

Commens on PRI 66: Malayalam cillaksarams

Eric Muller, Adobe Systems Inc.
Last updated: May 11, 2005

1. [Introduction](#)
 2. [Sources](#)
 3. [Signs for pure consonants \(cillaksaram\)](#)
 4. [Chandrakkala used to write “half-u”](#)
 5. [Chandrakkala used to write pure consonants](#)
 6. [Ambiguities and contrasts](#)
 7. [ISCI](#)
 8. [TUS 4.0](#)
- [Document History](#)

1. Introduction

The subject of Malayalam cillaksarams was discussed on the indic@unicode.org mailing list. This document recapitulates some of the evidence pertinent to this issue.

The following individuals have participated in the discussion on the indic@unicode.org list: Omi Azad, Vinod Balakrishnan, Stefan Baums, Peri Bhaskararao, Varghese Chacko, Gihan Dias, Ketaki Kushari Dyson, Micheal Everson, Soleiman Karim, Nishad Kaypally, Jonathan Kew, Antoine Leca, Rick McGowan, Mike Meir, Eric Muller, Paul Nelson, Mahesh T. Pai, Hariram Pansari, Dr. U. B. Pavanaja, Rajkumar S., Deepayan Sarkar, Rajeev J. Sebastian, Gautam Sengupta, Sukhjinder Sidhu, Steve Smith, Kevin Sooryan, Sinnathurai Srivas, K. G. Sulochana, Owen Taylor, Anirban Udr, Uma Umamaheswaran, Ken Whistler.

2. Sources

[Kerala IT Mission] Malayam Keyboard Layout and Character Encoding, Kerala IT Mission, available at http://www.keralaitmission.org/malayalam/malayalam_keybo.htm and at <http://www.malayalamresourcecentre.org/Mrc/report.pdf>

[TDIL] Malayalam, TDIL newsletter, April 2002, available at <http://tdil.mit.gov.in/news.htm>.

[Keralapanineeyam] Kerala Panineeyam, available at <http://www.malayalamresourcecentre.org/Mrc/literature/keralapaanineeyam/panineeyam.html>.

[Frohnmeier] A progressive grammar of the Malayalam language, L. Johannes Frohnmeier, second edition, Basel Mission, 1913. Reprinted by Asian Educational Services, 1979. Scans of some of the pages are available at http://www.unicode.org/~emuller/iwg/sources/pl4713.f7_1979/index.html.

[Mohanani] Malayalam Writing, K. P. Mohanani, in *The World's Writing Systems*, edited by Peter T. Daniels and William Bright, Oxford University Press, 1996.

[Pai] Chilling Effects of the Chillu, Mahesh Pai, available at http://paivakil.port5.com/writings/chill_effect.shtml.

[Rajkumar] Unicode Malayalam rendering page, Rajkumar, available at <http://linuxense.linuxense.com/oss/render/index.html>.

3. Signs for pure consonants (cillaksaram)

§1. Malayalam uses some signs to write pure consonants. Those signs are called *cillaksaram*. For example, **ശ്ശ** is the sign for the pure consonant corresponding to **ല**. For this document, **ല** is called the underlying consonant of **ശ്ശ**.

§2. Various sources show different sets, as well as different/multiple underlying consonants. Here is a cumulative summary:

full consonant	na	nna	la	ra	rra	lla	zha	ka
	ന	ണ	ല	ര	റ	ള	ഴ	ക
cillaksaram	ൻ	ൺ	ൽ	ർ		ൾ	ക്ക	
Kerala Panineeyam	x	x	x	x	x	x	x	x
Frohnmeier	x	x	x	x		x		
Mohanan	x	x	x	x		x		
ISCII 91	x	x	x	x		x		
Unicode 4.0	x	x	x		x	x		

The Panineeyam indicates that some cillaksarams have two possible underlying consonants.

While the anusvara ള and the visarga ഃ represent pure consonants (corresponding to 𑌕 and 𑌕ᳵ), they are not usually considered cillaksarams.

Both Frohnmeier and Mohanan use an alternate form for the lla cillaksaram, which is also given in Keralapanineeyam. This seems to be an historic glyphic variant.

§3. There is reportedly a cillaksaram for 𑌕, but we have not been able to find a reliable source for it, nor any image.

§4. In modern Malayalam, only the first five cillaksaram are considered common.

4. Chandrakkala used to write “half-u”

§5. Malayalam has a “half-u” sound, often at the end of words. The exact pronunciation of this sound varies according to region, but it is approximately [ə].

§6. According to Frohnmeier, there are two traditions to write this sound. The northern tradition is to use the sign ു, known as the chandrakkala, and this sign functions just like a vowel sign. The southern tradition is to use both the vowel sign U and the chandrakkala. This vowel sign U is called *samvrittakaram*. Since Frohnmeier (early 20th century), this southern tradition is less commonly used, even in the south.

§7. Mohanan in fact lists the half-u vowel along with the other vowels (see Table 38.1, p421), indicates that there is no independent symbol for it, and gives the chandrakkala as the diacritic sign.

5. Chandrakkala used to write pure consonants

§8. Malayalam also uses the chandrakkala to mark a consonant stripped of its inherent vowel (i.e. as a visible virama), whenever the representation of a consonant cluster does not have a ligated or conjunct form. (As usual in the Indic scripts, the set of conjunct forms is font/style dependent).

The script reform, which tends to deprecate the use of a large number of consonant conjunct signs, encourages the increased use of the chandrakkala to write pure consonant sounds in conjuncts.

However, there are pre-reform occurrences of the chandrakkala used to write pure consonants, because some consonant clusters did not have a conjunct form.

§9. There is no known difference or contrast between a pure consonant written using a cillaksaram and a pure consonant written using the “full” consonant and a chandrakkala. As a consequence of the script

reform, this possibility is more frequent, and the choice is uniformly to use a cillaksaram if one exists.

6. Ambiguities and contrasts

§10. A chandrakkala sign is strictly speaking ambiguous, as it can mark a pure consonant or a half u sound. However, this ambiguity is practically not a problem:

- the half-u sound is not found in the middle of words, so a chandrakkala at such a position marks a pure consonant
- at the end of words, the common pure consonants are those for which there is a cillaksaram; thus a chandrakkala at that position marks the half-u sound

However, there are some cases of ambiguity; for example, in the colloquial examples, TDIL has (p43, bottom right column):

Is Mr. Raghunath there?
അവിടെ രാഘുനാഥ് ഉണ്ടോ?
अविटे रघुनाथ उण्डो ?
Avide Reghunath undo?

where the chandrakkala is at the end of a word, but indicates a pure consonant.

§11. Pai shows examples of contrast between a half-u sound and a pure consonant sound. In those examples, which are fairly common in practice, the ability to distinguish between the two situations depends critically on the use of cillaksaram to write the pure consonant sound:

ആ മനുഷ്യൻ കൊടുക്കുന്നു that man is giving.

ആ മനുഷ്യന് കൊടുക്കുന്നു giving to the man.

§12. The report of the Kerala IT mission and the TDIL document derived from it show this contrast:

എന്റെ
ഹെൻറി

where the റ്റ sign is either below or next to the റ്റ cillaksaram. When below, the റ്റ represents the sound /t/, so the word in the example is pronounced /ente/. When after, it represents its usual sound /r/, so the word in the example is pronounced /henry/.

§13. Frohnmeyer also explains the particular pronunciation of a റ്റ sign in that situation on page 9, section 25.c:

c) റ്റ, combined with the final nasal റ്റ = റ്ററ, sounds not “nra” but “nda”, like “nd” in “binder”; ex. നിൻറെ (ninde) thine, of thee.

Note that in this example, the റ്റ is *after* the റ്റ cillaksaram, yet is pronounced as if it was below it (according to the Kerala IT mission distinction). There are other examples like this one page 10 and 11, so

we can conclude that Frohnmeyer always reads a RRA following a N cillaksaram as /t/. Presumably, he would write the /r/ sound using a /nr/ conjunct, i.e. would write the second example:

7. ISCII

§14. ISCII 91 spells out that cillaksarams are represented using the soft halant, i.e. by a combination of <base consonant, HALANT, NUKTA>. Note that the use of the nukta character is not related to the nukta sign: the convention is for the sequence as a whole.

8. TUS 4.0

§15. TUS 4.0 indicates that the sequence <consonant, VIRAMA, ZWJ> is used to represent the cillaksaram, where "consonant" is the underlying consonant for the cillaksaram.

Furthermore, TUS 4.0 lists five cillaksaram, and takes the position that RRA is the underlying consonant of ீ and LLA is the underlying consonant of ு.

§16. TUS 4.0 indicates that the sequence <consonant, VIRAMA, ZWNJ> is used to represent a pure consonant using the chandrakkala.

§17. TUS 4.0 does not clearly indicate how the sequence <consonant, VIRAMA> should be rendered, when the consonant does not form a conjunct with a neighboring consonant and a cillaksaram is possible. Some readers have concluded that this sequence is rendered with a chandrakkala, others that it is rendered with a cillaksaram (if one exists).

§18. TUS 4.0 provides a single mechanism to represent the chandrakkala regardless of its meaning, using a VIRAMA. Furthermore, there is no provision for the north vs. south tradition to represent the half-u sound; presumably, one has to use <consonant, VIRAMA, ZWNJ> for the north tradition and <consonant, VIRAMA, ZWNJ, VOWEL SIGN U> for the south tradition.

§19. TUS 4.0 does not provide a way to represent the contrast in §12.

Document History

Author: Eric Muller

Revision	Date	Comments
1	May 11, 2005	Initial version