

Sanskrit for L^AT_EX 2_ε
Version 2

—

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* (*Ṛgveda*, *Sāmaveda*, *Taittirīya*), etc.
- Accent marking in colour or grey shading.
- Choice of character forms (e.g. अ/अ) and *saṃyoga* (e.g. अ/अ).
- 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 किञ्चित्करोमीति युक्तो मन्येत तत्त्ववित्।
नैव किञ्चित्करोमीति युक्तो मन्येत तत्त्ववित्।

Illustrations of Basic Transliteration

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

```
{\sktx te_ja_svi naa_vadhii!tamastu|} tejāsvi 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|} tejasvī nāvādhītamastu|
```

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} Bhārate 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 sparśa* (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. `rr`). For example, the *Pāṇini sūtra*

चजोः कु घिण्यतोः ॥ 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-oḥ kU GH_{rr}T=NyaT-oḥ

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

Getting Started with Typesetting Documents with Sanskrit for L^AT_EX 2_ε 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^AT_EX 2_ε (with a default `.tex` extension). For example, the command `skt test` will convert `test.skt` to `test.tex`; fuller filenames may be used, e.g. `skt foo.bar` will produce `foo.tex`, and `skt foo.bar far.bo` will produce `far.bo` 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^AT_EX 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 $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\epsilon}$ 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||  
kaalaatmakaparama"svara raam ||2||  
"se.satalpasukhanidrita raam ||3||  
brahmaadyaamarapraarthita raam ||4||  
}
```

शुद्धब्रह्मपरात्परं राम् ॥१॥
कालात्मकपरमेश्वरं राम् ॥२॥
शेषतत्पसुखनिद्रितं राम् ॥३॥
ब्रह्माद्यामरप्रार्थितं राम् ॥४॥

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

चण्डकिरणकुलमण्डनं राम् ॥५॥
श्रीमद्दशरथनन्दनं राम् ॥६॥
कौसल्यासुखवर्धनं राम् ॥७॥
विश्वामित्रप्रियधनं राम् ॥८॥

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

घोरताटकाघातकं राम् ॥९॥
मारीचादिनिपातकं राम् ॥१०॥
कौशिकमखसंरक्षकं राम् ॥११॥
श्रीमदहल्योद्धारकं 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॥
नाविकधावितमृदुपद राम् ॥१५॥
मिथिलापुरजनमोहक राम् ॥१६॥

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

विदेहमानसरञ्जक राम् ॥१७॥
त्र्यंबककार्मुकभञ्जक 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
kalaadharaavata.msaka.m vilaasilokarak.sakam |
anaayakaikanaayaka.m vinaa"sitebhadaityaka.m
nataa"subhaa"sunaa"saka.m namaami ta.m vinaayakam ||1||
}

mudākarāttamodakaṃ sadā vimuktisādhakaṃ
kalādharaṇvataṃsakaṃ vilāsilokarakṣakaṃ |
anāyakaikaanāyakaṃ vināśītebhadaityakaṃ
natāsubhāśunāśakaṃ namāmi taṃ vināyakaṃ ||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||
}

natetarātibhīkaraṃ navoditārkabhāsvaram
namatsurārīnirjaraṃ natādhikāpaduddharam |
sureśvaraṃ nidhīśvaraṃ gajeśvaraṃ gaṇeśvaraṃ
maheśvaraṃ tamāśraye parātparaṃ 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||
}

samastalokaśaṃkaraṃ nirastadaityakuñjaraṃ
daretarodaraṃ varaṃ varebhavaktramakṣaraṃ |
krpākaraṃ kṣamākaraṃ mudākaraṃ yaśaskaraṃ
manaskaraṃ namaskṛtāṃ namaskaromi bhāsvaram ||3||
```

{\sktI
aki.mcanaartimaarjana.m cirantanoktibhaajana.m
puraaripuurbanandana.m suraarigarvacarva.nam |
prapa ncanaa"sabhii.sa.na.m dhana.mjayaadibhuu.sa.nam
kapoladaanavaara.na.m bhaje puraa.navaara.nam ||4||
}

*akiṃcanārtimārjanaṃ cirantanoktibhājanaṃ
purāripūrvanandanaṃ surārigarvacarvaṇam |
prapañcanāśabhīṣaṇaṃ dhanaṃjayādibhūṣaṇam
kapoladānavāraṇaṃ bhaje purāṇavāraṇam ||4||*

Sample Text from Rgveda 10.125.

अ॒हं रु॒द्रेभि॑र्वसु॒भिश्च॑राम्य॒हमा॑दित्यैरु॒त वि॒श्वदे॑वैः ।
अ॒हं मि॒त्रावरु॑णो॒भा बि॑भर्म्य॒हमिन्द्रा॑ग्नी अ॒हम॑श्विनो॒भा ॥ १ ॥
अ॒हं सोम॑मा॒ह॒नसं॑ बिभर्म्य॒हं त्वष्टा॑रमु॒त पू॒षणं॑ भग॑म् ।
अ॒हं द॑धामि॒ द्रवि॑णं ह॒विष्म॑ते सु॒प्राव्ये॒॑ यज॑मानाय सु॒न्वते॑ ॥ २ ॥
अ॒हं रा॒ष्ट्री सं॑गम॑नी वसू॒नां चि॒कि॒तुषी॑ प्रथ॒मा य॒ज्ञीया॑नाम् ।
तां मा॑ दे॒वा व्य॑दधुः पुरु॒त्रा भूरि॑स्थात्रां भूर्या॑वेशय॑न्तीम् ॥ ३ ॥
मया॒ सो अन्न॑म॒त्ति यो वि॒पश्य॑ति यः प्राणि॑ति य ईं शृ॒णोत्यु॑क्तम् ।
अ॒म॒न्तवो॒ मां त उप॑ क्षियन्ति श्रु॒धि श्रु॑त श्रद्धि॒वं ते॑ वदामि ॥ ४ ॥
अ॒हमे॒व स्व॒यमि॒दं व॑दामि जुष्टं दे॒वेभि॑रु॒त मा॒नुषे॑भिः ।
यं का॒मये॑ तंतमु॒ग्रं कृ॑णोमि तं ब्रह्मा॒णां ता॒मृषिं॑ तं सु॒मे॒धाम् ॥ ५ ॥
अ॒हं रु॒द्राय॑ धनु॒रा त॑नोमि ब्रह्म॒द्विषे॑ शर॒वे ह॑न्तवा उ ।
अ॒हं ज॑नाय स॒मदं॑ कृ॒णोम्य॒हं द्वावा॑पृथि॒वी आ वि॑वेश ॥ ६ ॥
अ॒हं सु॒वे पि॒तर॑मस्य मूर्ध॒न्मम॑ योनि॒रप्स्व॑न्तः स॒मुद्रे॑ ।
ततो॑ वि तिष्ठे भुव॒नानु॑ विश्वो॒तामूं॑ द्वां वर्ष्म॑णोप स्पृशामि ॥ ७ ॥
अ॒हमे॒व वा॒त इ॒व प्र॑ वा॒म्यार॑भमाणा भुव॒नानि॑ विश्व ।
प॒रो दि॒वा प॒र ए॒ना पृ॑थिव्यैतावती म॒हिना॑ सं बभूव ॥ ८ ॥

Sample Text from Sāmaveda

Sāmaveda Saṃhitā (Kauthuma), verses 523–528.

१ २३ २ ३ २ ३ १ २ ३ १ २ ३ २ ३ १ २३
प्र तु द्रव परि कोशं नि षीद नृभिः पुनानो अभि वाजमर्ष।
२ ३ १ २ ३ १ २ ३ २ ३ १ २ ३ १ २ ३ १ २
अश्वं न त्वा वाजिनं मर्जयन्तोऽच्छा वर्ही रशनाभिर्नयन्ति ॥ ५२३ ॥
१ २३ १ २ ३ २ ३ २ ३ २ ३ १ २
प्र काव्यमुशनेव ब्रुवाणो देवो देवानां जनिमा विवक्ति।
१ २ ३ १ २ ३ २ ३ १ २ ३ २ ३ २ ३ २ ३ १ २
महिब्रतः शुचिबन्धुः पावकः पदा वराहो अभ्येति रेभन् ॥ ५२४ ॥
३ १ २३ ३ १ २३ ३ १ २ ३ १ २३ ३ १ २३
तिस्रो वाच ईरयति प्र वह्निर्ऋतस्य धीतिं ब्रह्मणो मनीषाम्।
१ २ ३ १ २ ३ २ २ ३ १ २ ३ १ २ ३ 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 २ ३ १ २ ३ १ २ ३ २ ३ १ २ ३ २ १ २
सुतः पवित्रं पर्य्येति रेभन्मितेव सद्म पशुमन्ति होता ॥ ५२६ ॥
१ २ ३ 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 ३ १ २३ ३ १ २ ३ १ २ ३ १ २३
जनिताग्नेर्जनिता सूर्यस्य जनितेन्द्रस्य जनितोत विष्णोः ॥ ५२७ ॥
३ १ २ ३ १ २३ ३ १ २ ३ १ २ ३ १ २
अभि त्रिपृष्ठं वृषणं वयोधामङ्गोषिणमवावशन्त वाणीः
२ ३ १ २ ३ १ २ ३ २३ ३ १ २ ३ १ २ ३ १ २
वना बसानो वरुणो न सिन्धुर्वि रत्नधा दयते वार्याणि ॥ ५२८ ॥

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

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	ṅa
ca	च	ca
cha	छ	cha
ja	ज	ja
jha	झ	jha
~na	ञ	ña
.ta	ट	ṭa
.tha	ठ	ṭha
.da	ड	ḍa
.dha	ढ	ḍha
.na	ण	ṇa
ta	त	ta
tha	थ	tha
da	द	da
dha	ध	dha
na	न	na
pa	प	pa
pha	फ	pha
ba	ब	ba
bha	भ	bha
ma	म	ma
ya	य	ya
ra	र	ra
la	ल	la
va	व	va
"sa	श	śa
.sa	ष	ṣa
sa	स	sa
ha	ह	ha

input	skt	skti
.a	ऽ	'
	।	
	॥	
.o	ॐ	Om̃
"h	॥	ḥ
"da	॥	ḍa
"dha	॥	ḍha
a@	अ°	a°
..	॰	.
a#	अं	ā
a!	अं	á
a!!	अं	ä
a_	अं	a
a"1	अं	a'1
a"3	अं	a'3
a.1	अं	a1
a.3	अं	a3
a^	अं	â
a'	—	á
a'	—	à
a<1>	अं	a ¹
a<2>	अं	a ²
a<3>	अं	a ³
a<2r>	अं	a ^{2r}
a<2u>	अं	a ^{2u}
a<3k>	अं	a ^{3k}
a<!!>	अं	â
a<u>	अं	u
a<w>	अं	w
a<_>	अं	a
a<.>	अं	a
a<..>	अं	a
a<!>	अं	â
a<^>	अं	â
a<s>	अं	a

Encoding and Transliteration Scheme.

(default options)

Vedic Accent Marking

Since the significance of the *devanāgarī* accent marking may differ between *Vedas* (e.g. अ is *svārīta* in *R̥gveda*, 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!	अ̇	<i>ȧ</i>	error
a!!	अ̇̇	<i>ȧ̇</i>	error
a_	अ̇_	<i>ȧ_</i>	see note
a"1	अ̇१	<i>ȧ₁</i>	error
a"3	अ̇३	<i>ȧ₃</i>	error
a.1	अ̇.१	<i>ȧ.₁</i>	error
a.3	अ̇.३	<i>ȧ.₃</i>	error

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

Western (and technical) marking.

input	skt	skti	sktt
a ^ˆ	अ ^३	ā ^u	ä ^u
a'	error	á	á
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>	अ ^१	<i>a</i> ¹	error
a<2>	अ ^२	<i>a</i> ²	error
a<3>	अ ^३	<i>a</i> ³	error
a<2r>	अ ^{२r}	<i>a</i> ^{2r}	error
a<2u>	अ ^{२u}	<i>a</i> ^{2u}	error
a<3k>	अ ^{३k}	<i>a</i> ^{3k}	error
a<!!>	अ ^{!!!}	<i>a</i> ^{!!!}	error
a<u>	अ _u	<i>a</i> _u	error
a<w>	अ _w	<i>a</i> _w	error
a<_>	अ __	<i>a</i> __	error
a<.>	अ _.	<i>a</i> _.	error
a<..>	अ _{..}	<i>a</i> _{..}	error
a<!>	अ _!	<i>a</i> _!	error
a<^>	अ _^	<i>a</i> _^	error
a<s>	अ _s	<i>a</i> _s	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 **अँ**.

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 *R̥gveda* on page ११ 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 transiteration, the accents should stack correctly and track in italics, e.g.:
 $\underline{\underset{\sim}{r}}$ and $\underline{\underset{\sim}{r}}$ (signifying a long or short *udātta* *r* used for pronunciation only).