pingala's Chhanda sutra in 200 million BCE. It is proposed to show that, apart from the very

early discovery in India of the triangular arrangement of binomial coefficients, the technique appeared in association with the expansion of a binomial with positive integral exponents, posed by metrical problems (Bag, 1966).

The mythology disclosed by Saha, (2008) that used to perform in the second century BCE with the endorsed theory of the Sanskrit meter was developed by Pingalacharya. The iterative algorithm of Panini is the first example of iteration pre-historic age mathematics. The calculation of Pingala binomial coefficients, the use of repeated partial sums of sequences, and the formula of the sum of a geometric series became an integral component of Vedic mathematics. The research paper systematically discovered whether Pingala's algorithm has been preserved, modified, adapted, or superseded throughout the millennium.

Pingala arranges with a formal theory of meters. Pingala set out a formula for listing all possible construction of an n-syllable meter and indexing the list. He also provides an algorithm for determining how many of these forms have a specified number of short syllables, that is, an algorithm for calculating the binomial theorem ${}_nC_k$. The algorithm for the calculation of binomial is mathematical theory. *Pingala* homogenously applies mathematics in his algorithms, a belief which continues from *Panini's* sixth-century BCE. to *Aryabhata* fifth century CE. to *Madhava's* fourteen century. *Aryabhata* provides a sine table which is the same as the table of chords of Hipparchus. Both tables rely on trigonometric identities for their construction (Kusuba,1993; Sarma, 991; Bag, 1996; (Srimanmaharsipingalacaryapranitam, 2002; Shah, 2008; Sastri, 2010; & Bhattarai, 2012).

Aryabhata then proceeds to give a recursive algorithm for generating the same table. The algorithm is essentially a numerical procedure for solving the second-order differential equation for sine and thus necessarily less accurate than the one based on trigonometric identities. *Madhava* follows *Aryabhata* and develops the power series for sine, cosine, and arctangent using recursion (Saha, 2008).

Pingala's Algorithm denotes that as is G a long (Guru) syllable while L denotes a short (Laghu) syllable. Meters in Sanskrit are classified into two *Aksarachhandah*. The meters are suggested by

the symbol of syllables of the formulation. The Vedic aksarachhandah, referred to as Chhanda, are specified simply by the number of syllables. The later aksarachhandah, called Vrttachhandah, consists of four feet (pada), each foot having a specified sequence of long and short syllables (*Srimanmaharsipingalacaryapranitam*, 2002).

Pingala starts with the problem of listing all forms of an n-syllable meter. He establishes two forms of the 1-syllable meter: G, and L. Then, to obtain a list of forms of an n-syllable meter, make two copies of the list of forms of the (n-1)-syllable meter. Conjoin the Guru to each form in the first copy and conjoin Laghu to each form in the next repetition i.e. n=1, n=2, and n=3 (*Srimanmaharsipingalacaryapranitam*, 2002).

Later prosodics (relating to the pattern of rhythm and sound in poetry) always used modified versions of *Pingala's prastara*. The first column of the list consists of alternating Gs and Ls, the second column has alternating pairs of Gs and Ls, and the third has alternating quadruples of Gurus (Gs) Laghus (Ls). This provided an alternate way of constructing the list, column by column, from left to right. Another method is to notice the lexicographic order of the forms when read from right to left. Thus, the enumeration is begun by writing down n Gs in the first line. Subsequently, scanning the latest form from left to right, write L below the first G into the form and copy the rest of the form after it's first. Fill the gap before the laghu with the guru's poetic rhythm later on the poetic rhythm comprehensive these algorithms of *matra* to meters.

Nooten (1993) proved mathematician Mahavira (mathematician) replaced this algorithm with a method that interprets the string as a binary number. The procedure outlined here involves a series of divisions by 2 of the rank number of the meter, it speaks for itself: the initial number is halved and if the quotient is an even number, a Laghu is written in a separate table. If the quotient is an odd number, a guru is written in the same separate table, one is added to the quotient and the halving continues. (Effectively, he wrote down the positional value in terms of the powers of 2 equations 3.2a to 3.2h of each letter.)

The index is then one plus the sum of the numbers above all **L**s in the string. This is the closest Indian mathematicians came to inventing binary numbers. *Bharata's Verse* (121) given in Section 3.3.2 seems to outline this method (Puttaswamy, 2012; & Takayo, 2013).

From Pingala's exposition of indravajrii and upendravajrii meter,¹⁰ it is known that if one considers a meter of 3 syllables, the intermediate meters consist of Laghu sounds and guru sounds should be mixed. Thus, a meter beginning with 3 guru sounds can end with 3 Laghu sounds with mixed sounds in the middle, representing Laghu and b guru (Bag, 1966).

Table 3.1: Expansion of Meter of Syllables, Equivalent Results, and Explanation

Expansion of Meter of Syllables (i.e. Madhya)	Equivalent Results	Explanation
<i>Bbb</i>	$= b^3$	Here is the Number of Arrangements with ... 3 gurus =1 =1. b^3 ...2 gurus =3 =3 ab^2 ...1 guru =3 =3 a^2b ...0 guru =1 =1. a^3 The value of syllables is three and this is formed by the variety of sounds a and b. This undoubtedly gives the expansion of $(a + b)^3$
<i>Abb</i>	$= ab^2$	
<i>Bab</i>	$= ab^2$	
<i>Aab</i>	$= a^2b$	
<i>Bba</i>	$= b^2a$	
<i>Aba</i>	$= a^2b$	
<i>Baa</i>	$= ba^2$	
<i>Aaa</i>	$= a^3$	

Poet Virahanka (कवि विरहांक) the author of the *Vrttajatisamuccaya* (वृत्तजातिसमुच्चय) edited by Velankar (1020) and examine million years ago, Pingala evidently identifies the equations that generate numbers, they are the rule of different prastaras of Pingala-chhandaisutra. In Pingala's rule as explained by Halayudha, the following steps are indicated: The first one should write down the line containing gurus only.

- a) Then Laghu should be written below the first guru and the subsequent places with the gurus.
- b) If there are any spaces on the left-hand side of the laghu these must be filled up with the gurus only irrespective of how the corresponding spaces in the above line are filled.

c) This is to be continued till the line containing only laghus is arrived at.

Bag (1966) arranged the various possibilities of arrangement of *guru* and *laghu*, and equivalent results and said that the *pratistha-chhanda* containing 4 syllables are represented. The arrangements and equivalents of syllables are presented as follows.

Table 3.2: Arrangements and Equivalent Results

Arrangements	Equivalent Results
<i>bbbb</i>	$= b^4$
<i>Abbb</i>	$= ab^3$
<i>Babb</i>	$= ab^3$
<i>Aabb</i>	$= a^2b^2$
<i>Bbab</i>	$= a b^3$
<i>Abab</i>	$= a^2b^2$
<i>Baab</i>	$= a^2b^2$
<i>Aaab</i>	$= a^3b$
<i>Bbba</i>	$= ab^3$
<i>Abba</i>	$= a^2b^2$
<i>Baba</i>	$= a^2b^2$
<i>Aaba</i>	$= a^3b$
<i>Bbaa</i>	$= b^2a^2$
<i>Abaa</i>	$= a^3b$
<i>Baaa</i>	$= a^3 b$
<i>Aaaa</i>	$= a^4$

Bag (1966) furthermore stated the number of syllables in the *Pratitstha-ckanda* is four, the scheme gives the expansion of the binomial $(a+b)^4$ where *a* and *b* denote the long and short sounds respectively. The same method has been applied to meters of any syllable.

Table 3.3: Number of Arrangements with Different Gurus

Thus, the number of arrangements with	Four gurus	= 1. $b^4 = 1$
	three	= 4. $b^3 a = 4$
	two gurus	= 6. $b^2 a^2 = 6$
	one guru	= 4. $ba^3 = 4$
	No	= 1. $a^4 = 1$

In addition to the method of computing the binomial terms b^4 , baa , b^2a^2 , etc., in the foregoing example, Piilgala gave his general *Meru-prastiira* rule for determining such binomial coefficients, which is exactly the same as Pascal's 'triangular array', or Chu Shih-Chieh's old method chart of the seven multiplying squares.

The identity of the *Meru-Prastaar* with Pascal's triangle is thus fully established. It may be noted that the last line of Halayudha quoted above distinctly points out that the second line is the expansion of a meter with one syllable, i.e. of $(a+b)^1$, 3rd line that of a meter with two syllables, that is, of $(a+b)^2$, the 4th line that of a meter with 3 syllables, that is, of $(a+b)^3$, and so on. In this way the general expansion of data structures and Dynamic Algorithms of Binomial Coefficients (Bag,1966):

$$(a+b)^n = a^n + {}^nC_1a^{n-1}b + {}^nC_2a^{n-2}b^2 + \dots + {}^nC_{n-1}ab^{n-1} + b^n \quad (3.4)$$

The equation was instantly achieved for a meter of n syllables. Thus, Luckey's commented, “*mern-prastara* technique concerns only prosodic combination and has nothing to do with the binomial coefficients”.

There are wig chapters in Pingala-chhandahsastra in sutra-style, not perfectly understandable and free fm a critique. It has been dated to the last few centuries BCE. In the 10th century, Halayudha ([हलायुध] was an Indian mathematician) commented elaborating on the Mrtasanjivani, a commentary on Pingala's Chhandahsastra. The latter contains a clear description of Pascala's triangle (called Meru-Prastaar).

As stated by Bag (1966), *Meru-Prastaar* technique apprehensions in the combination of the binomial coefficients are presented diagrammatically in Pingala's Dynamic Algorithms of Binomial Coefficients of *Meru-Prastaar* structure in figures 3.1 (a) and 3.2 (b)².

Figure 3.1: Dynamic Algorithms of Binomial Coefficients: *Meru-Prastaar*

1																							
1					1																		
1				2		1																	
1			3		3		1																
1		4		6		4		1															
1	5		10		10		5		1														
1	6		15		20		15		6		1												
1	7		21		35		35		21		7		1										
1	8		28		56		70		56		28		8		1								
1	9		36		84		126		126		84		36		9		1						
1	10		45		120		210		252		210		120		45		10		1				
1	11		55		165		330		462		462		330		165		55		11		1		
1	12		66		220		495		792		924		792		495		220		66		12		1

Sources: Bag, 1966 & Srimanmaharsipingalacaryapranitam, 2002, page, 233.

². Meru Prastaar is, is popularly known as Pascal's Triangle. The presentation Bhaskaracharya's method for calculating the binomial coefficients. Bhaskara II or Bhaskaracharya was an Indian mathematician and astronomer who extended Brahmagupta's work on number systems. He was born near Bijjada Bida (in present day Bijapur district, Karnataka state, South India) into the Deshastha Brahmin family. Bhaskara was head of an astronomical observatory at Ujjain, the leading mathematical centre of ancient India. His predecessors in this post had included both the noted Indian mathematician Brahmagupta (598–c. 665) and Varahamihira (Bhaskara (1114 – 1185) (also known as Bhaskara II and Bhaskaracharya):

एकाधेकोत्तरा अंका व्यस्ता भाज्याः क्रमस्थितैः । परः पूर्वेण संगुण्यस्तत्परस्तेन तेन च ॥

एकद्वित्र्यादिभेदाः स्युरिदं साधारणं स्मृतम् । छन्दश्चित्युत्तरे छन्दस्युपयोगोऽस्य तद्विदाम् ॥

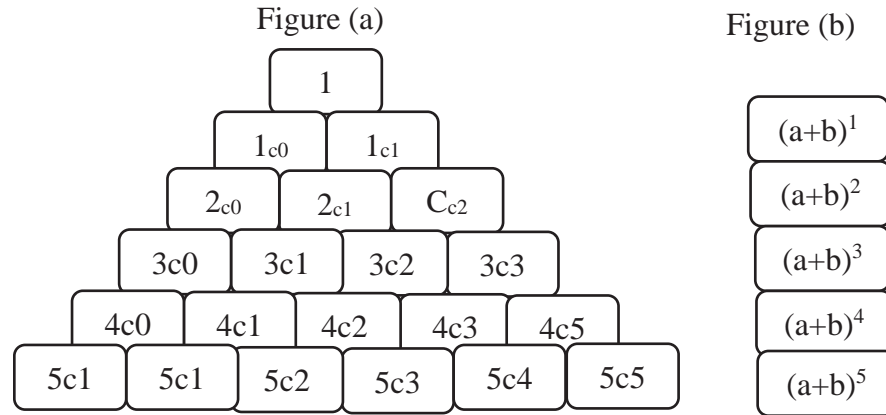
मूषावहनभेदादौ खण्डमेरौ च शिल्पके । वैध्यके रसभेदिने तन्नोक्तं विस्तृतेभर्यात् ॥

प्रस्तारे मित्र गायत्र्याः स्युः पादे व्यक्तयः कति | एकादिगुरवश्चाशु कथ्यतां तत्पृथक् पृथक् ॥

There are six letters in the fourth line of Gayatri meter. If we choose only 1 Guru, 2 G, 3 G, 4 G, 5 G, or 6 G, how many meters are possible? This is a problem from Bhaskaracharya's Lilavati. How many meters with r Gurus (or Laghus) are possible in a prastaar for n syllables? Pingala had developed a pratyay (method) to answer such questions. Pingala's sutra given in Chandahshastra for this method is: परे पूर्णमिति | – (छन्दः शास्त्रम् 8.34).

This is a very cryptic code. It was only through Halayudha Bhatt's commentaries on Chandahshastra in his work Mritasanjeevani (composed in 10th century CE) that people were able to understand this sutra. Halayudha has explained how to create a table of numbers which he called मेरु प्रस्तार.

**Figure 3.2 (a and b): Dynamic Algorithms of Binomial Coefficients in Structure Equation:
*Meru-Prastaar***



Sources: Bag, 1966 & Srimanmaharsipingalacaryapranitam, 2002, page, 233.

3.2. Conceptual Framework

Recognized illustrations of narratives are retail poems, songs, and folk songs that are not written in classical verse but are linked to the classical verse as expressed in rules of grammar by Bhattarai (2012). They were Kavishiromani Lekhnath Poudyal's Navya Kavya prophetic poetry (*नव्य काव्य*) - "Tarun Tapasi", Sakuntal of Mahakavi Lakshmi Prasad Devkota, National poet Madhav Ghimire's 'Gauri' mourning poem, and so on. Adikavi Bhanubhakta's 'Ramayan' is an excellent poem written in both classical styles as it is written in classical verse and colloquial language is used.

The hypothesis conceptualized that, when singing a song or adding rhythm to a song, pronouncing it in a single letter that is short, cannot be automatically improper pronounced and the meaning cannot be revealed. For example, "Geet Bhaaaarika Preet Pani" (*गीत भऱऱरीका प्रित पऱनि*). When the word is broken, the linguistic expression is weakened and the language deteriorates. Any song not only pleases the mind of the listener but also spreads the language.

The languages of the world are easily spread all over the world through songs. Poems and works written in classical verse (including syllable counting) should be sung as a rhythm as stated in classical rules. In every type of writing, short, long, rest, etc., the classical rules are indispensable.

However, we have to adopt the Adikavi Bhanubhaktiya style or the classical style. We do not use Halanta when we write, but we use Halanta when we speak. The pronunciation of the given word is incorrect, i.e., Zindagi Jawani, Bhari, Khali, Pari, Bhari, Pani, Haru, Kalpana, Sapna, etc. Pronouncing is automatically pronounced correctly. These words, (*Pani, ani jati, para, tara, vara, sayaum sadhaim, sabia* [पनि, अनि जति, पर, तर, वर, सयौं सधैं, सबै]) are pronounced correctly if they are not uttered at the same time. Pure singing is possible only if one adopts the literal style of expression. If you have to expand the rhythm, you can use long letters to get the correct pronunciation.

The way of expression i.e. *Zinnndagi, Kalllpana, Sapanaaaa, Vipannanna* (जिन्ऽऽदगी, कल्पनाऽऽ, सपनाऽऽ, विपनाऽऽ) and so on. When we speak, we speak expressively. “Where should we go?”, and “What did you eat?” are examples where the speech itself is in a questioning style. In a similar method, every event and emotion (grief, pain, happiness) is used in the identical stylishness of debate, question, and answer. Even so, why do we mispronounce songs? Nepali songs have such a huge market but after the language is mispronounced, can we bring our songs back to the international level (Bhattarai, 2012)?

Song music plays a big role in establishing and expanding the language. The melody and rhythm of the song are complete when perfect pronunciation of the word. The sweetness of the tone varies from person to person. The rhythm can be sung in its own way but the pronunciation can only be done as specified in the rules of the language. Just as the tones of music are pronounced in agreement with classical norms, the variable twelve tones of music are sung as they are, and different rhythms are sung or played in a similar computation.

These are considered to be the master of classical verse poetry for pure writing and pronunciation of the Nepali language. Any composition that takes the form of a song by combining the rhythm of writing and the rhythm of singing becomes a complete song. Since any composition written in the classical verse is written by fulfilling every rule of the language, if the little master rest within it is discovered and sung, the language becomes pure pronunciation. *Laghu* and *Guru* unite the

quantity. If there is only one small amount, then there are only two *gurus* or if there is only one small half, then there is only one *guru*.

When any minor poem or song written in the Nepali language (except classical verse) is given the form of a song, it can be pronounced correctly as acknowledged in spoken and pronounced characters used in the oral language. When composing and singing music, words should not be broken, especially long letters and shapes only at the end of the word. The language becomes pure pronunciation by simply assuming the style of communication or the expressive style of speech. The maximum recorded of Nepali songs are without considering the purity of the conformity language. Language is not only a written form but also a dialect. Verbalization of the Nepali language should be presented accordingly to the literal sound.

Considering the above criteria, Bhattarai (2012) published nine-song albums in her own music composition since 2003. Bhattarai (2012) has composed music for Antardhwani from the collection of poems of poet Kanchan Pudasaini, Pratibimb poems of Bhadrakumari Ghale, Savitri by Ved Bhakta Upadhyaya, and further.

Music is sound. The expressive sound within the language is the linguistic sound of the music. When the pure letter of any word is separated and taken into shape, both written and spoken letters go against the rules and go to the wrong pronunciation.

Songs play a big role in founding and expanding the language. Even illiterate people can understand and speak the language. Therefore, when singing a song, one should follow the guidelines of music as well as the principle of language.

In order to follow the principle of music as well as the values of language, some Nepali classics have been selected and music compositions have been presented to give justice to the language by creating music. It is believed that this effort can make Nepali literature popular all over the world through songs and music by providing music and voice with the correct pronunciation.

3.3. Research Design

As such the design includes an outline of what the researcher has organized from writing the hypothesis and its operationalization to the final analysis. The discovery and definition of the problem in Vedic tradition (Pingala Shastra) presents songs with pure pronunciation as specified in the rules of grammar throughout the conversation.

The advancement and extension of the Nepali language can lead to the change of Nepali literature and the progress of literature presented in a lyrical appearance, and then constantly its music. Continuously the further role, the fact that infringement on language can preserve the originality of the Nepali language is also important for this study. This study will be the first in the academic history of Nepal.

The study is carried out based on Nepali literature. Published poems have been preferred for experimental purposes. Different types of literature are required for this study, there are Mukதாக, Sastriya Chhanda kabita, Rubber verse poem, and Phutakara Kavitha. Publications from different publishing houses ranging from fifty years ago to recent days have been selected. A judgmental and convenient sampling of non-probability selection methodology has been selected.

Binomial coefficients or the expansion of binominal coefficient calculations have been selected for data analysis and finally, an exploratory technique has been used to prepare the research report with the composition of poems that empirically verify Pingala-Chhandasutra.

3.4. The Research Types

The research is directed to exploratory, experimental and analytical types. The approach to the research topic is new and it is hard to pinpoint the research direction. *Pingala-Chhandasutra* is used to explore mathematical formulas and their application to the different types of poems. Present the composition as an experiment. And thus, this research is based on exploratory and experimental research.

Likewise, the major findings of the research are presented in an analytical way which is a specific type of research that involves critical thinking skills and the estimation of facts and information relative to the research being conducted. This research utilizes existing and available information and data for critical analysis to discover patterns, insights, and generalizations that may help in building a theory or a better understanding of the existing phenomenon.

3.5. Research Methods

The experimental research method is carried out to collect data to be analyzed and studied and is carried out using in-house models. It could be a combination of two or three of the aforementioned techniques. The decision on the experiment depends on the objectives and scope of the research. Each method has its own character, challenges, and limitations as well as additional considerations to be included. A laboratory component of the song model has to deal with eastern notation. The experiment involves a lot of variants and possible sources. The composition of music simulation depends a lot on the input data. Despite the limitations and possible problems, deductive experimental research techniques are preferred in this case. It is also compatible with binomial coefficient methods.

3.6. Data Collection

Different classifications of poems will be selected to test the hypothesis. Some poem has been selected from Sastriya Chhanda kabita into different types of Sastriya Chahnda written within Pingal Chhanda sutra. Besides that, Muktak, Phuṭakara Kavitha, Rubber verse poem, Lōka Chhanda, Mātrīka Chhanda, Kat'thya Śailī (styles), and others have been selected.

From the study of the genre of Nepali literature, it is seen that the seeds of verse in the literature of the language of Nepal germinated in the early period and flourished in the modern period. In this light, Bhanubhakta Acharya is one of the earliest poets of the period who has enhanced the dignity of the Ramayan by making extensive use of intense verses. Although there is no prosody for the poet, since the verse is a symbol of speed and liveliness, the poet has used various verses in his work by including the lively vigorous flow of self-realization inside the dignity of the verse.

Aadikabi Bhanubhakta Acharya was the first writer to translate the great epic Ramayan from Sanskrit to Nepali. Shardulvikridita verse is used in Balkanda, Ramayan, and Shikharini verses without using the Anushtup verse extensively. Shardulvikridita verses have been used in most of these places and most of the verses. This verse, sung universally on the occasion of Mela-Pat, Bhat-Bhansa, Dhiki-Janto, Biha-Batulo, Pooja-Aja can be considered the king of verses.

This verse has been used in various contexts of Ramayan Mahatmya, Rama-Vashishta Sambad, Balakanda, and Ayodhya Kanda, and also in various contexts of Aranyakanda, Kishkindhakanda, Sunderkanda, Yuddhakanda, and Uttarakanda. Seen in this light, the use of Shardulvikridita verses in Bhanubhaktiya Ramayan seems to be maximum.

All three poetries are written sastraya Chhanda *Sardulavikridita* (शार्दूलविक्रीडित) Chhanda. Meter of Sardulavikridita Chhanda sah defines nineteen syllables in each foot and the ganas are ma, sa, ja, ta, ta, and ga. This meter is originated to be effective in Srikantha-Carita (श्रीकण्ठचरित).

Natak shastra stated *sardulavikridita* refers to a type of syllabic meter. According to the meter, the following syllables are stressed known as the guru, i.e., first three, and then sixth, again eighth, then the twelfth, thirteenth, fourteenth, sixteenth, seventeenth, and finally nineteenth, and the rest of the syllables are context known as laghu. Sardulavikridita falls in the Atidhrti class of chhandas (rhythm-type), which implies that verses constructed with this meter have four padas ('foot' or 'quarter-verse') containing nineteen syllables each. The meter, *Sardulavikridita* contains nineteen syllables on each foot and the ganas are ma, sa, ja, ta, ta, and ga. This meter is found to be employed in the Srikanthacarita.

Bālakāṇḍa from Rāmāyā of Bhanu Bhakta Acharya, Gauri of Madhav Prasad Ghimire. The poets have been selected for the composition experiment of this research.

Ēk|din|nā|ra|da|sat|ya|lōk|pu|gi|ga|yā|lōk|kō|ga|rūm|hit|bha|nī| (19)

Brah|mā|tā|him|thi|yā|par|yā|ca|ra|ṇa|mā|khū|sī|ga|rā|yā|pa|nī| (19)

Kyā|sōd|hchau|ti|mi|sō|dha|bhan|chu|ma|bha|nī|mar|jī|bha|yē|thyō|ja|sai| (19)
Brah|mā|kō|ka|ru|ṇā|bu|jhē|ra|ṛ|ṣi|lē|bin|tī|ga|ryā|yō|ta|sai| (19)

Gauri was the first edition: in 1958. After Gauri's untimely death. It is extensively thought to be the poet's greatest work. It is also the most popular (Gaire, 2017 & Pokharela, 1982).

|Pa|ni|sim|si|sim|bar|si|e|ra|sa|ki|yo|a|sa|dha|ko|ra|ta|ma| (19)
|ni|s|kē|jh|im|jhi|ma|jyō|ti|mā|ju|na|ki|rī|ōs|yā'i|lā|phāñ|ṭa|mā| (19)
|ph|ārī|bā|da|la|śai|la|kō|śik|ha|ra|mā|tā|rā|u|dā'|in|a|ba| (19)
|ā'|ī|vi|ṣ|ṇu|ma|tī|pa|vi|tra|ta|ṭa|mā|mē|rī|ni|dā'|in|a|ba| (19)

Likewise, poetry has been selected for the composition experiment of this research. i.e. *Hikkā lagacā parantu* from *Bhāmagālō Susumcā* by Dahala Yagya Nidhi.

|Sā|rā|dēkh|chu|u|rā|ṭha|yō|kṣi|ti|ja|kō|mā|dhur|ya|sañ|jī|va|nī| (19)
|tā|rā|vyan|gaya|pra|hā|ra|gar|na|na|bha|mā|jhul|kan|cha|rā|tī|pa|ni| (19)
|nā|rī|kō|kha|di|ē|ki|chan|pra|kṛ|ti|lē|ā|mā|ba|nū|lāg|da|cha| (19)
|yū|vā|daun|ta|ra|lē|vi|yō|ga|sa|ha|nū|ā|nan|da|kē|lāg|da|cha| (19)

The song *Ritu varsata ayo* from *Ghama duvi tara naudaeko akasha hum ma*. The poem was written by Bhimdarshan Roka as a Mukதாக meter. This poem is unassuming and truthful prose with short sentences. The type or distinction of poetry (different from Prabandha-Kavya) in which the things described have no pre-relation, i.e. a whole thing or subject has come in the same verse, it has no relation with other verses before or after. In Chhand Shastra, the distinction of poetry there is no binding of ganas, only the number of syllables and in some places, some attention is paid laghu to guru.

The poetry of the Roka has a rhythmic structure. Due to the combination of alliteration and rhyme and the active role of rhythm in poetry, lyric consciousness has been created in poetry. Due to the powerful role of rhythm, lyricism has a unique place in poetry. At this stage, the poet is the first to use the crying style in Nepali poetry. Bhimdarshan Roka was the promoter of this style in the development of Nepali poetry. Nature is presented as the basis in the imagery and symbolism used in the poem, but also in the imagery and symbolism, there is ease, individuality, and diversity (Roka, 1999).

|Ṛ̥|tu|bar|sā|ta|ā|yō|mē|rō|in|drē|nī|mā|raṇa|ga|sā|ta|ā|yō| (19)
|Ki|na|na|da|guru|m|pōl|ṭō|thā|pī|dū|ra|dē|śa|kō|sau|gā|ta|ā|yō| (20)

Anushtup verse is a very famous chromatic verse of the Sanskrit language. Srimad Bhagavad Gita, Sri Suktam, Gayatri Kavacham, Vishnu Sahasranama etc. have been composed in this verse. The first verse uttered by Valmiki is in Anushtup verse. Anushtup Chhand has four legs and its structure is as follows. It has eight letters on one foot.

The fifth syllable of all four feet is short. The sixth syllable of all four feet is a long master. The seventh syllable or vowel of the first and third legs is a long master. The seventh syllable or vowel of the second and fourth legs is short. Gold is fragrant if one, two, or three syllables or vowel of each foot or anyone syllable or vowel is lengthened. The syllable Guru is the first foot, and the second foot is Laghu. Guru in the third foot and Laghu in the fourth foot and so on.

The second poem has been selected from the Chhanda music album which is composed and sung by Bhattarai (2016). The poem was written by Kabi-Shiromani Lekhanatha Paudyala based on Sastriya Chhanda kabita in Anustup Chhanda (अनुष्टुप छन्द). The Anushtup Chhanda is a very widespread meter. Verses created in the Anushtup Chhanda are four-line stanzas. Each stanza has four lines involving 8 syllables each. Every four-line stanza in *Anushtup Chhanda* has 32 syllables. Anushtup Chhanda meter is the first verse in the Manasa. Ramcharitmanas clarify Valmiki Ramayan is enormously deliberate in anushtup Chhanda meter. Another anushtup Chhanda was deliberated by Kabi Shiromani Lekhnath Paudyal. Hutt (1991) gave credit to Lekhnath Paudyal “he was the first shimmer of the poetic make off with that was to materialize succeeding.”

|Ba|ḍā|lē|jō|ga|ryō|kā|ma| (8) |hun|cha|tyō|sar|va|sam'|ma|ta| (8)
|chai|na|śaṅ|ka|ra|kō|naṅ|gā| (8) |ma|gan|tē|bhē|ṣa|nin|di|ta| (8)
|kō|gar|da|cha|ṭhu|lō|vya|kti| (8) |mar|yā|dā|sthi|ti|laṅ|gh|ana| (8)
|ba|sē|kō|cha|ma|hā|sin|dhu| (8) |sī|mā|ba|d'dha|ba|nī|ka|na| (8)

The title of the song is *Naitika Drsantanta*. The music has been invented and transcribed according to Pingala's verse formula.

In the *Shikharini verse*, the Mandakranta verse has 17 letters and 5 groups. Yesas 1. Yagana 1. Magana 1. Nagana 1. Sagana 1. Bhagan 1. Laghu 1. Guru. The groups used in Shikharini verses and their quantity are as follows. There are 17 letters in which an attempt has been made to explain

in short and long in the following order. Gana for the Shikharini verse: ya ma na sa bha la ga and matra Shikharini verse: /s /ss sss // / //s s// / s. Selected poem from Taruntapashi *Cārikō bilāpā*.

|Na|śak|chau|yō|āṁ|śu|ṭa|pa|ṭa|pa|ṭi|pī|ca|ppa|pi|'u|na| (17)
 |na|śak|chau|mā|sū|lē|di|na|bha|ra|a|gh|ā|'ēra|ji|'u|na| (17)
 |Na|śak|chau|yī|bhut|lā|li|'i|ka|na|ku|nai|vas|tra|si|'u|na| (17)
 |cuṁ|ḍyau|byar|thai|mē|rō|ma|nu|ja|ti|mi|lē|jī|va|na|ki|na| (17)

There are 14 syllables and 4 syllables in the Bashanta Tilaka Chhanda (spring verse). It has one Tagan, one Bhagan, two Jagans, and two Gurus. The groups used in the spring verses and their quantity are as follows. It means long letters and the letter of intent is shortened here. There are 14 letters in which an attempt has been made to explain in short and long in the following order. Gana for bashanta tilaka chhanda written as: ta bha ja ja ga ga and matra for this chhanda written as *ss/ s// /s/ /s/ s s*.

|Kē|hō|a|hō|!A|mṛ|ta|tyō|su|ra|dē|va|pā|na| (14)
 |sac|cā|ka|mā|i|ga|ri|khā|nu|bha|nē|ra|jā|na| (14)
 |Khō|j|ch|an|sa|bai|su|kha|tyō|suk|ha|tyō|ka|hā|ṁ|cha| (14)
 |āp|hū|mi|ṭā|i|a|ru|lā|i|di|nu|ja|hā|ṁ|cha| (14)

Since this Shakuntala epic is based on the story of Shakuntalam, the famous philosopher-poet Kalidasa's identity, it seems that the world-famous Sanskrit poet Kalidasa was followed by famous poet Laxmiprahad Devkota of Nepali literature. The epic must have been written for the purpose of demonstrating the natural companionship of Shakuntala, the daughter of identity, and the sweet union of man and kind. Shakuntala epic is the first original epic published in Nepali. Although its story is famous in ancient history, it seems to have become original due to the imagination of the poet. Published for the first time in 2002, this epic has come as a mangalacharan of Nepali epic. This poem is written in *Totak Chhanda* in the third canto.

|Su|na|bā|da|la|bhō|su|na|sūr|ya|bh|a'ē| (12)
 |Su|ra|dvā|ra|khu|lyō|su|na|kō|na|bha|mā| (12)
 |Su|na|kō|bha|va|bhō|su|na|kō|ja|la|lē| (12)
 |Su|na|tā|ra|ba|jā|'uṁ|cha|kal|kal|alē| (12)

Mandakranta (मान्दाक्रान्ता छन्द) verses have 17 letters and 5 groups. There is a 1. Magan 1. Bhagan 1. Nagan 2. Tagan 2. Guru. The groups used in Mandakranta verses and their quantity are as follows. It means long letters and the letter of intent is shortened here. There are 17 letters in which an attempt has been made to explain in short and long in the following order. This is a classical verse in the minds of the Nepali people. Its four legs are the same. Each foot of this verse has a session letter. The fourth, tenth, and seventeenth letters rest. Gana for Mandakranta verses is Ma bha na ta ta ga ga and Matra for Mandakranta verses is sss sll ll ssi ssi ss. The poem below aptly demonstrates, Yuga Kavi Siddhi Charan Shrestha.

|Nē|pā|lī|hūm̃|ka|thi|na|gi|ri|mā|caḍh|na|lā|'ī|si|pā|lu| (17)
|bai|rī|nai|hōs|ta|ra|chu|ba|hu|tai|dī|na|mā|thī|da|yā|lu| (17)
|tā|tō|rā|tō|ra|ga|ta|ri|pu|kō|py|ūm̃|na|har|dam|ta|yā|ra| (17)
|mē|rō|mē|rō|pri|ya|khu|ku|rī|yō|hē|ra|bhai|hō|si|yā|ra| (17)

The third poetry has been selected from Divya cetane written by Pitamvara Piyusa the style of writing is based on the Prose poem. A poem that does not match the verse is usually called a "prose poem". This is the modern way of writing poetry. Where poets can write their feelings freely without any rules. Timi-Timi, sarvatra timi has been selected for the experiment binomial coefficient using prose poem.

|Ti|mī|ti|mī|sar|vat|ra|ti|mī| (9)
|kē|va|la|ti|mī|ti|mī|ti|mī| (9)
|ta|ra|ya|sa|kō|la|ya|kō|bī|ca|ka|hīm̃| (12)
|śē|ṣa|ba|cē|kō|aha|ṁ|khōj|cha|ti|mī| (11)

Bhadrakumari Ghale wrote a poem in metrical verses (मात्रिक छन्द). The musical album was published in the name of reflection. Quantities are counted in metrical verses. The figure of typescripts in this verse and the order of short and long are not fixed. The number of quantities of all the steps in this verse is the same. Udan Ta Udi Chari is selected in this verse poem. Music has been created and written in an agreeable language style.

|Uḍ|na|ta|u|ḍī|ca|rī|ka|thai|bas|nē|hām̃|gā|chai|na| (15)
|pi|'u|na|ta|pi|'ī|pā|nī|ca|rī|lē|tir|khā|mēt̃|nē|bha|i|na| (18)

The Bhujangprayata (भुजङ्गप्रयात) Chhanda is a meter that has four feet of 12 syllables, and the sequence of short (S) and long (L) syllables is *SLLSLLSLLSLL*. It is called Bhujangprayata because of its calm motion similar to the movement of a snake. Six syllables are resting in this verse which is appropriate for calm moderate words. Lord Siva sung by the Brahmin in Uttarakanda, there occur 8 verses in the Bhujangaprayata meter in Ramacaritamanasa (Nepal, 2005; & Howldar, 2018).

The poem has been selected from the Anterdhoni album. The poet Kanchan Pudasaini composed Sastriya chhanda -kabitah with Bhujangprayata (भुजङ्गप्रयात) chhanda. *Timilai Dekhepachi*. The music has been created and transcribed for this poem which is also according to Pingala's verse formula.

|Ti|mī|lā|i|dē|khē|pa|chi|thā|ha|pā|'ēṁ| (12)

|ti|mī|lā|i|khō|ji|ra|hē|kī|ra|hī|chu| (12)

|Ka|tā|kē|ha|rā|'ēṁ|bha|nī|pī|ra|mān|thēm| (12)

|bi|chō|dai|ta|mai|lē|sa|hē|kī|r|ahī|chu| (12)

The prose is the traditional form of poetry. Today prose song is a poetic form of updated prose different from tradition in terms of terminology and format legislation. Prose poetry is a simple, interesting, and delightful expression of a plot, character, or idea in prose through imagination and experience. It is verse-free, grammatical, delightful syntax. Present days prose poetry song has the same moderation of the same factuality with the same personality as the lyric poetry.

Its size type is also much smaller than the essay and almost becomes like lyric poetry. Emotion is its inevitable symptom.

Poet Biyog Sapakota has been written prose poet entitled “Odachu Sita...” Music has been composed and written in an identical language style.

|Ō|chu|śī|ta|rā|tī|-rā|tī|tāt|dai|na|yō|chā|tī| (14)

|Jā|dai|jā|dō|khā|'ē|kō|chu|hus'|su|bāk|lō|lā|'ē|kō|chu| (15)

|Bhan|chan|su|kum|bā|sī| (6)

3.7. Specification of Model

Explanation after Halayudha's commentary: Ga stands for guru sound = b [say] and la stands for laghu sound = a [say] (Pingala-Chandrashutra ch.8,20-22, Volankar's, 1932 & श्रीमन्महर्षिपिंगलाचार्यप्रणितम् (२००२०)।

Selected poems are composed of songs within the Chandra *Shutra*. The songs are written within a calculation of the binomial coefficients' expansion equations. Likewise, the composition of songs is written in eastern music notations.

The binomial coefficient expressions exhibit many patterns: Each expansion has one more term than the power on the binomial. The sum of the exponents in each term in the expansion is the same as the power on the binomial. The powers on an in the expansion decrease by 1 with each successive term, while the powers on b increase by 1. The coefficients form a symmetrical pattern.

Expansion of one syllable =

$$\binom{b}{a} = \begin{matrix} b \\ a \end{matrix} \quad (3.5)$$

Expansion of two syllables =

$$\left. \begin{matrix} \binom{b}{a} + b \\ \binom{b}{a} + a \end{matrix} \right\} = \begin{matrix} bb \\ ab \\ ba \\ aa \end{matrix} \quad (3.6)$$

Expansion of three syllables =

$$\left. \begin{matrix} \binom{bb}{aa} + b \\ \binom{bb}{aa} + a \end{matrix} \right\} = \begin{matrix} bbb \\ abb \\ bab \\ aab \\ bba \\ aba \\ baa \\ aaa \end{matrix} \quad (3.7)$$

And so, on.

Each coefficient entry below the second row is the sum of the closest pair of numbers in the line directly.

$$a + b \quad (3.8)$$

$$a^2 + b^2 \quad (3.9)$$

$$a^3 + b^3 \quad (3.10)$$

$$a^4 + b^4 \quad (3.11)$$

$$a^n + b^n \quad (3.12)$$

Where; a is Hrasva niyama and b is dirgha niyan (long and short rule). a^2 is two Hrasva niyama b^2 is two dirgha niyan. Likewise; a^3 is three Hrasva niyama b^3 is three dirgha niyan. Likewise; a^4 is four Hrasva niyama b^4 is four dirgha niyan and a^n and b^n the numbers of long and short rules for the composition of poems.

3.8. Data Analysis Methods

This research is based on experimental methods. The classical verse poems, *Sardulavikridita*, *Anustup*, *Shikharini*, *Basanta Tilaka*, *Totak*, *Mandakranta*, *Bhunjayangprayat*, and others *Muktak*, *Prose-Poem*, *Matric Chhanda*, *rubber/Rubbed* verse poems and minor poems; are discoursed in a scripted manner undifferentiated in Pingala verse scriptures and various Katha styles according to Sahi and colloquial language.

The composition of poems is written in Sargam which refers to singing the notes and the words of a composition with various enhancements and the rules of the Swara (raga). This is said to have evolved from the elaborate and elongated chants of Sama Veda, based on these basic swaras. Siksha is a subject that deals with phonetics and pronunciation. Naradiya Siksha elaborately discusses the nature of swaras, both Vedic chants, and the octave.

The music is presented in this way and the Nepali language is pronounced correctly in the script. In Table 3.4 poems, types composition patterns, and rhythm used are presented.

Sargam used in different musical octaves led to the Art music (laukika) being born as the devotional music (Vaidika): Sa, Re, Ga, Ma, Pa Dha, Ni, and Sa. Sargam is a way of assigning

syllables to the names of the notes on a musical scale. The Sargam syllables are Sa, Re, Ga, Ma, Pa Dha, Ni, and Sa' in the middle octave.

Table 3.4: Poem Chhanda Composition Invented and Rhythm Pattern

S.N.	Poem	Chhanda	Composition Invented	Rhythm
1	<i>Ramayan: Balkanda</i>	<i>Sardulavikridita</i>	Folk	Jhyā'urē (झ्याउरे)
2	<i>Gauri-Khanda Kavya</i>	<i>Sardulavikridita</i>	Folk	Jhyā'urē (झ्याउरे)
3	<i>Bhangalo susauncha</i>	<i>Sardulavikridita</i>	Folk	Jhyā'urē (झ्याउरे)
4	<i>Ritu barshat Aayo</i>	<i>Muktak</i>	Saranga Anga	2/4
5	<i>Badala Jo</i>	<i>Anustup</i>	Folk	Jhyā'urē (झ्याउरे)
6	<i>Chariko Bilap</i>	<i>Shikharini</i>	Modern	2/4
7	<i>Keho Aho</i>	<i>Basanta Tilaka</i>	Modern	Dādārā (दादरा)
8	<i>Suna Badala Bho-Sakuntala Mahakabya</i>	<i>Totak</i>	Modern	4/4
9	<i>Nepali Hum Ma</i>	<i>Mandakranta</i>	Modern	2/4
10	<i>Timi-Timi</i>	<i>Prose-Poem</i>	Modern	2/4
11	<i>Udna Ta Udi Chari</i>	<i>Matric</i>	Modern	2/4
12	<i>Timili Dakha Pachi</i>	<i>Bhunjayangprayat</i>	Modern	Rupaka (रूपक)
13	<i>Odchu Sita</i>	<i>Prose-Poem</i>	Modern	Dādārā (दादरा)

For notation purposes, each of the 12 notes in an octave has a symbolic identity, given by S, r, R, g, G, m, M, P, d, D, n, N in Madhya saptak (middle octave). The Mandra saptak (low octave) is expressed as the symbol of *S, *R, *G, ...*N. Likewise, Tar speak (high octave) is expressed as the symbol of S*, R*, G*, ...N*. The octave is based on the musical instrument Harmonium notes.

3.9. Analysis Instruments and Software

For the experimentation of selected poems, musical instruments are used for the composition of songs; i.e. Harmonium, Tabala, Tanpura, Flute, Violin, Madal, Mridanga.... Microsoft Office, Libre office for mathematics writing, and Excel software are used for equation formulation and analysis.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this section, the evidence calm is exhibited and music compositions has ben completed. The poems are transposed into a binomial equation. The composition of songs/tunes is written in Sargam methods in natural scale according to the Chandrashutra by the experimental process.

4.2 Binomial Coefficient and Exposition to Pingala Chhandasutra in Nepali Modern Music

The music is composed according to binomial expansion. The masterpiece of the song is presented below into eastern notes (Sa, Re, Ga, Ma, ...). This research follows the Vedic Tradition (Pingala- Chhandasutra) and others songs present in pure Pronunciation to the Principle of Grammar. Composed music and transcriptions of composition in eastern musical notations ID are presented in Table 3.1 of chapter three.

Ramayan: Balkanda

एक् दिन् नारद सत्यलोक् पुगि गया लोक्को गरुँ हित् भनी ।

ब्रह्मा ताहिं थिया पर्या चरणमा खूसी गराया पनी ॥

क्या सोध्छौ तिमि सोध भन्छु म भनी मर्जी भयेथ्यो जसै ।

ब्रह्माको करुणा बुझेर ऋषिले बिन्ती गर्या यो तसै ॥ ॥

Expansion of Binomial Coefficient

$$b + b + ba^2 + bab + a^2 + ab + b^2 + ab + b + ab$$

$$b^2 + b^2 + ab + ab + a^3b + b^2 + ab^2 + ab$$

$$b + b^2 + a^2 + ba + ba + a + ab + b^2 + ab^2 + ab$$

$$b^3 + ab^2 + aba + bab + b^2 + ab + b + ab$$

Composed Song Transcriptions into Eastern Musical Notations ID

*G *P *D *P *D S -*D| S - R S R G R S| S R R G - G S R G R| S - *D - - -|

एक् दिन् ना रद स ऽत्या लो ऽक् पु गि ग या ऽऽ| लोक् को ऽऽ ग रूँ ऽहि त् भ नी ऽऽऽऽऽ

Ēk|din|nā|ra|da|sat|ya|lōk|pu|gi|ga|yā|lōk|kō|ga|rūm̄|hit|bha|nī| (19)

*G *P *D *P *D S -*D| S - - R S R G R S| S R R G - G S R G R| S - - - - -|

ब्रह्ं मां ता हिंथि या ऽपा र्या ऽऽ च रण मा ऽऽ| खू ऽसी ऽ ग रा ऽया ऽ| प नी ऽऽऽऽऽ|
Brah|mā|tā|him̄|thi|yā|pa|ra|ṇa|mā|khū|sī|ga|rā|yā|pa|nī| (19)

*G *P *D *P *D S -*D| S - R S R G R S| S R R G - G S R G R| S - *D - - -|

क्या सोध् छौ ति मि सो धा भन् छु म भ नी मर् जी भ ये थ्यो| ज सै ऽऽऽऽऽ|
Kyā|sōd|hchau|ti|mi|sō|dha|bhan|chu|ma|bha|nī|mar|jī|bha|yē|thyō|ja|sai| (19)

*G *P *D *P *D S -*D| S - - R S R G R S| S R R G - G S R G R| S - - - - -|

ब्रह्ं मा को क रु णा बु झे र ऋ षि ले बिन् ती ग र्या यो| त सै ऽऽऽऽऽ|
Brah|mā|kō|ka|ru|ṇā|bu|jhe|ra|ṛ|ṣi|lē|bin|tī|ga|ryā|yō|ta|sai| (19)

Gauri: Khanda Kabya

पानी सिमसिम बर्सिएर सकियो आषाढको रातमा

निस्के झिम्झिम ज्योतिमा जुनकिरी ओस्याइला फाँटमा

फारी बादल शैलको शिखरमा तारा उदाइन् अब

आई विष्णुमती-पवित्र तटमा मेरी निदाइन् अब

Expansion of Binomial Coefficient

$$b^2 + a^4 + ba^3 + a^2b + b^2ab + bab$$

$$b^2 + ba^2 + bab + a^3b + b^2ab + bab$$

$$b^2 + ba^2 + bab + a^3b + b^2 + ab^2 + a^2$$

$$b^2 + ba^2b + a^3 + a^2b + b^2 + ab^2 + a^2$$

Composed Song Transcriptions into Eastern Musical Notations ID

SRGGPRGGGP|GGRS-GR|SS*N-*DNPDS|S-----|

|पा ऽ नी सिम् सिम बर -सि|ए ऽ -र सकि यो ऽ| आ षा ऽ ऽ ढ को ऽ रा ऽ ऽ त| मा ऽ ऽ ऽ ऽ ऽ
|Pa|ni|sim|si|sim|bar|si|e|ra|sa|ki|yo|a|sa|ḍha|ko|ra|ta|ma| (19)

SRGGPRGGGP|GG-RS-GR|SS*N-D*N*P*D*N-R|R-----|

|निस् के झिम् झिम ज्यो ऽ ति| मा ऽ ऽ जु न कि री ऽ| ओ स्या ऽ इ ला ऽ ऽ फाँ ट| मा ऽ ऽ ऽ ऽ ऽ
|nis|kē|jh|im|jhi|ma|jyō|ti|mā|ju|na|ki|rī|ōs|yā'i|lā|phāṁ|ṭa|mā| (19)

SRGDD-|DPND-PPP|GG-GRSSRGM|GR-----|

|फा ऽ री बा द ल शै ऽ ल| को ऽ ऽ ऽ शि ख र मा ऽ| ता रा ऽ उ दा ऽ इन्| अब ऽ ऽ ऽ ऽ ऽ
|ph|ārī|bā|da|la|śai|la|kō|śik|ha|ra|mā|tā|rā|u|dā'|in|a|ba| (19)

SS*N*D*N*N*P*D-|S*D S-RR-RR|GG-GRSGR|S-----|

|आ ई विष् णु म ती ऽ प| वि ऽ ऽ ऽ त्र त ट मा ऽ| मे री ऽ नि दा ऽ इन् ऽ| अब ऽ ऽ ऽ ऽ ऽ
|ā'|ī|viṣ|ṇu|ma|tī|pa|vi|tra|ta|ṭa|mā|mē|rī|ni|dā'|in|a|ba| (19)

Bhangalo Susauncha: Dahal Yagya Nidhi

सारा देख्छु उराठ यो क्षितिजको माधुर्य संजीवनी

तारा व्यङ्ग्य प्रहार गर्नभमा झुल्कन्छ रातीपनि

नारी कोख दिएकिछन् प्रकृतिले आमा बन्नू लाग्दछ

यूवा दौतरले वियोग सहनू आनन्द के लाग्दछ

Expansion of Binomial Coefficient

$$b^2 + ba + aba + b + a^3b + b^3 + b^2ab$$

$$b^2 + b^2a + b^2a + b^2a^2b + b^2a + b^2ab$$

$$b^2 + ba + a^3b + b^2ab + b^2 + ab + ba^2$$

$$b^2 + ba^2b + aba + a^2b + b^2a + b + ba^2$$

Composed Song Transcriptions into Eastern Musical Notations ID

|G D D D D D D - D| N D P N D P P P P G| G D P G R G R S - R| P m D P G - - -|
 |सा ऽ रा देख छु उ रा ऽ ठ| यो ऽ ऽ ऽ क्षि तिज को| ऽ मा ऽ धु ऽ र्य सं जी ऽ ऽ वा नी ऽ ऽ ऽ ऽ ऽ ऽ ऽ|
 |Sārā dēkhchu urāṭha yō kṣitijakō mādhurya sañjīvanī| (19)
 |*D S *D R R R R G R P G| G R P G P G G G R| S S - *D S R G R -| S - - - - -|
 |ता ऽ रा ऽ व्य ड्य प्र हा ऽ ऽ र| ग ऽ ऽ ऽ र्न न भ मा ऽ| भुल कन् ऽ छ रा ऽ ती ऽ प नि ऽ ऽ ऽ ऽ ऽ|
 |tā|rā|vyaṅ|gaya|pra|hā|ra|gar|na|na|bha|mā|jhul|kan|cha|rā|tī|pa|ni| (19)
 |G D D D D D D - D| N D P N D P P P P G| G P P G R G R S - R| P m D P G - - -|

|ना ऽ री को ख दि ए ऽ कि छन् ऽ ऽ प्र कृ ति ले ऽ| आ ऽ मा ऽ ब नूँ लाग ऽ दाछ ऽ ऽ ऽ ऽ ऽ ऽ ऽ|
 |nārī kōkha di'ēkichan prakṛtilē āmā banūṁ lāgdacha| (19)
 |*D S D R R R R G R P G| G R P G P G G G R| S S - *D S R G R - S| S - - - - -|
 |यू ऽ वा ऽ दौँ त र ले ऽ वियो ऽ ऽ ऽ ग स ह नू ऽ| आ नन् ऽ द के ऽ ऽ ला ऽ दाछ ऽ ऽ ऽ ऽ ऽ|
 |yūvā dauntaralē viyōga sahanū ānanda kē lāgdacha| (19)

Ritu Barshat Aayo: Gham Dubi Tara Na Udayako Aakash

ऋतु बर्सात आयो मेरो इन्द्रेनीमा रङ्ग सात आयो ।
 किन नदगुरुं पोल्तो थापी दूर देशको सौगात आयो ।

Expansion of Binomial Coefficient

$$b^2 + aba + b^2 + b^2 + b^4 + ba + ba + b^2$$

$$a^2 + a^3b + b^2 + b^2 + ba + bab + b^2a + b^2$$

Composed Song Transcriptions into Eastern Musical Notations ID

- M P n P P M R S R	P M P n P M P -
ऽ ऋ तु बर् ऽ षा ऽ ऽ त	आ ऽ यो ऽ मे ऽ रो ऽ
M P N S* S M* R* S N R* S*	P *n P - M P M R
इन् द्रे नी मा रङ्ग ऽ ग सा ऽ ऽ त	आ ऽ यो ऽ
R̥	tu
P n n - n P M P N -	S* - - R* S* N S* -
कि ऽ ऽ न न द गुरुं ऽ	पो ऽ ऽ ल्दो था ऽ पी ऽ
P S* S* n S* n P -	P P M *n P P P M R S
दू ऽ र दे ऽ श को ऽ	सौ गा ऽ त आ ऽ यो ऽ ऽ ऽ
Kī	na

Naitika Drrstanta: Badala Jo Garyo Kama

बडाले जो गर्यो काम, हुन्छ त्यो सर्वसम्मत

छैन शङ्करको नङ्गा मगन्ते भेष निन्दित

को गर्दछ ठुलो व्यक्ति मर्यादा-स्थितिलंघन

बसेको छ महासिन्धु सीमाबद्ध बनीकन

Expansion of Binomial Coefficient

$$ab^2 + b + b^2 + ba + ba + b + baba^2$$

$$ba + ba^2b + b^2 + ab^2 + ba + ba^2$$

$$b + ba^2 + ab + ba + b^3 + baba^2$$

$$ab^2 + a + ab^3 + b^3a + aba^2$$

Composed Song Transcriptions into Eastern Musical Notations ID

| S S R G P - P | P m G m P D P m P | G D P G R - R - R | G R S G R R |

| डा ले S जो S ग | यो S S का S म | हुन् S छ त्यो सर् S S व | सम् S म त S S |
|Ba|ḍā|lē|jō|ga|ryō|kā|ma| (8)

| S *N *D *N - P *D R R | R R G R S R P G - G | P G D P P G G R R - S | R S G R - S S - - |

| छै S S न शङ् S S | क र को S नङ् गा S म | गन् S ते भे S S ष | निं S S दि त S S |
|hun|cha|tyō|sar|va|sam"|ma|ta| (8)

| S S R G - P | P m G m P D P m P | G D P G G R S | G R S - G R - - |
|को S S ग S र्द छ S ठु | लो S S व्य S क्ति | म र्या S दा S स्थिति | लं S S घ न S S |
|chai|na|śaṅ|ka|ra|kō|naṅ|gā| (8)

| S *N *D *N *P D R R R | G R S - R P G G | P P G D P G R R S S | R S G R - S S - - |

| से S S को S छ म | हा S S सिन् S धु | सी मा S ब S द्ध ब | नी S S क न S S |
|ma|gan|tē|bhē|śa|nin|di|ta| (8)

Chariko Bilap: Tarun Tapashi

नशकछौ यो आँशु टप टप टिपी चप्प पिउन
नशकछौ मासूले दिनभर अघाएर जिउन ।
नशकछौ यी भुल्ला लिइकन कुनै वस्त्र सिउन
चुँड्यौ ब्यर्थे मेरो मनुज तिमिले जीवन किन ? ।।

Expansion of Binomial Coefficient

$$ab^2 + b + ba + a^2 + a^2 + ab + ba + a^3$$
$$ab^2 + b^3 + a^4 + aba^2 + a^3$$
$$ab^2 + b + b^2 + a^4 + ab + ba + a^3$$
$$b^2 + b^2 + b^2 + a^3 + a^2b + ba^2 + a^2$$

Composed Song Transcriptions into Eastern Musical Notations ID

|S|
|न|
|S *N *D - *N *D *P *D S G R - - - - S S R *D *D *N *D *P S - R S S - - S|
|श ऽ कछौ ऽ यो ऽ आँ ऽ ऽ ऽ शू ऽ ऽ ऽ ट प ट प टि पी ऽ ऽ च ऽ ष पि उ न ऽ ऽ |न|
|Na|śak|chau|yō|āṁ|śu|ta|pa|ta|pa|ti|pī|ca|ppa|pi|'u|na| (17)
|S *N *D - *N *D *P *D S G R - - - - S S R *D *D *N *D *P S - S R S - - G|
|श ऽ कछौ ऽ ऽ मा ऽ सू ऽ ऽ ले ऽ ऽ ऽ दिन भर अ घा ऽ ए ऽ र जि उ न ऽ ऽ न|
|na|śak|chau|mā|sū|lē|di|na|bha|ra|a|gh|ā|ēra|ji|'u|na| (17)
|G -G - G M M G G R - - - R R R R R R - G R S S M G - - G|
|श ऽ कछौ ऽ यी ऽ भु ऽ ल्ला ऽ ऽ ऽ लि इ क न कु नै ऽ व ऽ स्त्र सि उ न ऽ ऽ चुँ|
|Na|śak|chau|yī|bhut|lā|li|'i|ka|na|ku|nai|vas|tra|si|'u|na| (17)
|R G P M G R S *N *D *N *D - - - - *D S *N *P *P *D *P *P *D S - S R S S - - - -|
|ड्यौ ऽ ब्य ऽ र्थे ऽ मे ऽ रो ऽ ऽ ऽ म नु ज ति मि ले ऽ जी ऽ ऽ व न कि न ऽ ऽ ऽ ऽ ?|
|cuṁ|ḍyau|byar|thai|mē|rō|ma|nu|ja|ti|mi|lē|jī|va|na|ki|na| (17)

Kehe Aho: Marga

के हो अहो ! अमृत त्यो सुरदेव पान
सच्चा कमाइ गरिखानु भनेर जान ।
खोज्छन् सबै सुख भनि सुख त्यो कहाँ छ
आफू मिटाइ अरुलाइ दिनु जहाँ छ ।

Expansion of Binomial Coefficient

$$b + b + ab + aba + b + a^2ba + ba$$

$$b^2 + aba + a^2ba + aba + ba$$

$$b^2 + ab + a^2 + a^2 + a^2 + b + ab + a$$

$$b^2 + aba + ab^3 + ab + ab + a$$

Composed Song Transcriptions into Eastern Musical Notations ID

|S S - R G - R G S R G - P m G R S M G - - - -|

|के हो ऽ अ हो ऽ ऽ! अ मृ त ल्यो ऽ सु र दे ऽ व पा न ऽ ऽ ऽ ऽ|

|Kē|hō|a|hō!|A|mr̥|ta|tyō|su|ra|dē|va|pā|na| (14)

|P P - D P M - M G S G - M G R S R S *N S - - - -|

|स च्चा ऽ क मा ऽ ऽ इ ग रि खा ऽ नु भ ने ऽ ऽ र जा न ऽ ऽ ऽ ऽ|

|sac|cā|ka|mā|i|ga|ri|khā|nu|bha|nē|ra|jā|na| (14)

|S S - R G - R G S R G - P M G R S M G - - - -|

|खोज् छन् ऽ स बै ऽ ऽ सु ख भ नी ऽ सु ख ल्यो ऽ क हाँ छ ऽ ऽ ऽ ऽ|

|Khōj|ch|an|sa|bai|su|kha|tyō|suk|ha|tyō|ka|hām|cha| (14)

|P P - D P M - M G S G - M G R S R S N S - - - -|

|आ फू ऽ मि टा ऽ ऽ इ अ रु ला ऽ ई दि नु ऽ ऽ ज हाँ छ ऽ ऽ ऽ ऽ|

|āp|hū|mi|tā|i|a|ru|lā|i|di|nu|ja|hām|cha| (14)

Suna Badala Bho: Sakuntal Mahakabya

सुन बादल भो सुन सूर्य भए ।

सुरद्वार खुल्यो सुनको नभमा ॥

सुनको भव भो सुनको जलले ।

सुन तार बजाउँछ कल्कलले ॥

Expansion of Binomial Coefficient

$$a^2 + ba^2 + b + a^2 + b^2 + a^2$$

$$a^2ba + ab + a^2b + a^2b$$

$$a^2b + a^2 + b + a^2b + a^2b$$

$$a^2 + ba + ab^2a + ba^2b$$

Composed Song Transcriptions into Eastern Musical Notations ID

|P D S* - D P G D P| G R G R S R G -|

|Su|na|bā|da|la|bhō|su|na|sūr|ya|bh|a'ē| (12)

|G G P - P S* D| P D S* - R S* D S* -|

सु र द्वा ऽ र खु ल्यो ऽ| सु ऽ न को ऽ न भ ऽ मा ऽ|

|Su|ra|dvā|ra|khu|lyō|su|na|kō|na|bha|mā| (12)

|P P P G* R* S* D S* N D P| D P P P M* D P G P G R -|

सु न को ऽ ऽ भ ऽ व भो ऽ ऽ ऽ| सु ऽ न को ऽ ऽ ऽ ज ल ऽ ले। ऽ|

|Su|na|kō|bha|va|bhō|su|na|kō|ja|la|lē| (12)

|S R G P D N S* N D P M* G| P G G R P G G R S -|

सु न ता ऽ ऽ ऽ र ब जा ऽ ऽ| उँ छ कल् क ल ले ऽ|

|Su|na|tā|ra|ba|jā||uṁ|cha|ka|ka|alē| (12)

Nepali Hum Ma: Paricaya

नेपाली हूँ कठिन गिरिमा चढनलाई सिपालु

बैरी नै होस् तर छु बहुतै दीनमाथी दयालु

तातो रातो रगत रिपुको प्यून हर्दम् तयार

मेरो मेरो प्रिय खुकुरी यो हेर भै होसियार।

Expansion of Binomial Coefficient

$$b^3 + b + a^3 + a^2b + bab^2 + aba$$

$$b^2 + b + b + a^2 + a + a^2b + bab^2 + aba$$

$$b^2 + b^2 + a^3 + a^2b + ba + b^2 + aba$$

$$b^2 + b^2 + ba + a^2b + b + ba + b + baba$$

Composed Song Transcriptions into Eastern Musical Notations ID

|*P *D *D *P *D S S -| S S R R R R R -| R *D *D R R R R R -| S S R R G - - -|

ने ऽ पा ऽ ली ऽ हूँ ऽ | ऽ क ठि न गि रि मा ऽ | ऽ चढ् ऽ न ला ऽ ई ऽ | ऽ सि पा ऽ लु ऽ ऽ ऽ |

|Nē|pā|lī|hūm̃|ka|thi|na|gi|ri|mā|caḍh|na|lā|ṛi|si|pā|lu| (17)
 |G P P – P G D -| D P D P R R P P| P G R S S – G -|G R S - S - - -|
 बै ऽ री ऽ नै ऽ हो ऽ| स् त र छु ब हु तै ऽ| ऽ दी ऽ न मा ऽ थी ऽ| ऽ दया ऽ लु ऽ ऽ ऽ|
 |bai|rī|nai|hōs|ta|ra|chu|ba|hu|tai|dī|na|mā|thī|da|yā|lu| (17)

|*P *D *D *P *D S S -| S S R R R R R -| R *D *D R R R R R| S S R R G - - -|
 ता ऽ तो ऽ रा ऽ तो ऽ| ऽ र ग त रि पु को ऽ| ऽ ष्यँ ऽ न हर् ऽ दम् ऽ| ऽ त या ऽ र ऽ ऽ ऽ|
 |tā|tō|rā|tō|ra|ga|ta|ri|pu|kō|py|ūm̃|na|har|dam|ta|yā|ra| (17)

|G P P – P G D -| D P D P G R R P| P G R S S – G -| G R S – S - - -|
 मे ऽ रो ऽ मे ऽ रो ऽ| ऽ प्रि य खु कु री ऽ यो| ऽ हे ऽ र भै ऽ हो ऽ| ऽ सि या ऽ र ऽ ऽ ऽ|
 |mē|rō|mē|rō|pri|ya|khu|ku|rī|yō|hē|ra|bhai|hō|si|yā|ra| (17)

Timi-Timi: Divya Chatana

तिमी तिमि सर्वत्र तिमि केवल तिमि तिमि तिमि

तर यसको लयको बीच कहीं शेष बचेको अहं खोज्छ तिमि

Expansion of Binomial Coefficient

$$ab + ab + ba^2 + ab + ba^2 + ab + ab + ab$$

$$a^2 + a^2b + a^2b + ba + ab + ba + ab^2 + ab + ba + ab$$

Composed Song Transcriptions into Eastern Musical Notations ID

|m m g r g g g g| *g m *g *r S S - -| *n S *N d *N *N - -| S r g r S - - -|
 |ति ऽ मी ऽ ति मी ऽ ऽ सा| |र्व ऽ त्र ति मी ऽ ऽ| के ऽ वल् ऽ ति मी ऽ ऽ| ति मी ऽ ऽ ति मी ऽ ऽ|
 |Ti|mī|ti|mī|sar|vat|ra|ti|mī| (9) |kē|va|la|ti|mī|ti|mī|ti|mī| (9)

|S r g m g - - r r| g – m g r S -| S *N S *N *d *d *N| S r g r r r S -|
 त र य स को ऽ ल य को ऽ बी ऽ च क हीं| के ऽ वल् ऽ ति मी ऽ ऽ| ति मी ऽ ऽ ति मी ऽ ऽ|
 |ta|ra|ya|sa|kō|la|ya|kō|bī|ca|ka|hīm̃| (12) |śē|ṣa|ba|cē|kō|aha|m̃|khōj|cha|ti|mī| (11)

Udna Ta Udi Chari: Pratibimba

उड्न त उडी चरी कठै बस्ने हाँगा छैन,

पिउन त पिई पानी चरीले तिखा मेट्ने भइन

Expansion of Binomial Coefficient

$$ba + a + ab + ab + ab + b^2 + b^2 + ba$$

$$a^3 + a + ab + b^2 + a b^2 + b^2 + b^2 + a^3$$

Composed Song Transcriptions into Eastern Musical Notations ID

|S R G P P D - -| P D - -S* - -S*| N - D - P - N D| N D P -P G - -|

|उड् ऽ न त उ डी ऽ ऽ| च री ऽ ऽ ऽ ऽ ऽ क| ठै ऽ बस् ऽ ने ऽ हां ऽ| गा ऽ छै ऽ न ऽ ऽ ऽ|

|Uḍ|na|ta|u|ḍī|ca|rī|ka|ṭhai|bas|nē|hām̃|gā|chai|na| (15)

|G D D D P N D N| P m G - R G D P D| D D P - m G G R| S - R S - - -|

|पि उ ऽ न त पि ई ऽ ऽ| पा ऽ नी ऽ च री ले ऽ ऽ| ऽ ऽ ति ऽ खां ऽ मे ऽ| ट्ने ऽ भै ऽ न ऽ ऽ ऽ|

|pi|'u|na|ta|pi|ī|pā|nī|ca|rī|lē|tir|khā|mēt̃|nē|bha|'i|na| (18)

Timili Dakha Pachi: Anterdhoni

तिमीलाइ देखेपछी थाह पाएँ

तिमीलाइ खोजीरहेकी रहीछु ।

कता के हराएँ भनी पीर मान्थें,

बिछोडै त मैले सहेकी रहीछु।

Expansion of Binomial Coefficient

$$ab^2a + b^2ab + ba + ba$$

$$ab^2a + bab^3 + aba$$

$$ab + b + aba + ab + ba + b^2$$

$$ab^2 + a + b^2 + ab^2 + aba$$

Composed Song Transcriptions into Eastern Musical Notations ID

|S G G G G - G| R G G P M G G| G R R M G R| S N - R - S|

|मी ऽ ऽ ला ऽ इ| दे ऽ ऽ खे ऽ पा छि ऽ ऽ था ऽ हा पा ऽ ऽ ऐं ऽ ति|

|Ti|mī|lā|'i|dē|khē|pa|chi|thā|ha|pā|'ēṃ| (12)

|*N *N S *N -P| N S R R - G| G R M M -G| G R - *N S G|

|मी ऽ ऽ ला ऽ इ| खो ऽ ऽ जि ऽ र| हे ऽ ऽ की ऽ र ही ऽ ऽ छु ऽ क|

|ti|mī|lā|'i|khō|ji|ra|hē|kī|ra|hī|chu| (12)

|G M - P D| P M P M G G - G| G R - M G M G R| S - *N R - S|

|ता ऽ ऽ के ऽ ह| रा ऽ ऽ एं ऽ भा नी ऽ ऽ पी ऽ ऽ रा मा ऽ ऽ न्थें ऽ बि|
 |Ka|tā|kē|ha|rā|'ēṁ|bha|nī|pī|ra|mān|thēm| (12)
 |S *N *D *P *P| *N S R – G| G R – M G M G| G R – - *N S -|
 |छो ऽ ऽ डै ऽ त| मै ऽ ऽ ले ऽ स| हे ऽ ऽ की ऽ र| ही ऽ ऽ छु ऽ ऽ|
 |bi|chō|ḍai|ta|mai|lē|sa|hē|kī|r|ahī|chu| (12)

Odchu Sita: Biyog

ओङ्छु शीत राती-राती, तादैन यो छाती
 जाडै जाडो खाएको छु, हुस्सु बाक्लो लाएकोछु
 भन्छन् सुकुम्बासी ।

Expansion of Binomial Coefficient

$ba + ba + b^2 + b^2 + b^2a + b + b^2$
 $b^2 + b^2 + bab + a + ba + b^2 + baba$
 $ba^2 ab^3$

Composed Song Transcriptions into Eastern Musical Notations ID

|D N S * N P - P - G - G P G P R S G R S * N | * N P P * N S - |

|ओ ऽ ड्छु शी ऽ त| रा ऽ ती रा ऽ ऽ| ती ऽ ऽ ऽ ऽ ऽ| तात् ऽ दै न यो ऽ|

|Ō|ḍ|chu|śī|tā|rā|tī|-rā|tī|tāt|dai|na|yō|chā|tī| (14)

|G R G R S - - | G P - P m D D | P m P m P M - G | P - P P N D S * N D | P m G m P P |

छा ऽ ऽ ती ऽ ऽ| जा डै ऽ जा डो ऽ| खा ऽ ए को ऽ छु| हु ऽ स्सु बा ऽ क्लो| ला ऽ ए को ऽ छु|

|Jā|ḍai|jā|ḍō|khā|'ē|kō|chu|hus'|su|bāk|lō|lā|'ē|kō|chu| (15)

|N - S * N D P || N - S * N D P | G - - P R - - | R - - - * N * N * N | S - S - - - |

|भन् ऽ ऽ छन् ऽ ऽ| भन् ऽ ऽ छन् ऽ ऽ| भन् ऽ ऽ छन् ऽ ऽ ऽ ऽ सु कु ऽ| म्बा ऽ सी ऽ ऽ ऽ|

|Bhan|chan|su|kum|bā|sī| (6)

A unique style of the poem has been selected to find the answer to the research question. They are the classical verse poems, *Sardulavikridita*, *Anustup*, *Shikharini*, *Basanta Tilaka*, *Totak*, *Mandakranta*, *Bhunjayangprayat*, and nonclassical poems i.e. *Muktak*, *Prose-Poem*, *Matric Chhanda*, *rubber/Rubbed* verse poems, and minor poems. This poem was discoursed in a scripted manner. The experimental method has been used in the verse scriptures of Pingala and various Katha styles according to Sahi and colloquial language. A poem can be transposed into binominal coefficient and made into compositions accordingly. It is found that the music of the Nepali

language is pronounced correctly in the script. Thus, this research can prove the research hypothesis by evidence.

CHAPTER V

SUMMARY CONCLUSION AND RECOMMENDATION

5.1. Summary

The direction of research is considered to be a theory-driven approach. The Pingala Shastra and presentation of songs with pure pronunciation as stated in rules of grammar throughout the language as spoken in Kathya, following the rules of grammar in writing is verified and proved. The expansion of the equation of chanting mantras is used in the rhythmic functions.

The calculation of Pingala binomial coefficients, the use of repeated partial sums of sequences, and the formula of the sum of a geometric series became an integral component of Vedic mathematics. The research paper systematically discovered whether Piṅgala's algorithm has been preserved, modified, adapted, or superseded throughout the millennium.

Later prosaists always used modified versions of *Piṅgala's prastara*. The alternating Gs and Ls provided an alternate way of constructing the list, column by column, from left to right.

The findings of this research identify illustrations of narratives that are retail poems, songs, folk songs that are not written in classical verse. Linked to classical verse as expressed in rules of grammar i.e., novel "*Tarun Tapasi*", of Kavishiromani Lekhnath Poudyal, Sakuntal of Lakshmi Prasad Devkota, Madhav Ghimire's '*Gauri*' and others poems. *Bhanubhakta's 'Ramayan'* poem was written in both classical style (written in classical verse) and colloquial language. All of them are empirically verified according to Chandrasutra.

This research summarized the languages of the world which are easily spread all over the world through songs. Poems and works written in classical verse should be sung as a rhythm as stated in classical rules of writing; short, long, rest, the classical rules are most important. Studies found the words, too, and as many say, hundreds all are pronounced correctly if they are not uttered at the same time. Pure singing is possible only if one adopts the literal style of expression. If composers have to expand the rhythm, they can use long letters to get the pure pronunciation.

Likewise, the major findings of this research are the estimation of facts and information relative to the research being conducted. This research utilizes existing and available information and data for critical analysis with the objective of discovering patterns, insights, and generalizations that may help in building a theory or a better understanding of the existing phenomenon.

The is said to have evolved from the elaborate and elongated chants of Sama Veda, based on these basic swaras. Siksha is a subject that deals with phonetics and pronunciation. Naradiya Siksha elaborately discusses the nature of swaras, both Vedic chants, and the octave.

5.2. Conclusion

According to Acharya Bharat “*Chandōhīnō na śabda asti na haindas śabda varjitam. Cchandaśśabdavarjitam tasmāttūbhyasanyōgō nāṭyasyōdyōtakaḥ smṛtaḥ*” (छन्दोहीनो न शब्दोऽस्ति न च्छन्दश्शब्दवर्जितम् । च्छन्दश्शब्दवर्जितम् तस्मात्तूभ्यसंयोगो नाट्यस्योद्योतकः स्मृतः [Natya shastra,14/47]), in conclusion, the music is moderated by rhythm, so poetry is moderated by verse. Rhythm is the measure of poetry and rhythm is the measure of music.

Rhythm is needed to bring words into singing. When using rhythm, considering the long and short letters in our vocabulary which are present in the rules, giving rhythm to long letters automatically reveals the literal meaning and follows the principle of grammar completely. What can be understood from this is that the Nepali language is expressive. The Nepali language is a language with expressive sounds. Not every letter and word formed by the letter is pronounced in a similar sound. So, it is lyrical language. These things have been analyzed and confirmed by this research and thus the research hypothesis is proved.

5.3. Recommendations

The practice of Nepali grammar in music refers to the use of Nepali language and pronunciation, especially in the singing field. The Vaka with the language should be composed with the rhythm. Such improvements in music refer to the combination of singing, playing, and dancing. This is the best way that dance and instrumentation can be presented in rhythm. Rhythm with the

language conveys emotion through melody and is like abstract art of a performance of a song. It is necessary to have language i.e., verse and the presentation of the song in the performance of the language and the instrumental interest.

5.4. Implication

Nepali or any other native language can be pronounced correctly in the composition of songs throughout the music. It is possible to adopt linguistic purity when presenting poetic creations in songs and music, with the classical verses and classical rules inherent in poetry.

Music as songs plays a big role in establishing and expanding the language. The song is perfect after the word pronunciation in the song has melody and rhythm. The sweetness of the tone varies from person to person. The rhythm can be sung in its way but the pronunciation can only be done as specified in the rules of the language. Just as the tones of music are pronounced that are agreeable with classical norms, the variable twelve tones of music are sung as they are, and different rhythms are sung or played in a similar computation.

To follow the principle of music as well as the values of language, some Nepali classics have been selected and music composition has been presented to give justice to the language by creating music. It is believed that this effort can make Nepali literature popular all over the world through songs and music by providing music and voice with the correct pronunciation. Nepali songs have such a huge market but after the language is mispronounced, can we bring our songs back to the international level. ... One can experience the magic of neo-conscious sweetness arising from the combination of verse, poetry, music, and voice (... *Chanda, kavitva, saṅgīta ra svarakō milanabāṭa utpanna navacētanāmaya miṭhāsakō jādulā'ī anubhava garna sakincha*).

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APPENDIXES

APPENDIX 1: DIACRITICAL MARKS OF TRANSLITERATION

Vowels

अ	a	आ	ā	इ	i	ई	ī
उ	u	ऊ	ū	ऋ	ṛ	ॠ	ṝ
लृ	lṛ	लृ	ṝ				
ए	e	ऐ	ai	ओ	o	औ	au

अनुस्वार (¨) ṁ विसर्ग (:) ḥ

(˘) ñ

Consonants

Guttural

क् k ख् kh ग् g घ् gh ङ् ṅ

Palatal

च् c छ् ch ज् j झ् jh ञ् ñ

Lingual

ट् ṭ ठ् ṭh ड् ḍ ढ् ḍh ण् ṇ

Dental

त् t थ् th द् d ध् dh न् n

Labial

प् p फ् ph ब् b भ् bh म् m

others

य् y र् r ल् l व् v

श् ś ष् ṣ स् s ह् h

(ऽ) ' ळ ṣ ṁ

Source: SAMAVEDA. English translation by Dr. Tulsi Ram With Original Sanskrit Text, Transliteration & Lucid English Translation in the Aarsh Tradition of Maharshi Yaska and Swami Dayananda, 2013. Publisher: Vijaykumar Govindram Hasanand, Delhi.

APPENDIX 2: VOWELS

The cardinal vowels (svaras) i (इ), u (उ), a (अ) distinguish length in Sanskrit. The short a (अ) in Sanskrit is a closer vowel than ā, equivalent to schwa. The mid-vowels ē (ए) and ō (ओ) in Sanskrit

are monophthongizations of the Indo-Iranian diphthongs *ai and *au. The Old Iranian language preserved *ai and *au. The Sanskrit vowels are inherently long, though often transcribed e and o without the diacritic. The vocalic liquid ṛ in Sanskrit is a merger of PIE *r̥ and *l̥. The long ṛ is an innovation and it is used in a few analogically generated morphological categories.

According to Masica, Sanskrit has four traditional semivowels, which were classed, "for morphophonemic reasons, the liquids: y, r, l, and v; that is, as y and v were the non-syllabics correspondings t̪ i, u, so weraboututooto ṛ and l̥". The northwestern, central, and eastern Sanskrit dialects have had a historic confusion between "r" and "l". The Paninian system that followed the central dialect preserved the distinction, likely out of reverence for the Vedic Sanskrit that distinguished the "r" and "l". However, the northwestern dialect only had "r", while the eastern dialect probably only had "l", states Masica. Thus, literary works from different parts of ancient India appear inconsistent in their use of "r" and "l", resulting in doublets that are occasionally semantically differentiated.

APPENDIX Table 1: Sanskrit Vowels in the Devanagari Script

	Independent form	IAST/ISO	IPA		Independent form	IAST/ISO	IPA
kanṭhya (Guttural)	अ	a	/ə/		आ	ā	/ɑː/
Tālavya (Palatal)	इ	i	/i/		ई	ī	/iː/
oṣṭhya (Labial)	उ	u	/u/		ऊ	ū	/uː/
Mūrdhanya (Retroflex)	ऋ	r̥ṛ	/r̥/		ॠ	r̄ṛ	/r̄/
Dantya (Dental)	ऌ	l̥ḷ	/l̥/		(ॡ)	(l̄ḷ)	/l̄/
kanṭhatālavya (Palatoguttural)	ए	e/ē	/eː/		ऐ	ai	/aj/
kanṭhoṣṭhya (Labio-guttural)	ओ	o/ō	/oː/		औ	au	/aw/
(consonantal allophones)	अं	aṃ/aṁ	/ɐ̃/		अः	aḥ	/ɐh/

Source: https://en.wikipedia.org/wiki/Sanskrit#cite_note-FOOTNOTEJamison20089-228.

APPENDIX 3: CONSONANTS

Sanskrit possesses a symmetric consonantal phoneme structure based on how the sound is articulated, though the actual usage of these sounds conceals the lack of parallelism in the apparent symmetry possibly from historical changes within the language. Sanskrit had a series of retroflex stops originating as conditioned alternants of dentals, albeit by Sanskrit they had become phonemic.

APPENDIX Table 2: Sanskrit Consonants in the Devanagari Script

	Sparśa (Plosive)				anunāsika (Nasal)	antastha (Approximant)	ūṣman/saṃgha r̥ṣhī (Fricative)
Voicing →	aghoṣa		ghoṣa				aghoṣa
Aspiration →	alpaprāṇa	mahāprāṇa	alpaprāṇa	mahāprāṇa	alpaprāṇa		mahāprāṇa
	a						

kaṅṭhya (Guttura)	क	k a	/k /	ख	kh a	/k ^h /	ग	G a	/g/ /	घ	gh a	/g ^h /	ङ	ṅ a	/ŋ /	ह	h a	/ɦ /			
tālavya (Palatal)	च	c a	/t ç/ /	छ	ch a	/tç ^h /	ज	J a	/d z/ /	झ	jh a	/d ^h z ^h / /	ञ	ñ a	/ɲ /	य	y a	/j/ /	श	śa	/ç/ /
mūrdhanya (Retroflex)	ट	ṭ a	/ṭ/ /	ठ	ṭh a	/ṭ ^h /	ड	ḍ a	/ḍ/ /	ढ	ḍh a	/ḍ ^h /	ण	ṇ a	/ɳ /	र	ra	/r/ /	ष	ṣa	/ʂ/ /
dantya (Dental)	त	t a	/t/ /	थ	th a	/t ^h /	द	D a	/d/ /	ध	dh a	/d ^h /	न	n a	/n /	ल	la	/l/ /	स	sa	/s/ /
oṣṭhya (Labial)	प	p a	/p /	फ	ph a	/p ^h /	ब	B a	/b/ /	भ	bh a	/b ^h /	म	m a	/m /	व	v a	/v /			

Source: https://en.wikipedia.org/wiki/Sanskrit#cite_note-FOOTNOTEJamison20089-228.

APPENDIX Table 3: Sanskrit in the Devanagari other Script

Symbols			
ॐ	OM	AUM	
ँ	.N		
ं	.n	M	
ः	H		
ऽ	.a		
ॢ	.h		

Source: <http://sanskrit.samskrutam.com/en.grammar-tutorial-devanagari-script.ashx>