

Typing Gayogohonq'néha:ʔ

The Gayogohó:nq' Indigenous people (named -mispronounced- *Cayuga* by the English and American settlers) have a longstanding relationship of more than 13.000 years with the *Cayuga* Lake region, lands and waters, where the main campus of Cornell University is situated. This history includes a critical and painful event in 1779 when soldiers from the American armed forces carried out the Sullivan-Clinton expedition (Figure 1). This military attack had the purpose of destroying the Onqodowá'ga:ʔ (*Seneca*) and Gayogohó:nq' (*Cayuga*) settlements and crops from peoples who were supposed to be allies of the British during the American Revolution (Jordan, 2022). American history celebrates this expedition as a victory “against the hostile tribes of the Six Nations of Indians”. For the Gayogohó:nq', on the other hand, it was a genocide against their people and their culture and one of the leading causes of their diaspora. However, it did not mean, and neither did the continuous and systematic colonial attacks, their disappearance. The Gayogohó:nq' have a contemporary presence, and their struggles to preserve their culture and reconnect with their territories continue.

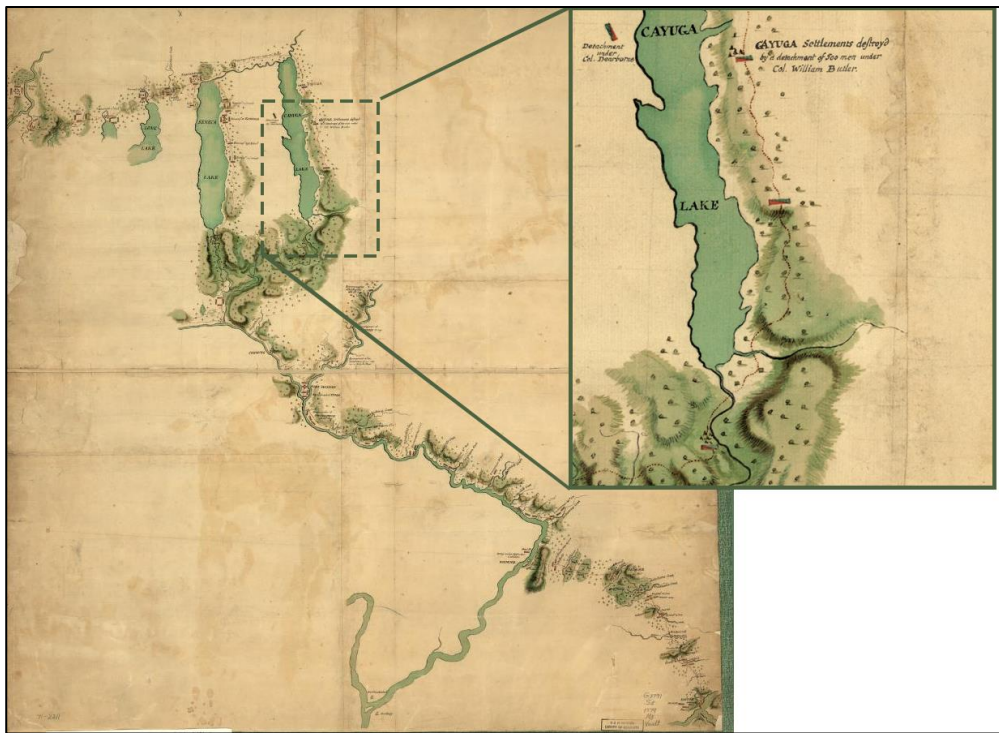


Figure 1. Map of Sullivan's expedition showing the settlements and crops destroyed, with a Zoom in the Tompkins County region. Modified from (Map of Gen. Sullivan's march from Easton to the *Seneca* & *Cayuga* countries., 1779)

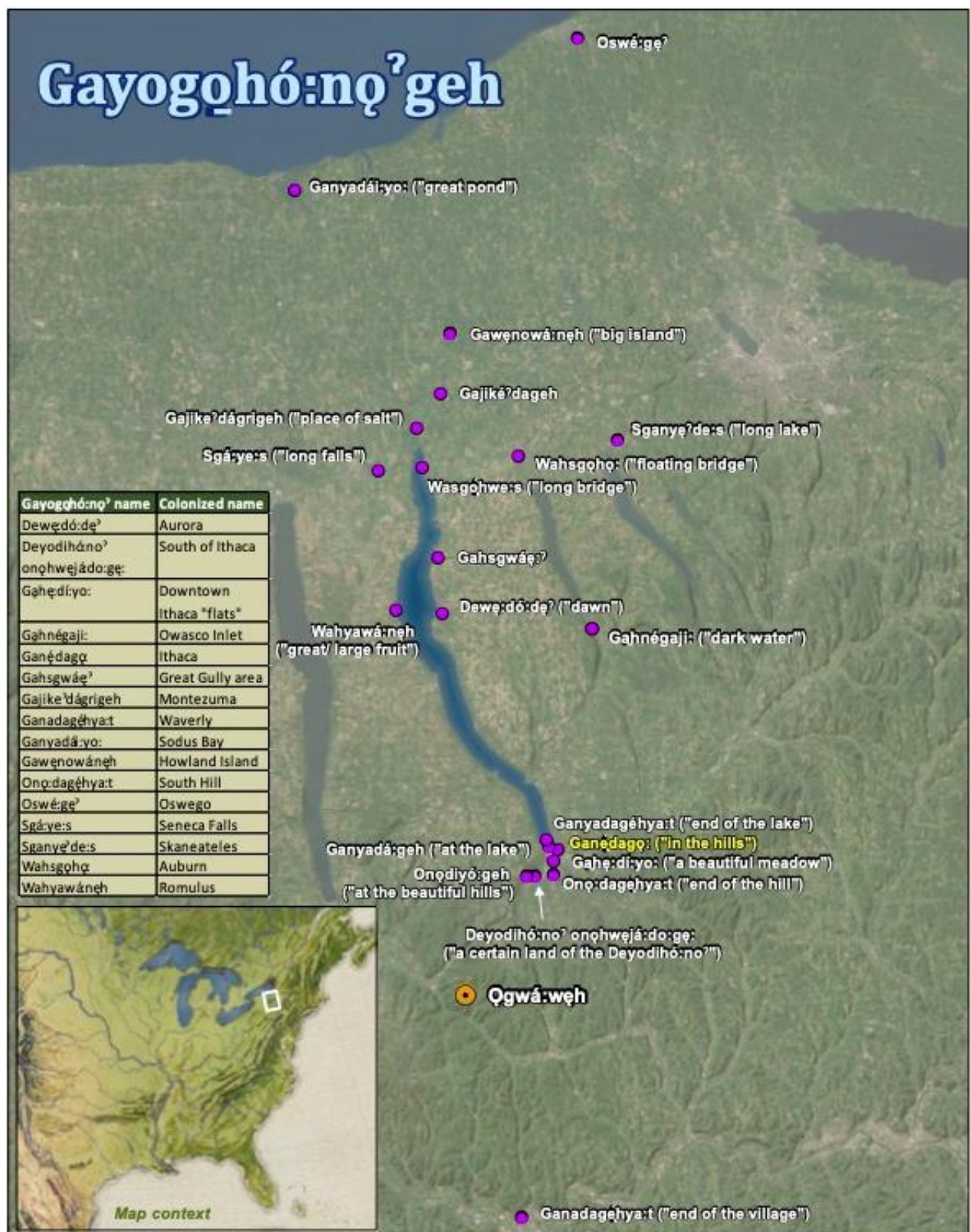


Figure 2. Map of the *Cayuga* Lake region where Stephen Henhawk matched their oral traditions, thanks to the descriptive quality of Gayogohó:nq', with the landscapes he saw when he came back to their original land. Source: Stephen Henhawk.

Stephen Henhawk is a dedicated member of the Gayogohó:nq? community, who is actively involved in their struggles. He considers that preserving Gayogohó:nq? language is crucial to protecting their culture, unraveling their history (Figure 2), and safeguarding their ways of living and co-existing with nature. Worryingly, the number of people who speak Gayogohó:nq? as a first language is less than ten, Stephen being one of the youngest (Sanders, 2024). This short number is the reason why the United Nations Educational, Scientific and Cultural Organization declared Gayogohó:nq? language as critically endangered (but **not** extinct).

According to Jordan, “(t)he Gayogohó:nq? community asserts that wider use of Gayogohó:nq? by outsiders will help their own efforts to revitalize their language.” (2022, p. 5). Following this statement and concerned about the difficulties in digitally writing and reading Gayogohó:nq?, this work presents a set of tools that aim to support Gayogohó:nq? and English typing. Currently, typing Gayogohó:nq? requires copying and pasting from a well-spelt source and makes the writer lose the writing flow. Also, many readings of Gayogohó:nq? on the web present misspelt words or use different typography that disturbs the aesthetics of the text and provokes the sensation of Gayogohó:nq? words “not belonging” to the entire writing (e.g.: <https://lrc.cornell.edu/news/coming-home-gayogohono-language-programs-expand-reach-0>).

Gayogohónq?néha:?, the Gayogohó:nq? language.

Gayogohónq?néha:? is a very descriptive language (Gayogohó:nq? Learning Project, 2022) that reveals straight relationships with nature and with their homeland (Fiorello, 2021). For example, Gayogohónq? (*Cayuga*) means “from the swampy land” (Jordan, 2022), and Hyáikneh (*June*) literally translates to “fruit ripen” (Dyck et al., 2024). Regarding its structure, Gayogohónq?néha:? has three kinds of words: nouns, verbs, and particles (that have diverse uses like adverbs, pronouns, conjunctions, among others), and uses seven vowels (a, e, i, o, u, e - nasal e -, and o - nasal o -) and thirteen consonants (d, g, h, j, k, n, r, s, t, ts, w, y, and ?-glottal stop-). Vowels may include an

accent mark (á, é, í, ó, ú, ê, and ô) that indicates more emphatic pronunciation of the marked syllable. Vowels also could be underlined (a, e, i, o, u, ɛ, and ɔ) meaning that they are whispered, almost inaudible. Additionally : is used as a slow marker (Dyck et al., 2024; Gayogohó:nqʔ Learning Project, 2022).

Tool 1: Unicode list

Unicode is the most used standard for encoding text. Table 1 presents the set of Unicode main characters used to type English and Gayogohonqʔnéha:ʔ. The code for a character results from concatenating “U+”+ <column title>+<row title>. For example, **A** is U+0041, and **ʔ** is U+02C0. Characters in the last two columns are in the group of private use and encode custom Gayogohó:nqʔ characters without replacing existent standard symbols.

	002	003	004	005	006	007	00C	00D	00E	00F	011	01E	02C	E00	E01
0		0	@	P	`	p							ʔ	Ě	
1	!	1	A	Q	a	q	Á		á					ě	
2	"	2	B	R	b	r								ô	
3	#	3	C	S	c	s		Ó		ó				ô	
4	\$	4	D	T	d	t								a	A
5	%	5	E	U	e	u								e	E
6	&	6	F	V	f	v								i	I
7	'	7	G	W	g	w								o	O
8	(8	H	X	h	x					Ě			u	U
9)	9	I	Y	i	y	Ě		é		ě			ɛ	Ě
A	*	:	J	Z	j	z		Ů		ú		Q		ɔ	Q
B	+	;	K		k	{						q			
C	,	<	L	\	l										
D	-	=	M		m	}	Ĭ		í						
E	.	>	N	^	n	~									
F	/	?	O	_	o	□									

Table 1. Unicode list that includes characters to type in Gayogohó:nqʔ (especial characters highlighted in blue) and English.

Tool 2: Keyboard layout

Recent projects like [First Voices](#) aim to support and promote Indigenous languages. They provide diverse resources, including keyboards, and within these, there is one for

[Gayogohó:nq? \(Cayuga\)](#). This keyboard layout, however, overwrites characters used in English, like the c (replaced with q) and the v (replaced with ɛ). This tool proposes a keyboard layout (*Figure 3*) that responds to the Unicode set in Table 1. It's important to clarify the design audience of this particular keyboard. This design centers those that do not speak Gayogohó:nq?néha:ʔ as a first language but rather second language speakers or simply those that incorporate Gayogohó:nq?néha:ʔ into their writing alongside English. If we were to center a different user, such as Gayogohó:nq?néha:ʔ first language speakers, the design outcome and structure would most definitely alter.

Keyboard for Windows:

<https://github.com/ljcortesr/Gayogoh-n-/blob/main/Keyboard%20layout%20gayoengl.zip>

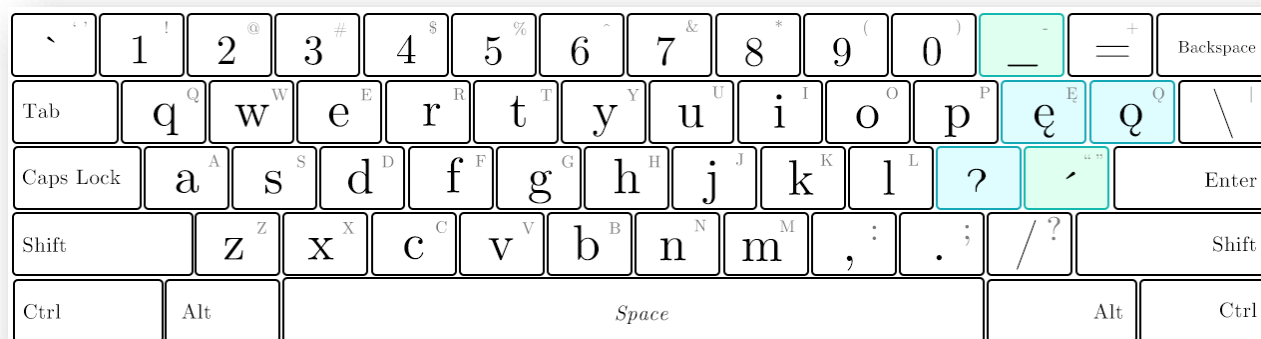


Figure 3. Keyboard layout. In blue, special characters for Gayogohó:nq? typing. In green, modifiers for vowels; to use them in composed characters, modifiers should be typed first, and then the vowel.

Tool 3: Font family

The proposed font is called Wəna Gayogohó:nq. **Wəna** means ‘word, voice, speech’. It is a Modified Version of [Computer Modern](#) (original family of the TeX typesetting program), including the special characters of Gayogohó:nq?, licensed under the SIL Open Font License.

Wəna Gayogohó:nq Font:

<https://github.com/ljcortesr/Gayogoh-n-/raw/main/Wena%20Gayogohono%20Font.zip>

Węna Gayogóhó:nq Regular

Modified from Computer Moderna Serif Roman (CMU Serif)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Ē Œ ?
a b c d e f g h i j k l m n o p q r s t u v w x y z ē œ
Á Ē Í Ó Ú Ē Œ Ą Ē I O U Ē Œ
á é í ó ú é Œ ă ě i o u ě Œ
0 1 2 3 4 5 6 7 8 9 - = + ! @ # \$ % ^ & * () ; , . ' " "

Węna Gayogóhó:nq Italic

Modified from Computer Moderna Serif Italic (CMU Serif Italic)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Ē Œ ?
a b c d e f g h i j k l m n o p q r s t u v w x y z ē œ
Á Ē Í Ó Ú Ē Œ Ą Ē I O U Ē Œ
á é í ó ú é Œ ă ě i o u ě Œ
0 1 2 3 4 5 6 7 8 9 - = + ! @ # \$ % ^ & * () ; , . ' " "

Węna Gayogóhó:nq Bold

Modified from Computer Moderna Serif Bold (CMU Serif Bold)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Ē Œ ?
a b c d e f g h i j k l m n o p q r s t u v w x y z ē œ
Á Ē Í Ó Ú Ē Œ Ą Ē I O U Ē Œ
á é í ó ú é Œ ă ě i o u ě Œ
0 1 2 3 4 5 6 7 8 9 - = + ! @ # \$ % ^ & * () ; , . ' " "

Imagining possibilities.

[TCAT \(Tompkins Consolidated Area Transit\)](#) provides public transportation throughout Tompkins County, the homeland of Gayogóhó:nq people. TCAT routes cover the

territory using the names given by the settlers. Using a [5x7 dot matrix font](#) that includes Gayogohó:nq' special characters and matching Stephen Henhawk's map (Figure 2) with TCAT routes, the next set of images proposes also displaying Gayogohó:nq' names over existent infrastructure in the buses as a recognition of Gayogohó:nq' historical and contemporary presence in the territory.





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Carlos Aranzazu. Fonts' design.

References

Cornell University. (2021). *Land Acknowledgment*. American Indian and Indigenous Studies. <https://cals.cornell.edu/american-indian-indigenous-studies/about/land-acknowledgment>

Dyck, C., Froman, F., Keye, A., & Keye, L. (2024). *A grammar and dictionary of Gayogohó:nq² (Cayuga)*. Language Science Press.

Fiorello, S. (2021). *Collaboration plants seeds for cultural, biological conservation* / *Cornell Chronicle*. <https://news.cornell.edu/stories/2021/09/collaboration-plants-seeds-cultural-biological-conservation>

Gayogohó:nq' Learning Project. (2022). *Gayogohó:nq' Language*. Gayogohó:nq' Learning Project. <https://gayogohono-learning-project.org/language>

Jordan, K. (2022). *The Gayogohó:nq' People in the Cayuga Lake Region: A Brief History*. Tompkins County Historical Commission.

Map of Gen. Sullivan's march from Easton to the Seneca & Cayuga countries. (1779). [Map].

<https://www.loc.gov/resource/g3791s.ar106400/?r=0.083,0.928,0.288,0.149,0>

Sanders, K. (2024). *Gayogohó:no' Speakers Work to Restore Language Among Cornell, Nation Communities—The Cornell Daily Sun*.

<https://cornellsun.com/2024/03/06/gayogo%cc%b1ho%ea%9e%89n%c7%ab%cb%80-speakers-work-to-restore-language-among-cornell-nation-communities/>,

<https://cornellsun.com/2024/03/06/gayogo%cc%b1ho%ea%9e%89n%c7%ab%cb%80-speakers-work-to-restore-language-among-cornell-nation-communities/>