

Sanskrit for L<sup>A</sup>T<sub>E</sub>X 2 <sub>$\varepsilon$</sub>   
Version 2

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A Short Introduction and Quick Start Guide

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## Introduction

The package contains the font files and pre-processor for printing Sanskrit text in both *devanāgarī* and transliterated Roman with diacritics.

Some features of the *devanāgarī* font:

- Font available in three weights and two slopes.
- The i-hooks connect to the consonants at the correct positions.
- Accents for all *Vedas* (*Rgveda*, *Sāmaveda*, *Taittirīya*), etc.
- Accent marking in colour or grey shading.
- Choice of character forms (e.g. अ/अः) and *samyoga* (e.g. अ॒/अ्य).
- Range of intra- and inter-syllable spacing.
- Dynamic option selection.

Some features of the transliterated Roman:

- Full accent marking and stacking in basic transliteration mode.
- Four ‘cases’ (as per S. M. Katre) in technical transliteration mode.
- Each transliteration mode has four styles: Roman/italic × bold/normal.

This document intends to serve as a short introduction and guide to get started with using CTAN:`pkg/skt` for typesetting documents.

## Illustrations of Input and Devanāgarī Output

The following brief samples demonstrate the available styles of *devanāgarī* font and their encoding. In this mode upper case characters are disallowed.

Note that the ‘larger’ option has been selected so that, in this 12pt document, the *devanāgarī* is printed at 14pt.

```
{\sktb te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।  
{\skt te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।  
{\sktf te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।  
{\sktbs te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।  
{\skts te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।  
{\sktfs te_ja_svi naa_vadhii!tamastu|} तेजस्वि नावधीतमस्तु।
```

The intra- and inter-character spacing options give six steps of horizontal density; the extremes are:

नैव किंचित्करोमीति युक्तो मन्येत तत्त्ववित्।  
नैव किंचित्करोमीति युक्तो मन्येत तत्त्ववित्।

## Illustrations of Basic Transliteration

The same input may also be used to produce transliterated output. Note that the ‘italic’ option is selected, but not ‘xitalic’.

```
{\sktx te_ja_svi naa_vadhii!tamastu|} tejasvi nāvadhītamastu|  
{\sktX te_ja_svi naa_vadhii!tamastu|} tejasvi nāvadhītamastu|  
{\skti te_ja_svi naa_vadhii!tamastu|} tejasvi nāvadhītamastu|  
{\sktI te_ja_svi naa_vadhii!tamastu|} tejasvi nāvadhītamastu|
```

It can be seen from the above examples that **sktX** is a boldface version of **sktx** (i.e. also upright), and that **sktI** is similarly a boldface version of **skti** (also italic). The only difference between **sktx/X** and **skti/I** is that they may be independently selected as italic in the style file options.

The Western accent marking system may also be used:

```
{\skti tejasvi' naava'dhii'tamastu} tejasví nāvádhítamastu|
```

In this basic transliteration mode (`sktx/X` or `skti/I`) uppercase characters are allowed: these do not affect the transliteration encoding, but facilitate the printing of capital letters, for example:

```
{\sktI Bhaarate Raamo vasati} Bhārata Rāmo vasati
```

## Illustrations of Technical Transliteration

As in the basic transliteration mode, there are four font styles selected through `sktt/T` or `sktu/U`; however, in this mode only the Western accent marking is allowed. This technical (grammatical) mode follows the style of S M Katre in his translation of the *Aṣṭādhyāyī*, having four ‘cases’ of letters.

Uppercase is used to indicate `rr` letters (e.g. *pratyāhāra AC*): note that in this mode a *mahāprāṇa sparsā* (e.g. *Bha*) must have the ‘*h*’ in the same case as the previous letter. In the example given above, *Bhaarate* would produce an error: it needs to be *bhaarate* or *BHaarate*. The uppercase letters in this mode are slightly smaller than those in the basic transliteration mode.

In this mode only, letters may also be preceded by the underscore character ‘`_`’. The effect that this has depends upon the case of the following letter: if the letter is lowercase, it will be underlined to indicate that its presence is for the sake of pronunciation only (e.g. *jhaL*); before an uppercase letter, it will reduce the size of the uppercase letter to the height of the lowercase letters to indicate technical words (e.g. *IT*). For example, the *Pāṇini sūtra*

चजोः कु चिण्णयतोः ॥ ७ । ३ । ५२ ॥

may be encoded in the technical mode as

```
{\sktT c_a-j-o.h kU GH_I_T=.NyaT-o.h} to produce
```

ca-j-oh kU GHIT=NyaT-oh

This translates as: A substitute **kU** replaces **c** or **j** before **NyaT** or [affixes] with **GH** as an **IT** marker.

## Getting Started with Typesetting Documents with Sanskrit for L<sup>A</sup>T<sub>E</sub>X 2<sub>&</sub> Version 2

The pre-processor contained in `skt.c` processes the source text file (with a default `.skt` filename extension) to produce a file suitable for L<sup>A</sup>T<sub>E</sub>X 2<sub>&</sub> (with a default `.tex` extension). For example, the command `skt test` will convert `test.sk`t to `test.tex`; fuller filenames may be used, e.g. `skt foo.bar` will produce `foo.tex`, and `skt foo.bar far.boo` will produce `far.boo` from `foo.bar`. If no filename is specified, you will be prompted for input and output filenames. The pre-processor uses the Velthuis system of transliteration to process and convert text.

The program passes the text from the input file to the output file unaltered, until it finds the string ‘{\`\skt`}’. It then checks the following character(s) for the acceptable modifiers `b f s bs fs x X i I t T u` or `U`, and this must be followed by a space character: if this test fails it reports an error, otherwise the program converts the following input text to *devanāgarī* or transliteration format as required, until the matching ‘}’. The cycle is then repeated.

Within the `skt` text, the following punctuation characters will be passed to the output as roman:

( ) \* + , - / : ; = ?

Furthermore, two successive periods ‘..’ will be passed to the output as a single roman period. This technique of repeating the character twice to produce a single roman character applies to the four characters [‘’] as well; and the two-character string ‘!?’ will pass through as a single roman exclamation mark. You will need to use {\`\sktx` ‘‘a’{}’’} to produce ‘á’ (see Supplementary Notes for explanation).

L<sup>A</sup>T<sub>E</sub>X command strings embedded within the `skt` text will be passed to the output file unchanged—but beware: command parameters will be converted! Thus commands without parameters (e.g. `\clearpage`) are safe, but commands with parameters (e.g. `\hspace{3mm}`) will cause problems unless the parameters are meant to be converted (e.g. `\underline{naaman}`).

**Note:** This program will stop passing text to the output file as soon as an error in the source file is detected; it will however, continue processing the input file until ten or more errors are encountered.

For example, an end-to-end workflow can be:

1. Download the repository, compile `skt.c`, and move the compiled program to the same location as your `*.skt` documents.
  - Your `*.skt` documents MUST have `\usepackage[options]{skt}` in the preamble.
2. Use `./skt foo.skt` to produce a corresponding L<sup>A</sup>T<sub>E</sub>X 2<sub>&</sub> file.
3. Use `pdflatex foo.tex` to produce a PDF.
4. Edit your `*.skt` file and repeat steps (2) and (3) until the desired result is achieved.

## Examples in Typesetting *devanāgarī*

```
{\sktf
"suddhabrahmaparaatpara raam ||1||
kaalaatmakaparame"svara raam ||2||
"se.satalpasukhanidrita raam ||3||
brahmaadyaamarapraarthita raam ||4||
}

शुद्धब्रह्मपरात्पर राम् ॥१॥
कालात्मकपरमेश्वर राम् ॥२॥
शेषतल्पसुखनिद्रित राम् ॥३॥
ब्रह्माद्यामरप्रार्थित राम् ॥४॥
```

```
{\sktfs
ca.n.dakira.nakulama.n.dana raam ||5||
"sriimadda" sarathanandana raam ||6||
kausalyaasukhavardhana raam ||7||
vi"svaamitrapriyadhana raam ||8||
}

चण्डकिरणकुलमण्डन राम् ॥५॥
श्रीमद्भरथनन्दन राम् ॥६॥
कौसल्यासुखवर्धन राम् ॥७॥
विश्वामित्रप्रियधन राम् ॥८॥
```

```
{\skt
ghorataa.takaaghaataka raam ||9||
maariicaadinipaataka raam ||10||
kau"sikamakhsa.mrak.saka raam ||11||
"sriimadahalyoddhaaraka raam ||12||
}

घोरताटकाघातक राम् ॥९॥
मारीचादिनिपातक राम् ॥१०॥
कौशिकमखसंरक्षक राम् ॥११॥
श्रीमद्हल्योद्धारक राम् ॥१२॥
```

```
{\skts
gautamamunisa.mpuujita raam ||13||
suramunivaraga.nasa.mstuta raam ||14||
naavikadhaavitam.rdupada raam ||15||
mithilaapurajanamohaka raam ||16||
}
```

गौतममुनिसंपूजित राम् ॥१३॥  
सुरमुनिवरगणसंस्तुत राम् ॥१४॥  
नाविकधावितमृदृपद राम् ॥१५॥  
मिथिलापुरजनमोहक राम् ॥१६॥

```
{\sktb
videhamanaanasara njaka raam ||17||
trya.mbakakaarmukabha njaka raam ||18||
siitaarpitavaramaalika raam ||19||
k.rtavaivaahikakautuka raam ||20||
}
```

विदेहमानसरञ्जक राम् ॥१७॥  
ऋबंककार्मुकभञ्जक राम् ॥१८॥  
सीतार्पितवरमालिक राम् ॥१९॥  
कृतवैवाहिककौतुक राम् ॥२०॥

```
{\sktbs
bhaargavadarpavinaa"saka raam ||21||
"sriimadayodhyaapaalaka raam ||22||
}
```

भार्गवदर्पविनाशक राम् ॥२१॥  
श्रीमदयोध्यापालक राम् ॥२२॥

## Examples in Typesetting Transliterated *devanāgarī*

```
{\sktx
mudaakaraattamodaka.m sadaa vimuktisaadhaka.m
kalaadharavaata.msaka.m vilaasilokarak.sakam |
anaayakaikanaayaka.m vinaa"sitebhadaityaka.m
nataa"subhaa"sunaa"saka.m namaami ta.m vinaayakam ||1||
}

mudākarāttamodakam sadā vimuktisādhakam
kalādharāvataṁsakam vilāsilokarakṣakam |
anāyakaikanāyakam vināśitebhadaityakam
natāśubhāśunāśakam namāmi tam vināyakam ||1||
```

```
{\sktX
natetaraatibhiikara.m navoditaarkabhaasvara.m
namatsuraarinirjara.m nataadhikaapaduddharam |
sure"svara.m nidhii"svara.m gaje"svara.m ga.ne"svara.m
mahe"svara.m tamaa"sraye paraatpara.m nirantaram ||2||
}

natetarātibhīkaram navoditārkabhāsvaram
namatsurārinirjaram natādhikāpaduddharam |
sureśvaram nidhīśvaram gajeśvaram gaṇeśvaram
maheśvaram tamāśraye parātparam nirantaram ||2||
```

```
{\skti
samastaloka"sa.mkara.m nirastadaityaku njara.m
daretarodara.m vara.m varebhavaktramak.saram |
k.rpaakara.m k.samaakara.m mudaakara.m ya"saskara.m
manaskara.m namask.rtaa.m namaskaromi bhaasvaram ||3||
}

samastalokaśāṁkaram nirastadaityakuñjaram
daretarodaram varam varebhavaktramakṣaram |
kṛpākaram kṣamākaram mudākaram yaśaskaram
manaskaram namaskṛtāṁ namaskaromi bhāsvaram ||3||
```

{\sktI  
aki.mcanaartimaarjana.m cirantanoktibhaajana.m  
puraariipuurvanandana.m suraarigarvacarva.nam |  
prapa ncanaa"sabhii.sa.na.m dhana.mjayaadibhuu.sa.nam  
kapoladaanavaara.na.m bhaje puraa.navaara.nam ||4||  
}  
*akimcanārtimārjanam cirantanoktibhājanam  
purāripūrvanandanaṁ surārigarvacarvaṇam |  
prapañcanāśabhiṣaṇam dhanamjayādibhūṣaṇam  
kapoladānavāraṇam bhaje purāṇavāraṇam ||4||*

Sample Text from Rgveda 10.125.

अ॒हं रुद्रेभि॒र्वसुभिश्चराम्युहमा॑दि॒त्यैरुत् वि॒श्वदै॒वैः ।  
 अ॒हं मि॒त्रावरुणो॒भा बि॒भर्म्युहमि॒न्द्राज्ञी अ॒हमु॒श्चिनो॒भा ॥ १ ॥  
 अ॒हं सो॒मंमा॒हुनसं बि॒भर्म्युहं त्वष्टा॑रमु॒त पू॒षणं भग्म् ।  
 अ॒हं द॑धामि॒ द्रविंशं ह॒विष्मते सुप्राव्येऽ॒यज्ञमानाय सुन्वते ॥ २ ॥  
 अ॒हं राष्ट्री॑ सुंगमनी॑ वसु॒नां चिकितुषी॑ प्रथुमा यज्ञीयानाम् ।  
 तां मा॑ देवा व्यदधुः पुरुत्रा॑ भूरिस्थात्रां भूर्यावेशयन्तीम् ॥ ३ ॥  
 मया॑ सो अन्नमत्ति॑ यो विपश्यति॑ यः प्राणिति॑ य ई॑ शृणोत्युक्तम् ।  
 अ॒मु॒न्तवो॑ मां त उप॑ क्षियन्ति॑ श्रु॒धि॑ श्रु॒तं श्रद्धिवं॑ ते॑ वदामि ॥ ४ ॥  
 अ॒हमेव॑ स्वयमिदं॑ वदामि॑ जुष्टं॑ देवेभिरुत॑ मानुषेभिः ।  
 यं का॒मये॑ तंतमु॒ग्रं कृ॒णोमि॑ तं ब्रह्माणां॑ तामृषि॑ तं सु॒मेधाम् ॥ ५ ॥  
 अ॒हं रुद्राय॑ धनुरा॑ तनोमि॑ ब्रह्मद्विषे॑ शरवे॑ हन्तवा॑ उ ।  
 अ॒हं जनाय॑ समदं कृ॒णोम्युहं॑ द्यावापृथिवी॑ आ॑ विवेश ॥ ६ ॥  
 अ॒हं सु॒वे॑ पितरमस्य॑ मूर्धन्मम्॑ योनिरप्स्व॑न्तः॑ समुद्रे॑ ।  
 ततो॑ वि॑ तिष्ठे॑ भुवनानु॑ विश्वोतामूं॑ द्यां॑ वर्ष्मणोप॑ सृ॒शामि ॥ ७ ॥  
 अ॒हमेव॑ वात इव॑ प्र वाम्यारभमाणा॑ भुवनानि॑ विश्व॑ ।  
 परो॑ दिवा॑ पर ए॒ना॑ पृथिव्यैतावती॑ महिना॑ सं ब॒भूव ॥ ८ ॥

## Sample Text from Sāmaveda

*Sāmaveda Samhitā (Kauthuma)*, verses 523–528.

१ २३ २३ २३ १ २३ १ २ ३ २ ३ १ २  
 प्र तु द्रव परि कोशं नि षीद नृभिः पुनानो श्वभि वाजमर्ष।  
 २ ३ १ २ ३ १२ ३ २३ १ २ ३ १२ ३ १२  
 अश्वं न त्वा वाजिनं मर्जयन्तोऽच्छा वर्हा रशनाभिर्नयन्ति ॥ ५२३ ॥  
 १ २३ १२ ३ २३ २ ३ २३ १२  
 प्र काव्यमुशनेव ब्रुवाणो देवो देवानां जनिमा विवक्ति।  
 १ २ ३ १२ ३ २ ३ १२ ३ २३ २ ३ १२  
 महित्रः शुचिबन्धुः पावकः पदा वराहो अभ्येति रेभन् ॥ ५२४ ॥  
 ३ १ २३ ३ १ २३ ३ १ २३ १२ ३ १ २३ ३ १ २  
 तिस्रो वाच ईरयति प्र वह्निर्वृतस्य धीतिं ब्रह्मणो मनीषाम्।  
 १ २ ३ १२ ३ २ २३ १२ ३ १२ ३ २ ३ १ २  
 गावो यन्ति गोपतिं पृच्छमानाः सोमं यन्ति मतयो वावशानाः ॥ ५२५ ॥  
 ३ २ ३ २ ३ १ २ ३ १ २ ३ २ ३ २ ३ १ २ ३ १ २  
 अस्य प्रेषा हेमना पूयमानो देवो देवेभिः समपृक्त रसम्।  
 ३ २ ३ २३ १ २ ३ १ २ ३ २३ १ २ ३ २ १ २  
 सुतः पवित्रं पर्यंति रेभन्मितेव सद्ग पशुमन्ति होता ॥ ५२६ ॥  
 १ २ ३ १ २३ १ २ ३ १ २ ३ २ ३ १ २ ३ १ २ ३ २  
 सोमः पवते जनिता मतीनां जनिता दिवो जनिता पृथिव्याः।  
 ३ १ २३ १ २३ १ २ ३ १ २ ३ १ २ ३ १ २३ १ २  
 जनिताग्नेर्जनिता सूर्यस्य जनितेन्द्रस्य जनितोत विष्णोः ॥ ५२७ ॥  
 ३ १ २३ १ २३ १ २ ३ १ २ ३ १ २ ३ १ २  
 अभिं त्रिपृष्ठं वृषणं वयोधामङ्गोषिणामवशन्त वाणीः  
 २ ३ १ २ ३ १ २ ३ १ २ ३ १ २ ३ १ २ ३ १ २  
 वना बसानो वरुणो न सिन्धुर्विं रक्षा दयते वार्याणि ॥ ५२८ ॥

input	skt	skti
a	अ or implicit	a
aa	आ or ा	ā
i	इ or ि	i
ii	ई or ई	ī
u	उ or उ	u
uu	ऊ or ऊ	ū
.r	ऋ or ृ	r
.r.r	ऋं or ृं	ṝ
.l	ल or ८	l
.l.l	लं or ८ं	l̄
e	ए or े	e
ai	ऐ or ै	ai
o	ओ or ो	o
au	औ or ौ	au
a.m	अं	am
a"m	अ	am̄
a~m	अं	am̄
a.h	अः	ah

input	skt	skti
0	०	0
1	१	1
2	२	2
3	३	3
4	४	4
5	५	5
6	६	6
7	७	7
8	८	8
9	९	9

input	skt	skti
ka	क	ka
kha	ख	kha
ga	ग	ga
gha	घ	gha
"na	ङ	na
ca	च	ca
cha	छ	cha
ja	ज	ja
jha	झ	jha
~na	ञ	ñā
.ta	ट	ta
.tha	ठ	tha
.da	ड	da
.dha	ঢ	dha
.na	ণ	na
ta	ত	ta
tha	ঠ	tha
da	ড	da
dha	ঢ	dha
phā	ঁ	pha
ba	ব	ba
bha	ভ	bha
ma	ম	ma
ya	য	ya
ra	ৰ	ra
la	ল	la
va	ৱ	va
"sa	শ	śa
.sa	ষ	ṣa
sa	স	sa
ha	হ	ha

input	skt	skti
.a	ॐ	'
।	।	।
॥	॥	॥
.o	ওঁ	Om
"h	হঁ	h̄
"da	দঁ	da
"dha	ঢঁ	dha
a@	অঁ	a°
..	অঁ	.
a#	অঁ	ā
a!	অঁ	á
a!!	অঁ	ā
a-	অঁ	a
a"1	অঁ	ā
a"3	অঁ	ā
a.1	অঁ	ā
a.3	অঁ	ā
a^	অঁ	ā
a'	—	á
a'	—	à
a<1>	অঁ	a <sup>1</sup>
a<2>	অঁ	a <sup>2</sup>
a<3>	অঁ	a <sup>3</sup>
a<2r>	অঁ	a <sup>2r</sup>
a<2u>	অঁ	a <sup>2u</sup>
a<3k>	অঁ	a <sup>3k</sup>
a<!!>	অঁ	a <sup>!!</sup>
a<u>	অঁ	a <sup>u</sup>
a<w>	অঁ	a <sup>w</sup>
a<_>	অঁ	a <sup>_</sup>
a<.>>	অঁ	a <sup>.</sup>
a<..>	অঁ	a <sup>..</sup>
a<!>	অঁ	a <sup>!</sup>
a<^>	অঁ	a <sup>^</sup>
a<s>	অঁ	a <sup>s</sup>

## Encoding and Transliteration Scheme. (default options)

## Vedic Accent Marking

Since the significance of the *devanāgarī* accent marking may differ between *Vedas* (e.g. अः is *svarita* in *Rgveda*, but *udātta* in *Kāthaka*), the character used for encoding is, where possible, vaguely similar to the form used in the *devanāgarī*, and this form is largely retained in the transliterated output.

*Rgveda* etc. marking system:  
use option 6 to enable these in  
the basic transliteration mode.

input	skt	skti	sktt
a!	अ̄	ा	error
a!!	अ̄	ा	error
a_	अ̄	ा	see note
a"1	अ̄॑	ा॑	error
a"3	अ̄३	ा३	error
a.1	अ̄॑	ा॑	error
a.3	अ̄३	ा३	error

Note: The underscore character is  
is used differently in technical mode.

Western (and technical) marking.

input	skt	skti	sktt
a^	अ̄	ा	ा
a'	error	ा	ा
a`	error	à	à

*Sāmaveda* and other accents:  
use option 7 to enable these in  
the basic transliteration mode.

input	skt	skti	sktt
a<1>	अ̄१	ा१	error
a<2>	अ̄२	ा२	error
a<3>	अ̄३	ा३	error
a<2r>	अ̄२र	ा२र	error
a<2u>	अ̄२उ	া২ু	error
a<3k>	अ̄३ক	া৩ক	error
a<!!>	अ̄৩৩	া৩৩	error
a<u>	অু	ু	error
a<w>	অুৰ	ুৰ	error
a<_>	অু	ু	error
a<. >	অং	ং	error
a<..>	অংূ	ংূ	error
a<!>	অং।	ং।	error
a<^>	অং^	ং^	error
a<s>	অংস	ংস	error

The pre-processor only allows accents after a vowel, Vedic *anusvāra*, or n; where the vowel is nasalised as well, the nasalisation must be after the accent, i.e. a\_# to produce अ̄ু.

The *devanāgarī* accent marks themselves may be printed in colour (red is the tradition) or grey. This actually makes the text easier to read: the sample text from the *Rgveda* on page 99 has the accents in the first four verses the default black, and in the next four verses they are ‘lightgray’ (using `xcolor`). To set the accent colour redefine the `\ZK` command anywhere in the `.skt` file as `\renewcommand{\ZK}[1]{{\lightgray #1}}` for example.

In transliteration, the accents should stack correctly and track in italics, e.g.: ṝ and ṝ̄ (signifying a long or short *udātta r̄* used for pronunciation only).