

Background

Sanskrit compositions reach far back into antiquity. The *Rigveda*'s earlier chapters refer to an abundantly flowing Sarasvati river, while later chapters point toward more eastern rivers. A structural weakening of the Monsoon system, alongside tectonic shifts, disrupted the water systems feeding the Sarasvati, resulting in its drying up near 2000 BCE. No script is attributed to Sanskrit during this ancient period, as the text is widely understood to have been transmitted entirely orally.

As such, the phonetically specified Sanskrit language is amenable to any script that spans its component sounds. Brahmi, Sharada, and Devanagari scripts are widely accepted to have been applied to Sanskrit over time. Furthermore, some scholars speculate that Indus Valley signs may have served as a visual precursor to Brahmi, which itself is the ancestral precursor to Devanagari.

Here, we employ the Devanagari script alongside IAST (International Alphabet of Sanskrit Transliteration). IAST utilizes the English alphabet equipped with diacritic marks to render Sanskrit sounds phonetically unambiguous, providing a natural springboard to learn Devanagari.



Vowels

Devanagari:	अ	आ	इ	ई	उ	ऊ
IAST*:	a	ā	i	ī	u	ū
Example of <u>sound</u> :	h <u>u</u> t	<u>a</u> re	h <u>i</u> m	<u>bee</u>	p <u>u</u> t	<u>fo</u> od

Devanagari:	ऋ	ॠ	ऌ
IAST*:	r̥	r̄	l̥
Example of <u>sound</u> :	<u>ri</u> d	<u>rea</u> d	revel <u>ry</u>

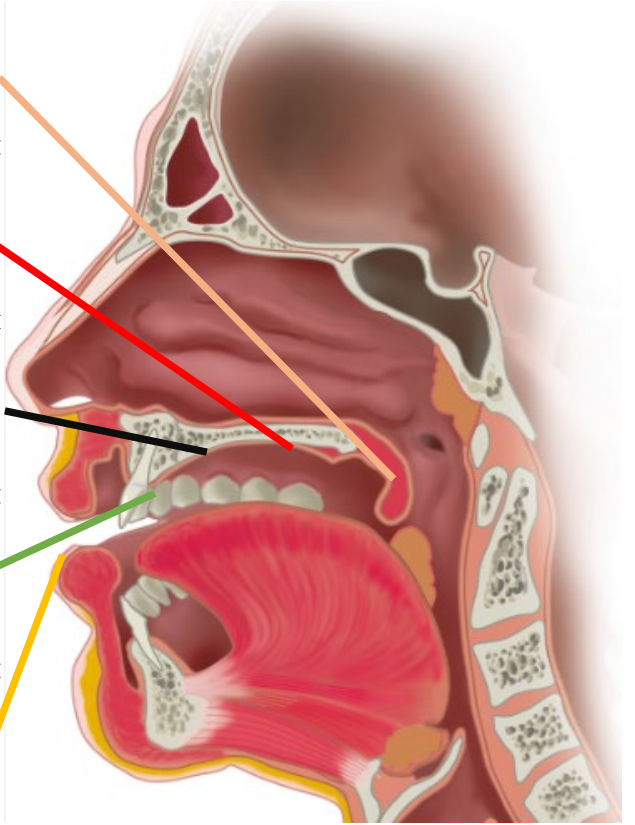
Devanagari:	ए	ऐ	ओ	औ
IAST*:	e	ai	o	au
Example of <u>sound</u> :	<u>ma</u> y	<u>ai</u> slе	h <u>o</u> le	<u>co</u> w

*International **A**lphabet of **S**anskrit **T**ransliteration

IAST is a transliteration scheme that allows phonetically lossless romanisation of Indic scripts.

Consonants

Devanagari:	क	ख	ग	घ	ङ	Velar
IAST:	ka	kha	ga	gha	ṅa	
Devanagari:	च	छ	ज	झ	ञ	Palatal
IAST:	ca	cha	ja	jha	ña	
Devanagari:	ट	ठ	ड	ढ	ण	Retroflex
IAST:	ṭa	ṭha	ḍa	ḍha	ṇa	
Devanagari:	त	थ	द	ध	न	Dental
IAST:	ta	tha	da	dha	na	
Devanagari:	प	फ	ब	भ	म	Labial
IAST:	pa	pha	ba	bha	ma	
		unvoiced unaspirated	unvoiced aspirated	voiced unaspirated	voiced aspirated	nasal



Consonants Without Supporting Vowel

Devanagari:	क्	ख्	ग्	घ्	ङ्
IAST:	k	kh	g	gh	ṅ
Example of <u>sound</u> :	<u>c</u> ap	work <u>h</u> orse	g <u>o</u> al	g <u>h</u> ost	sang <u>u</u> ine
Devanagari:	च्	छ्	ज्	झ्	ञ्
IAST:	c	ch	j	jh	ñ
Example of sound:	<u>ch</u> at	bea <u>ch</u> <u>h</u> ouse	ja <u>m</u>	spon <u>g</u> e <u>h</u> older	run <u>y</u> ellow
Devanagari:	ट्	ठ्	ड्	ढ्	ण्
IAST:	ṭ	ṭh	ḍ	ḍh	ṇ
Example of sound:	st <u>o</u> ne	ha <u>t</u> <u>h</u> anger	<u>d</u> ull	so <u>d</u> <u>h</u> older	sun <u>d</u> ance
Devanagari:	त्	थ्	द	ध्	न
IAST:	t	th	d	dh	n
Example of sound:	<u>t</u> hink	<u>th</u> ink	<u>th</u> e	<u>d</u> harma	<u>n</u> obody
Devanagari:	प्	फ्	ब्	भ्	म्
IAST:	p	ph	b	bh	m
Example of sound:	happ <u>y</u>	<u>p</u> honetic	<u>b</u> at	tub <u>b</u> hose	<u>m</u> an

Sibilants and h

Devanagari:	श	ष	स	ह
IAST:	śa	ṣa	sa	ha

Sibilants and h Without Supporting Vowel

Devanagari:	श्	ष्	स्	ह्
IAST:	ś	ṣ	s	h
Example of <u>sound</u> :	<u>sh</u> ip	wa <u>sh</u>	<u>s</u> am	<u>h</u> im

Semi-Vowels

Devanagari:	य	र	ल	व
IAST:	ya	ra	la	va

Semi-Vowels Without Support Vowel

Devanagari:	य्	र्	ल्	व्
IAST:	y	r	l	v
Example of <u>sound</u> :	<u>y</u> es	<u>r</u> ight	<u>l</u> ight	<u>v</u> olley

	Visarga	Anusvāra	Avagraha
Devanagari:	ः	ं	ऽ
IAST:	ḥ	ṁ	'
Example of <u>sound</u> :	a <u>h</u>	ra <u>m</u> p	denotes dropped अ

Advantages of IAST

Congruence of Sequence of Visual Appearance and Sound

In IAST the sequence of visual appearance of characters (from left to right) and sounds is congruent. In Devanagari the sequence of visual appearance of characters and sounds can be incongruent.

In Devanagari this congruence is ambiguous in the case of conjunct consonants (typography dependent). Also the congruence is broken entirely, for example, in the case of the sound *i* as it makes its visual appearance *before* its sound. Also in Devanagari, *r* = र् employed as a superscript makes its visual appearance a whole phoneme *after* its required sound. This is depicted in the example below:

śarmiṣṭhā शर्मिष्ठा

While in the IAST representation the *r* is clearly after *śa* and before *mi*, in the Devanagari representation it appears after मि above the horizontal line on which the characters hang. The *ṭh* = ठ् is not decisively after ष = ष् in the Devanagari representation with its lower round jutting in front of ष = ष्.

> Unambiguous Identification of Conjunct Consonants

In the example below, in Devanagari the *d* = द् appears to the right of *dh* = ध्, however it is sounded before, as easily visible in IAST going from left to right:

śraddhā श्रद्धा

Advantages of IAST (Continued)

> Phonetic Blending Disaggregation

Consider a set of rules of melding sounds expressed in IAST and Devanagari

-āḥ c- = -āś c- and -a e- = -ai- -आः च्- = -आश् च्- and -अ ए- = -ऐ-

A melded expression expressing vocalic diffusion governed by this set of rules can be disaggregated into its grammatical components:

durlabhāścaiva

दुर्लभाश्चैव

durlabhāḥ ca eva

दुर्लभाः च एव

The IAST desaggregation is visually straightforward compared to the Devanagari which requires memorizing additional morphological features associated with the conjunct consonant and the superscript representation of ऐ.

> Identification of Common Word Roots Among Distinct Indic Languages

The passive future participle of the verb root (kṛ) meaning 'to do' is kārya, meaning 'work' or 'task'. A Tamil word for that is kāriyam, with the similarity made apparent in the IAST representation but not discernible to the non Tamil speaker when comparing Devanagari and Tamil scripts:

Sanskrit Word

कार्यं Devanagari

kārya IAST

Tamil Word

காரியம் Tamil Script

kāriyam IAST

The value of making available all ancient texts, from the cultural-linguistic catchment that is bhārata, in accessible IAST form cannot be emphasized enough.