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Digital Lepcha for Windows, Mac OS X and Linux

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Foreword

Written language is incredibly important, as it is a fundamental way of communicating, and doing so indirectly and over time. It is a main way civilizations accrue and record their technology, educate their citizens, and keep a historical record. This “collective wisdom” for lack of a better term is a hallmark of many great civilizations.

Writing is the physical manifestation of a spoken language. It is thought that human beings developed language c. 35,000 BCE as evidenced by cave paintings from the period of the Cro-Magnon Man (c. 50,000-30,000 BCE) which appear to express concepts concerning daily life. These images suggest a language because, in some instances, they seem to tell a story (say, of a hunting expedition in which specific events occurred) rather than being simply pictures of animals and people. Written language, however, does not emerge until its invention in Sumer, southern Mesopotamia, c. 3500 -3000 BCE. This early writing was called cuneiform and consisted of making specific marks in wet clay with a reed implement. The writing system of the Egyptians was already in use before the rise of the Early Dynastic Period (c. 3150 BCE) and is thought to have developed from Mesopotamian cuneiform (though this theory is disputed) and came to be known as hieroglyphics. The phonetic writing systems of the Greeks, and later the Romans, came from Phoenicia (hence the name). The Phoenician writing system, though quite different from that of Mesopotamia, still owes its development to the Sumerians and their advances in the written word. Independently of the Near East or Europe, writing was developed in Mesoamerica by the Maya c. 250 CE (though some evidence suggests a date as early as 500 BCE). Writing in China developed from divination rites using oracle bones c. 1200 BCE and appears to also have arisen independently as there is no evidence of cultural transference at this time between China and Mesopotamia. The ancient Chinese practice of divination involved etching marks on bones or shells which were then heated until they cracked. The cracks would then be interpreted by a Diviner.

The Sumerians first invented writing as a means of long-distance communication which was necessitated by trade. In order to express concepts more complex than financial transactions or lists of items, a more elaborate writing system was required, and this was developed in the Sumerian city of Uruk c. 3200 BCE. This new means of communication allowed scribes to record the events of their times as well as their religious beliefs and, in time, to create an art form which was not possible before the written word: literature. The first writer in history known by name is the Mesopotamian priestess Enheduanna (2285-2250 BCE), daughter of Sargon of Akkad, who wrote her hymns to the goddess Inanna and signed them with her name and seal.

Lepcha is a major language and a lingua-franca of Sikkim. It is also known as Rong, Rongaring, or Rongring. Apart from Sikkim, Lepcha is also spoken in Nepal, Bhutan and the Indian State of West Bengal. Lepcha tradition says that it is the very

language of the Deities. Tradition has it that after the Deity had created the Lepchas' first primogenitors - Fodongthing and Nazongnyu out of sacred Kongchen Konghlo Chu, the deities had spoken with them in this very Lepcha Language, and which was passed to their children and later to this generation till date, uninterruptedly.

Lepchas are known as Mutanchi Rongkup Rumkup which means the Beloved Children of Mother Nature and God; therefore, during their ceremonial worships and invocations, Bongthing and Mun (priest and priestess) use this language.

An ancient language, Lepcha is a monosyllabic one. Its alphabet is classified as letters and accent marks and has consonants, vowels, finals, circumflex signs and other affixed signs. The richness of the Lepcha language can be attributed to the fact that it has names for all the existing flora and fauna species. The Lepcha scripture found expansion and wider circulation with the initiatives of the 3rd Denjong Chogyal Chagdor Namgyal, who himself was a great scholar of the time.

With this Font and Keyboard Software for Digital Lepcha Text Processing - the Rong Kit, we are sure that the growth and development of the scripture and language attains new heights and horizons. Besides, it would be fun using it. It is hoped that our endeavor inculcates new energy, keenness and inspiration amongst our people to further put forward the usage and advancement of this rich and ancient language and culture. The personal and intimate efforts put up by our technical expert and composer of the Rong Kit, Stefan Daehler of Switzerland, owes special mention and gratitude for having contributed his precious time and exercise to materialize this Rong Kit.

We dedicate this,
in the year of Guru Rinpoche Fire Monkey, on the fourth day of the sixth Sikkimese lunar month,
corresponding to August 6, 2016.

Chewang Pintso, General Secretary, SIBLAC

Origin of the Script

Róngrǐng - more commonly known as Lepcha - is a complex Asian script of alphasyllabary type (Abugida) with certain similarities to Tibetan and Brahmi scripts. Indigenous tradition attributes the design of the script to Thikúng Mensalóng, an ancient Lepcha scholar and Bónghíng difficult to place in the course of history. Other sources associate the creation of the Róng script with Chogyal Chagdor Namgyal (chos rgyal phyag rdor nam rgyal) and Lhatsun Namkha Jigme (lha btsun nam mkha' 'jigs med), which does not necessarily contradict the former statement. Certain features - such as the inconsistent representation of medials - suggest development by different successive originators. The oldest extant Lepcha manuscripts date back to the early 19th century while the first printed text, a translation of the Gospel of St. Matthew, was published in 1845.

Graphic Structure

The basic structure of syllables usually starts with an initial consonant to which a medial consonant, a final consonant, a vowel sign and/or diacritics may be added. The general writing direction is from left to right, but the collation of characters can happen in any direction. This probably represents the most unusual feature of the script, occasionally bringing forth vowels entirely written from right to left. Up to two glyphs may be attached to the left, to the bottom and on top, while up to three glyphs may follow to the right of the initial as illustrated in the following diagram. The example presented is, however, an artificial construct including incompatible elements. It does not make sense, nor can it ever occur that way.



Róngring for the Digital Age

The onset of the new millennium brought along the introduction of electronic text processing for Róngring with two custom encoded TrueType fonts, both released in 2001:

- Shipmoo, designed and developed by Ren Ugen Shipmoo
- JG Lepcha, designed and developed by Jason Glavy

The Lepcha script was incorporated into the Unicode standard in 2008. Several attempts for the implementation of Unicode compliant Lepcha fonts were undertaken, so far:

- Lepcha Language Kit for OS X released by Xenotype Technologies in 2003
- Mingzat, under development by SIL International since 2013
- Noto Sans Lepcha under development by Google since 2013

Mention should also be made of GNU Unifont, a comprehensive project initiated by Roman Czyborra in 1998. Covering the entire Basic Multilingual Plane of Unicode since 2008, the bitmap font includes the whole set of Lepcha characters as well. Meanwhile, bitmaps have been converted to outlines, that is to say GNU Unifont is available in TrueType format.

Presently, most Lepcha writers stick to handwriting or text processing using the legacy fonts, despite their obvious disadvantages. Poor general acceptance of Unicode fonts may be based on several reasons: While the first mentioned is no longer available, the presently accessible fonts are either partly dysfunctional, restricted to a narrow software environment, lacking an appropriate input system, and/or not felt to look appealingly.

Róng Kít

Róng Kít is a set including OpenType fonts and keyboard layouts permitting Lepcha/Róngring text processing in Unicode. While omitting two obvious errors in the published version of the standard, the fonts cover the whole range of Róng characters defined by Unicode (since v. 5.1) supplemented with a basic set of mathematical symbols and latin punctuation marks. A Lepcha text written with either of the provided fonts is platform independent, fully compatible with any Unicode compliant text editor and interchangeable with any other Lepcha font conforming to the Unicode standard.

Basic Considerations

Compared to Tibetan or Devanagari alphabets featuring a horizontal top bar in every character and at least one vertical stroke in most characters, Lepcha is a 'wild script' with a multitude of shapes, widths and directions of stroke. Thus, it's almost impossible to design glyphs fit to seamlessly join together in every of the more than 7500 composites that make Róngring.

That's why the present fonts include pre-compiled characters for most of these combinations. While this approach is extremely labour-intensive, it reduces the number of advanced OpenType features required for proper rendering of the script. Relevant applications only need to provide support for two features:

- standard ligature substitution (liga), GSUB table
- mark to base positioning (mark), GPOS table

Besides, a limited use of features may make sense in that the range of suitable applications is not narrowed down unnecessarily.

The individual characters of the included OpenType fonts generally conform with those found in actual printed Lepcha texts, a criterion with high impact on ready recognition. In some cases, additional inspiration was obtained from variant shapes found in historical or contemporary manuscripts.

Besides, a lack of previous typefaces - confusing at least for students with low proficiency or narrow lexis - was undone. The vowel sign a and the vowel sign o got back a distinctive shape of their own with the re-introduction of the small hook mentioned by Sprigg, in 1998:

„Though, at first sight, the Lepcha fount gives the impression of being admirably clear and a credit to J. Thomas's skill as a type designer, there is one respect in which I feel that it is inferior to the traditional hand-written form of the Lepcha letters. My criticism has to do with the Lepcha letters for the vowels o and á. In hand-written Lepcha the letters for these two vowels are different: the letter á is distinguished from the letter o by a little hook running down from the head of the letter to the right, or, for some writers, by a bent shape as against a slightly curved shape ...

... but in the printed style devised for Lepcha by J. Thomas of the Baptist Mission Press, 1849, the letters for á and o have exactly the same shape ...

Numbers:

୨ ୩ ୪ ୫ ୬ ୭ ୮ ୯ ୦

Mathematical symbols:

+ - × ÷ =

Numbers and mathematical symbols are monospaced (all have the same width) in order to allow for proper columns.

୨୦୫୩ + ୫୬୭୮ = ୭୬୬୧

୬୭୮୯ - ୩୨୧୦ = ୩୫୬୭

୫୬୭୮ ÷ ୨୩୧୫ = ୨.୩୫୬

୩୦୩୩ × ୬୫୬୭ = ୧୯୦୬୩୩୬୬

Typing Order - Collation

1. Initial consonant
2. NUKTA (1C37)
3. Medial RA (1C25)
4. Medial YA (1C24)
5. vowel sign
6. RAN (1C36)
7. final consonant

Keyboard Layout



The Rong - Lepcha keyboard is based on a minimal QWERTY layout with a focus on consistent and user-friendly rules. Characters match those printed on the keys in Latin, with the exception of

ʘ ʘ ʘ ʘ ʘ ʘ

Their positions must be memorized. This applies to punctuation marks as well, though all of them occupy the same range.

- BASIC MODE: Initials and 'lower case' vowel signs can be typed within the basic pane of the keyboard. This includes the aspirated initials which are typed as a sequence: k - h = kha. Note: In Linux, this requires the compose key (Win) first.

Examples:

n - i = ʘ

j - u = ʘ

k - o = ʘ

g - e = ʘ

p - h = ʘ

b - a = ʘ

Compatibility

The OpenType features required for a correct rendering of Róngríng are most divergently supported.

- MAC OS X: Versions 10.7/Lion and higher provide full support of the script in a wide range of text editors such as TextEdit, OpenOffice, LibreOffice, Nisus Writer, Mellel - to mention a few - and the line of high-end applications by Adobe. Pages handles the script flawlessly but does not offer the option of export to RTF. Microsoft Office Mac fails in every respect.
- LINUX: Distributions and versions running with X Window System (X11) provide full support for fonts and input. This includes the whole range of text editors from basic gedit to LibreOffice/OpenOffice including advanced applications like Inkscape or GIMP.
- WINDOWS: Despite being co-developing partner and trademark owner of OpenType, Microsoft provides poor support for the font format in applications and Windows itself. Third-party software is required for proper input and display of Unicode Lepcha script.

Libre Office, a free and open source office suite, is the preferred agent supporting the required OpenType features starting from version 5.3. This is a universal solution working in Windows XP to Windows 10.

Though not text editors, essentially, Seamonkey's composer and the text tool of GIMP do handle the script impeccably as well. If at hand, professional desktop publishing applications provide another expedient way. Tested working solutions are

- Adobe InDesign versions CS3 to CS6 in Windows XP, versions CS3 to CC 2015 in Windows 7, 8 and 10, or
- CorelDraw X6 to X8 in Windows 7 and 8 (fails in Windows 10)

Credits

Fonts developed with Glyphs (Georg Seifert).

Fonts mastered with DTL OTMaster (URW++).

Keyboard for Windows developed with AutoHotkey (Chris Mallett, Steve Gray).

Keyboard for Mac OS X developed with Ukelele (John Brownie).

The Róng Kít would never have been completed without the generous help of several experts in their respective fields.

Georg Seifert, Toshi Omagari, Rainer Erich Scheichelbauer and Nicolas Silva provided me with a virtual crash course in OpenType development. Despite my insisting in doing things my own way they never let me down when advice was needed.

Dr. Jürgen Willrodt and Axel Stoltenberg at URW++ gave me the most amiable and patient guidance to successfully join several thousand characters in a single font file.

John Brownie, Gé van Gasteren, Sorin Paliga and Andrew Cunningham wholeheartedly imparted their rich knowledge on keyboard layout development for Mac. Besides, they never hesitated to have a look over the rim of their Apple teacup.

Thubten Rigzin lent me a helping hand in my struggles with AHK. Mastering the art of providing just the least advice required, he incited me to make my own steps towards a suitable solution.

My much valued colleagues Silvia Ulrich and Franziska Christen shared their unbiased view on the first drafts giving me valuable hints on what looked balanced and what looked ugly.

My sincere gratitude to all of these cooperative professionals.

Stefan Daehler

Annex A: Thikung Mensalong - Visualization by indigenous artist Yangdol Namgyal Bhutia



