

Clarifications on the Usage of A015

L2/04-293

Andrew West, 19th July 2004

1. Summary

When the Liangshan Yi script was originally proposed for encoding, there was some uncertainty about U+A015 [YI SYLLABLE WU], which occurred in one of the sources consulted, but not the others (see **N1187**). Notably it is absent from the index of Liangshan Yi syllables referred to as "Bburx 1984" (i.e. Yiwen Jianzi Ben in the bibliography at the end of the present document). The reason for this is that this character is not pronounced WU, and is not a syllable per se, but is rather a special **syllable iteration mark** that is used to indicate reduplication of the preceding syllable.

I propose that the special nature of U+A015 be made explicit in the Yi block introduction and the code chart notes, and that U+A015 is assigned the "Extender" property as is the case with other iteration marks. I also suggest that the General Category of U+A015 be changed to "Lm" (Letter, Modifier).

2. Background

2.1 The 1,164 Yi Syllables

The YI SYLLABLES block [A000..A48F] encodes the 1,165 characters needed to write the standardized Yi script that was promulgated in 1980 as the "Scheme for the Standardisation of the Yi Script" 彝文规范方案, and corresponds to the Chinese standard **GB 13134-91**.

Of these 1,165 characters, 1,164 represent syllables in the Liangshan Yi dialect. 819 of these are unique glyphs representing syllables in the high level tone (i.e. syllables ending in the letter "t"), mid level tone (i.e. syllables not ending in "t", "p" or "x"), and low falling tone (i.e. syllables ending in the letter "p"); whereas the other 345 are precomposed combinations of one of the 819 unique glyphs together with a diacritical mark shaped like an inverted breve, which represent syllables in the secondary high tone (i.e. syllables ending in the letter "x").

The 819 basic standardized Yi syllables are shown in Illustration 1 below.

英文规范字表										ㄅ ㄆ ㄇ ㄋ ㄌ ㄍ											
b	p	bb	bb	bb	m	f	v	d	t	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
口	口	口	口	口	口	口	口	口	口	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
ie										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
a										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
o										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
e										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
u										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
m										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
y										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ
yr										ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ	ㄅ	ㄆ	ㄇ	ㄋ	ㄌ	ㄍ

Adjectives and verbs in the Yi language can be reduplicated to indicate the interrogative. Monosyllabic words are reduplicated, for example 𐰇 𐰃 (vatw)

"OK ?", 𐄂 𐄃 (bboxw) "shall we go ?". Polysyllabic words only reduplicate the final syllable, for example 𐄂 𐄃 (zzyrmuo) "fine and well" and 𐄂 𐄃 𐄃 (zzyrmuoxw) "Are you well ?". The symbol "𐄃" is an iteration mark which represents the preceding character. In the sentence "𐄂 𐄃 𐄃" (zzyrmuoxw) "Are you well ?" the symbol "𐄃" represents the preceding syllable "𐄃" (muox), and is equivalent to "𐄂 𐄃 𐄃 ?" (zzyr muox muo).

AW : Note that the reduplicated syllable is pronounced in the mid level tone after a syllable in the secondary high tone; whereas in all other cases the reduplicated syllable is pronounced in the same tone as the preceding syllable,

彝语形容词、动词等词重迭可以表示疑问。单音词全部重迭。如：𐄂 𐄃 (vatw) 好吗？𐄂 𐄃 (bboxw) 去吗？多音词只重迭最后一个音节。如：𐄂 𐄃 (zzyrmuo) 平安，𐄂 𐄃 𐄃 (zzyrmuoxw) 平安吗？彝文“𐄃”是一个替字符号，它代替前一个字。本句“𐄂 𐄃 𐄃”中的“𐄃”代替它前面的“𐄃”字。即相当于“𐄂 𐄃 𐄃？”。

Liangshan Yiyu Huihua Liubaiju [600 Phrases in the Liangshan Yi Dialect] Lesson 1 (pp.2-3).

Note that unlike ideographic iteration marks (e.g. U+3005) which are generally restricted to informal writing in Chinese, the Yi syllable iteration mark is used to replace the second occurrence of a reduplicated syllable in all circumstances, and is thus very common in formal and informal texts alike.

The syllable iteration mark is also common to all traditional Yi scripts, although the actual glyph used varies in shape and/or orientation. The usage of the syllable iteration mark in traditional Yi scripts is described by Wu Zili :

Substitution Mark or Reduplication Mark. Whenever two identical characters occur one after the other, the second character can be replaced with the marks 𐄃, 𐄃 or 𐄃 or with the marks 𐄃 or 𐄃. In Yunnan, Guizhou and Guangxi the marks used to indicate reduplication of a syllable are 𐄃, 𐄃 or 𐄃. For example, 𐄃 [dzo²¹] "eat", 𐄃 𐄃 [dzo²¹ dzo²¹] "eat ?" is written as 𐄃 𐄃 or 𐄃 𐄃 or 𐄃 𐄃 [dzo²¹ dzo²¹]. In the Liangshan region of Sichuan and the Yi Nationality autonomous county of Ninglang in Yunnan, the traditional Yi script uses 𐄃 or 𐄃. For example, 𐄃 [dzur³³] "eat", 𐄃 𐄃 [dzur³³ dzur³³] "eat ?" is written as 𐄃 𐄃 or 𐄃 𐄃 [dzur³³ dzur³³].

AW : Note that these examples represent *traditional* Liangshan writing, and so the phrase 𐄃 𐄃 (zze w) is written RTL, following the traditional directionality of the Liangshan script.

替字号或叠字号。凡相同的两字重叠使用时，第二字可以用“𐄃・𐄃・𐄃或 𐄃 𐄃”替代。云南、贵州、广西彝文表示前后重叠的符号是 𐄃・𐄃・𐄃。如 𐄃 [dzo²¹] “吃”， 𐄃 𐄃 [dzo²¹ dzo²¹] “吃吗？”写作 𐄃 𐄃 or 𐄃 𐄃・𐄃

𐄚 [dzo²¹ dzo²¹] ; 四川凉山和云南宁蒗彝族自治县传统彝文是用 𐄚 𐄛。如 𐄛 [dzuo³³] “吃” , 𐄛 𐄛 [dzuo³³ dzuo³³] ” 吃吗？” 写作 𐄚 𐄛 或 𐄛 𐄛 [dzuo³³ dzuo³³]。

Wu Zili, "Chuantong Yiwen" [The Traditional Yi Script] p.196.

Note also that the iteration mark 𐄚 is represented by the letter **w** in the romanised Yi alphabet (e.g. **bbow** for 𐄚 𐄚), and I have never seen the iteration mark 𐄚 transcribed as "wu" in any Chinese sources.

3. Proposed Amendments

As there is nothing in the Unicode Standard that indicates that U+A015 is anything but a normal Yi syllable, just like the other 1,164 characters in the YI SYLLABLES block, I would like to propose some clarifications to the next release of the Unicode Standard.

3.1 Code Chart Notes

I would like to propose the addition of the following notes for U+A015 in the code charts :

* Not pronounced "wu", but used as a syllable iteration mark
= w

3.2 Character Properties

3.2.1 General Category

As is the case with all other characters in the YI SYLLABLES block, U+A015 has the General Category of **Lo** (Letter, Other). However, I think that U+A015 should be assigned a General Category of **Lm** (Letter, Modifier). This would be in line with other analogous characters such as U+3005 [IDEOGRAPHIC ITERATION MARK], U+3031 [VERTICAL KANA REPEAT MARK], U+3032 [VERTICAL KANA REPEAT WITH VOICED SOUND MARK], U+303B [VERTICAL IDEOGRAPHIC ITERATION MARK], U+309D [HIRAGANA ITERATION MARK], U+309E [HIRAGANA VOICED ITERATION MARK], U+30FD [KATAKANA ITERATION MARK] and U+30FE [KATAKANA VOICED ITERATION MARK], which all have a General Category of **Lm**.

The Unicode Standard Stability Policy (www.unicode.org/standard/stability_policy.html) states :

Particularly in the situation where the Unicode Standard first encodes less-well documented characters and scripts, the exact character properties and behavior initially may not be well known. As more experience is gathered in implementing the characters, adjustments in the properties may become necessary. Examples of such properties include, but are not limited to, the following: General category, ...

I believe that U+A015 is a just such a case where adjustment to its general category would be justified.

3.2.2 Extender Property

As the usage of U+A015 is very similar to that of U+3005 [IDEOGRAPHIC ITERATION MARK], I would suggest that U+A015 is added to the list of characters with the **Extender** property in "PropList.txt".

3.3 Yi Block Introduction

The Yi block introduction does not currently reflect the fact that there are actually only 1,164 Yi syllables, and that U+A015 is a syllable iteration mark, not the syllable "wu". The existing block introduction also inadequately describes the relationship between the traditional Yi script (misleadingly referred to as "classical Yi") and the standardized Liangshan Yi script encoded in the Yi Syllables block. I would therefore propose that the text of the Yi block introduction be amended as follows :

Existing Text

The Yi syllabary is used to write the Yi language, a member of the Sino-Tibetan language family. The script is also known as Cuan or Wei.

The Yi, also known as Lolo and Nuo-su, are one of the largest non-Han minorities in the People's Republic of China (PRC). Most live in southwestern China, but others live in Myanmar, Laos, and Vietnam. Yi is one of the official languages of the People's Republic of China.

Proposed Text

The Yi syllabary encoded in Unicode is used to write the Liangshan dialect of the Yi language, a member of the Sino-Tibetan language family.

Yi is the Chinese name for one of the largest ethnic minorities in the People's Republic of China (PRC). The Yi, also known historically and in English as the Lolo, do not have a single ethnonym, but refer to themselves variously as Nuosu, Sani, Axi or Misapo. According to the 1990 census over 6.5 million Yi live in southwestern China (provinces of Sichuan, Guizhou, Yunnan and Guangxi). Smaller populations of Yi are also to be found in Myanmar, Laos and Vietnam. Yi is one of the official languages of the People's Republic of China, with between 4 and 5 million speakers.

The Yi language is divided into six major dialects : Northern dialect (spoken in southwestern Sichuan and northern Yunnan), Western dialect (spoken in western Yunnan), Central dialect (spoken in southern central Yunnan), Southern dialect (spoken in southern Yunnan), Southeastern dialect (spoken in southeastern and eastern Yunnan) and Eastern dialect (spoken in northeastern Yunnan, southern Sichuan, western Guizhou, and western Guangxi). The dialects of Yi vary considerably, and are not generally mutually intelligible. The Northern dialect, which is also known as the Liangshan ("Cool Mountain") dialect because it is spoken throughout the region of the Greater and Lesser Liangshan Mountains, is the largest and linguistically most coherent of these dialects. In 1991 there were about 1.6 million speakers of the Liangshan Yi dialect. The ethnonym of speakers of the Liangshan dialect is Nuosu.

The earliest surviving samples of classical Yi, an ideographic script, date from about 500 years ago. Unlike other Sinoform scripts, the ideographs themselves appear not to be derived from Han ideographs. There are some 8,000 to 10,000 characters in the classical Yi script, although the exact ideographs used varied from region to region.

Traditional Yi Script. The traditional Yi script, historically known as Cuan or Wei, is an ideographic script, but unlike other Sinoform scripts the ideographs themselves appear not to be derived from Han ideographs. One of the more widespread traditions relates that the script, comprising about 1,840 ideographs, was devised by someone named Aki during the Tang dynasty (618-907). However the earliest surviving examples of the Yi script are monumental inscriptions dating from about 500 years ago (the earliest example is an inscription on a bronze bell dated 1485).

There is not a single unified Yi script, but many local script traditions that vary considerably with regard to glyph repertoire, glyph shape, glyph orientation and writing direction. The profusion of local script variants is largely due to the fact that until modern times the Yi script was mainly used for writing religious, magical, medical or genealogical texts that were handed down from generation to generation by the priests (known as bimo) of individual villages, and not as a means of

communication between different communities or for the general dissemination of knowledge. Although a vast number of manuscripts written in the traditional Yi script have survived to the present day, the Yi script was not widely used for printing before the twentieth-century.

As the traditional Yi script is not standardized, there are a considerable number of glyphs in use in the various script traditions, according to one authority 14,200+ in Yunnan, 8,000+ in Sichuan, 7,000+ in Guizhou and 600+ in Guangxi. However, these figures are misleading, as most of the glyphs are in fact simple variants of the same abstract character. For example, a 1989 dictionary of the Guizhou Yi script contains a total of about 8,000 individual glyphs, but after excluding glyph variants this reduces to about 1,700 basic characters, which is quite close to the figure of 1,840 characters that Aki is reputed to have devised.

To improve literacy in Yi, the Yi syllabary was introduced in the 1970s. This syllabary is encoded in the Unicode Standard; the classical ideographic Yi script is not encoded at this time.

Standardized Yi Script. There has never been a high level of literacy in the traditional Yi script, and as the traditional script does not accurately reflect the phonetic characteristics of the modern Yi language, has numerous internal inconsistencies (e.g. glyphs with multiple pronunciations and/or meanings, and multiple glyphs representing the same syllable), and has numerous variant and local-form glyphs, usage of the traditional script has remained limited even in modern times. In 1956 only 2.75% of the population of the Liangshan region of Sichuan had any competence in the traditional Yi script, and elsewhere the ability to read or write Yi was even lower. In order to improve literacy in Yi, in 1956 a scheme for representing the Liangshan dialect using the Latin alphabet that was introduced. Then in 1974 a standardized form of the traditional script used for writing the Liangshan Yi dialect was devised, and officially promulgated in 1980. It is this script that is encoded in Unicode. It is important to note that the standardized Liangshan Yi script is only suitable for writing the Liangshan Yi dialect, and is not intended

as a unified script for writing all Yi dialects. Standardized versions of other Yi scripts do not yet exist.

Each Yi syllable consists of a consonantal initial, a final, and a tone. The core Yi syllabary consists of 820 signs for syllables with the first three tones (high, low, and middle low), plus a mark added to the form for the middle low tone to indicate a fourth tone (middle high).

The standardized Yi syllabary comprises 1,164 signs representing each of the allowable syllables in the Liangshan Yi dialect. There are 819 unique signs representing syllables pronounced in the high level, low falling, and mid level tones, and 345 composite signs representing syllables pronounced in the secondary high tone. The signs for syllables in the secondary high tone consist of the sign for the corresponding syllable in the mid level tone (or in three cases the low falling tone) plus a diacritic mark shaped like an inverted breve. For example, U+A001 YI SYLLABLE IX is the same as U+A002 YI SYLLABLE I plus a diacritic mark. In addition to the 1,164 signs representing specific syllables, there is a syllable iteration mark that is used to indicate reduplication of the preceding syllable (which is frequently used in interrogative constructs).

Standards. In 1991, a national standard for Yi was adopted by China as GB 13134-91. This encoding includes all 1,165 Yi syllables and is the basis for the encoding used by the Unicode Standard, which also includes all 1,165 Yi syllables.

Standards. In 1991, a national standard for Yi was adopted by China as GB 13134-91. This encoding includes all 1,164 Yi syllables as well as the syllable iteration mark, and is the basis for the encoding used by the Unicode Standard. The Unicode Standard encodes the 1,164 syllables (U+A000..U+A014 and U+A016..U+A48C) and the syllable iteration mark (U+A015). Note that the syllables in the secondary high tone, which are differentiated from the corresponding syllable in the mid level tone or the low falling tone by a diacritic mark, are not decomposable.

Naming Conventions and Order. The Yi syllables are named on the basis of their romanized sound values. The tone is indicated by appending a letter to the romanization: “t” for the high tone, “p” for the low tone, “x” for the middle high tone, and no letter for the middle low tone.

Naming Conventions and Order. The Yi syllables are named on the basis of the spelling of the syllable in the standard Liangshan Yi romanization introduced in 1956. The tone of the syllable is indicated by the final letter : “t” indicates the high level tone, “p” indicates the low falling tone, “x” indicates the secondary high tone, and an absence of final “t”, “p” or “x” indicates the mid level tone. The syllable iteration mark

(U+A015) is named YI SYLLABLE WU, although it actually corresponds to the letter “w” in the Yi romanization scheme.

With the exception of U+A015, the Yi syllables are ordered according to their phonetic order in the Liangshan Yi romanization, that is by initial consonant (null consonant, b, p, bb, nb, hm, m, f, v, d, t, dd, nd, hn, n, hl, l, g, k, gg, mg, hx, ng, h, w, z, c, zz, nz, s, ss, zh, ch, rr, nr, sh, r, j, q, jj, nj, ny, x and y), then by vowel (i, ie, a, uo, o, e, u, ur, y and yr) and finally by tone (t, x, unmarked and p). This is the order used in dictionaries of Liangshan Yi that are ordered phonetically.

Punctuation. The standardized Yi script does not have any special punctuation marks, but utilises the same set of punctuation marks that are used for writing modern Chinese in the PRC, including U+3001 IDEOGRAPHIC COMMA and U+3002 IDEOGRAPHIC FULL STOP.

Rendering. Yi follows the writing rules for Han ideographs. Characters are generally written left to right or occasionally top to bottom. There is no typographic interaction between individual characters of the Yi script.

Rendering. The traditional Yi script was written using a variety of writing directions, for example right to left in the Liangshan region of Sichuan, and top to bottom in columns running from left to right in Guizhou and Yunnan. The standardized Yi script follows the writing rules for Han ideographs, and so characters are generally written left to right or occasionally top to bottom. There is no typographic interaction between individual characters of the Yi script.

Yi Radicals. To facilitate the lookup of Yi characters in dictionaries, a set of radicals has been invented. The Yi repertoire is divided into several subsets, each of which shares a common stroke (radical). The name used for the radical is that of the corresponding Yi character closest to it in shape.

Yi Radicals. To facilitate the lookup of Yi characters in dictionaries, sets of radicals modelled on Han radicals (see *Section 11.1, CJK and KangXi Radicals*) have been devised for the various Yi scripts. The traditional Guizhou Yi script has 119 radicals, the traditional Liangshan Yi script has 170 radicals, and the traditional Yunnan Sani Yi script has 25 radicals. The standardized Liangshan Yi script encoded in Unicode has a set of 55 radical characters, which are encoded in the Yi Radicals block (U+A490 through U+A4C5). Each radical represents a distinctive stroke element that is common to a

subset of the characters encoded in the Yi Syllables block. The name used for each radical character is that of the corresponding Yi syllable closest to it in shape.

Although the Yi Radicals block comprises fifty-five radical characters, the Yi Syllable repertoire is actually only divided into twenty-six radical subsets, each subset corresponding to one primary radical form and between zero and five secondary radical forms.

Radical	Primary Form	Secondary Forms
1	U+A490	
2	U+A491	U+A492
3	U+A493	
4	U+A494	
5	U+A495	
6	U+A496	
7	U+A497	U+A498
8	U+A499	
9	U+A49A	U+A49B
10	U+A49C	U+A49D, U+A49E
11	U+A49F	U+A4A0
12	U+A4A1	U+A4A2, U+A4A3
13	U+A4A4	U+A4A5, U+A4A6
14	U+A4A7	
15	U+A4A8	
16	U+A4A9	
17	U+A4AA	U+A4AB
18	U+A4AC	U+A4AD, U+A4AE, U+A4AF
19	U+A4B0	U+A4B1, U+A4B2
20	U+A4B3	U+A4B4, U+A4B5, U+A4B6, U+A4B7
21	U+A4B8	U+A4B9, U+A4BA, U+A4BB
22	U+A4BC	U+A4BD
23	U+A4BE	U+A4BF
24	U+A4C0	U+A4C1, U+A4C2, U+A4C3
25	U+A4C4	U+A4C5
26	U+A4C6	

4. Collation

The fact that U+A015 is not a syllable has an impact on collation, as the Yi Syllables block is otherwise encoded in phonetic collation order. As I know very little about collation, I do not address this issue here.

5. Bibliography

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