

# Ge'ez Berhan keyboard alphabets

## Introduction

This is a Ge'ez Berhan mode (ዘግዕዝ-ብርሃን ቅጽ ተራ-ፊደል) that works as a computer-keyboard input. It requires a font supporting the Unicode 4.1 standard, "AbyssinicaSIL" is recommended. This Ge'ez Berhan list mode is designed for the US English QWERTY (ቅወርቅዩ) keyboard. This means that the acting keyboard requires to be in the US English keyboard-mode according to the US standard model.

## Typing-in the Ge'ez Alphabet

*The Ge'ez Alphabet explores all related lists of Ethio-Eritrean characters and symbols. For the excerpts look at the following examples.*

The Ge'ez typing alphabet-list is ordered according to the imprint of the European keyboard mode in order to help the user to locate a similar sound from the Ge'ez alphabets. But the Eritrean and Ethiopian sound alphabet-lists that currently are used in these countries are beyond the European number-lists. Therefore, to embrace all Ge'ez alphabet spoken into these 2 countries, a wide list of alpha-list keystrokes are needed. To collect the wide list of Ge'ez alpha in one basket, a new mode of "shift or alpha-builder" is adopted. This additional mode of shift comes in to building those very basic-letter's shape of these numerous African alphabets. The new alpha-builder key is introduced with the letter "j". therefore:

The Ge'ez-Berhan keyboard program has 3 important tasks that support the user to edit in an efficient ways and in an smoother strikes of keyboard.

- 1) The 1<sup>st</sup> task is to build the basic letter in no more than 2-keys, and this is for the most very common alphabets.
- 2) The 2<sup>nd</sup> role is to consider all Ge'ez alphabets as a consonant mode with no mixed tasks with vowels.
- 3) The 3<sup>rd</sup> important decision is to designate the vowels with a separate key-tasks. A single-key vowel is assigned to edit that specific level of alpha (from 1<sup>st</sup> to the 7<sup>th</sup> level). The Ge'ez alphabets need 6 separate keys for the vowels support. Therefore, to the 5 vowels available a new vowel is adopted in the letter of "v" (see the vowel table). So, in this program the "v" becomes a new vowel keys that produces the 5<sup>th</sup> level of each alphabet.

The process to type-in the vowel is changed	Ge'ez vowel	Ge'ez alpha
These vowels work only to change the consonant into the 6 levels.	e u i a v id o	“አ አ አ አ አ አ አ አ”
When vowels are stricken no output will occur, but ‘beep’ sound only.	‘beep’	
To write the character consonant “አ” you need to press the ‘p’ key.	pe pu pi pa pv p po	አ አ አ አ አ አ አ
The “id” refers to all list of the basic Ge'ez alpha.	Note: id	“ id ”

**A. Using the normal-key**

ናይ ገርሂ ተራ-ፊደል ጽሕፈት: ገር አጻጻፍ ፊደል (ተራ-ፊደል):

	ከደነ	ክቡር	ሰላም	ሰማይ	ሰበር
Normal keyboard mode	ke de ne	k bu r	se la m	se ma y	se be r
	ገዳም	ገብርኤል	መልአክ	ከደ	ሄደ
	ge da m	ge b r pv l	me l pa k	ke de	hv de

**B. Using the base-key + “j”**

ፊደል ምስ ሓናጺ መብረ-ፊደል “j”: ገር-ፊደል ከነ መለዮ አጻጻፍ-ፊደል:

	ሽክላ	መጽሓፍ	ሠመረ	ሽማግሌ	ቃለቤት
Base key + “ j ”	sje k la	me x hja f	rje me re	sj ma g lv	qa le bv t
	ሠናይ	ፀሓይ	ምዕራፍ	ባረኽ	ነደቕ
	rje na y	wje hja y	m pj ra f	ba re kje	ne de qje

**C. Using the shift-key + “ j ”**

ፊደል ምስ መብረኽን “shift” መብረን “j” ተራ-ፊደል: ገር-ፊደል ከነ-ሽፍት እና የ“j” መለዮ-ፊደል:

	ሠናይ	ፀሓይ	ድኳ	ሽኳር	ጉባዝ
Shift + key or + “j”	rj na y	xj hja y	d Ka	sj Ka r	gje be z
	ቦኸሪ	መከራ	ጌ, ኩ	ሷ, ሟ	ዶ, ኘ
	bo K ri	me Ke re	gvj, Kv	lA, mA	dO, lJO

**D. The symbol or character (consonant) “አ” is the letter “p”**

ተራ-ፊደል “አ” ን“p” ጸቕጥካ ይጽሓፍ፤ “አ”-ፊደል ለመጻፍ “p” ተራ-ፊደል ንካ:

	እንጌራ	እንስሳ	አንበሳ	አብርሃ	ዓሳ
Letter ‘አ’ as a consonant	p n gv ra	p n s sa	pa n be sa	pe b r ha	pja sa
	ኤርትራ	ኢትዮጵያ	አፍሪቃ	እስያ	ኢንስቲትዩት
	pv r t ra (Eritrea)	pi t yo xj ya (Ethiopia)	pe f ri qa	p s ya Asia	pi n s ti t yu t (Institute)

E. Typing-in punctuations of Ge'ez language

ዛዛሚ-ስምዒት ረጅሕታ ሐበሬታ: የስሜት-ሓሳብ መዛዘምያ:

Keystrokes of symbols	Latin punctuations	;	:	'	“	,	.	/							
	ግዕዝ-ብርሃን ሕንጻጽ	፤	፡-	፣	፥	፡	።	፣	፣	፣	፣	፣	፣	፣	፣
Press symbol + j	Codes for “, ./” + j								፤	፡-	፣	፥	፡	።	/
									+ j	+ j	+ j	+ j	+ j	+ j	+ j

F. Typing-in the Ge'ez-notes (Milikit) using normal numbers

ዜማ-ምልክት ብሐበሬታ ቀጽሪ ይጽላፍ: ዜማ-ምልክት በቀጥታ ይጻፋል:

	ይዘት	ጭረት	ቅናት	ሒደት	ድፍላት	ደረት	ርክርክ: ሐጺር	ርክርክ	ቀጥታ	አንብር	ድርስ
Numbers ቀጥታ	1	2	3	4	5	6	7	8	9	0	-
Milikit ምልክት	.	,	፡	፣	፥	፡	።	፣	፣	፣	፣
Press any number + 0	Ex: “. = 1 + 0” “፡ = 3 + 0” “፣ = 8 + 0” “፣ = 9 + 0”										

G. Editing the Ge'ez numbers using normal numbers

ግዕዝ አኃዳዊ-ቀጽሪ ብቅጽሪ ይጽላፍ: የግዕዝ አኅዝ-ቀጥታ በቀጥታ ይጻፋል:

Edit any number followed by “u” char										
Numbers	0	1	2	3	4	5	6	7	8	9
ግዕዝ አኅዝ-ቀጥታ	፬	፭	፮	፯	፰	፱	፳	፴	፵	፶
Numbers		10	20	30	40	50	60	70	80	90
ግዕዝ አኅዝ-ቀጥታ		፲	፳	፴	፵	፶	፷	፸	፹	፺
Numbers		100	1000	10000						
ግዕዝ አኅዝ-ቀጥታ		፻	፻፱	፳፻						
Press a number + u	Ex: “2 + u = ፮” “4 + u = ፰” “8 + u = ፳”									

# Ge'ez Typing Table

Codes		Ge'ez alphabet list with codes									
shift	letters	+ Normal vowel						+ Shift vowel			
	Vowels	e	u	i	a	v	id	o	O	A	I
	h	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ	ሰ		
	hj	ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሖ		ሐ	
	l	ለ	ሉ	ሊ	ላ	ሌ	ል	ሎ	ሰ	ላ	
	lj	ላ	ላ	ላ	ላ	ላ	ላ	ላ	ላ	ላ	
shift+	lj	ላ		ላ	ላ	ላ	ላ				
	m	መ	ሙ	ሚ	ማ	ሜ	ም	ሞ	ሞ	ሚ	ሚ
	mj	ሙ	ሙ	ሚ	ማ	ሜ	ም	ሞ			
shift+	m	ሙ		ሚ	ማ	ሜ	ም				
shift+	mj	ሙ		ሚ	ማ	ሜ	ም				
	r	ረ	ሩ	ሪ	ራ	ሪ	ሮ	ሮ	ሮ	ረ	ረ
	rj	ረ	ረ	ሪ	ራ	ሪ	ሮ	ሮ		ረ	
	s	ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ	ሶ	ሰ	ሰ
	sj	ሰ	ሰ	ሲ	ሳ	ሴ	ስ	ሶ		ሰ	
shift+	s		ሱ	ሲ	ሳ	ሴ	ስ	ሶ			
shift+	sj	ሰ	ሰ	ሲ	ሳ	ሴ	ስ	ሶ			
	q	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ	ቆ		
	qj	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ			
shift+	q	ቀ		ቂ	ቃ	ቄ	ቅ				
shift+	qj	ቀ		ቂ	ቃ	ቄ	ቅ				
	b	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ	ቦ		
	bj	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ		ቢ	
shift+	b	ቡ		ቢ	ባ	ቤ	ብ				
	t	ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ	ቶ	ተ	
	tj	ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ	ቶ	ተ	
shift+	tj	ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ			
	n	ነ	ኑ	ኒ	ና	ኔ	ን	ኖ	ኖ	ና	
	nj	ነ	ኑ	ኒ	ና	ኔ	ን	ኖ	ኖ	ና	
shift+	n	ኑ	ኑ	ኒ	ና	ኔ	ን	ኖ			
shift+	nj	ኑ	ኑ	ኒ	ና	ኔ	ን	ኖ			
	p	አ	አ	አ	አ	አ	አ	አ	አ		አ
	pj	አ	አ	አ	አ	አ	አ	አ			
	k	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ		
	kj	ከ	ከ	ከ	ከ	ከ	ከ	ከ			
shift+	k	ከ		ከ	ከ	ከ	ከ				
shift+	kj	ከ		ከ	ከ	ከ	ከ				
	w	ወ	ወ	ወ	ወ	ወ	ወ	ወ			
	wj	ወ	ወ	ወ	ወ	ወ	ወ	ወ			

shift+	w	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ		
	z	ዘ	ዙ	ዚ	ዛ	ዞ	ዟ	ዠ	ዡ	ዢ
	zj	ዠ	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ		ዧ
shift+	z	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ			
shift+	zj		ዣ	ዤ	ዥ	ዦ	ዧ			
	y	የ	ዮ	ደ	ያ	ዬ	ደ	ዮ	ዮ	
	yj	ደ	ዮ	ደ	ያ	ዬ	ደ	ዮ	ዮ	ደ
shift+	yj		ዮ	ደ	ያ	ዬ	ደ			
	d	ደ	ዮ	ደ	ያ	ዬ	ደ	ዮ	ዮ	ደ
	dj	ደ	ዮ	ደ	ያ	ዬ	ደ	ዮ	ዮ	ደ
	g	ገ	ገ	ገ	ገ	ገ	ገ	ገ		
	gj	ገ		ገ	ገ	ገ				
shift+	g	ገ	ገ	ገ	ገ	ገ	ገ			
	c	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ
	cj	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ
shift+	c	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ			
shift+	cj	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ			
	x	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ			ጸ
	xj	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ		
shift+	x	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ			
	f	ፈ	ፋ	ፈ	ፋ	ፈ	ፋ	ፈ		ፈ
	fj	ፈ	ፋ	ፈ	ፋ	ፈ	ፋ	ፈ		
shift+	f	ፈ		ፈ	ፋ	ፈ				
shift+	fj	ፈ		ፈ	ፋ	ፈ				

# The keyboard Table of the computer

## A. The keyboard table with references

ሥእሊ ተራ-ፊደል አብ ኮምፕዩተር፡ የኮምፕዩተር የአኅዝ-ፊደል ሥእል፡

<table border="1"> <tr> <td>.</td><td>’</td><td>˘</td><td>˙</td><td>˚</td><td>˛</td><td>˜</td><td>˝</td><td>ˆ</td><td>˜</td><td>˘</td><td>˙</td> </tr> <tr> <td>፩</td><td>፪</td><td>፫</td><td>፬</td><td>፭</td><td>፮</td><td>፯</td><td>፰</td><td>፱</td><td>፲</td><td></td><td></td> </tr> </table>												.	’	˘	˙	˚	˛	˜	˝	ˆ	˜	˘	˙	፩	፪	፫	፬	፭	፮	፯	፰	፱	፲			Note +o														
.	’	˘	˙	˚	˛	˜	˝	ˆ	˜	˘	˙																																							
፩	፪	፫	፬	፭	፮	፯	፰	፱	፲																																									
<table border="1"> <tr> <td>`</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>- =</td> </tr> <tr> <td>~</td><td>!</td><td>@</td><td>#</td><td>\$</td><td>%</td><td>^</td><td>&amp;</td><td>*</td><td>(</td><td>)</td><td>_ +</td> </tr> </table>												`	1	2	3	4	5	6	7	8	9	0	- =	~	!	@	#	\$	%	^	&	*	(	)	_ +	Number +u														
`	1	2	3	4	5	6	7	8	9	0	- =																																							
~	!	@	#	\$	%	^	&	*	(	)	_ +																																							
<table border="1"> <tr> <td>q</td><td>w</td><td>e</td><td>r</td><td>t</td><td>y</td><td>u</td><td>i</td><td>o</td><td>p</td><td>[{ ]}</td><td>\ </td> </tr> <tr> <td>ቅ</td><td>ወ</td><td>አ</td><td>ር</td><td>ገ</td><td>ደ</td><td>ኡ</td><td>ኢ</td><td>አ</td><td>እ</td><td>[</td><td>]</td><td>\</td> </tr> <tr> <td>ቆ</td><td>ሰ</td><td>አ</td><td>ሥ</td><td>ቸ</td><td>ድ</td><td>ኡ</td><td>ኢ</td><td>አ</td><td>ዕ</td><td>{</td><td>}</td><td> </td> </tr> </table>												q	w	e	r	t	y	u	i	o	p	[{ ]}	\	ቅ	ወ	አ	ር	ገ	ደ	ኡ	ኢ	አ	እ	[	]	\	ቆ	ሰ	አ	ሥ	ቸ	ድ	ኡ	ኢ	አ	ዕ	{	}		Symbol
q	w	e	r	t	y	u	i	o	p	[{ ]}	\																																							
ቅ	ወ	አ	ር	ገ	ደ	ኡ	ኢ	አ	እ	[	]	\																																						
ቆ	ሰ	አ	ሥ	ቸ	ድ	ኡ	ኢ	አ	ዕ	{	}																																							
<table border="1"> <tr> <td>a</td><td>s</td><td>d</td><td>f</td><td>g</td><td>h</td><td>j</td><td>k</td><td>l</td><td>;</td><td>:</td><td>'"</td> </tr> <tr> <td>አ</td><td>ሰ</td><td>ድ</td><td>ፍ</td><td>ግ</td><td>ሀ</td><td>መብረ-ፊደል</td><td>ክ</td><td>ል</td><td>፤</td><td>'</td><td></td> </tr> <tr> <td></td><td>ሽ</td><td>ጅ</td><td>ፕ</td><td>ጉ</td><td>ሕ</td><td>shift</td><td>ኸ</td><td>ጎ</td><td>:-</td><td>"</td><td></td> </tr> </table>												a	s	d	f	g	h	j	k	l	;	:	'"	አ	ሰ	ድ	ፍ	ግ	ሀ	መብረ-ፊደል	ክ	ል	፤	'			ሽ	ጅ	ፕ	ጉ	ሕ	shift	ኸ	ጎ	:-	"		alpha		
a	s	d	f	g	h	j	k	l	;	:	'"																																							
አ	ሰ	ድ	ፍ	ግ	ሀ	መብረ-ፊደል	ክ	ል	፤	'																																								
	ሽ	ጅ	ፕ	ጉ	ሕ	shift	ኸ	ጎ	:-	"																																								
<table border="1"> <tr> <td>z</td><td>x</td><td>c</td><td>v</td><td>b</td><td>n</td><td>m</td><td>,</td><td>&lt;</td><td>.</td><td>&gt;</td><td>/</td> </tr> <tr> <td>ዝ</td><td>ጸ</td><td>ፕ</td><td>ኮ</td><td>ብ</td><td>ን</td><td>ም</td><td>:</td><td>,</td><td>::</td><td>.</td><td>:/</td> </tr> <tr> <td>ኸ</td><td>ጸ</td><td>ጭ</td><td>ኮ</td><td>ብ</td><td>ኻ</td><td>ግ</td><td>&lt;</td><td>&gt;</td><td>?</td><td></td><td></td> </tr> </table>												z	x	c	v	b	n	m	,	<	.	>	/	ዝ	ጸ	ፕ	ኮ	ብ	ን	ም	:	,	::	.	:/	ኸ	ጸ	ጭ	ኮ	ብ	ኻ	ግ	<	>	?			alpha +j		
z	x	c	v	b	n	m	,	<	.	>	/																																							
ዝ	ጸ	ፕ	ኮ	ብ	ን	ም	:	,	::	.	:/																																							
ኸ	ጸ	ጭ	ኮ	ብ	ኻ	ግ	<	>	?																																									
<table border="1"> <tr> <td>α</td><td>β</td><td>γ</td><td>δ</td><td>ε</td><td>ζ</td><td>η</td><td>θ</td><td>ι</td><td>κ</td><td>λ</td><td>μ</td><td>ν</td><td>ξ</td><td>ο</td><td>π</td><td>ρ</td><td>σ</td><td>τ</td><td>υ</td><td>φ</td><td>χ</td><td>ψ</td><td>ω</td> </tr> </table>												α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	τ	υ	φ	χ	ψ	ω	alpha														
α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	τ	υ	φ	χ	ψ	ω																											
<table border="1"> <tr> <td>α</td><td>β</td><td>γ</td><td>δ</td><td>ε</td><td>ζ</td><td>η</td><td>θ</td><td>ι</td><td>κ</td><td>λ</td><td>μ</td><td>ν</td><td>ξ</td><td>ο</td><td>π</td><td>ρ</td><td>σ</td><td>τ</td><td>υ</td><td>φ</td><td>χ</td><td>ψ</td><td>ω</td> </tr> </table>												α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	τ	υ	φ	χ	ψ	ω	alpha +j														
α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	τ	υ	φ	χ	ψ	ω																											

The above table shows:

- The 1<sup>st</sup> row in green area shows the result of the Ge’ez alphabet with the support of “+u” and “+o”.
- The following 2 rows are the keyboard number/symbol lists that will be common for Ge’ez and Latin.
- The 3 yellow other rows show the Latin alpha as a reference.
- The other pair rows of black and blue are the output of the alphabets. The black in normal key and the blue in “j” (like shift-key).
- The alpha in red colour are the 6 designated vowels.
- The additional 3 dot in red “ , . / ” are symbols list that become an output using the “j” support.
- The last column shows a memo to the main table.
  - 1) The 1st row forms the shape of the base alphabet using the normal key and with the support of the ”j” letter.
  - 2) The 2nd follows the shift task to shape a base alphabet, using the normal key and with support of the “j” letter.
  - 3) The 3rd row represents the lists of alphabet with exceptions and form only one shape beginning the basic alpha. These are a form of 3rd, 4th, and 7th order from the common 7 orders the Ge’ez alphabets expands.

B. The reference shape of the list-keyboard

ሥእሊ ተራ-ፊደል አብ ኮምፕዩተር፡ የኮምፕዩተር የአገዝ-ፊደል ሥእል፡

`	1	2	3	4	5	6	7	8	9	0	-	=
~	!	@	#	\$	%	^	&	*	(	)	_	+
ቅ	ወ	አ	ር	ት	ይ	ኡ	ኢ	አ	እ	[	]	\
ቕ	ዐ	ሐ	ሥ	ኘ	ድ	ኣ	ኣ	አ	ዕ	{	}	
አ	ሰ	ድ	ፍ	ግ	ሀ	መብሪ -ፊደል shift	ክ	ል	፤	'		
	ሸ	ጅ	ፐ	ገ	ሕ		ኸ	ኅ	:-	"		
ዝ	ጸ	ጥ	ኤ	ብ	ን	ም	;	::	:/			
ኸ	ድ	ጭ		ብ	ኘ	ኘ	<	>	?			

C. The Ge'ez alphabet lists in reference to the shape-development

ዝርዝር ፊደል-ግዕዝ አብ ሥርዓት-ቅርጽ፡ የአገዝ-ፊደል ሥርዓት-ቅርጽ በኮምፕዩተር፡

1	ሀ ለ ረ ሰ ቀ	በ ተ ነ አ ከ	ወ ዘ ደ ጠ ጸ	መ ፈ ገ የ	a	j	+6	
	ሐ ኅ ሠ ሸ ቕ	ሸ ኘ ኘ ዐ ኸ	ፀ ዠ ጅ ጫ ዳ	ኘ ፐ ግ ደ				
2	ከ	ሱ ቈ ቡ	ሸ	ከ ቀ ዝ	ጫ ጸ	መ ፈ ኘ	+5 / 6 / 7	
	ከ	ሸ ቈ	ቐ ኸ	ከ	ጫ	ኘ ፐ		
3	ሐ	ረ ሰ	ሸ ተ ደ	ዘ ደ ጠ ጸ	a	j	A	4 <sup>th</sup>
		ረ	አ	ዘ ጅ ጫ ዳ	a		l	3 <sup>rd</sup>
	ሀ ሐ ገ ሰ ቀ ብ ቐ ኘ አ ነ ዎ ዘ ደ ጠ	ም	ኅ	ዎ	a	j	O	7 <sup>th</sup>

## License

This keyboard is copyright Copyright © 2021 Fr. Berhanemeskel M. Embaye OFM Cap.. It is distributed under the MIT free software license:

### The MIT License (MIT)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.