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Manual for e-Brahmi

© Elmar Kniprath 2017

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Note

This Manual deals with the special requirements for installation and use of the font e-Brahmi T, containing the glyphs of Aśoka's rock and pillar edicts (with Malayāḷam encoding) together with Tamil Brahmi (with Tamiḷ encoding).

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1. About Brāhmī

Brāhmī is the precursor of all autochthonous Indic scripts¹ and of the scripts of South East Asia. There exist some regional variants. The Font e-Brahmi T contains all signs of Aśoka's edicts, Brāhmī number signs and the Tamil Brāhmī signs used in Gift Siromaney.

Typologically Brāhmī is an Abugida like all its descendents.

2. Sources

2.1 Eugen Hultzsch: Corpus Inscriptionum Indicarum, Vol. I. Inscriptions of Asoka, New Edition, Oxford 1925. (The facsimiles given in this book together with their Devanāgarī and Roman transliterations were the main sources for the glyph design of e-Brahmi T.)

2.2 Alexander Cunningham: Corpus Inscriptionum Indicarum, Vol. I. Inscriptions of Asoka, Calcutta 1877

2.3 Gift Siromoney et al.: Vattezhuthil Thirukkural, Madras 1976

2.4 Appendices to 2.3: Script charts (established by different authors)

2.5 Georges Ifrah: Universalgeschichte der Zahlen; Frankfurt/New York 1991. - (German translation of Georges Ifrah: Histoire Universelle des Chiffres, Paris 1981)

➤ *Many thanks to all who provided me with this material!*

3. Encoding

Though there is a recent Unicode encoding for the basic glyphs of this complex script, operating systems like Microsoft's Windows cannot yet treat them adequately. To overcome this problem Brāhmī was encoded as Malayāḷam Unicode, Tamiḷ Brāhmī as Tamiḷ Unicode. This way Tamiḷ Brāhmī can be typed with any Tamiḷ keyboard, Brāhmī with any Malayāḷam keyboard, provided that they are Unicode based. To change the script only the keyboard has to be changed, not the font. See Table 1.

For users with English or German keyboards installation files for Brāhmī layouts are contained in the package. See also layout tables 6 and 7 below.

4. Contents of the Package

This package contains the following files:

- e-Brahmi T.ttf (Open Type font for Prākṛt texts written with Brāhmī script and for Tamiḷ texts written with Tamiḷ Brāhmī script.
- e-Brahmi Manual.pdf (this file).
- KBDBraEN: Installation files for Brāhmī keyboard layout "e-Brahmi EN" (English layout)
- KBDBraDE: Installation files for Brāhmī keyboard layout "e-Brahmi DE" (German layout)
- KBDTamEN: Installation files for Tamiḷ keyboard layout "e-Tamil EN" (English layout)
- KBDTamDE: Installation files for Tamiḷ keyboard layout "e-Tamil DE" (German layout)

¹ except Ol Chiki, which was invented in 1925 for the Munda language Santali

5. Glyph inventory

5.1 Brāhmī Alphabet

This comprises all basic glyphs contained in Aśoka's edicts.

5.1.1 Vowels

ISO	a	ā	i	ī	u	ū	ṛ	ṝ	e	ai	o	au
Brāhmī	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐
		𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛

5.1.2 Consonants

ISO	k	kh	g	gh	ṅ
Brāhmī	𑀜	𑀝	𑀞	𑀟	𑀠

ISO	c	ch	j	jh	ñ
Brāhmī	𑀡	𑀢	𑀣	𑀤	𑀥

ISO	ṭ	ṭh	ḍ	ḍh	ṇ
Brāhmī	𑀦	𑀧	𑀨	𑀩	𑀪

ISO	t	th	d	dh	n
Brāhmī	𑀫	𑀬	𑀭	𑀮	𑀯

ISO	p	ph	b	bh	m
Brāhmī	𑀰	𑀱	𑀲	𑀳	𑀴

ISO	y	r	l	v
Brāhmī	𑀵	𑀶	𑀷	𑀸

ISO	ś	ṣ	s	h
Brāhmī	𑀹	𑀺	𑀻	𑀼

5.1.3 Ligatures

5.1.3.1 Consonant Ligatures

e-Brahmi T contains all consonant ligatures found in Aśoka's edicts plus a few others. They are typed, as in other Indic Open Type fonts, normally in the sequence of uttering as

Consonant 1 + Virāma + Consonant 2 => Ligature

e.g.: 𑀓 𑀭 𑀲 => 𑀓𑀲 st

In some cases this order is not observed but changed according to graphic convenience (partly resulting in homographs):

𑀓 𑀭 𑀲 => 𑀓𑀲 pt

𑀲 𑀭 𑀓 => 𑀲𑀓 tp

𑀓 𑀭 𑀶 => 𑀓𑀶 vy

𑀶 𑀭 𑀓 => 𑀶𑀓 yv

𑀓 𑀭 𑀺 => 𑀓𑀺 st

𑀺 𑀭 𑀓 => 𑀺𑀓 ts

𑀓 𑀭 𑀻 => 𑀓𑀻 kr

𑀲 𑀭 𑀻 => 𑀲𑀻 tr

𑀓 𑀭 𑀼 => 𑀓𑀼 pr

𑀺 𑀭 𑀼 => 𑀺𑀼 br

𑀶 𑀭 𑀓 => 𑀶𑀓 mh

𑀓 𑀭 𑀶 => 𑀓𑀶 hm

𑀶 𑀭 𑀻 => 𑀶𑀻 vr

𑀻 𑀭 𑀶 => 𑀻𑀶 rv

𑀓 𑀭 𑀻 => 𑀓𑀻 sr

𑀻 𑀭 𑀓 => 𑀻𑀓 rs

e.g. Second Rock Edict Girnar, line 4: 𑀓𑀶𑀲 = sarvatra

line 8: 𑀶𑀺 = vrachā

5.1.3.2 Vowel Ligatures

Ligatures of vowels with simple consonants are given in the table "Brāhmī Vowel ligatures" at the end of this manual.

The font also comprizes the full range of vocalized consonant ligatures (though not for all of them there is epigraphical evidence).

e.g. ್ ് ് ് => ് ptā

൬ ് ് ് => ് pto

5.1.4 Number signs

Brāhmī Unicode has the number signs 1...10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 1000. In e-Brahmi T out of these 1...10, 100 and 1000 are encoded under their Malayāḷam Unicode equivalents, the tens from 20 to 90 occupy U+0D78 to U+0D7F. The rest plus the hundreds and thousands can be found in the PUA. See table 4 and the keyboard layout tables 6 and 7 at the end of this manual!

A typological comparison with the old Tamil, Malayāḷam and Sinhala signs is given in Table 5.

5.2 Tamil Brāhmī Alphabet

The Tamil Brāhmī Alphabet comprises all signs needed to write pure Tamil texts. It does not contain equivalents of the "Grantha" letters ஜ ஸ ஷ க்ஷ ஹ which are used to render Sanskrit words in modern Tamil.

5.2.1 Vowels

ISO	a	ā	i	ī	u	ū	e	ē	ai	o	ō	au
Tamil Brāhmī	𑌵	𑌶	𑌷	𑌸	𑌹	𑌺	𑌻	𑌼	𑌽	𑌾	𑌿	𑍀
	-	◌̄	◌̆	◌̇	◌̈	◌̉	◌̊	◌̋	◌̌	◌̍	◌̎	◌̏
Tamil	அ	ஆ	இ	ஈ	உ	ஊ	எ	ஏ	ஐ	ஒ	ஓ	ஔ

5.2.2 Consonants

k	ñ	c	ñ	ṭ	ṇ	t	n	p	m	y	r	l	v	ḷ	ḷ	r	n
𑌵	𑌶	𑌷	𑌸	𑌹	𑌺	𑌻	𑌼	𑌽	𑌾	𑌿	𑍀	𑍁	𑍂	𑍃	𑍄	𑍅	𑍆
க	ங	ச	ஞ	ட	ண	த	ந	ப	ம	ய	ர	ல	வ	ள	ழ	ற	ன

5.2.3 Pulli

In Tamil Brahmi there was no Virāma. To enable transliteration to modern Tamil script the Tamil Brahmi part of e-Brahmi T contains an invisible Virāma, encoded as U+0BCD "TAMIL SIGN VIRAMA". This may be typed or omitted ad libitum. The visible result on the screen is the same. Only when changing the font to modern Tamil the difference will be seen:

Tamil Brahmi:	𑌵 + invis. Virāma + 𑌵 => 𑌵𑌵	𑌵 + 𑌵 => 𑌵𑌵
Modern Tamil:	த + Pulli + த => த்த	த + த => தத

5.2.4 Vowel ligatures

The table "Tamil Brāhmī Vowel ligatures" at the end of this manual shows the consonant-vowel ligatures formed automatically when a text is being typed.

6. Installation of the font

➤ **Make sure that "complex scripts" are enabled in Windows!**

1. Install the font under Windows.
2. For typing Brāhmī texts a Malayālam keyboard must be installed on your computer, for Tamil Brāhmī a Tamil keyboard is needed. Both must be Unicode based!

7. Installation of Keyboards

The installation files are contained in the respective keyboard package (e.g. KBDBraEN, KBDBraDE). Open it and click on setup.exe to install the keyboard automatically.

8. Improvements

This Brāhmī font is based on the sources enumerated above (see 2.). All critical remarks and suggestions will be welcome. For proposed additional glyphs epigraphical evidence should be shown.

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Table 1: Concordance of Unicode encoding for Brāhmī script (font "e-Brahmi T") vs. Malayālam script keys (font "Kartika")

Unicode	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039
Kartika	1	2	3	4	5	6	7	8	9	0
Brāhmī	1	2	3	4	5	6	7	8	9	0

Unicode	0D00	0D01	0D02	0D03	0D04	0D05	0D06	0D07	0D08	0D09	0D0A
Mal. key	□	˘	◌ം	ഃ	□	അ	ആ	ഇ	ഈ	ഉ	ഊ
Brāhmī	□	˘	◌ം	ഃ	□	𑌀	𑌁	𑌂	𑌃	𑌄	𑌅

Unicode	0D0B	0D0C	0D0D	0D0E	0D0F	0D10	0D11	0D12	0D13	0D14	0D15
Mal. key	ഋ	ൠ	□	എ	ഐ	ഐ	□	ഒ	ഓ	ഔ	ക
Brāhmī	𑌆	𑌇	□	𑌈	𑌉	𑌊	□	𑌋	𑌌	𑌍	𑌎

Unicode	0D16	0D17	0D18	0D19	0D1A	0D1B	0D1C	0D1D	0D1E	0D1F	0D20
Mal. key	ഖ	ഗ	ഘ	ങ	ച	ഛ	ജ	ട	ണ	ട	ഠ
Brāhmī	𑌏	𑌐	𑌑	𑌒	𑌓	𑌔	𑌕	𑌖	𑌗	𑌘	𑌙

Unicode	0D21	0D22	0D23	0D24	0D25	0D26	0D27	0D28	0D29	0D2A	0D2B
Mal. key	ഡ	ഡ	ണ	ത	ഥ	ദ	ധ	ന	ണ	പ	ഫ
Brāhmī	𑌚	𑌛	𑌜	𑌝	𑌞	𑌟	𑌠	𑌡	𑌢	𑌣	𑌤

Unicode	0D2C	0D2D	0D2E	0D2F	0D30	0D31	0D32	0D33	0D34	0D35	0D36
Mal. key	ബ	ഭ	മ	യ	ര	റ	ല	ള	ഴ	വ	ശ
Brāhmī	□	𑌦	𑌧	𑌨	𑌩	𑌪	𑌫	𑌬	𑌭	𑌮	𑌯

Unicode	0D37	0D38	0D39	0D3A	0D3B	0D3C	0D3D	0D3E	0D3F	0D40	0D41
Mal. key	ഷ	സ	ഹ	ഠ	□	□	ഠ	ഠ	ഠ	ഠ	ഠ
Brāhmī	𑌰	𑌱	𑌲	□	□	□	□	𑌳	𑌴	𑌵	𑌶

Unicode	0D42	0D43	0D44	0D45	0D46	0D47	0D48	0D49	0D4A	0D4B	0D4C
Mal. key	ഠ	ഠ	ഠ	□	ഠ	ഠ	ഠ	□	ഠ	ഠ	ഠ
Brāhmī	𑌷	𑌸	𑌹	□	𑌺	𑌻	𑌼	□	𑌽	𑌾	𑌿

Unicode	0D4D	0D4E	0D4F	0D50	0D51	0D52	0D53	0D54	0D55	0D56	0D57
Mal. key	ഓ	□	□	□	□	□	□	□	□	□	ഔ
Brāhmī	𑄎	□	□	□	□	□	□	□	□	□	𑄏

Unicode	0D58	0D59	0D5A	0D5B	0D5C	0D5D	0D5E	0D5F	0D60	0D61	0D62
Mal. key	□	□	□	□	□	□	□	ഌ	഍	ആ	ഇ
Brāhmī	□	□	□	□	□	□	□	𑄘	𑄙	𑄚	𑄛

Unicode	0D63	0D64	0D65	0D66	0D67	0D68	0D69	0D6A	0D6B	0D6C	0D6D
Mal. key	ഈ	□	□	ഊ	ഋ	ൠ	ൡ	ൢ	ൣ	൤	൥
Brāhmī	𑄜			□	—	=	≡	𑄟	𑄠	𑄡	𑄢
(value)					1	2	3	4	5	6	7

Unicode	0D6E	0D6F	0D70	0D71	0D72	0D73	0D74	0D75	0D76	0D77	0D78
Mal. key	ഏ	ഐ	ഓ	ഔ	ഏ	ഏ	ഏ	ഏ	□	□	□
Brāhmī	𑄝	𑄞	𑄟	𑄠	𑄡	𑄢	𑄣	𑄤	𑄥	𑄦	𑄧
(value)	8	9	10	100	1000						20

Unicode	0D79	0D7A	0D7B	0D7C	0D7D	0D7E	0D7F		0FD5	0FD6
Mal. key	ഏ	ഏ	ഏ	ഏ	ഏ	ഏ	ഏ			
Brāhmī	𑄩	𑄪	𑄫	𑄬	𑄭	𑄮	𑄯		𑄰	𑄱
(value)	30	40	50	60	70	80	90		(Tibetan encoding)	

Table 2: **Brāhmī Vowel ligatures**

	a	ā	i	ī	u	ū	ṛ	e	ai	o	au
k	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝
kh	𑀞	𑀟	𑀠	𑀡	𑀢	𑀣	𑀤	𑀥	𑀦	𑀧	𑀨
g	𑀩	𑀪	𑀫	𑀬	𑀭	𑀮	𑀯	𑀰	𑀱	𑀲	𑀳
gh	𑀴	𑀵	𑀶	𑀷	𑀸	𑀹	𑀺	𑀻	𑀼	𑀽	𑀾
ṇ	𑀿	𑁀	𑁁	𑁂	𑁃	𑁄	𑁅	𑁆	𑁇	𑁈	𑁉
c	𑁊	𑁋	𑁌	𑁍	𑁎	𑁏	𑁐	𑁑	𑁒	𑁓	𑁔
ch	𑁕	𑁖	𑁗	𑁘	𑁙	𑁚	𑁛	𑁜	𑁝	𑁞	𑁟
j	𑁠	𑁡	𑁢	𑁣	𑁤	𑁥	𑁦	𑁧	𑁨	𑁩	𑁪
jh	𑁫	𑁬	𑁭	𑁮	𑁯	𑁰	𑁱	𑁲	𑁳	𑁴	𑁵
ñ	𑁶	𑁷	𑁸	𑁹	𑁺	𑁻	𑁼	𑁽	𑁾	𑁿	𑂀
ṭ	𑂁	𑂂	𑂃	𑂄	𑂅	𑂆	𑂇	𑂈	𑂉	𑂊	𑂋
ṭh	𑂌	𑂍	𑂎	𑂏	𑂐	𑂑	𑂒	𑂓	𑂔	𑂕	𑂖
ḍ	𑂗	𑂘	𑂙	𑂚	𑂛	𑂜	𑂝	𑂞	𑂟	𑂠	𑂡
ḍh	𑂢	𑂣	𑂤	𑂥	𑂦	𑂧	𑂨	𑂩	𑂪	𑂫	𑂬
ṇ	𑂭	𑂮	𑂯	𑂰	𑂱	𑂲	𑂳	𑂴	𑂵	𑂶	𑂷
t	𑂸	𑂹	𑂺	𑂻	𑂼	𑂽	𑂾	𑂿	𑃀	𑃁	𑃂
th	𑃃	𑃄	𑃅	𑃆	𑃇	𑃈	𑃉	𑃊	𑃋	𑃌	𑃍
d	𑃎	𑃏	𑃐	𑃑	𑃒	𑃓	𑃔	𑃕	𑃖	𑃗	𑃘
dh	𑃙	𑃚	𑃛	𑃜	𑃝	𑃞	𑃟	𑃠	𑃡	𑃢	𑃣
n	𑃤	𑃥	𑃦	𑃧	𑃨	𑃩	𑃪	𑃫	𑃬	𑃭	𑃮
p	𑃯	𑃰	𑃱	𑃲	𑃳	𑃴	𑃵	𑃶	𑃷	𑃸	𑃹

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ph	ᵑ	ᵑ̄	ᵑ̇	ᵑ̈	ᵑ̊	ᵑ̋	ᵑ̌	ᵑ̍	ᵑ̎	ᵑ̏	ᵑ̐
b	ᵑ̑	ᵑ̒	ᵑ̓	ᵑ̔	ᵑ̕	ᵑ̖	ᵑ̗	ᵑ̘	ᵑ̙	ᵑ̚	ᵑ̛
bh	ᵑ̜	ᵑ̝	ᵑ̞	ᵑ̟	ᵑ̠	ᵑ̡	ᵑ̢	ᵑ̣	ᵑ̤	ᵑ̥	ᵑ̦
m	ᵑ̧	ᵑ̨	ᵑ̩	ᵑ̪	ᵑ̫	ᵑ̬	ᵑ̭	ᵑ̮	ᵑ̯	ᵑ̰	ᵑ̱
y	ᵑ̲	ᵑ̳	ᵑ̴	ᵑ̵	ᵑ̶	ᵑ̷	ᵑ̸	ᵑ̹	ᵑ̺	ᵑ̻	ᵑ̼
r	ᵑ̽	ᵑ̾	ᵑ̿	ᵑ̺̣	ᵑ̻̣			ᵑ̼̣	ᵑ̣̽	ᵑ̣̾	ᵑ̣̿
l	ᵑ̻̤	ᵑ̼̤	ᵑ̤̽	ᵑ̤̾	ᵑ̤̿	ᵑ̺̥	ᵑ̻̥	ᵑ̼̥	ᵑ̥̽	ᵑ̥̾	ᵑ̥̿
v	ᵑ̻̦	ᵑ̼̦	ᵑ̦̽	ᵑ̦̾	ᵑ̦̿	ᵑ̧̺	ᵑ̧̻	ᵑ̧̼	ᵑ̧̽	ᵑ̧̾	ᵑ̧̿
ś	ᵑ̨̻	ᵑ̨̼	ᵑ̨̽	ᵑ̨̾	ᵑ̨̿	ᵑ̺̩	ᵑ̻̩	ᵑ̼̩	ᵑ̩̽	ᵑ̩̾	ᵑ̩̿
ṣ	ᵑ̻̪	ᵑ̼̪	ᵑ̪̽	ᵑ̪̾	ᵑ̪̿	ᵑ̺̫	ᵑ̻̫	ᵑ̼̫	ᵑ̫̽	ᵑ̫̾	ᵑ̫̿
s	ᵑ̻̬	ᵑ̼̬	ᵑ̬̽	ᵑ̬̾	ᵑ̬̿	ᵑ̺̭	ᵑ̻̭	ᵑ̼̭	ᵑ̭̽	ᵑ̭̾	ᵑ̭̿
h	ᵑ̻̮	ᵑ̼̮	ᵑ̮̽	ᵑ̮̾	ᵑ̮̿	ᵑ̺̯	ᵑ̻̯	ᵑ̼̯	ᵑ̯̽	ᵑ̯̾	ᵑ̯̿

Table 3: **Tamīl Brāhmī Vowel ligatures**

	a	ā	i	ī	u	ū	e	ē	ai	o	ō
k	𑌕	𑌖	𑌗	𑌘	𑌙	𑌚	𑌛	𑌜	𑌝	𑌞	𑌟
ṇ	𑌠	𑌡	𑌢	𑌣	𑌤	𑌥	𑌦	𑌧	𑌨	𑌩	𑌪
c	𑌫	𑌬	𑌭	𑌮	𑌯	𑌰	𑌱	𑌲	𑌳	𑌴	𑌵
ñ	𑌶	𑌷	𑌸	𑌹	𑌺	𑌻	𑌼	𑌽	𑌾	𑌿	𑍀
ṭ	𑍁	𑍂	𑍃	𑍄	𑍅	𑍆	𑍇	𑍈	𑍉	𑍊	𑍋
ṇ	𑍌	𑍍	𑍎	𑍏	𑍐	𑍑	𑍒	𑍓	𑍔	𑍕	𑍖
t	𑍗	𑍘	𑍙	𑍚	𑍛	𑍜	𑍝	𑍞	𑍟	𑍠	𑍡
n	𑍢	𑍣	𑍤	𑍥	𑍦	𑍧	𑍨	𑍩	𑍪	𑍫	𑍬
p	𑍭	𑍮	𑍯	𑍰	𑍱	𑍲	𑍳	𑍴	𑍵	𑍶	𑍷
m	𑍸	𑍹	𑍺	𑍻	𑍼	𑍽	𑍾	𑍿	𑎀	𑎁	𑎂
y	𑎃	𑎄	𑎅	𑎆	𑎇	𑎈	𑎉	𑎊	𑎋	𑎌	𑎍
r	𑎎	𑎏	𑎐	𑎑	𑎒	𑎓	𑎔	𑎕	𑎖	𑎗	𑎘
l	𑎙	𑎚	𑎛	𑎜	𑎝	𑎞	𑎟	𑎠	𑎡	𑎢	𑎣
v	𑎤	𑎥	𑎦	𑎧	𑎨	𑎩	𑎪	𑎫	𑎬	𑎭	𑎮
ḷ	𑎯	𑎰	𑎱	𑎲	𑎳	𑎴	𑎵	𑎶	𑎷	𑎸	𑎹
ḷ	𑎺	𑎻	𑎼	𑎽	𑎾	𑎿	𑏀	𑏁	𑏂	𑏃	𑏄
ṛ	𑏅	𑏆	𑏇	𑏈	𑏉	𑏊	𑏋	𑏌	𑏍	𑏎	𑏏
ṇ	𑏐	𑏑	𑏒	𑏓	𑏔	𑏕	𑏖	𑏗	𑏘	𑏙	𑏚

Table 4: **Brāhmī number signs**

	0	1	2	3	4	5	6	7	8	9	10
0+		—	=	≡	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙
10+	𑀚	𑀚—	𑀚=	𑀚≡	𑀚𑀓	𑀚𑀔	𑀚𑀕	𑀚𑀖	𑀚𑀗	𑀚𑀘	𑀚𑀙
20+	𑀛	𑀛—	𑀛=	𑀛≡	𑀛𑀓	𑀛𑀔	𑀛𑀕	𑀛𑀖	𑀛𑀗	𑀛𑀘	𑀛𑀙
30+	𑀜	𑀜—	𑀜=	𑀜≡	𑀜𑀓	𑀜𑀔	𑀜𑀕	𑀜𑀖	𑀜𑀗	𑀜𑀘	𑀜𑀙
40+	𑀝	𑀝—	𑀝=	𑀝≡	𑀝𑀓	𑀝𑀔	𑀝𑀕	𑀝𑀖	𑀝𑀗	𑀝𑀘	𑀝𑀙
50+	𑀞	𑀞—	𑀞=	𑀞≡	𑀞𑀓	𑀞𑀔	𑀞𑀕	𑀞𑀖	𑀞𑀗	𑀞𑀘	𑀞𑀙
60+	𑀟	𑀟—	𑀟=	𑀟≡	𑀟𑀓	𑀟𑀔	𑀟𑀕	𑀟𑀖	𑀟𑀗	𑀟𑀘	𑀟𑀙
70+	𑀠	𑀠—	𑀠=	𑀠≡	𑀠𑀓	𑀠𑀔	𑀠𑀕	𑀠𑀖	𑀠𑀗	𑀠𑀘	𑀠𑀙
80+	𑀡	𑀡—	𑀡=	𑀡≡	𑀡𑀓	𑀡𑀔	𑀡𑀕	𑀡𑀖	𑀡𑀗	𑀡𑀘	𑀡𑀙
90+	𑀢	𑀢—	𑀢=	𑀢≡	𑀢𑀓	𑀢𑀔	𑀢𑀕	𑀢𑀖	𑀢𑀗	𑀢𑀘	𑀢𑀙
100+	𑀣	𑀣—	𑀣=	𑀣≡	𑀣𑀓	𑀣𑀔	𑀣𑀕	𑀣𑀖	𑀣𑀗	𑀣𑀘	𑀣𑀙
110+	𑀤𑀚	𑀤𑀚—	𑀤𑀚=	𑀤𑀚≡	𑀤𑀚𑀓	𑀤𑀚𑀔	𑀤𑀚𑀕	𑀤𑀚𑀖	𑀤𑀚𑀗	𑀤𑀚𑀘	𑀤𑀚𑀙
120+	𑀤𑀛	𑀤𑀛—	𑀤𑀛=	𑀤𑀛≡	𑀤𑀛𑀓	𑀤𑀛𑀔	𑀤𑀛𑀕	𑀤𑀛𑀖	𑀤𑀛𑀗	𑀤𑀛𑀘	𑀤𑀛𑀙
200+	𑀥	𑀥—	𑀥=	𑀥≡	𑀥𑀓	𑀥𑀔	𑀥𑀕	𑀥𑀖	𑀥𑀗	𑀥𑀘	𑀥𑀙
300+	𑀦	𑀦—	𑀦=	𑀦≡	𑀦𑀓	𑀦𑀔	𑀦𑀕	𑀦𑀖	𑀦𑀗	𑀦𑀘	𑀦𑀙
400+	𑀧	𑀧—	𑀧=	𑀧≡	𑀧𑀓	𑀧𑀔	𑀧𑀕	𑀧𑀖	𑀧𑀗	𑀧𑀘	𑀧𑀙
500+	𑀨	𑀨—	𑀨=	𑀨≡	𑀨𑀓	𑀨𑀔	𑀨𑀕	𑀨𑀖	𑀨𑀗	𑀨𑀘	𑀨𑀙
600+	𑀩	𑀩—	𑀩=	𑀩≡	𑀩𑀓	𑀩𑀔	𑀩𑀕	𑀩𑀖	𑀩𑀗	𑀩𑀘	𑀩𑀙
700+	𑀪	𑀪—	𑀪=	𑀪≡	𑀪𑀓	𑀪𑀔	𑀪𑀕	𑀪𑀖	𑀪𑀗	𑀪𑀘	𑀪𑀙
800+	𑀫	𑀫—	𑀫=	𑀫≡	𑀫𑀓	𑀫𑀔	𑀫𑀕	𑀫𑀖	𑀫𑀗	𑀫𑀘	𑀫𑀙
900+	𑀬	𑀬—	𑀬=	𑀬≡	𑀬𑀓	𑀬𑀔	𑀬𑀕	𑀬𑀖	𑀬𑀗	𑀬𑀘	𑀬𑀙
1.000+	𑀭	𑀭—	𑀭=	𑀭≡	𑀭𑀓	𑀭𑀔	𑀭𑀕	𑀭𑀖	𑀭𑀗	𑀭𑀘	𑀭𑀙

𑀭	𑀮	𑀯	𑀰	𑀱	𑀲	𑀳	𑀴	𑀵	𑀶	𑀷
1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000	9.000	10.000	20.000

𑀰𑀱𑀲𑀳 𑀰𑀱𑀲𑀳𑀴𑀵 𑀰𑀱𑀲𑀳—
 4.978 4.444 1.111

Table 5: Brāhmī number signs: Typological comparison with the old Tamil, Malayālam and Sinhala signs.

	1	2	3	4	5	6	7	8	9
Br.	—	=	≡	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘
Ta.	க	உ	ந	ச	ரு	கூ	எ	அ	கூ
Ma.	൧	൨	൩	൪	൫	൬	൭	൮	൯
Si.	𑀧	𑀨	𑀩	𑀪	𑀫	𑀬	𑀭	𑀮	𑀯
	11	12	13	14	15	16	17	18	19
Br.	𑀠—	𑀠=	𑀠≡	𑀠𑀓	𑀠𑀔	𑀠𑀕	𑀠𑀖	𑀠𑀗	𑀠𑀘
Ta.	யக	யஉ	யந	யச	யரு	யகூ	யஎ	யஅ	யகூ
Ma.	൧൧	൧൨	൧൩	൧൪	൧൫	൧൬	൧൭	൧൮	൧൯
Si.	𑀧𑀧	𑀧𑀨	𑀧𑀩	𑀧𑀪	𑀧𑀫	𑀧𑀬	𑀧𑀭	𑀧𑀮	𑀧𑀯
	10	20	30	40	50	60	70	80	90
Br.	𑀡	𑀢	𑀣	𑀤	𑀥	𑀦	𑀧	𑀨	𑀩
Ta.	ய	உய	நய	சய	ருய	கூய	எய	அய	கூய
Ma.	൧൦	൨൦	൩൦	൪൦	൫൦	൬൦	൭൦	൮൦	൯൦
Si.	𑀧𑀰	𑀧𑀱	𑀧𑀲	𑀧𑀳	𑀧𑀴	𑀧𑀵	𑀧𑀶	𑀧𑀷	𑀧𑀸
	100	200	300	400	500	600	700	800	900
Br.	𑀪	𑀫	𑀬	𑀭	𑀮	𑀯	𑀰	𑀱	𑀲
Ta.	ந	உந	நந	சந	ருந	கூந	எந	அந	கூந
Ma.	൧൦൦	൨൦൦	൩൦൦	൪൦൦	൫൦൦	൬൦൦	൭൦൦	൮൦൦	൯൦൦
Si.	𑀧𑀹	𑀧𑀺	𑀧𑀻	𑀧𑀼	𑀧𑀽	𑀧𑀾	𑀧𑀿	𑀧𑀿	𑀧𑀿
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
Br.	𑀳	𑀴	𑀵	𑀶	𑀷	𑀸	𑀹	𑀺	𑀻
Ta.	கூ	உகூ	நகூ	சகூ	ருகூ	கூகூ	எகூ	அகூ	கூகூ
Ma.	൧൦൦൦	൨൦൦൦	൩൦൦൦	൪൦൦൦	൫൦൦൦	൬൦൦൦	൭൦൦൦	൮൦൦൦	൯൦൦൦
Si.	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿	𑀧𑀿
	10,000	20,000							
Br.	𑀼	𑀽							

additive = unligated: 𑀓𑀓 104

multiplicative = ligated: 𑀓𑀓 400

Table 6: e-Brahmi EN

Keyboard layout for Brahmi script with Malayalam encoding
Layout for English keyboards (USA, International)

Key	'	1	2	3	4	5	6	7	8	9	0	-	=
Sign	˘	1	2	3	4	5	6	7	8	9	0	-	=
Shift	˘	!	@	#	\$	%	^	&	*	()	_	+
AltGr	˘	-	=	≡	¥	₮	€	₯	₧	₨	α		
ShAGr		˘		²	³	⁴				{	[]	}
ShCtrl		ZWJ	ZWNJ										

Key	q	w	e	r	t	y	u	i	o	p	[]
Sign	ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	ᱡ	ᱢ	ᱣ	ᱤ	"
Shift	ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	ᱡ	ᱢ	ᱣ	ᱤ	\
AltGr			ᱜ				ᱠ	ᱡ	ᱢ		ᱤ	°
ShAltGr			ᱜ	₹			ᱠ	ᱡ	ᱢ		ᱤ	˘

Key	a	s	d	f	g	h	j	k	l	;	'	
Sign	ᱠ	ᱡ	ᱢ	ᱣ	ᱤ	ᱥ	ᱦ	ᱧ	ᱨ	ᱩ	ᱪ	ᱫ
Shift	ᱠ	ᱡ	ᱢ	ᱣ	ᱤ	ᱥ	ᱦ	ᱧ	ᱨ	ᱩ	ᱪ	'
AltGr	ᱠ	ᱡ	ᱢ	ᱣ	ᱤ	ᱥ	ᱦ	ᱧ	ᱨ	ᱩ	ᱪ	
ShAltGr	ᱠ		ᱢ	ᱣ	ᱤ	ᱥ	ᱦ	ᱧ	ᱨ	ᱩ	ᱪ	ᱫ

Key		z	x	c	v	b	n	m	,	.	/
Sign	<	ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	,	.	/
Shift	>	ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	,	.	/
AltGr		ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	ᱡ	ᱢ	
ShAltGr		ᱚ	ᱛ	ᱜ	ᱝ	ᱞ	ᱟ	ᱠ	ᱡ	ᱢ	ᱣ

¹ Virama² Punctuation dot³ Punctuation double dot⁴ Punctuation line⁵ Punctuation crescent bar⁶ Punctuation lotus

Table 7: e-Brahmi DE

Keyboard layout for Brahmi script with Malayalam encoding

Layout for German keyboards

Key	^	1	2	3	4	5	6	7	8	9	0	β	'
Sign	^	1	2	3	4	5	6	7	8	9	0	Λ	˘
Shift	°	!	"	§	\$	%	&	/	()	=	?	˘
AltGr	\	-	=	≡	¥	₮	€	?	˘	?	α		˘
ShAGr		#		²	³	⁴			{	[]	}	
ShCtrl		ZWJ	ZWNJ										

Key	q	w	e	r	t	z	u	i	o	p	ü	+
Sign	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	+
Shift	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	*
AltGr	@		◡				◡	◡	◡		˘	
ShAltGr			◡	₹			◡	˘	◡		◡	

Key	a	s	d	f	g	h	j	k	l	ö	ä	#
Sign	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡
Shift	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	◡	'
AltGr	◡		◡	◡	◡	◡	◡	◡	◡	◡	◡	
ShAltGr	◡		◡	◡	◡	◡	◡	◡	◡	◡	◡	

Key	<	y	x	c	v	b	n	m	,	.	-	
Sign	<	◡	◡	◡	◡	◡	◡	◡	,	.	-	
Shift	>	◡	◡	◡	◡	◡	◡	◡	;	:	—	
AltGr		◡	◡	◡	◡	◡	◡	◡	◡	◡		
ShAltGr		˘²	˘³	—⁴	◡⁵	◡⁶				◡		

¹ Virama² Punctuation dot³ Punctuation double dot⁴ Punctuation line⁵ Punctuation crescent bar⁶ Punctuation lotus