

An Analysis of Phonological System of Pāli Language

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Abstract

Pāli, an ancient language closely relevant to Sanskrit, was used to write many important Buddhist canonical texts. The phonological system of Pāli has been the subject of keen interest in the domains of Pāli linguistics. Historically, Pāli is thought to have developed from an earlier language called Magadhi Prakrit, which was spoken in ancient India. It was the language of the Buddhist scriptures and is still used as a liturgical language in Theravada Buddhist countries such as Thailand, Myanmar, Sri Lanka, Cambodia, and Laos. Pāli phonology is an important aspect of learning Pāli for several reasons for example correct pronunciation of Pāli words, comprehension, chanting and reciting so on. Another important aspect of Pāli phonology is its prosody. Pāli has a system of pitch accents, which are used to distinguish between different meanings of words. Thus, Pāli phonology is an important aspect of learning Pāli for anyone who wishes to understand Pāli texts, read and write the language, or participate in chanting and recitation. Therefore, the main objective of this article is to present a clear conception of the phonological system of the Pāli language.

Keywords: Pāli, Phonological System, Analysis

Introduction

Pāli is the language used in Theravada Buddhist canonical texts (Tipitaka). Wilhelm Geiger, a renowned scholar of Indology, once said that "Pāli is a middle Indo-Aryan language in the group of Prakrit languages that

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were indigenous to the Indian subcontinent" (2005, p. 25). As he mentioned, Pāli is a cultural heritage of India and its linguistic diversity. Pāli, as a language, has played a crucial role in preserving and transmitting the teachings of Buddhism from generation to generation. Its deep roots in the Indian subcontinent have allowed it to evolve and adapt over time, making it a valuable resource for scholars and researchers interested in the study of ancient Indian literature and history. Despite being considered a dead language, Pāli remains a language of great importance and significance, especially in the world of Buddhism. As David Alfter noted, "Even though it is a dead language, Pāli is still widely studied because many of the early Buddhist scriptures were written in Pāli" (2014, p. 1). This emphasis on the study and preservation of Pāli demonstrates the enduring relevance of the language. Through the study of Pāli, scholars and practitioners are able to gain a deeper understanding of Buddhist philosophy, teachings, and traditions, as well as the historical and cultural context in which they developed. However, deep learners of Buddhist literature need to understand the Pāli language in order to read and write it. Especially for Buddhists, understanding the Pāli language is necessary when chanting Buddha's Dharma in front of Buddha's images. It is essential to have correct pronunciation in chanting the Dharma and reading Pāli. Therefore, we need to learn and analyze the Pāli pronunciation system. Getting correct pronunciation in Pāli requires a thorough understanding of the rules governing the combination of letters and words. The principles underlying Pāli pronunciation are designed to produce sounds that are pleasant and smooth, avoiding any harshness in the articulation of vowels and consonants.

This is why Klaus Nothnagel said that "learners understand that the rules of combining different letters and words follow the same principle of appealing pronunciation to avoid any harshness in their vowel and consonant sounds" (2017, p. 2). Moreover, according to Justin Meiland's guidance (2010, p. 10), Pāli learners also need to distinguish the different groups of Pāli alphabets, such as the k-group and c-group, as well as different types of sounds, such as guttural sound and palatal sound, and junction for the correct pronunciation of Pāli double consonants. In this

article, the writer would like to provide important and fundamental Pāli pronunciation ways, along with a table of some combinations of Pāli consonants and vowels, to help and clarify some of the difficulties that are encountered by those unfamiliar with Pāli pronunciations. Therefore, the scope of the analysis of the phonological system is limited to:

1. Pāli Alphabets and Phonological System
2. Pāli Vowels
3. Pāli Consonants
4. Distribution of Pāli Vowels and Consonants
5. Combination of Pāli consonants and vowels
6. Combinative rules of Pāli Vowels and Consonants
7. The Conjunct Rules of Pāli Vowels
8. The Conjunct Rules of Pāli Consonants

Pāli Phonological System

The Pāli phonological system has 41 letters in the Pāli alphabet, which can be divided into eight vowels and 33 consonants. The vowels are divided into two types: short sound vowels and long sound vowels, with five vowels being pronounced shortly and three vowels being pronounced for a longer duration. Among the 33 Pāli consonants, there are five groups, with each group consisting of five alphabets, resulting in a total of 25 alphabets. The groups are ka-group, ca-group, ṭa-group, ta-group, and pa-group. The remaining eight alphabets are not part of any group. To facilitate reader comprehension, the author would like to present the Pāli phonological system in the following diagram:

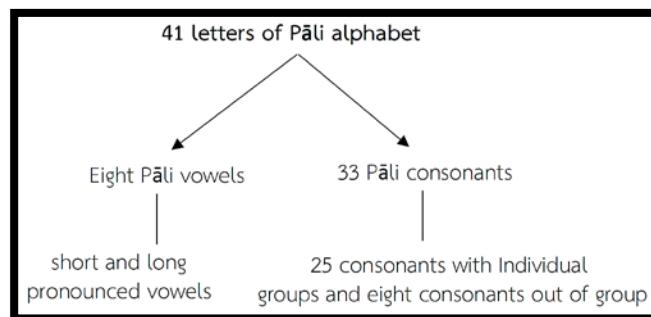


Diagram 1 : Pāli Phonological System

Pāli Vowels

As mentioned above in the Pāli phonological system, there are eight Pāli vowels: a, ā, i, ī, u, ū, e, and o. Among them, five vowels are long sounds, namely, ā, ī, and ū, e, o while the remaining three vowels are short sounds, which are a, i, and u, e. According to V. Perniola (1997, p. 4), "long vowels are mostly found before a double consonant," which is a Pāli phonological rule that learners should note. However, this rule is not always followed in manuscripts, where long vowels may appear before double consonants, especially when the long vowel results from a contraction. The lengthening of vowels mainly occurs in prepositions, although there are other instances of vowel lengthening, typically due to metrical considerations. In some cases, a vowel in the middle of a word may be dropped, as in agra = agāra 'house, hut,' which is only used in compounds. To help distinguish between short and long pronounced vowels, the present author provides the following:

1. vowels:	Short pronounced vowels	a i u
	Long pronounced vowels	ā ī ū e o

Pāli Consonants

In the Pāli language, there are 33 Pāli consonants, which can be divided into two parts: groupable consonants and out-of-group consonants. The groupable consonants consist of five alphabets in the k-group, which are k, kh, g, gh, and ṇ; five alphabets in the c-group, which are c, ch, j, jh, and ṛ; five alphabets in the ṭ-group, which are ṭ, ṭh, ḏ, ḏh, and ḥ; five alphabets in the t-group, which are t, th, d, dh, and n; and finally, in the p-group, the alphabets are p, ph, b, bh, and m. The remaining eight consonants, which are y, r, l, v, s, h, l, and ṡ, are called out-of-group consonants. For easy comprehension, the present author would like to present the following:

2. Consonants:	k-group	k	kh	g	gh	ṅ
	c-group	c	ch	j	jh	ṛ
	ṭ-group	ṭ	ṭh	ḍ	ḍh	ḥ
	t-group	t	th	d	dh	n
	p-group	p	ph	b	bh	m
	Out of group	y	r	l	v	s
		h	!	ṁ		

Distribution of Pāli Vowels and Consonants

Distribution of Pāli Vowels

In the distribution part, Pāli learners need to initially understand that 'a', 'i', and 'u' are short vowels, while 'ā', 'ī', and 'ū' are long vowels. Additionally, 'e' and 'o' are long in open syllables. The pronunciation of the Pāli vowel 'a' is similar to the English word 'what' - pronounced as 'wɒt'. The pronunciation of 'ā' is similar to the English word 'father' - pronounced as 'fa:ðə'. The pronunciation of 'i' is similar to the English word 'mint' - pronounced as 'mɪnt'. The pronunciation of 'ī' is similar to the English word 'see' - pronounced as 'si:'. The pronunciation of 'u' is similar to the English word 'put' - pronounced as 'pʊt'. The pronunciation of 'ū' is similar to the English word 'pool' - pronounced as 'pu:l'. The pronunciation of 'e' is similar to the English word 'cage' - pronounced as 'keɪdʒ'. Lastly, the pronunciation of the vowel 'o' is similar to the English word 'no' - pronounced as 'nəʊ'. To help Pāli learners comprehend easily, the author illustrates the distribution of Pāli vowels as follows:

vowel	Pronunciation	The pronunciations are like in English
a	a	what- wɒt
ā	a	father- fa:ðə
i	i	mint- mɪnt
ī	ee	see- si:.
u	u	put- pʊt
ū	oo	pool- pu:l
e	a	cage- keɪdʒ
o	o	no - nəʊ

Distribution of Pāli Consonants

In the distribution of Pāli consonant parts, the present author aims to provide a fundamental explanation of systematically pronouncing Pāli consonants with their respective sounds. To comprehend the voice of the

consonant, learners need to understand the distinction between soft and strong consonants. Soft consonants consist of ten alphabets, namely, ka, ga, ca, ja, **ʈ**, **ɖ**, t, d, p, b, and b, which are from the first and third letters of Pāli consonants. On the other hand, strong consonants comprise ten alphabets, including kh, gh, ch, jh, **ʈh**, **ɖh**, th, dh, ph, and bh, which are from the second and fourth letters of Pāli consonants, while the fifth alphabet represents nasal consonants. As V. Perniola stated, "the second and fourth alphabets are hard consonants, and all the other consonants are soft" (1997, p.3). It is noteworthy that Pāli learners should also pay attention to the pronunciation of specific consonants, such as the difference between simple ca and cha or the specific tongue placement for **ʈ**, **ʈh**, **ɖ**, and **ɖh**. Additionally, ta, th, d, and dh are pronounced with the tip of the tongue on the teeth, whereas in Pāli, **ʈ**, **ʈh**, **ɖ**, and **ɖh** are pronounced with the tongue behind the dental ridge, creating a characteristic hollow sound. In English, ta and da are halfway between the two, so the tongue moves back for the first group and forward for the second. It is important to note that th is never pronounced as in they or their but is the aspirate of ta. To clarify the sounds and distinctions between voiced, voiceless, and nasal consonants, the writer divides the Pāli consonants as follows:

Sound	Voiceless	Voiceless Aspirated	Voiced	Voiced Aspirated	Nasal
	1 st	2 nd	3 rd	4 th	5th
Gutturals:	<i>k</i>	<i>kh</i>	<i>g</i>	<i>gh</i>	<i>ṅ</i>
Palatals:	<i>c</i>	<i>ch</i>	<i>j</i>	<i>jh</i>	<i>ñ</i>
Cerebrals:	ʈ	ʈh	ɖ	ɖh	ɳ
Dentals:	<i>t</i>	<i>th</i>	<i>d</i>	<i>dh</i>	<i>n</i>
Labials:	<i>p</i>	<i>ph</i>	<i>b</i>	<i>bh</i>	<i>m</i>
Liquids:		<i>r</i>	<i>l</i>	!	
Semivowels:		<i>y</i>	<i>v</i>		
Sibilant:		<i>s</i>			
Aspirate:		<i>h</i>			
Niggahīta:		<i>ṁ</i>			

For easy comprehension of Pāli learners, the present author would also like to present similar English words. By comparing the sound of these similar English words, new foreign Pāli learners can guess and comprehend the correct pronunciation of Pāli consonants. The similar English words and corresponding Pāli consonants are as follows:

The sound of “k” is like in English word- king
The sound of “g” is like in English word- get
The sound of “c or ch” is like in English word- church
The sound of “J” is like in English word- jail
The sound of “t” is like in English word- task
The sound of “d” is like in English word- day
The sound of “d” is like in English word- day
The sound of “p” is like in English word- part
The sound of “b” is like in English word- but
The sound of “th” is like in English word- pot
The sound of “ph” is like in English word- uphill
ñā – becomes as the "ng" in English word- singer
ñā – becomes as the "n" in English word- nag
The sound of “ṇ” is like in English word- kind
The sound of “ñ” is like in English word- noun
The sound of “ṁ” is like in English word- hung or ring
v - is pronounced as a very soft "v" or "w".

Combination of Pāli consonants and vowels

After understanding the usage and rules of vowels and consonants, Pāli learners need to learn about the combination of Pāli consonants and vowels. Every consonant can be combined with every Pāli vowels, resulting in different pronunciations. To aid Pāli learners in comprehending these combinative ways or Pāli phonological system, the present author describes the combination of all Pāli vowels and consonants in the below:

ka	kā	ki	kī	ku	kū	ke	ko	kaṁ
kha	khā	khi	khī	khu	khū	khe	kho	kham
ga	gā	gi	gī	gu	gū	ge	go	gam
gha	ghā	ghi	ghī	ghu	ghū	ghe	gho	gham
ňa	ňā	ňi	ňī	ňu	ňū	ňe	ňo	ňam
ca	cā	ci	cī	cu	cū	ce	co	cam
cha	chā	chi	chī	chu	chū	che	cho	cham
ja	jā	ji	jī	ju	jū	je	jo	jam
jha	jhā	jhi	jhī	jhu	jhū	jhe	jho	jham
ňa	ňā	ňi	ňī	ňu	ňū	ňe	ňo	ňam
ňa	ňā	ňi	ňī	ňu	ňū	ňe	ňo	ňam
ňa	ňā	ňi	ňī	ňu	ňū	ňe	ňo	ňam
ňa	ňā	ňi	ňī	ňu	ňū	ňe	ňo	ňam
ta	tā	ti	tī	tu	tū	te	to	tam
tha	thā	thi	thī	thu	thū	the	tho	tham
da	dā	di	dī	du	dū	de	do	dam
dha	dhā	dhi	dhī	dhu	dhū	dhe	dho	dham
na	nā	ni	nī	nu	nū	ne	no	nam
pa	pā	pi	pī	pu	pū	pe	po	paṁ
pha	phā	phi	phī	phu	phū	phe	pho	pham
ba	bā	bi	bī	bu	bū	be	bo	bam
bha	bhā	bhi	bhī	bhu	bhū	bhe	bho	bham
ma	mā	mi	mī	mu	mū	me	mo	maṁ
ya	yā	yi	yī	yu	yū	ye	yo	yam
ra	rā	ri	rī	ru	rū	re	ro	ram
la	lā	li	lī	lu	lū	le	lo	lam
va	vā	vi	vī	vu	vū	ve	vo	vam
sa	sā	si	sī	su	sū	se	so	sam
ha	hā	hi	hī	hu	hū	he	ho	ham
la	lā	li	lī	lu	lū	le	lo	lam

Combinative rules of Pāli Vowels and Consonants

Pāli learners need to know the Pāli combinative rules, which are shown in the Sandhi of Pāli grammar. The Sandhi rule enables Pāli learners to understand how to join one Pāli word with another or how to combine two words. Edward Muller, a Pāli scholar, explained that "the Sandhi can be translated as 'junction'" (1884). The rules regarding Sandhi in Pāli can be classified into rules of vowel Sandhi and rules on mixed Sandhi involving a vowel and a consonant. Consonantal Sandhi does not occur in Pāli. Pāli learners also need to understand that Sandhi occurs only in certain cases, and its use varies greatly in manuscripts. In prose, Sandhi is almost always confined to indeclinable and pronouns in juxtaposition or in connection with a verb or a noun. For example, my ayam can become me ayam, yan mūna can become yad mūna, and tasseva can become tassa eva. The particles that are most often found in Sandhi are ca, iti (ti), api (pi), and eva, as in kathañ ca, which can become katham ca; kiñcid eva, which can become kiñci eva; and tathāpi, which can become tathā api. The negative na, when followed by a vowel, is generally contracted to n', as in n'atthi and n'eva.

More importantly, Pāli learners need to know that other cases of word sandhi (junction) in prose, without any indeclinable or pronoun, are divided into three categories: (1) a vocative beginning with a vowel is preceded by a word ending in a vowel, as in gacch'āvuso; pañcah'Upāli; (2) a verb is preceded or followed by a noun in grammatical relation to it, as in asana vuṭṭhāya; upajjhāyass'ārocesum; and (3) two nouns are in grammatical relation, as in dukkhass'antam; dvīh'ākārehi. In verse, word sandhi is much more frequent than in prose, under the influence of metrical requirements.

The Conjunct Rules of Pāli Vowels

The Conjunct Rules of Pāli Vowels refer to the way in which Pāli vowels combine with each other when they appear next to each other in a word. There are 15 different Conjunct Rules according to Kaccayana Saddā

translated into English widely by Edward Muller (1884), which are based on the type of vowel that appears in each position. These rules are important because they help to determine the correct pronunciation of Pāli words and ensure that the meaning of the text is not altered due to incorrect pronunciation. Some of them are very important for Pāli correct pronunciation. Pāli learners compulsorily need to know the rules. So, the present author presents four compulsory rules in the below with clear explanation.

According to a compulsory rule in Pāli grammar, the conjunction "a + a" or "ā + ā" simplifies to "ā" when followed by a single consonant. For example, the word "nāhosi" is formed from the combination of "na" and "ahosi," but due to this rule, the conjunction "a + a" becomes "ā," resulting in the final word "nāhosi." Similarly, "nāsakkhi" is made up of "na" and "asakkhi," but the conjunction "ā + a" becomes "ā," leading to the final word "nāsakkhi." This rule is illustrated in Kaccayana Saddā, which states, "Pāli conjunction, a + a or ā becomes ā when followed by a single consonant, as in nāhosi = na + ahosi" (Kaccayana Saddā, 1884).

Secondly, the compulsory rule shows that when the conjunction "a" or "ā" is followed by "i" or "ī," it becomes "e." This can be observed in the word "heresi," which is composed of "na" and "īresi." According to this rule, the conjunction "ā + i" becomes "e," resulting in the final word "heresi." However, there is an exception to this rule. The word "iti," which means "thus," always becomes "āti" when preceded by "a." For example, the word "Tissāti" is formed by combining "Tissa" and "iti." Although the conjunction "a + i" should technically become "e," the word "iti" is an exception and thus becomes "āti." The rule is shown in Kaccayana Saddā as "a or ā + i or ī becomes e, as in neresi = na + īresi. An exception is iti 'thus', which always becomes āti when preceded by a, as in Tissāti = Tissa + iti." (Kaccayana Saddā, 1884).

The third compulsory rule shows that when the combination of "a" or "ā" and "u" or "ū" occurs, it is transformed into "o." For example, the word "nopeti" is derived from the combination of "na" and "upeti," where

the "a" and "u" are transformed into "o." Although this transformation usually results in the use of "o," there are rare cases where "ū" is used instead, such as in the word "cūbhayaṁ," which is derived from the combination of "ca" and "ubhayaṁ." The rule is shown in Kaccayana Saddā as "a or ā + u or ū becomes o, as in *nopeti* = *na* + *upeti*. In rare cases, ū occurs instead, as in *cūbhayaṁ* = *ca* + *ubhayaṁ*." (Kaccayana Saddā, 1884).

The fourth compulsory rule states that the vowel "a" is often lost when it is followed by either "i" or "u." For example, the word "passath'imaṁ" is derived from the combination of "passatha" and "imaṁ," where the "a" in "passatha" is lost due to the following "i" in "imaṁ." The rule is shown in Kaccayana Saddā as "a is frequently lost when followed by i or u, as in *passath'imaṁ* = *passatha* + *imaṁ*" (Kaccayana Saddā, 1884).

The Conjunct Rules of Pāli Consonants

In the conjunctive rules of consonant causes, learners need to note that original double consonants, which are simplified through assimilation at the beginning of a word, can once again be doubled after a word ending in a vowel, as in "yatra tthitam" = "yatra" + "thitam". This is often done in verse when a long syllable is required. On the other hand, in a few cases, a lost final consonant is restored before another consonant, as in "yāvañ c'idam" = "yāva" + "ca" + "idam".

According to Charles Duroiselle (1997, p. 67) description, "sometimes, niggahīta (ṁ) replaces another consonant when standing before a vowel." However, the original consonant can be restored, as in *tad* for *taṁ*, *yad* for *yam*, *sakid* for *sakim*. In verse, when a short syllable is required by the meter, niggahīta (ṁ) can be lost before a consonant, as in *no ce muñceyya'candimam* = *no ce muñceyyaṁ* + *candimam*, or the whole syllable may be dropped, as in *piyān'adassanam* for *piyānam*; *pāpān'akaraṇam* for *pāpānam*. When the niggahīta is dropped, the remaining a can be contracted with a following a, becoming ā, as in *labheyyāham* = *labheyyaṁ* + *aham*; *idāham* = *idam* + *aham*. In late texts only, a vowel following niggahīta can be lost, as in *cīrassam'dhunā* for *adhunā*.

Conclusion

This paper has provided an academic analysis of the Pāli alphabet and phonological system, including the vowels, consonants, distribution, and combination rules. The Pāli phonological system comprises 41 letters, including eight vowels and 33 consonants. The most important elements of pronunciation in Pāli include guttural, palatal, cerebral, dental, and labial sounds, as well as liquid, semivowel, sibilant, aspirate, and Niggahīta sounds. Among the long and short vowels, the long vowels ā, ī, and ū are generally shortened before a double consonant.

Based on the analysis, the present author has identified four important points for learners of Pāli phonology. First, the niggahīta can be changed into the nasal of the corresponding class before a word beginning with a consonant, and into m before a word beginning with a vowel. Second, assimilation is generally retrogressive when a nasal is the second member of the cluster, or it is avoided by the insertion of a vowel. Third, every consonant in Pāli can be combined with every vowel, resulting in different pronunciations. Fourth, Pāli combinative rules shown in Sandhi can be divided into rules of vowel sandhi and rules on mixed sandhi.

The present author also suggests that learners pay particular attention to Pāli combinations and double consonants. There are four compulsory conjunctive rules of Pāli vowels, and original double consonants can be simplified through assimilation at the beginning of a word and then once again doubled after a word ending in a vowel. In some cases, niggahīta replaces another consonant, but the original consonant can be restored when standing before a vowel.

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