Cherokee (ᏣᎳᎩ) syllabary Braille code

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Abstract

This paper presents a proposal for a Braille code for the Cherokee syllabary. At the time if this writing the Cherokee syllabary does not have a Braille code. The absents of such means that blind speakers of the Cherokee language are unable to learn and read the language in its native form or to have understanding of the Cherokee syllabary writing system. This braille code seeks to address this problem and to provide full literacy to blind speakers of this language.
                                    —Tamara Kearney, Cupertino, California May 2014

Introduction

I have been a long time advocate for literacy, particularly braille literacy. I also feel passionately the importance of preserving languages. I believe that the blind, as well as the sighted, should be able to read and write in their native language. These principles have been my primary motivation for developing the Cherokee braille code.

There are sixty possible dot combinations within a six dot braille cell. In order to accommodate for the need for more symbols, syllables containing both vowel and consonant sounds have been given two-celled representations.

To facilitate ease in learning the Cherokee braille code, I have, as much as possible, tried to match its symbols to things with which a new learner of the code is already familiar. These symbols are derived from the Cherokee computer keyboard, Cherokee print symbols and similar sounds in the English alphabet.

My aim has been to develop a code that follows a logical pattern, and is easy to both learn and reproduce. My fervent hope is that people will learn it, and that literature will be produced in it.

Braille, as a rule, requires much more space to represent the same information than does print. This is the case with this Braille code as well which adds about one-third more space to the length of any written passage. This is expected and is consistent with Braille in other languages.

History of the Cherokee syllabary

The Cherokee syllabary was invented by Sequoyah (ᏍᏏᏉᏯ) [c. 1770-1843] and is used to read and write the Cherokee language. Developed in the late 1810s and early 1820s. The creation of the syllabary is noteworthy in that Sequoyah could not previously read or write in any script. It remains today the only example of a modern writing system developed independent of a previous background in an existing writing system.

Each symbol represents a syllable rather than a single phoneme; the 86 characters in the Cherokee syllabary provide a suitable method to write Cherokee.

As of 1980, the Cherokee language is still spoken both formally and informally by around 10,000 Cherokees primarily located in the U.S. states of Oklahoma and North Carolina. The language remains strong.

History of Braille

Braille is named after its creator, Frenchman Louis Braille, who became blind as a result of a childhood accident. At the age of 15, Braille developed his code for the French alphabet in 1824 as an improvement on night writing used by the French army of the time. He published his system, which subsequently included musical notation, in 1829.

Today Braille is an international standard for tactile reading. Braille codes have been developed for most languages having a written form. Braille literacy and education is important for developing reading skills among blind and visually impaired children. Braille literacy directly correlates with higher employment rates in this population.

The Braille cell

Braille characters are small rectangular blocks called cells that contain tiny palpable bumps called raised dots. The number and arrangement of these dots distinguish one character from another. The dots are numbered from 1 to 6 starting at the left column 1,2,3 and followed by the right column 4,5,6. This permits the notation of Braille cells by numbers as used in the tables below.

1 •• 4
2 •• 5
3 •• 6
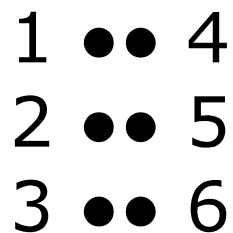
This Braille code references the Unified English Braille code in use in the English speaking world as a whle for signs and layout usage not unique to the Cherokee syllabary

The Cherokee syllabary

The syllabary is set out in glyphs representing the sound of a vowel or consonant vowel pairings.

Table of the print Cherokee syllabary

a		e	i	o	u	v
D	a	R e	T i	Ꮼ o	Oˀ u	i v
S ga ᏸ ka	⊦ ge	y gi	A go	J gu	E gv
Ꮿ ha	? he	ᙙ hi	⊦ ho	Γ hu	Ꮼ hv
W la	ᕼ le	ᖇ li	G lo	M lu	ꟼ lv
ᏪᎳ ma	Ꮼ me	H mi	5 mo	ᕀ mu	
Θ na Ᏻ hna	Ꮇ ne	h ni	Z no	ᖇ nu	Oᵛ nv

	a G nah	**e**	**i**	**o**	**u**	**v**
Ꭲ	qa	ꭺ qe	ꮖ qi	Ꮙ qo	ꮙ qu	Ɛ qv
ꮝ s	�незнач sa	4 se	Ꮖ si	Ꮝ so	Ꮚ su	R sv
Ꮄ da	Ꮃ ta	Ꮥ de / Ꮦ te	Ꭻ di / Ꮖ ti	Ꮩ do	Ꮪ du	Ꮫ dv
Ꮬ dla	Ꮩ tla	L tle	C tli	Ꮰ tlo	Ꮲ tlu	P tlv
Ꮳ tsa		� tse	Ꮵ tsi	K tso	Ꮷ tsu	Ꮸ tsv
Ꮐ wa		Ꮾ we	Ꮻ wi	Ꮼ wo	Ꮽ wu	6 wv
Ꮿ ya		β ye	Ꭵ yi	Ꮹ yo	Ꮆ yu	B yv

Braille code for the Cherokee syllabary

Design considerations

I have endeavoured to follow the basic concepts of the print in the braille code as much as possible.

Vowels

The vowels D R T ꮿ O i are represented by the Braille patterns for these sounds derived from their transliterated vowel sounds.

Vowel	Braille	Dots
D	⠁	1
R	⠡	15
T	⠑	24
ꮿ	⠩	135
O	⠣	136
i	⠫	1236

Braille table of the Cherokee syllabary

The whole representation of the Cherokee syllabary is presented below. It is represented in the Cherokee glyph, The Braille and then the Braille pattern

D	R	T	ꮿ	O	i
⠁	⠡	⠑	⠩	⠣	⠫
1	15	24	135	136	1236
Ꮥ ⠭⠁ ꮣ ⠉⠁	Ᏸ ⠭⠡	y ⠭⠑	A ⠭⠩	J ⠭⠣	E ⠭⠫
1245-1 13-1	1245-15	1245-24	1245-135	1245-136	1245-1236
Ꮴ ⠫⠁	Ᏹ ⠫⠡	Ᏺ ⠫⠑	Ᏼ ⠫⠩	Γ ⠫⠣	Ꮔ ⠫⠫

125-1	125-15	125-24	125-135	125-136	125-1236
W 123-1	ꙷ 123-15	⌐ 123-24	G 123-135	M 123-136	ꟼ 123-1236
ꝭ 134-1	OI 134-15	H 134-24	ろ 134-135	У 134-136	Ƈ 134-1236
ϴ 1245-1 ţ 12-1 G 14-1	ᴨ 1245-15	h 1245-24	Z 1245-135	ꟼ 1245-136	Oᴠ 1245-1236
I 12345-1	ꙮ 12345-15	ᴕ 12345-24	Ꝩᵖ 12345-135	ꙮ 12345-136	Ɛ 12345-1236
ꙮ 234 Ʉ 234-1	4 234-15	b 234-24	Ϝ 234-135	ꝡ 234-136	R 234-1236
ᴸ 145-1 W 2345-1	ᴤ 145-15 ꞁ 2345-15	ᴊ 145-24 ᴊ 2345-24	V 145-135	S 145-136	ᴏ 145-1236
ꝸ 124-1 ᴸ 1235-1	L 1235-15	C 1235-24	ꝸ 1235-135	ꝸ 1235-136	P 1235-1236
ᴄ 1356-1	Ꝟ 1356-15	ꞕ 1356-24	K 1356-135	d 1356-136	Ċ 1356-1236
ᴄ 2456-1	ꙮ 2456-15	ꙩ 2456-24	ꙫ 2456-135	ꙩ 2456-136	6 2456-1236
ꙮ 13456-1	β 13456-15	ꙏ 13456-24	Ꮢ 13456-135	Ꮐ 13456-136	B 13456-1236

Diacritical marks

Diacritical marks are as follows they always proceed the patterns for the syllables. Foer example ☐ would be trnascribed as

Diacritical mark	Braille	Dots
COMBINING DOT BELOW	•	5
COMBINING MACRON BELOW	⠱	156
COMBINING DIAERESIS BELOW	⠆	56
COMBINING TILDE BELOW	⠻	12456

Punctuation

Punctuation and other special signs, copyright, trademark, etc follows the standard Unified English Braille usage.

Punctuation	Braille	Dots
period .	⠲	256
comma ,	•	2
semicolon :	⠆	23
question mark ?	⠦	236
exclamation !	⠖	235
asterisk *	⠐⠔	1-35

Numbers

Numbers follows the standard Unified English Braille usage. The letters a-j are procedded by the UEB number indicator ⠼ dots 3456. The UEB rules for indicating multiple numerals and for math symbols are also used.

Number	Braille	Dots
1	⠼⠁	1
2	⠼⠃	12
3	⠼⠉	14
4	⠼⠙	145
5	⠼⠑	15
6	⠼⠋	124
7	⠼⠛	1245
8	⠼⠓	125
9	⠼⠊	24

Indicators

Braille indicators are used to show typographic and other information in the print. This code follows the standard Unified English Braille usage.

Examples

ᏣᏬᏯ (Cherokee)

⠿ ⠿ ⠿ ⠿ ⠿ (braille)

Long example

ᎠᏦᏫᎥᎢ 1

1 ᎭᎠ ᎠᏬᎵ ᎤᏃᏈᏏ ᏥᏁᏆᏪᎣᎡᎡ ᏂᎲ ᏎᏣᏁᎦ, ᏎᎾ ᎤᏬᎯᎢ, ᎡᎢᏈᎯ ᎤᏬᎯᎢ.
2 ᎡᎢᏈᎯ ᎡᏏᏴ ᎤᏎᏁᏓᎢ; ᎡᏏᏴᏃ ᏴᏎᏉ ᎤᏎᏁᏓᎢ, ᏴᏎᏉᏃ ᏧᏌ ᎠᏓ ᎨᏦᏴ ᎠᏈᏌᎣᏥ ᎬᏣᏎᏁᏓᎢ;

ayadolvi #a

#a hia goweli kanoheha zunervtavusv zisa galonedv1 dwi uwezi1 eqahami uwezi4

#b eqahami esigi udnelei2 esigino zegaqi udnelei1 zegaqino zud ale nasgi anadvuri gvwadnelei2

Online Braille Translator

This online Cherokee syllabary Braille translator can be used to translate limited amounts of Cherokee syllabary text to a Braille ready file (.brf). It employs the Braille table for liblouis which can be downloaded below.

Cherokee Braille Translation Table

A Braille translation table for the liblouis Braille system has been developed. This table when used with the various liblouis software will transcribe works in the Cherokee syllabary into ASCII Braille for production on modern computer driven Braille embossers.

chk-us.ctb Cherokee Braille table for libouis and BrailleBlaster systems.

About the Author

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Tamara Kearney is the Braille Manager for the Commonwealth Braille and Talking Book Cooperative and the former Children's Library Officer of the Association for the Blind of Western Australia library service and the past Chairman of the Braille Authority of Western Australia. She hold a certificate in Unified English Braille and has been a Braille user from childhood.

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