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A Comparative and Linguistic Analysis of the Kannada Alphabet in the Katantra Grammatical Tradition

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Technical Terms

Kannada term	English equivalent
ಕ್ಲೀ.ವ.	Neuter letters / neither vowels nor consonants
ನಾಮಿಗಳು	Nāmis (a grammatical category of vowels)
ಪ್ಲುತಿ / ಪ್ಲವನ	Pluta / extra-long vowel
ಸ್ವ.ಪ.	Vowel duration
ಸಂ. ಧ್ವ.	Unit phoneme
ಗುಂಫನ	Cluster
ಜಿ.ಮೂ.	Velar or tongue-root sound
ಉಪದ್ಮಾನೀಯ	Upadhmānīya

ABSTRACT

The Katantra grammatical tradition appears to have been widely prevalent in South India, particularly in Karnataka. Kannada grammarians owe a considerable debt to the tradition of Sharvavarma.

Grammarians classify vowels according to their duration as short, long and pluta vowels.

- “Eka-dvi-trimātrāste hrasva-dīrgha-plutāḥ” (Bhāṣā Bhūṣaṇa Sūtra 4). This means that vowels are classified as short, long and pluta according to their duration of one, two and three mātrās respectively.
- “Hrasvamadu ēkamātrakaṃ, dīrghamubhayamātrakaṃ, trimātrakaṃ plutamakkum” (Śabda Maṇi Darpaṇa Sūtra 13, page 20). This states that a short vowel takes one mātrā, a long vowel takes two mātrās and a pluta vowel takes three mātrās.

In modern Kannada writing, the anusvāra symbol has replaced the class nasal consonants before consonants belonging to the same articulatory class. However, the consonants ṇ, n and m continue to exist independently in other positions.

The practice of using the anusvāra while writing nasal sounds and class consonants appears to have begun as early as the sixth and seventh centuries CE. The anusvāra was used in the Sanskrit alphabet. Since Kannada grammarians followed the Sanskrit alphabetic system, they also adopted it into Kannada.

In Sanskrit, the anusvāra was used mainly at the end of words, before non-class consonants and in the prefix sam-. In Kannada writing, the dot representing the anusvāra gradually began to replace nasal consonants.

Modern Kannada uses an expanded inventory of 62 letters or sound units, incorporating elements from Sanskrit, English, Urdu and the spoken dialects of North Karnataka.

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This study examines the historical development, phonetic structure and comparative classification of Kannada letters within the Katantra grammatical tradition. It also discusses vowel duration, nāmi vowels, sandhyakṣaras, anusvāra, visarga, yogavāhas, aspirated consonants and the distinction between the traditional alphabet and the core phonemic inventory of Kannada.

INTRODUCTION

Yāska is regarded as one of the earliest linguists in the world. Approximately a century later, Pāṇini composed the extensive grammatical work Aṣṭādhyāyī, consisting of nearly one thousand grammatical rules. Through this work, he established a strong grammatical tradition and came to be regarded as a great teacher of linguists.

There is a hypothesis that an earlier grammatical tradition known as the Aindra tradition was initiated by the grammarian Indragomin during the period between Yāska and Pāṇini.

Kannada grammars also developed under the influence of Pāṇini's Aṣṭādhyāyī. Patañjali's Mahābhāṣya further enhanced the importance of the Aṣṭādhyāyī. The grammar of Candragomin, which followed the Aṣṭādhyāyī, became so popular that it established the Jāndra grammatical tradition. This tradition is associated with Buddhist grammar.

Devanandi, also known as Pūjyapāda, who lived in Karnataka around the fifth century CE, composed the Jainendra grammar following Pāṇini. However, Kannada grammarians did not appear to follow this work extensively.

Another ancient Jain grammarian of Karnataka was Śākaṭāyana, who served as a court scholar under King Nṛpatuṅga. Besides Śabdānuśāsana, he is believed to have composed other works. Bhaṭṭākalaṅka quoted rules from this Śabdānuśāsana. However, Nāgavarma and Kēśirāja do not appear to have been significantly influenced by it.

Another grammatical work that emerged from the Pāṇinian tradition in the eleventh century was Hemacandra's Śabdānuśāsana.

Sharvavarma deserves recognition for composing a popular grammar that followed Pāṇini while making several modifications to remove complexity and enable ordinary learners to understand grammatical principles more easily. Sharvavarma is sometimes associated with Karnataka, although his exact regional identity requires historical verification. His Katantra grammatical tradition appears to have been widely prevalent in South India, particularly in Karnataka. Kannada grammarians owe much to this tradition.

Other Sanskrit grammatical traditions also emerged, including the Sārasvata tradition associated with Svarūpācārya, the tradition of Bopadeva, who composed Mugdhaboḍha, the Saṅkṣiptasāra tradition of Jumāranandi and the Saupada tradition associated with Padmanābha Bhaṭṭa. However, these traditions do not appear to have had a significant influence on Kannada grammar.

Subject Analysis

Phonetics in Kēśirāja's Śabdamaṇidarpaṇa

Kēśirāja identifies eight places of articulation from which letters arise:

"Koraluṃ jihvāmūlamuṃ / Muramuṃ tāḷugeyuṃ oṣṭhamuṃ nāsikeyuṃ / Śiramuṃ dantamuṃ enda / Kramudayipa tāṇamāduvī pēḷdeṇṭuṃ."

The verse identifies the throat, root of the tongue, chest, palate, lips, nose, head and teeth as the eight places associated with the production of sounds.

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Kēśirāja also describes the emergence of speech through a poetic analogy:

"Tanu vādyaṃ nālage vā / Dana daṇḍaṃ kartṛvātmanavana manovṛ / Ttinimittamāge śabdaṃ / Janiyisuguṃ dhavalavarṇamakṣara rūpaṃ."

According to this description, the body is like a musical instrument, the tongue is its playing mechanism, and the soul is the agent. Speech emerges through the activity of the mind. Earlier traditions attributed material substance and even a white colour to sound. Kēśirāja similarly associates the written form of a letter with whiteness. Although sounds do not arise independently, they are produced through the agency of the speaker and in accordance with the activity of the mind.

Just as music emerges when an instrument is played by an appropriate mechanism and a performer, speech arises through the body, the articulatory organs and the intention of the speaker. The comparison between speech and music is a particularly elegant feature of Kēśirāja's explanation.

In another description, sound is said to originate from the region of the navel and from the life principle, in a manner comparable to the sound produced by a trumpet. According to the Jain tradition, the ninth verse describes sound as a substance, white in colour and functioning as sound.

The idea that sound possesses materiality and originates in the navel may reflect traditional or religious conceptions. In modern science, materiality is generally attributed to physical objects.

Speech sounds are produced when air from the lungs flows outward and undergoes different forms of obstruction, friction and modification in the vocal tract. This process may be compared to a potter shaping clay into a new form according to intention.

Although sound is not visible to the eye, it is perceptible to the ear. The attribution of a material quality to sound is therefore an important feature of the historical understanding of language.

Kēśirāja's invocation also presents language as a means through which sensory experience becomes meaningful to the listener. Human beings express their experience of the world through speech, and language enables that experience to be understood and communicated.

The Maheshvara System and Its Importance

The Maheshvara system is associated with the organisation of Sanskrit sounds in the grammatical tradition of Pāṇini. Formation of pratyāhāras: The main purpose of this system is to represent groups of Sanskrit sounds in a concise manner. The final sounds in the traditional sound sequences function as it markers or anubandhas. Pāṇini uses these markers to construct pratyāhāras, which are compact symbols representing groups of sounds.

- Ac (अच्): Represents the vowels.
- Hal (हल्): Represents the consonants.

Scientific arrangement: Vowels and consonants are organised systematically according to their articulatory characteristics. This arrangement reduces confusion and allows grammatical rules to refer to groups of sounds efficiently.

The Maheshvara system and the Katantra grammatical tradition provide important historical backgrounds for understanding the structure of Kannada grammar.

Kannada Varṇasamāmnāya

The term Varṇasamāmnāya refers to the complete collection or systematic enumeration of the letters of a language. It is also called Akṣarasamāmnāya, meaning the traditional inventory of letters.

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The history of the Kannada alphabet must be understood through its development in grammatical literature, traditional pronunciation and modern linguistic analysis.

Vowel Duration

Traditional grammarians classify vowels into three categories according to duration:

- Hrasva: Short vowel, pronounced in one mātrā.
- Dīrgha: Long vowel, pronounced in two mātrās.
- Pluta: Extra-long vowel, pronounced in three mātrās.

The traditional rules include the following:

- "Eka-dvi-trimātrāste hrasva-dīrgha-plutāḥ" — Bhāṣā Bhūṣaṇa Sūtra 4.
- "Hrasvamadu ēkamātrakaṃ, dīrghamubhayamātrakaṃ, trimātrakaṃ plutamakkum" — Śabda Maṇi Darpaṇa Sūtra 13, page 20.
- "Ekadvi-trimātrā hrasva-dīrgha-plutāḥ" — Śabdānuśāsana Sūtra 3.

Nāgavarma and Kēśirāja included short and long vowels when discussing pure Kannada letters but excluded pluta vowels.

Bhaṭṭākalaṅka, however, adopted a more comprehensive approach. He included seven short vowels—ಅ, ಇ, ಉ, ಋ, ಌ, ಎ and ಒ—their long forms, together with ಐ and ಔ, making nine long vowels, and the nine pluta forms of these long vowels. Thus, he listed a total of 25 vowels.

Short and long vowels can sometimes distinguish meaning and are therefore important phonological units.

The pluta vowel, however, does not generally distinguish lexical meaning in the same way. It is especially useful for measuring duration in prosody and metrical analysis. This may explain why Nāgavarma and Kēśirāja excluded it from their lists of pure Kannada letters.

Bhaṭṭākalaṅka maintained a more systematic position. If pluta vowels exist in a language, he argued, their forms should be considered across the vowel inventory.

Traditional grammarians did not necessarily include every sound based solely on whether it could distinguish meaning. They often considered sounds that occurred in important words. Therefore, the decisions of Nāgavarma and Kēśirāja can be defended within their grammatical framework, although a sound occurring in a language need not automatically be dismissed as unimportant.

Kannada Vowels and Their Classification

Kannada and English Vowels

Kannada vowels — ಕನ್ನಡ ಸ್ವರಗಳು

Traditional school-level inventory: ಅ, ಆ, ಇ, ಈ, ಉ, ಊ, ಋ, ೠ, ಎ, ಏ, ಐ, ಒ, ಓ, ಔ. Some traditional grammatical lists additionally include vocalic ಌ and its long form. The exact count therefore depends on the grammatical system being discussed.

English vowel letters: A, E, I, O, U. The letter Y sometimes functions as a vowel, as in myth and happy. English has more vowel sounds than vowel letters, and their pronunciation varies by dialect.

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Short and Long Vowels

Short vowels — ಹ್ರಸ್ವ ಸ್ವರಗಳು	Long vowels — ದೀರ್ಘ ಸ್ವರಗಳು
ಅ	ಆ
ಇ	ಈ
ಉ	ಊ
ಎ	ಏ
ಒ	ಓ

The short vowels are pronounced with a relatively shorter duration, whereas the long vowels have a longer duration.

Savarṇa Vowels

The first ten vowels in the traditional classification are treated as related or corresponding vowels. They are known as savarṇa or samāna vowels.

The term is associated with the relationship between short and long vowel forms in grammatical rules, especially in savarṇa-dīrgha sandhi.

The Katantra grammatical tradition uses the categories avarna and ivarna to describe certain vowel groups.

Special feature of Kannada: The vowels ಎ, ಏ, ಒ and ಓ also form corresponding short and long pairs in Kannada. This is important because ಎ and ಒ are characteristic of Kannada and are not part of the traditional Sanskrit vowel inventory in the same way.

Nāmi Vowels

According to the Katantra grammatical tradition, the vowels remaining after excluding the avarna category are described as nāmis.

The rule is cited as Sūtra 12, page 19, where the commentary explains that the twelve letters remaining after the removal of avarna are called nāmis.

The classification includes fourteen vowels, ten corresponding or savarṇa vowels, short and long forms, and the remaining nāmi vowels.

However, the category does not fit Kannada phonology in every respect. When the short vowels ಎ and ಒ are included among the vowels remaining after the exclusion of avarna, the classification requires further explanation.

These vowels are also called dvādaśa nāmis in a Jain grammatical context.

The traditional explanation associates nāmi vowels with changes in dental sounds into retroflex sounds during sandhi. This process does not correspond consistently to the phonological behaviour of Kannada. Therefore, the category needs to be examined critically rather than applied mechanically to Kannada.

Sandhyakṣaras

According to Kēśirāja, the letters ಏ, ಐ, ಓ and ಔ are sandhyakṣaras.

In Kannada, ಏ and ಓ are long vowels, whereas ಐ and ಔ are often pronounced with vowel-glide sequences comparable to ay and av.

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The vowels ಎ and ಒ belong to Kannada and occur not only in particles expressing doubt, certainty or emphasis, but also in ordinary Kannada words. Their long forms ಏ and ಓ similarly occur in both particles and natural Kannada vocabulary.

Anusvāra, Visarga and Yogavāhas

The traditional expression yogavāhāḥ refers to sounds that function in conjunction with other sounds. The explanation is that these letters cannot generally be pronounced independently in the same manner as ordinary vowels and are used in combination with vowels or consonants.

Pāṇini also discusses these sounds under the designation ayogavāha.

History of the Anusvāra

The anusvāra was originally used in the Sanskrit alphabet. Since Kannada grammarians adopted the Sanskrit alphabetic system, they also incorporated the anusvāra into Kannada.

In Sanskrit, its use was mainly associated with word-final positions, before non-class consonants and in the prefix sam-.

The dot representing the anusvāra gradually began to replace nasal consonants in Kannada writing.

Kēśirāja considered the anusvāra to have both vowel-related and consonant-related functions. Kannada grammarians called it bindu, or dot, because of its written shape.

The Śabdamaṇidarpaṇa describes it as follows:

“Binduvanusvāraṃ tā / Nendakkuṃ sonne muttuvol vṛttateyiṃ / Sandirppudadantaḍaki / Lvondire maṇigoppuvol visargamenikkuṃ.”

The verse compares the rounded dot of the anusvāra to a pearl and describes the visual relationship between the anusvāra and visarga.

Nāgavarma states “Anusvāro binduḥ” in Sūtra 14. His commentary compares the bindu to a beautiful pearl. Kēśirāja appears to have adopted a similar comparison.

Environments of the Anusvāra

In modern Kannada orthography, the anusvāra commonly replaces class nasal consonants before consonants belonging to the same class. Nevertheless, ಣ್, ನ್ and ಮ್ continue to occur independently in other positions.

The use of the anusvāra to represent nasal consonants before class consonants appears to have begun around the sixth and seventh centuries CE.

Anusvāra, Anunāsika and Bindu

The distinction among these terms can be explained as follows.

- Anusvāra: The dot occurring before certain non-class consonants is described as an anusvāra in the grammatical classification presented here. Examples: ಸಂಯಮ, ಸಂರಕ್ಷಣೆ, ಸಂಲಗ್ನ, ಸಂವಹನ and ಸಂಶಯ.
- Anunāsika: The dot used after a vowel and before a class consonant is described as an anunāsika in this classification. Examples: ಅಂಕ, ಅಂಚೆ, ಅಂಟು, ಅಂಬು and ಅಂದ.

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- Bindu: The bindu does not normally occur at the beginning of a word. At the end of a word, it may represent a final ಮ್ or ನ್. Before class consonants, it represents a nasal corresponding to the following consonant; before non-class consonants, it may represent a nasal sound such as ಮ್ or ನ್.

These descriptions reflect the classification adopted in the source material. In modern linguistic analysis, the actual pronunciation and phonological environment must also be considered.

History of the Visarga

Kēśirāja states that visarga is absent from pure Kannada, using the expression "Nisargamāgi visargavilla." On this basis, he identifies 47 letters as the pure Kannada alphabet.

This statement is cited in D. L. Narasimhachar's edited edition of the Śabdamaṇidarpaṇa Sūtra 43. The statement does not appear in the same way in Liṅgaṇārādhya's commentary.

Why Are Anusvāra and Visarga Called Vowel-Related and Consonant-Related?

The traditional explanation distinguishes the terms as follows.

Vowel-related: Anusvāra and visarga generally occur after vowels. For this reason, they are described as vowel-related elements.

Consonant-related: Liṅgaṇārādhya explains in his commentary on Sūtra 15, page 22, that the bindu and visarga cannot be pronounced independently and are therefore consonant-related.

However, this explanation is not entirely satisfactory from a modern linguistic perspective. Nasal sounds can be produced continuously and may have characteristics resembling vowel-like sounds, but this alone does not make them vowels. Likewise, the inability to pronounce a consonant independently does not distinguish anusvāra and visarga from all other consonants.

Jihvāmūlīya is associated with the sound ಕ, as in the traditional examples ಅಂತಃಕರಣ and ಯಶಃಕಾಯ. Upadhmānīya is associated with ಪ, as in ಅಂತಃಪುರ. These are treated as consonant-related elements.

Bindu and visarga are associated with vowels because of their position after vowels. Traditional grammarians also classified them in relation to whether they could be independently pronounced.

History of Yogavāhas

Kēśirāja includes jihvāmūlīya, upadhmānīya, bindu and visarga under the category of yogavāhas in Sūtra 20, page 27.

The jihvāmūlīya and upadhmānīya are special sounds associated with the articulation of visarga before particular consonants.

The Sanskrit grammatical tradition also uses the term ayogavāha. Kēśirāja uses yogavāha without the initial a-.

Nāgavarma does not explicitly use either term in the same way. Kēśirāja retains the anusvāra while excluding the other three elements from the pure Kannada alphabet, considering them unnecessary for that particular classification.

History of Aspirated Consonants

Kēśirāja follows Nāgavarma in his discussion of aspirated consonants.

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Nāgavarma states in Sūtra 11, "Nātra prāyeṇa vargāṇāṃ dvitīya-caturthāḥ," expressing doubt about the regular occurrence of the second and fourth consonants of the classes in Kannada.

Kēśirāja, however, states in the earlier rules that aspirated consonants occur naturally in certain Kannada words. In Sūtra 25, he provides a list of 48 examples. Nevertheless, it is difficult to establish that every example is an original Kannada word.

In Sūtra 24, he explains that the second and fourth consonants of each class are aspirated consonants and are used in numerical expressions and imitative words.

Modern linguists examine aspirated consonants in several ways.

- Cluster: A cluster consists of two or more consonants occurring together. For example, ಕ್ + ತ್ = ಕ್ತ. Such a sequence is different from a single aspirated consonant.
- Unit phoneme: An aspirated sound may be treated as a single phoneme rather than as a cluster. The source discusses this distinction using aspirated consonants such as ಭ and other examples.
- Accent or emphasis: Some scholars have considered aspiration in relation to the force or manner of articulation. This is a separate analysis from treating aspiration as a cluster or a unit phoneme.

According to R. C. Hiremath, aspirated consonants may be regarded as marginal phonemes, meaning that they have a limited distribution in Kannada.

H. M. Nayak states: "We feel that it is quite legitimate to treat the aspirate sounds as unit phonemes rather than clusters." This view treats aspirated sounds as individual phonemes rather than combinations of separate consonants.

Nasalised Forms of Ya, La and Va

Nāgavarma and Kēśirāja appear to have considered not only written Kannada but also spoken Kannada in their grammatical descriptions.

Their discussion indicates that ಯ್, ಲ್ and ವ್ may occur in nasalised and non-nasalised forms.

Even today, ಯ and ವ may be nasalised in certain dialects, while remaining non-nasalised in other contexts. This demonstrates the importance of studying spoken language alongside written forms.

History of ಱ and ೞ

Traditional grammarians distinguish these sounds according to their places and manners of articulation.

The source explains that strengthening or modifying the articulation associated with ರ can produce ಱ, while modifying the articulation associated with ಡ can produce a retroflex lateral sound. It also discusses the relationship between ಲ and ೞ.

Kēśirāja argues that certain sounds sharing an articulatory position may occur in alliteration or repeated sound patterns, but their use in particular poetic devices such as rhyme and yamaka must follow specific rules. He supports this position with examples.

- ರ and ಱ are treated as related articulatory sounds.
- ಡ and the historical sound represented by ೞ are discussed in relation to retroflex articulation.
- ಲ and ೞ have a clear difference in pronunciation.

Kēśirāja also discusses the relationship between the sounds represented as ಕ್ಷಳ and ಕುಳ. He observes that

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their phonetic characteristics may be similar, while their distribution and historical origins differ. This distinction is an important example of the difference between phonetic similarity and phonological distribution.

The traditional discussion states that ಱ and ೞ occupied articulatory positions related to retroflex sounds. It also describes ೞ in relation to ಲ.

According to the historical account presented here, the sound ೞ disappeared from general use around the eleventh century, while ಱ disappeared around the sixteenth century. These dates should be understood as historical estimates rather than exact dates of disappearance from every dialect.

Akṣara, Varṇa and Śuddhākṣara

Indian grammatical traditions often interpret akṣara as something imperishable. In linguistic terms, it may refer to a basic sound unit or a combination of units, depending on the context.

All vowels are both akṣaras and varṇas in the traditional framework. Consonants, however, are treated as varṇas rather than independent akṣaras in the specific classification described in the source.

According to Kēśirāja, the pure Kannada alphabet consists of 47 letters after excluding letters associated with other languages or considered unnecessary for the core Kannada inventory.

His classification of pure Kannada letters is as follows:

Category	**Number**
Vowels	14
Class consonants	25
Non-class consonants	9
Yogavāhas	4
Indigenous or special letters	5
Total before exclusions	57

The five special letters are identified as ರ, ರಳ, ಳ, ಎ and ಒ in the source's classification.

The following ten elements are excluded from the pure Kannada inventory in this analysis: ಋ, ಋೂ, ೠ, ೡ, ಶ, ಷ, visarga, jihvāmūlīya, upadhmānīya and ಕ್ಷಳ.

This traditional classification must be distinguished from a modern phonemic inventory, which is based on sound contrasts and actual usage.

Sandhyakṣaras and Their Pronunciation

The source argues that Dravidian languages do not have sandhyakṣaras in precisely the same sense as the Sanskrit grammatical system, although Kannada uses ಐ and ಔ.

It discusses three ways of analysing these sounds.

- Compound vowels: In this analysis, ಐ and ಔ are treated as combined vowel sounds in which the qualities of two vowels occur together.
- Sequential vowels: The sequences ಅ + ಇ = ಐ and ಅ + ಉ = ಔ are interpreted as two vowels pronounced sequentially. This type of analysis is associated with Sanskrit grammatical usage.
- Vowel-glide sequences: The sequences ಅ + ಯ್ and ಅ + ವ್ are analysed as combinations of a vowel and a semivowel or glide. This interpretation is associated with Kannada pronunciation.

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The source suggests that Kannada's vowel inventory should be described with attention to the actual pronunciation of these sounds rather than simply importing the Sanskrit classification.

Consonants

In the traditional Sanskrit alphabet, consonants are classified into groups, including class consonants and non-class consonants. The class consonants are arranged as follows:

Class	Kannada letters
Velar	ಕ ಖ ಗ ಘ ಙ
Palatal	ಚ ಛ ಜ ಝ ಞ
Retroflex	ಟ ಠ ಡ ಢ ಣ
Dental	ತ ಥ ದ ಧ ನ
Labial	ಪ ಫ ಬ ಭ ಮ

The first and third consonants of each class are traditionally described as unaspirated or alpaprāṇa. The second and fourth consonants are described as aspirated or mahāprāṇa. The fifth consonants are nasals or anunāsikas. Among the nasal consonants, ಙ and ಞ are described in the source as subordinate or limited-distribution sounds, whereas ಣ, ನ and ಮ are used as more independent nasal consonants.

The non-class consonants are traditionally listed as: ಯ, ರ, ಲ, ವ, ಶ, ಷ, ಸ, ಹ, ಳ.

Core Phonemes of Kannada

Modern linguistic analysis distinguishes the core phonemic inventory of Kannada from the expanded traditional alphabet. The source identifies 32 core phonemic units.

Category	Letters or sounds	Number
Short vowels	ಅ, ಇ, ಉ, ಎ, ಒ	5
Long vowels	ಆ, ಈ, ಊ, ಏ, ಓ	5
Class consonants	ಕ್, ಚ್, ಟ್, ತ್, ಪ್; ಗ್, ಜ್, ಡ್, ದ್, ಬ್	10
Nasal consonants	ಣ್, ನ್, ಮ್	3
Subordinate nasals	ಙ್, ಞ್	2
Non-class consonants	ಯ್, ರ್, ಲ್, ವ್, ಸ್, ಹ್, ಳ್	7
Total		32

This classification represents the core phonemic system proposed in the source. The precise inventory may vary depending on the linguistic framework and the dialect being studied.

Sounds Excluded from the Core Inventory

The source classifies several additional sounds as borrowings or sounds with restricted distribution.

Sanskrit-derived vowels and signs: ಋ, ೠ; ಐ, ಔ; ಅಂ, ಅಃ.

Sanskrit-derived consonants: ಖ್, ಛ್, ಠ್, ಥ್, ಫ್, ಘ್, ಝ್, ಢ್, ಧ್ and ಭ್. The non-class consonants ಶ್ and ಷ್ are also listed as Sanskrit-derived sounds.

The combinations ಕ್ಷ್ and ಜ್ಞ್ are included as conjunct forms in the traditional alphabet. They are not necessarily separate basic phonemes in modern phonological analysis.

English-derived sounds: f and z.

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Urdu-derived sound: ಖ್, as listed in the source's classification.

Dialectal sounds of North Karnataka: The source identifies additional vowel sounds used in North Karnataka speech, including forms represented as ಅs, ಅ. and ಅ$_{\delta}$. The exact phonetic values of these symbols require clarification through phonetic transcription.

It also lists three non-segmental or prosodic features: pause, pitch or intonation, and nasality.

The source's expanded inventory adds these sounds and features to the 32 core units to arrive at a total of 62. This total is the proposed comprehensive inventory in the study, not a universally accepted count for all varieties of Kannada.

Different Counts of the Kannada Alphabet

Different educational levels and grammatical traditions teach different totals for the Kannada alphabet.

- Core Kannada inventory: The source identifies 32 letters or phonemic units that it regards as specifically associated with indigenous Kannada.
- School-level alphabet: At the secondary-school level, the alphabet is often presented as containing 50 letters. In the classification discussed here, these include 14 vowels, 25 class consonants, two yogavāhas and nine non-class consonants.
- Kēśirāja's pure Kannada alphabet: Kēśirāja identifies 47 letters as śuddhagaḷu, or pure Kannada letters, under his particular grammatical classification.
- Comprehensive discussion in the Śabdamaṇidarpaṇa: The source states that Kēśirāja discusses 57 letters in his broader treatment of the alphabet.
- Bhaṭṭākalaṅka's classification: Bhaṭṭākalaṅka lists 25 vowels, two yogavāhas, 25 class consonants and nine non-class consonants, giving a total of 61.
- Modern expanded inventory: The source proposes a total of 62 sound units when Sanskrit-derived, English-derived, Urdu-derived and North Karnataka dialectal features are included.

These totals differ because the classifications are based on different principles. Some count written letters, others count traditional grammatical categories, and still others attempt to describe phonemes or dialectal features.

Technical Terms Related to the Alphabet

Vowels and Consonants

The traditional definition states that vowels are sounds that can be pronounced independently, whereas consonants generally require the support of a vowel for pronunciation.

In modern phonetics, vowels are produced without a major obstruction to the airflow through the vocal tract, while consonants involve a greater degree of obstruction or narrowing.

Yogavāhas

The term yogavāha is traditionally explained through the roots yuj, meaning to join, and vah, meaning to carry or convey.

A yogavāha is therefore a sound element whose use is connected with another sound. In Kannada and Sanskrit grammatical traditions, anusvāra and visarga are commonly discussed in this category, although the exact classification differs between grammatical systems.

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Short, Long and Pluta Vowels

A short vowel is pronounced in approximately one mātrā, a long vowel in two mātrās, and a pluta vowel in three mātrās.

For example, ಅ represents a short vowel and ಆ represents its long counterpart. A vowel may also be prolonged further in recitation or prosodic contexts.

Alpaprāṇa, Mahāprāṇa and Anunāsika

- Alpaprāṇa: A consonant traditionally described as being pronounced with relatively little breath or aspiration.
- Mahāprāṇa: A consonant pronounced with greater aspiration.
- Anunāsika: A nasal sound produced with the involvement of the nasal cavity.

The terms are formed from alpa (small), mahā (great), prāṇa (breath) and nāsikā (nose).

Guṇitākṣaras

When consonants are combined with vowels, the resulting written forms are called guṇitākṣaras.

For example, combining ಕ್ with different vowels produces forms such as ಕ, ಕಾ, ಕಿ and ಕೀ.

Traditional Kannada teaching combines the vowel signs with consonants to teach the guṇitākṣara system.

Dvitva

Dvitva refers to the doubling of the same consonant.

- ಅಕ್ಕ
- ಅತ್ತೆ

The source distinguishes this from combinations involving different consonants.

Samyuktākṣara

A samyuktākṣara is a conjunct form created when two consonants occur together without an intervening vowel.

Examples include conjuncts formed by combining consonants in written Kannada.

Kāguṇita

Kāguṇita refers to the series of forms produced by combining the consonant ಕ್ with the vowel series.

For example: ಕ್ + ಅ = ಕ; ಕ್ + ಆ = ಕಾ; ಕ್ + ಇ = ಕಿ.

These combinations produce the familiar series ಕ, ಕಾ, ಕಿ, ಕೀ and so on. The same method is applied to other consonants.

Klība Varṇa

The literal meaning of klība is associated with neither male nor female. In this grammatical context, the term is used figuratively for sounds that are neither classified as vowels nor as ordinary consonants.

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Yogavāhas are sometimes described using this term in the traditional grammatical classification.

CONCLUSION

The Kannada grammatical tradition, which developed under the influence of the Maheshvara system and the Katantra grammatical tradition, is both rich and systematic.

The contributions of grammarians from Yāska and Pāṇini to Kēśirāja and Bhaṭṭākalaṅka provided an important foundation for the study of the Kannada alphabet.

Kēśirāja's explanation of speech production, which combines the physical production of sound with the activity of the mind, is noteworthy for its poetic expression and historical significance in the study of language.

The discussions of vowel duration, nāmi vowels, yogavāhas and aspirated consonants offer valuable material for understanding the historical development of Kannada phonology.

The Kannada alphabet has evolved over time, retaining elements of its traditional heritage while adapting to changing linguistic and educational needs.

The proposed classification ranges from 32 core phonemic units to an expanded inventory of 62 sound units. These totals reflect different approaches to describing the language, including its indigenous sounds, Sanskrit-derived letters, borrowed sounds and dialectal variations.

Kannada has incorporated vocabulary and sounds from other languages while maintaining its own distinctive linguistic identity. Its grammatical and literary traditions demonstrate its historical depth and cultural importance.

The Kannada writing system, shaped by centuries of grammatical analysis, literary practice and linguistic change, remains an important symbol of Karnataka's cultural heritage.

This comparative study seeks to highlight the linguistic structure of Kannada, the scientific aspects of its sound system and the historical significance of its grammatical traditions. The development of Kannada from Old Kannada to modern spoken forms demonstrates the language's continuing vitality and literary richness.

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