

Basics of Sanskrit Letters (with Tamil and Malayalam Letters)

Contents

1 Sanskrit Letters.....	5
1.1 Vowels:.....	5
1.1.1 Short Vowels (ह्रस्व स्वराः)	7
1.1.2 Long Vowels (दीर्घ स्वराः)	7
1.1.3 Protracted Vowels (Pluta) (प्लुतम्).....	8
1.1.4 Support Vowels:.....	8
1.2 Consonants: (व्यञ्जनानि).....	10
1.2.1 Notes on Consonants:.....	12
1.2.2 Source of Sound	12
1.2.3 Gutturals: (कण्ठा) (ka varga).....	13
1.2.4 Palatals: (तालु) (ca varga)	14
1.2.5 Cerebrals: (मूर्धन्) (Ta varga).....	14
1.2.6 Dentals: (दन्त) (ta varga)	15
1.2.7 Labials: (ओष्ठौ) (pa varga).....	16
1.3 Other Consonants:	17
1.3.1 Semi-Vowels: (अन्तस्था).....	17
1.3.2 Sibilants: (ऊष्मन्)	18
1.3.3 Aspirate: (सोष्मता).....	19
1.3.4 Classification of Vowels into Groups:	20

1.3.5 Mahaprana and Alpaprana	21
1.4 Other Letters	21
1.5 Conjunct Letters	22
1.5.1 Vowel based Conjuncts (Swarayukta Akshara) (स्वरयुक्त अक्षर)	22
1.5.2 Example of 'ka' varga letters	23
1.5.3 Base Letters (Halant) (हलन्त्)	24
1.5.4 Maatra Letters:	24
1.5.5 Conjunct Consonants (Samyuktakshara) (संयुक्त अक्षर).....	25
1.5.6 Letters appearing one after the other	27
1.5.7 Letters after one below the other	27
1.5.8 Three letter sounds with different joints	28
1.5.9 Letters with 'ra' and 'tra'	29
1.5.10 Special joins and representations (esp. letter ha,dda)	29
1.6 Time Scale "MAtra"	30
1.6.1 Examples of Swara and Swaryukta Aksharas.....	31
1.6.2 Some examples of Samyukta Aksharas	32
1.7 Summary of Consonant Classification:	34

Notes:

1. We have started refereing to Books like PrAtiSAkhyam, (English Translation and Comments by Mr. W.D Whitney), PAnini's AshtAdhyAyl published by Sindhu Charan Bose (originally by Indian Press Benaras in 1891), translated in English by Shri Chandra Vasu.

2. We are also trying to understand the works of VyAsa SIkshA and PAnini SIkshA with available English translation.

Our Articles will keep undergoing periodical changes with reference our learning and understanding. We request readers to check for new versions uploaded in the **www.vedavms.in** website.

We note that PrAtiSAkhyA Author in his work (period much earlier to PAnini) has recorded the difference in application of grammar rules or different opinions of other Saints/Sages before or during his time. Some great Rishis whose rules or differing opinions quoted in Taittriya PrathiSAkhya work are vAlmIki, ArtreyA, PauSkarasAdi, PIAkSi, KaundinyA, GautamA, SaityAyana, SamkRutya, UkhyA, KANDamAyanA, AgnivEShyA , PIAkSayanA, HaritA ,SAnkhAyanA,MimAmSA and few other Rishis.

Abbreviations for reference will be used as below:

PrAtiSAkhyA -	PS
PAnini's AshtAdhyAyl –	PA
VyAsa SIkshA –	VSI
PAnini SIkshA -	PSI

1 Sanskrit Letters

1.1 Vowels:

Vowels are called SvarAH (स्वराः) (plural) in Sanskrit. See the table below.

Srl No	Sanskrit	Tamil	Malayalam		General English Transliteration representation
1	अ	அ	അ		a
2	आ	ஆ	ആ		aa or A
3	इ	இ	ഇ		i (or e)
4	ई	ஈ	ഈ		I (or ee)
5	उ	உ	ഉ		u
6	ऊ	ஊ	ഊ		U
7	ऋ	* ரு	ഋ		Ru
8	ॠ	* റു	ॠ		RU
9	ऌ	* ல் ரு	* ലു		IRu

10	लृ	* लृ	* लृ		IRU . This letter is not recognized in ancient texts
10A	*	எ	ஹ		ey (ae) Not in Sanskrit
11	ए	ஏ	ஹ		Ey (aE)
12	ऐ	ஐ	ஹ		ai
12A	*	ஓ	ஓ		O Not in Sanskrit
13	ओ	ஓ	ஓ		O
14	औ	ஓள	ஓ		au
15	अं	* अं	அம்		am
16	अः	* अः अः	அஃ		a: or aH

The * represents that letter is **not** available or an integral part or used in that language. The letters typed in Tamil/Malayalam represents how it is read.

ऌ (* लृ, ए) shall be pronounced as in **Crystal** , **Krushna**, “**Rishi**” or “**Rutu**”

The lips do not converge when we say this letter or any consonant formed with this letter.

The Ayuda letter (written as “ : ” in sanskrit) and is represented as “%” in Tamil fonts. In other of other indian languages it is represented in script as “ : ”.

This “ஃ” letter sounds similar to “ஹ” part of “அஹ” in Tamil scripts.

1.1.1 Short Vowel (ஹ்ஸ்வ ஸ்வர்:)

These letters have short sound with no elongation.

The time unit of uttering one such letter (ஹ்ஸ்வ ஸ்வர்:) is defined as mAtra.

அ இ உ ஋ ஌

ஊ ஈ ஊ ங டு

அ இ உ ஋ ஌ ஊ ங டு ங

1.1.2 Long Vowels (தீர்஘ ஸ்வரா:)

These letters have sound with an elongation equal to twice that of Short vowels.
The time value of these letters is two mAtraS.

ஆ இஃ ஊ ஋ (஌ *)

ஊ ஈ ஊ ங * (No “deegrha “Iru” in Malayalam)

ஆ ஈ ஊ ங * * (No “deegrha “RU” “Iru” in Tamil)

(ஈ ஈஃ ஓ ஔ) (ஈ ஈஃ ஓ ஓஃ) (ஈ ஈஃ ஈ ஈஃ ஈஃ) are called

Misra Svaraa (मिश्र स्वरः) (Diphthong in English)

These are formed with the combination of two vowels.

அ + இ = ஈ ; ஆ + ஈ = ஈஃ ; அ + உ = ஓ ; ஆ + ஊ = ஔ

ஊ + ஈ = ஈஃ ; ஊ + ஈஃ = ஈஃஃ ; ஊ + உ = ஓஃ ; ஊ + ஊஃ = ஊஃஃ

அ + இ = ஈ, ஆ + ஈ = ஈஃ, அ + உ = ஓ, ஆ + ஊ = ஔ

In these Misra Svaraas, there is an 'a' (अ) (अ) (आ) sound for **one-fourth of the time (0.5 maatraa) and the remaining letter respectively** (इ , ई, उ, ऊ) (ह्र ह्रः ह्रः ह्रः) (इ, ऋ, ॠ, ए) have three-fourth of the time (1.5 mAtRA) (PS Chapter 2.26-29)

1.1.3 Protracted Vowels (Pluta) (प्लुतम्)

PrAtiSAkhyā gives three extra Vowels of A3, I3 and U3 are protracted vowels. That is they have three mAtRAas*. It is also mentioned in pAnini's work that the Pluta of three maatraas* or protraction of the vowel is applicable **only to the vowel sounds** (आ, ई, ऊ). (आ ह्रः ह्रः) (इ ऋ ए) (अ ऋ ए)

1.1.4 Support Vowels:

अं , अः (आ०, आः) (अम्, अः) are called support vowels.

अं (आ०) (अम्) is called AnuswAra; (अनुस्वार) (अनुस्वर*) अम्

अः (आः) (अः) is called visarga; (विसर्ग) (visarjanIya in classic texts)

When "aha" is said, the "ha" part in "aha" gets only half time scale (the scale is termed as "mAtRA" here) and the mAtRA for 'aha' is one and a half.

अं (a+m) = one +half mAtRA

PS refers that there are 16 Vowels or Swaras. Three letters in the table above in 1.1.3 are not recognized in classical text and three Pluta sounds are not indicated above thus a total of 16 vowels only.

Rules for uttering the askharas - as in “PS”:

- In forming ‘a’- vowel (sound अ), the lips and jaws must not be too nearly approximated (coming together, near or converge but not touching) nor too widely separated (Rule 2.12).
- Also for ‘O’ vowel (sound ओ) but lips will be approximated (Rule 2.13/14).
- In utterance of ‘e’ vowel (sound इ) the middle of the tongue is approximated to the Palate and also in ‘ae’ (sound ए) (Rule 2.21).
- In uttering ‘ae’, (sound ए) lips are protracted (widen/separated), jaws are nearly approximated closer and one touches borders of the upper back jaws with the edges of the middle of the tongue (Rule 2.15/16/17)
- For uttering Ru.RU, IRu (sound ऋ, ॠ, लृ) the jaws are also closely approximated and the tip of the tongue is brought into close proximity of the upper back gums (Rule 2.18)
- In ‘u’ (sound उ) vowels there is approximation of lips (Rule 2.22)
- In the absence of special direction the tongue is thrust down forward (Rule 2.20). Practice saying a, aa, u, uu, ae, o, au when the tongue does not touch a part of the mouth, the tongue comes down and thrusts lightly forward and down to enable clear flow of air or sound.
- In cases with an interval of the one preceding
Now we say ka, ta, Ta, pa or other Consonants, the first part has contact with the source of sound with the tongue (**explained below**). Then the tongue is thrust forward down or comes down as explained in rule above.

Some of the Rules from PS Chapter with respect to Sounds are given below:

1. By the setting in motion air by the body at the junction of the throat and breast. (Rule 2.2)
2. Parts that give audible quality to the sound are breast, throat, head, mouth and nostrils (Rule 2.3)
3. When throat is closed tone is produced (Rule 2.4)
4. When it is opened breath is produced (Rule 2.5)
5. When in the intermediate state ‘h’- sound is produced (Rule 2.6)

Classification available from PA are given below:

1. AByantra prayatna is the mode of articulation preparatory to the utterance of the sound. This is what we come across as guttural (Throat), labial (Palate), cerebral (Head), dental (Teeth), palatal (Lips), nasal (nose). These indicate the contact points for emanation of sound. (Explained below.)
2. bAhya prayatna is the mode of articulation at the close of the utterance of the sound. Here we get the first division as (with alternative names used in English and Sanskrit sources)
 - Hard Consonant, Surd, aGoSha, svAsa letters
 - Soft Consonant, Sonant, Gosha, nAda letters
3. The second division of bAhya prayatna gives us
 - a. Aspirate or MahaprAna
 - b. Non-aspirate or alpa prAna

1.2 Consonants: (व्यञ्जनानि)

There are 25 **Consonants**. These are referred to as “**Mutes**” by Western Authors.

Sanskrit Consonants

क ख ग घ ङ

च छ ज झ ञ

ट ठ ड ढ ण

त थ द ध न

प फ ब भ म

य र ल व श स ष ह ऌ*

* ऌ is not considered a classical Sanskrit letter by many.

But recognised in SikSha for pronouncing words like agnimILE.

Tamil Consonants

க க₂ க₃ க₄ ங

ச ச₂ ஐ ஐ₂ ஞ

ட ட₂ ட₃ ட₄ ண

த த₂ த₃ த₄ ந

ப ப₂ ப₃ ப₄ ம

ய ர ல வ ழ* ற* (*not in Sanskrit) ள ன*

Malayalam Consonants

ക ഖ ഗ ഘ ങ

ച ഛ ജ ഝ ഞ

ട ള ഡ ണ ന

ത മ ദ ധ ന

പ ഫ ബ ഭ മ

യ ര ല വ സ ശ ഷ ഹ ള ക്ഷ ഴ*

1.2.1 Notes on Consonants:

In Tamil language there are no four variants of ka, ca, Ta, ta and pa. There is only one ka, ca, Ta, ta, pa. So how to pronounce the word and learning the sound effect becomes an issue for a new Veda learner.

In Malayalam, there are distinct four variants of ka, cha, Ta, ta and Pa and no "IRu" and "IRU"

Important Tip: Please observe that the vibration of the sound moves more from the tip of the tongue/front portion to the back of the tongue and throat as the variants move from Serial numbers of 1.2 above.

1.2.2 Source of Sound

There are five basic distinct places from which sound emanates in Sanskrit. They are :

- a) The **soft palate**. The soft palate is the fleshy region at the very back of the mouth.
- b) The **hard palate**. The hard palate is the bony region on the top of the mouth.

c) The area behind the **hard bump** on the roof of the mouth. This bump sits behind the teeth.

d) The **base of the teeth**.

e) The **lips**.(touching each other)

The understanding of this helps to create the right sound in Sanskrit for the learner.

This is similar in many Indian Languages. The Sanskrit names for the Groups for Consonants indicate the place of sound generation/reverberation.

1.2.3 Gutturals: (कण्ठा) (ka varga)

These Consonants are referred as Gutturals in English. The sound emanates through use of back of the tongue touching the soft palate. (back of the mouth). In Sanskrit KaNTha means throat/(neck).

PS - In ka series, one makes contact with the root of the tongue at the root of the jaws (Rule 2.35)

Group 1 Sanskrit	क	ख	ग	घ	ङ
English Representation	ka	kha	ga	gha	~nga (nasal)
Tamil	க	*க ₂	*க ₃	*க ₄	ங
Malayalam	ക	ഖ	ഗ	ഘ	ങ

The **first two** letters of 'ka' varga are classified as **Hard Consonant, Surd, aGoSha, svAsa** letters or in Sanskrit खर व्यञ्जनानि (different names used in reference in different sources)

The rest three are classified as **Soft Consonants, Sonant, Gosha,**

nAda letters or in Sanskrit मृदु व्यञ्जनानि.

Note: Readers shall note these differing names when they refer to Grammar/Vedic books of Indian and Foreign Authors.

1.2.4 Palatals: (तालु) (ca varga)

These Consonants are referred as Palatals in English. The sound emanates using the flat of the tongue against the back of the hard palate (front of mouth behind the teeth). In Sanskrit the word tAlu means Palate.

PS - In ca series, with the middle of the tongue on the palate. (Rule 2.36)

Group 2	च	छ	ज	झ	ञ
English Representation	ca	cha	ja	jha	gya (nasal)
Tamil	ச	*ச ₂	*ஜ	*ஜ ₂	ஞ
Malayalam	ച	ചറ	ജ	ര	ണ

The first two letters of 'ca' varga are called Hard Consonants.

The rest three are Soft consonants.

1.2.5 Cerebrals: (मूर्धन्) (Ta varga)

These Consonants are referred as Cerebrals in English. The sound emanates by using the tip of the tongue against the top of the hard palate. In Sanskrit, mUrDhan means forehead or head depending on the context of the statement.

PS - In Ta series the tip of the tongue is rolled back in the head (Rule 2.37) meaning towards the "cave" behind upper jaw behind the teeth.

Group 3	ट	ठ	ड	ढ	ण
English Representation	Ta	Tha	Da	Dha	Na
Tamil	ட	*ட ₂	*ட ₃	*ட ₄	ண
Malayalam	ട	ഠ	ഡ	ഢ	ണ

The first two letters of ‘Ta’ varga are called Hard Consonants.
The rest three are Soft consonants.

1.2.6 Dentals: (दन्त) (ta varga)

These Consonants are referred as Dentals in English. The sound emanates by using the tip of the tongue against the top front teeth at its lower part. In Sanskrit danta means teeth.

PS - In ‘ta’ series with the tip of the tongue at the root of the teeth (Rule 2.38)

Group 4	त	थ	द	ध	न
English Representation	ta	tha	da	dha	na
Tamil	த	*த ₂	*த ₃	*த ₄	ந/ ன (notes)
Malayalam	ത	ഥ	ദ	ഢ	ന

The first two letters of ‘ta’ varga are called **Hard Consonants**.
The rest three are **Soft Consonants**.

Notes: In Sanskrit there is only one ‘na’ - न. In Tamil there are two ‘na’s

“ந” and “ன”. The First “ந” which is light in sound and the other one ” ன” which has little more stress. Please note that both get used depending on how

the word is represented in Tamil. A sentence/word can only begin with ன் (in Tamil). We write “Annam” and “manam” in Tamil as அன்னம், மனம். While reading Sanskrit texts or Vedas, the ‘na’ must be pronounced in the one way only as ன்.

1.2.7 Labials: (ओष्ठौ) (pa varga)

These Consonants are referred as Labials in English. The sound emanates by using the lips. The lips get in touch always. In Sanskrit OshTa means lip. OshTau is dual, meaning lips.

PS - In ‘pa’ series, with two lips (Rule 2.39)

Group 5	प*	फ*	ब	भ	म
English Representation	pa	pha	ba	bha	ma
Tamil	ப	*ப ₂	*ப ₃	*ப ₄	ம
Malayalam	പ	ഫ	ബ	ഭ	മ

The first two letters of ‘pa’ varga are called Hard Consonants. The rest three are Soft Consonants.

The **fifth letter in each of the group** is called **Nasal letters** as they tend to have a nasal twang while pronouncing them.

PS - Anusvaras and “last mutes” (ie 5th letter in consonant varga) are nasal (Rule 2.30).

PS - Rule 49/50 Nasals have nose as the place of production or produced with mouth and nose.

PA - Book1 Chapter 1 Rule 8 that which is pronounced by the nose along with the mouth is called Anunaasikam. (Nasal)

PS - The organ of production of Nasal is same as in respective Consonant varga. (Rule 2.51). Nasal quality is given by unclosing the nose (Rule 2.52)

1.3 Other Consonants:

The other Consonants are grouped into three. They are given below:

1.3.1 Semi-Vowels: (अन्तस्था)

The word antasthA means standing at end.

	य	र	ल	व	
English Representation	ya	ra	la	va	
Tamil	ய	ர	ல	வ	
Malayalam	ഁ	ര	ല	വ	
Place of production	‘ca’ varga	‘Ta’ varga	‘ta’ varga	‘pa’ varga	

All the above four letters are **Soft** Consonants.

Note: Tamil has an additional ் which has a stress. This ் is not used/available anywhere in Sanskrit. But ‘tra’ sound comes from usage of the four variants of ‘Ta’.

Rules from PS

1. - In ‘ya’, the two edges of the middle tongue upon the palate (Rule 2.40)
2. In ‘ra’ with the middle tip of the tongue at the back of the root of the teeth (Rule 2.41)
3. Also in ‘la’ at the roots of the teeth (Rule 2.42)
4. In ‘va’, with the edges of the lips along with the teeth (Rule 2.43)

1.3.2 Sibilants: (ऊष्मन्)

The word Ushman means Sibilant in linguistic context. They produce a 'ssh' sound of air going out of the mouth.

	श	ष	स		
English Representation	Sa	sha	sa		
Tamil	*ஸ	*ஷ	*ஸ்		
Malayalam	ശ	ഷ	സ		
Place of Production	'ca' varga	'Ta' varga	'ta' varga		

All these three are Hard Consonants.

PS - The spirants are in order produced in the places of the mutes.⁴⁴ but the middle of the producing organ is unclosed ⁴⁵ (see table above 1.3.2)

Note: There is no "Sa" (ஸ) in Tamil language. The above letter is used specifically for representing "Sa" in Tamil Veda and Sloka books which is in original Sanskrit.

In Traditional Tamil ஸ,ஷ,ஜ are also not there. These have come in to represent sounds that are taken from other languages, especially Sanskrit.

There is a separate Grantha Lipi that was evolved to represent and publish Vedic Texts. Many Paatashalaas teach Tamil Vedic students through Grantha Lipi. It is also used in some parts of Kerala. Grantha Lipi has mixed characteristics of Tamil and Malayalam. Some letters have distinct shape or representation.

1.3.3 Aspirate: (सोष्मता)

The words sOshmataa means aspiration, heat and warmth.

	ह				
English Representation	ha				
Tamil	ஹ				
Malayalam	ഹ				

This is a soft consonant.

PS - Throat is the place of production of visarjanlya (Visargam) and 'ha' .
Some authors say same as vowels 46/47

Note: There is no ह, ह* in Sanskrit. ह, ह* is used in Tamil and Malayalam only. Malayalam as a language has got four variants of consonant letters and ह, ह* so it is completely friendly to learn both Devanagari and Dravidian languages as per some Scholars.

Notes from PA

- Letters whose place of utterance and effort are equal are called Savarna or homogeneous letters.
- The quality of effort (prayatna) is classified as internal and external
- This internal effort is sub-divided into five class of efforts
 - a. spRuShtam or complete contact of the organs: All consonants fall under this category. There is complete contact of the tongue with throat, palate, dome of the palate, teeth and lips
 - b. IShtya spRuShtam or slight contact – ya,ra,la va
 - c. vivRutam or complete opening – vowels
 - d. IShad vivRutam – slight opening sa,Sa,Sha
 - e. saMvivRutam – contracted

External classification is given above already as AByantra prayatna and bAhya prayatna.

1.3.4 Classification of Vowels into Groups:

Vowel Letter	Classification into Group
அ ஆ அ ஆ ஊ ஊ	Guttural -KanTya
இ ஈ இ ஈ ஊ ஊ	Palatals - Taalu
உ ஁ உ ஁ ஊ ஊ	Labial - Osthau
஋ ஌ ழ ழ ழ ழ	Cerebral -Murdhan
ல ழ ழ ழ ழ ழ ழ	Dental - Dantya
ஏ ஏ ஏ ஐ ஐ ஐ ஐ	Palato- Guttural - Kanta Talu
ஔ ஔ ஔ ஔ ஔ ஔ	Labio Guttral - Kanta Oshtya

PS Comments

- In Vowels and Sonant sounds the emission is sound (Rule 2.9)
- In Surd/Hard consonants it is breath. (Rule 2.10)

1.3.5 MahapraNa and AlpapraNa

Consonants with breath are termed as MahapraNa (**Aspirates**) and without breath as Alpa-praNa. (**Non-Aspirates**)

The 1st and 3d letters of each varga (group), together with the 5th [nasal] are AlpapraNa.

The rest of the letters are MahapraNa. (ie 2nd and 4th letter of a varga)

The semivowel group letters are AlpapraNa.

When we say 'ka' or 'ga' (1st and 3rd letter of ka/ga varga) it is light without any distinct flow of air or stress. It is AlpapraNa.

When we say 'kha' or 'gha', (2nd and 4th letter of ka/ga varga) there is a distinct breath/air flow in uttering the word. This is MahapraNa.

The second and fourth letters in a varga.

PS Note: There is more breath for Surd/Hard Consonants than the corresponding Sonant/Soft Consonant (Rule 2.11) What is intended here is there is more air flow in the Hard Consonant Aspirate (2nd letter of a varga like Kha, Cha, Tha, tha, Pha) than in Soft Consonant Aspirate (4th letter of a varga like gha, jha, Dha, dha, Bha).

1.4 Other Letters

Note: The following letters are used in normal Sanskrit texts.

These are Conjuncts (संयुक्त अक्षर). This is explained below in the next section.

	क्ष	श्र	ज्ञ	ळ*	
English Representation	ksha	Sra	Jgya(nasal)	La	
Tamil	*கூழ்	* ப்ர	*ஜஞ்	ள	
Malayalam	ക്ഷ	ശ്ര	ജ്ഞ	ള	

क्ष is formed by adding ख् + ष; क्ष = क्₂ + ष ; क्श = क् + श

श्र is formed by adding श् + र ; श्र = श + र; श्र = श + र

ज्ञ is formed by adding ज् + ञ ; ज्ञ = ज + ञ; ज्ञ = ज + ञ

ळ* is not a conjunct but a special consonant.

This does not find place in some books as a part of standard letters.

This letter is not used in classical Vedic texts.

Example 'agnimeeLe' is represented as aginmeeDe (third Da).

But some siKsha recognises use of La for Da.

1.5 Conjunct Letters

Conjuncts are letters formed with a combination of two or more letters. They are Vowel based conjuncts and non-vowel conjuncts.

Swarayukta Akshara/Consonants(व्यञ्जनानि) are formed by a combination of a Consonant with a Vowel. The Basic letters in Sanskrit seen above in 1.2 and 1.3 are Swarayukta Aksharaas.

1.5.1 Vowel based Conjuncts (Swarayukta Akshara) (स्वरयुक्त अक्षर)

Vowel based conjuncts are letters formed with a combination of a Consonant and a vowel; the vowel sound comes always at the second part of the Conjuncts. Please note that to form any Conjunct basically a Vowel (sound) is required.

Vowel : अ आ इ ई उ ऊ ए ऐ ओ औ अं अः ऋ (ऋ*)

Consonant : क् क का कि की कु कू के कै को कौ कं कः कृ कृ

1.5.2 Example of 'ka' varga letters

क् + अ = क , क् + आ = का , क् + इ = कि , क् + ई = की
क् + उ = कु , क् + ऊ = कू , क् + ए = के , क् + ऐ = कै .
क् + ओ = को , क् + औ = कौ, क् + अं = कं , क् + अः = कः
क् + ऋ = कृ , क् + ॠ = कृ,

क् + अ = क , क् + आ = का , क् + इ = कि , क् + ई = की
क् + उ = कु , क् + ऊ = कू , क् + ए = के , क् + ऐ = कै.
क् + ओ = को, क् + औ = कौ, क् + अं = कं, क् + अः = कः
क् + ऋ = कृ , क् + ॠ = कृ

क् + अ = क, क् + आ = का, क् + इ = कि, क् + ई = की
क् + उ = कु, क् + ऊ = कू, क् + ए = के, क् + ऐ = कै .
क् + ओ = को, क् + औ = कौ, क् + अं = कं, क् + अः = कः
क् + ऋ = कृ , क् + ॠ = कृ

PS -A Short/hrasva consonant has half the quantity of Short vowel (Rule 1.37).
That is when we say **ka** or **ca**, short vowel, the vowel sound 'a' shall be half a mAtra. (total mAtra = one , "k" half + "a" half")

In case of Long/dheerga Consonant, the vowel sound shall be 3/4th of the total mAtra. ie. When we utter kA or kI, the vowel sound 'A' or 'ee' shall be 1.5 mAtra

and the time for production of 'k' will be 0.5 mAttra. . (total two mAttras , "k" 0.5 + "A" 1.5 mAttras)

1.5.3 Base Letters (Halant) (हलन्त)

The letters of each Consonant group is formed through a base letter like क्, च्, त् and a vowel. These are pronounced as ik, ich, ith. They have a slanted stroke below. This is known as Halant (हलन्त) in Sanskrit. Let us call them as Base/root Letters for our understanding. (Halant is term used by "Panani" For Example in letter "ka" the "k" without "a" sound is called "hal" . The Term "Halant" was not in existence during "Taittiriya Pratishakya" days.)

1.5.4 Maatra Letters:

।, ि, ि, ं, ू, ै, ौ, े, ै are the shapes that give the sound of extension like aa, e, ee, Ru, ou, O etc which are derived from the first letter first "hal" letter of each varga (in 'ka' hal letter is "k" with out the last "a" sound , for ki "k" + "i"). When a letter has these shapes like ।, ि, ि, ं, ू, ै, ौ, े, ै , they are called Maatra letters. This is different from the term 'Maatra' with respect to time scale of the letters.

Maatra shapes in Tamil - ா, ி, ை, ொ, ோ, ௌ.

For Tamil Letters ஈ, ஏ, ஒ do not have maatra shapes distinctly like in Sanskrit. E has a separate shape. Ye has an extension below. 'O' has a round below the normal 'o'.

கூ, கூ, have extensions to the shape of Ka. Similarly the 'u,U sounds have extensions of base letters which differ based on the letter.

Examples: ೀ ು, து தூ, ஜு ஜூ, பு பூ, மு மூ.

Some shapes in Sanskrit and Tamil are not directly comparable;
So also between Sanskrit and Malayalam.

Malayalam Examples: കറ, കി, കീ, തു തൂ, ജു ജൂ, മു മൂ കേ, കൈ,
കോ, കൗ

1.5.5 Conjunct Consonants (Samyuktakshara) (संयुक्त अक्षर)

PA 1.1.7 Consonants not separated by a vowel are Conjunct Consonants.

Please note in the following example there is no vowel sound after the first base letter or halant.

Samyuktakshara or a conjunct character represents a syllable made up of two or more consonants from the basic set. In that Consonant (or Consonants) a basic vowel sound is present in its formation. The Vowel sound is evident in the last part of the Akshara (letter).

Examples : gna, gra, hla, hya, ग्न, ग्र, ह्ल, ह्य,

Tamil Equivalents: க்₃ந், க்₃ர, ஹ்ல, ஹ்ய

Malayalam Equivalents: ഗ്ന, ഗ്ര, ഹ്ല, ഹ്യ,

Formation of the akshara:

ग् + न = ग्न , ग् + र = ग्र, ह् + ल = ह्ल , ह् + य = ह्य

க்₃+ந் = க்₃ந் , க்₃+ர = க்₃ர , ஹ்+ல = ஹ்ல , ஹ்+ய = ஹ்ய

ഗ് + ന = ഗ്ന , ഗ് + ര = ഗ്ര, ഹ് + ല = ഹ്ല , ഹ് + യ = ഹ്യ

These are examples of two consonants forming a Samyuktakshara. The ending sound is that of the vowel which forms the sound base of the second/last akshara. Here it is 'a'

Actually, ग् + (न् + अ) = गन्.

In tamil , க் + (ந் + அ) = க்ந

In Malayalam - ഗ് + (ന് + അ) = ഗ്ന.

That is why it is said that a vowel (swara) is required to form any letter.
It is "Jeeva" for any akshara/letter.

As a general rule, consonants in a conjunct are written in their half form except for the final consonant which is written in its full form. There are exceptions to this rule when the consonants do not have a clear half form. But the representation of the form will be different depending on the combination of the letter. There is no single rule as to how it is represented in books. Over a period some letters are represented in a standard form across books. Some letter may not be. Therefore the reader must familiarise with the convention followed in that book.

The standards of software Fonts in Sanskrit differ slightly and therefore, there are differences in representation. Sometimes for easy use or typing takes precedence over standard conventions. Use of modern lipi poses its own convenience but also hinders the traditional representation.

We will see some examples of the representation of these Aksharas:

1.5.6 Letters appearing one after the other

Sanskrit Consonant	How formed	Tamil Letter representation	Malayalam Letter representation	
स्त	स् + त	ஸ்+த = ஸ்த	സ്+ത=സ്ത	
क्य	क् + य	க் + ய = க்ய	ക്+യ=ക്യ	
त्य	त् + य	த்+ய = த்ய	ത്+യ=ത്യാ	
ग्न	ग् + न	க் ₃ + ந = க் ₃ ந	ഗ് + ന = ഗ്ന.	
व्य	व् + य	வ்+ய = வ்ய	വ് + യ = വ്യ	
क्ष्य	क्ष् + य	க்ஷ்+ய = க்ஷ்ய	ക്ഷ്+യ = ക്ഷ്യ	
भ्य	भ् + य	ப் ₄ + ய = ப் ₄ ய	ഭ്+യ = ഭ്യ	

1.5.7 Letters after one below the other

If the letters are represented as one below another, the components of the letters must be read from the top to bottom. The top letter will be read as Halant letter (base letter with the sound like ip,ik,ih,it,ir etc). In Tamil letters are not represented one below the other. In Malayalam it depends on the convention used in a specific book.

Sanskrit Consonant	How formed	Tamil Letter representation	Malayalam Letter representation	
क्	क् + क	क्+क = क्क	ക് + ക = ക്ക	
ङ्	ङ् + ग	ङ्+ग ₃ = ङ्ग ₃	ങ് + ഗ = ങ്ഗ	
द्भ	द् + भ	द् ₃ +प ₄ = द्द ₃ + प ₄	ദ് + ഭ = ദ്ഭ	
ट्ट	ट् + ट	ट्+ ट = ट्ट	ട് + ട = ട്ട	
द्ध	द् + ध	द् ₃ +ध ₄ = द्द ₃ ध ₄	ദ് + ധ = ധ്ധ	
व्व	व् + व	व् ₃ +व = व्व ₃	വ് + വ = വ്വ	

Note: These can be represented side by side also as a different convention.

Example: द्ध (ddha) क्क (kka)

1.5.8 Three letter sounds with different joints

Sanskrit Consonant	How formed	Tamil Letter representation	Malayalam Letter representation
त्स्व,	त् + स्+व	த் + ஸ்+ வ	ത് + സ്+വ = സ്വ
षय	ष्+ ण्+य	ஷ்+ ண்+ ய	ഷ്+ണ്+ യ = ഷ്ണ്യ
क्तय	क् + त् + य	க் + த் + ய	ക് + ത് + യ = ക്ത്യ

ङ	ङ्+क् + त	ங்+ க் + த	ങ്+ക്+ ത ങ്കത
त्र्य	त्+र्+ य	த் + ர் + ய	ത്+ ൠ+ യ= ത്ര്യ

1.5.9 Letters with 'ra' and 'tra'

Sanskrit Consonant	How formed	Tamil Letter representation	Malayalam Letter representation
त्र	त्+र	த் + ர	ത്+ര= (ത്ര)
घ्र	घ्+ र	க் ₄ + ர	ഘ്+ര = ഘ്ര
ट्र	ट् +र	ட் + ர	ട്+ര ട്ര
ष्ट्र	ष् + ट्+र	ஷ்+ ட் + ர	ഷ്+ട്+ര ഷ്ട്ര
आर्य,	आ +र्+ य	ஆ + ர்+ ய	ആ+ൠ+യ ആര്യ
कार्य	का+र्+ य	கா + ர்+ ய	കാ+ൠ*+യ കാര്യ Different representation.ൠ*

1.5.10 Special joins and representations (esp. letter ha, dda)

These are representative examples only. A student needs to learn the vast combination of Consonant letters with continuous reading.

Sanskrit Consonant	How formed	Tamil Letter representation	Malayalam Letter representation
ह	ह+ ल	ஹ + ல	ഹ്+ല ഹ്ല
ह्य	ह+ य	ஹ + ய	ഹ്+യ ഹ്യ
ह्र	ह+ र	ஹ + ர	ഹ്+ര ഹ്ര
हृ	ह+ ऋ	ஹ + ழ	ഹ്+ഋ ഹ്ഋ
द	द+ द	த் ₃ + த் ₃ = த் ₃ த் ₃	ദ്+ ദ ദ്

Note: These joint letters are always represented through two letters in Tamil. In Malayalam, the joint letters are available depending on the convention used in the book. Some books print letters separately due to modification of lipi; the conventions are altered and Letters are printed separately. Readers must observe and familiarise with the conventions used in a specific book.

1.6 Time Scale “MAtra”

Maatra can be defined as the time taken to utter one short (hrasva) letter like a, ka, cha,ti, etc. In traditional definition of time scale, the time scale of **an Eye Wink** is called Vitharpai. Two time scale (vitharpai) equivalent of Eye wink is Kainodi, which is **snap of the fingers**. Two kainodi, that time equivalent of two snaps of our fingers is a **Maatra or Kaakapatam** (terminology used in Siddha Astrology books.) So a Maatra is equal to four winks of our eyes in the normal course.

But there is an another system that refers to snap of fingers (kainodi) as mAtrA. We come across a term 'mOra', in ancient texts, which is interpreted as identical to Maatra.

Vedic experts say that we should not compare this to the Seconds in English system. Maatra is the time scale of uttering a short letter. It can be done with varied speeds as the same Keerthana is rendered at different speeds by two artists. The time scale of uttering each akshara should be even in terms of the MAtras value of the Akshara/letter.

However, very fast recital is not recommended in Veda Recital. It is considered as one of the six banes in recital of Veda.

General rules of Maatra values:

1. All Short letters (Hrasva Letters and Short Swarayukta Akshara) have a value of **one**.
2. All long letters (Dheerga letters and long Swarayukta Akshara) have value **two**.
3. Anuswaram and Visargam of Short letters – **one and a half**
4. Anuswaram and Visargam of long letters – **two and a half**
5. Halants – **Half**
6. For Samykta Vyagnani (Conjuncts) it will be sum total the component parts of the Akshara as to how it is formed.

1.6.1 Examples of Swara and Swaryukta Aksharas

Some examples of Maatra value (of the sound) for our basic understanding:

Sample letters in Sanskrit	In Tamil	In Malayalam	Maatra	
अ, इ, उ, क, ड चि, जु, ढि, श	அ இ உ ங சி ஜ டி, ஸ	അ, ഇ, ഉ, ക, ഞ ചി, ജു, ഡി, ശ	1	

आ, ई, ऊ, औ का, डा, ची, तै	ஆ ஈ ஊ ஒள கா ங்ா சீ தை	ആ, ഈ, ഉ, ഓ കാ, ഓ, ചീ, തൈ	2	
अं , अः, गः टं	அம் அ: கது: டம்	അം,അഃ, ഗം So	1.5	
णां, दां, नीं, रें याः शाः षैः	ணாம் , தா ₃ ம், நீம், ரோம், யா:, ஸா:, ஷை:	ണാം, ദാം, നീം, രോം യാഃ, ശാഃ ഷൈഃ	2.5	
म् , ल् फ् स्	ம், ல், ப், ஸ்	മ്, ല് ഫ് സ്	0.5	

1.6.2 Some examples of Samyukta Aksharas

Sample letters in Sanskrit	In Tamil	In Malayalam	Maatra	
स्त, व्य,	ஸ்த,வ்ய,	സ്ത, വ്യ, ഭ്യ	1.5	0.5 for halant and one for hrasva (short) letter

भ्य	ப் ₄ ய			
स्ता, व्यी, भ्ये,	ஸ்தா, வ்யீ ப் ₄ யே	ஸ்தா, வ்யீ, வே,	2.5	0.5 for halant and two for the dheerga (long letters)
स्त्व, षय,	ஸ்த்வ, ஷ்ணய	ஸ்த்வ, ஷ்ணய,	2.0	Two half maatra each for the halants and one hrasva
भ्यां , न्तां	ப் ₄ யாம், ந்தாம்,	ஸ்தாம் , ந்தாம்	3.0	Half for the halant, Dheerga letter with anuswaram 2.5
षया	ஷ்ணயா	ஷ்ணயா	3.0	Two halants with 0.5 each plus dheerga letter 2
षयां,	ஷ்ணயாம்	ஷ்ணயாம்,	3.5	Above example add 0.5 for anuswaram
ष्ठः	ஷ் ₂ ஃ	ஷ்ஃ	2.0	0.5 for halant, short hrasva 1.0 for Ta, visarga 0.5
हां	ஹ்நாம்	ஹ்நாம்	3.0	0.5 for ih, 2 for dheerga naa, 0.5 for m

We shall be adding more materials on Plutam in this article or as a part of Veda Recital as some more basic studies are in progress by our team.

1.7 Summary of Consonant Classification:

Reader are requested to understand the classifications as Hard Consonant (HC), Soft Consonant (SC), Alpa PraNa(AP) Aspirate/ Maha PraNa(MP) Nasal varga, Semi-vowel, etc. since the many of grammar rules are based on some of these classifications. Please note the classification of Semi-Vowel and Ushman into Ka,Cha,Ta,ta,pa grouping as they combine based on their sound.

Alternate names used by Western Authors or Indian authors are given for reference

Hard Consonant - खर व्यञ्जनानि (khara vyanjjanAni), aGoSha,
svAsa, Surd,

Soft Consonant - मृदु व्यञ्जनानि (mRudu vyanjjanAni), Gosha,

nAda, Sonant

MahaprAna – aspirate;

Alpa prAna – non-aspirate

	Varga or Class Consonants				Varga Nasal	Sibilants & Semi-vowels	
Groups with Names	HC AP	HC MP	SC AP	SC MP	Nasal Letters	HC	SC
Gutturals (कण्ठा) Ka Varga	ka क क कि	kha ख *क २ ख	ga ग *क ३ ग	gha घ* *क ४ घ	~nga ङ ङ ञ		ha ह ह ण
Palatals: (तालु) Cha varga	ca च च छ	cha छ *च २ छ	ja ज *ज २ ज	jha झ * *ज २ झ	gya ञ ञ ण	Sa श श ण	ya य य ण

Cerebral s: (मूर्धन्) Ta Varga	Ta ट L S	Tha ठ *L 2 O	Da ड * L 3 ८	Dha ढ *L 4 ८	Na ण ॢ ॣ	sha ष ॡ ॢ	ra र र ॢ
Dentals (दन्त) 'ta' varga	ta त த த	tha थ *த 2 ம	da द *த 3 ட	dha ध *த 4 ய	na न ந ம	sa स ஸ ஸ	la ल ல ல
Labials (ओष्ठौ) Pa varga	pa प ப ப	pha फ *ப 2 ம	ba ब *ப 3 வ	bha भ *ப 4 ட	ma म ம ம		va व வ வ
Semi- Vowels (अन्तस्था) (all SC)	ya य ய ய (AP)	ra र ர ர (AP)	la ल ல ல (AP)	va व வ வ (AP)	ha ह ஹ ஹ (MP)		
Sibilants (ऊष्मन्) Sha varga (all MP) (all HC)	sa स *ஸ ஸ	Sa श *ஸ ஸ	sha ष *ஷ ஷ				

We have tried to explain this letter article by comparing Taittrlya Pratishakya, Panini Shiksha (limited), Panini Astadyayi etc. Here we have deliberately avoided the some selective sutras/rules as given in Sanskrit texts in order, not to make this article too technical.

Please give your comments, feedbacks and suggestions to the vedavms@gmail.com.