ZWJ Joiner for Chillu Consonants of Grantha Script

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1.0 Abstract

Grantha script, like other scripts of India such as Hindi half-consonants, Malayalam, has Chillaksharams (*Chillus*). These Chillus occur both inside a word and also at word-final positions. For plain-text representations of Grantha chillu-s, use of ZWJ to represent Chillus as this solution gives the User community control over where one needs a Chillu. Full conjunct is the default or visible *Virama* is unambiguously done using ZWNJ joiner. If a user chooses to, he can get a Visible virama form with ZWNJ and a Chillu (ligating virama) with a ZWJ in any place of the word (i.e, medially or at the end). Two examples are provided in **Figure 1** and the User needs a control when he wants to employ Chillu or not. This task can be achieved using ZWJ (U+200D) joiner as is normally done in closely related scripts of Grantha in the Unicode Standard.

2.0 Use of ZWJ in Indic Scripts as a Control Character for Display

http://www.unicode.org/versions/Unicode5.1.0/#Malayalam_Chillu_Characters
"Prior to Unicode 5.1, the representation of text with *chillus* was problematic, and not clearly described in the text of the standard. Because older data will use different representation for *chillus*, implementations must be prepared to handle both kinds of data."

Even now, it is common to see Chillu-s in Malayalam text using either ZWJ joiner or atomic Chillus. Also, in Sinhala script, which is also originally related to Grantha scipt, Unicode Standard uses ZWJ joiner to provide the Users with the desired control. For Normal Conjuncts (including Repha)

                \<C1\> + \<Virama\> + \<ZWJ\> + \<C2\>   ------>   \<C1-C2\> conjunct

For Touching Conjuncts,

                \<C1\> + \<ZWJ\> + \<Virama\> + \<C2\>   ------>   \<C1-C2\> touching

Appearance		Codepoints	Names (abbreviated)
A	ශ්‍රී ලංකා	0DC1 + 0DCA + 200D + 0DBB + 0DD3 + 0020 + 0DBD + 0D82 + 0D9A + 0DCF	SHA + VIRAMA + ZWJ + RA + VOWEL SIGN II + SPACE + LA + ANUSVARA + KA + VOWEL SIGN AA
B	ශ්‍රීලංකා	0DC1 + 0DCA + 200D + 0DBB + 0DD3 + 0DBD + 0D82 + 0D9A + 0DCF	SHA + VIRAMA + ZWJ + RA + VOWEL SIGN II + LA + ANUSVARA + KA + VOWEL SIGN AA
C	ශ්රී ලංකා	0DC1 + 0DCA + 0DBB + 0DD3 + 0020 + 0DBD + 0D82 + 0D9A + 0DCF	SHA + VIRAMA + RA + VOWEL SIGN II + SPACE + LA + ANUSVARA + KA + VOWEL SIGN AA

Kannada script also uses ZWJ to distinguish certain visually distinct forms.

3.0 Plain-Text Representation of Ligating Virama (Chillu) in Grantha script: The Grantha script employs a large number of Chillu consonants some of which are listed by R. Grunendahl. Chillaksharams (Chillus) are translated as Prepausal consonants in the relevant literature on Grantha script. Both Indo-Aryan (e.g., Sanskrit) and Dravidian (e.g., Malayalam-Tamil consonants such as NNNA and LLLA) have Chillus in Grantha script. In Figure 1, three ways of displaying consonant clusters is shown. Essentially, the choice of displaying which form depends on the User and use of ZWJ joiner <Consonant, Virama, ZWJ> is requested and will remove ambiguity in plain-text representation of Chillus.

3 Forms of Consonant groups in Grantha script

EXAMPLE 1:

Example Word	Grantha script	Description of Grantha script form
utkaTa		Vertical stack conjunct
utkaTa		Ligating Virama form
utkaTa		Visible Virama form

EXAMPLE 2:

Example Word	Grantha script	Description of Grantha script form
kaNvalaya		Vertical stack conjunct
kaNvalaya		Ligating Virama form
kaNvalaya		Visible Virama form

Figure 1. Three Forms of Consonant Clusters in Grantha

Reference for Prepausal Consonants (Ligating Virama) in Grantha script:
R. Gruenendahl, 2001, South Indian Scripts in Sanskrit Manuscripts and Prints

Grantha Tamil – Malayalam – Telugu – Kannada – Nandinagari O. Harrassowitz, Wiesbaden, page 16. An example list of Prepausal Chillu consonants is shown in the book.

Prepausal Consonants (cf. Conjuncts)

Depending on the User's choice and intention, one of the three forms – with or without chillu – are used in Grantha texts. It totally depends on the user to specify where the breaking pauses in pre-pausal ligating virama consonants are specified. And, this can be accomplished using ZWJ, and can be documented in the Standard's section n Grantha script.

Summary:

Plain text representation of Grantha Chillu consonants:

Grantha Pre-pausal Chillus <Consonant, Virama, ZWJ(U+200D)>

The documentation about using ZWJ for Grantha Chillus in the Unicode Standard is requested.

4.0 References:

Prof. K. Nachimuthu, L2/10-414, (it is on two Virama signs of Grantha)

Prof. Ulrike Niklas, Koeln, Germany, L2/10-424 (On the prepausal viramas in Grantha script)