SIL Greek Font System

Technical Reference

SUMMER INSTITUTE OF LINGUISTICS

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SIL Greek Font System Technical Reference

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Introduction to the SIL Greek Font System

Welcome to the SIL Greek Font System. We hope to provide here an integrated system for entering, displaying and printing Biblical Greek texts. Also included are fonts for transliteration and conversion programs for going from one encoding to another. We welcome your comments and hope you will contact us should you find any inconsistencies or oversights.

Three families of fonts are included in this package:

SIL Galatia—containing the basic set of characters needed for Biblical Greek texts (Regular & Bold faces)

SIL Galatia Extras—containing additional rarely used characters (Regular & Bold faces)

SIL Greek Trans—containing characters used to transliterate Greek into Roman text (Regular, Bold, Italic & Bold Italic faces)

In addition to the fonts themselves, this package includes keyboard control files for use with either the Tavultesoft Keyboard Manager© (KeyMan) for Windows or SILKey for the Mac OS. These fiels simplify the typing of Greek text. Users may produce their own keyboard files if desired. Conversion routines, for use with the Consistent Changes program are also included to convert texts between character encodings. KeyMan, SILKey and the Consistent Changes programs are available from SIL's Web site (www.sil.org).

For Mac OS users, the SIL Galatia font family, when used with QuickDraw GX-savvy applications, automatically combines diacritics (without the need for additional keyboarding utilities) and includes many alternate forms and additional features. A WorldScript script file that provides some of these features is also included.

Consult the *Installation Guide* and *Release Notes* for instructions on installing the system and further information, including known problems and a complete listing of the contents of this package.

Distribution

The Summer Institute of Linguistics (SIL) is an organization of linguists dedicated to the study and promotion of the thousands of languages around the world. SIL's International Publishing Services serves SIL by developing products to assist in the publication of linguistic texts.

This font system was originally developed to meet the needs and restrictions of in-house development projects, and so, may not adequately address the more generalized need for Biblical Greek computing solutions or be applicable in all situations. Nevertheless, we are happy to make this package available to the general academic community at no charge. You may (and are encouraged to) share these fonts and utilities with your friends and co-workers, but with the following restrictions:

- All files must be copied together, including this one.
- No fee may be charged for the fonts.
- They may not be used as a basis for other fonts.

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Support

As these fonts and utilities are distributed at no cost, we are unable to provide a commercial level of personal technical support. We will, however, try to resolve problems that are reported to us. We do wish to know about these problems so they can be addressed in future releases. Even if you are not having any specific problems, but have an idea on how this system could be improved, we want to hear your ideas and suggestions.

Contacting Us

User Support
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Email: fonts@sil.org
World Wide Web: http://www.sil.org/

Font Samples

The following samples illustrate each of the fonts included in this system. For detailed information on how symbols are assigned to access codes, see the appendices. The SIL Galatia and SIL Greek Trans text used is John 1:1-5, from *The Greek New Testament* (United Bible Societies, Fourth Revised Edition, Second Printing, 1994).

SIL Galatia

᾽Εν ἀρχῇ ἦν ὁ λόγος, καὶ ὁ λόγος ἦν πρὸς τὸν θεόν, καὶ θεὸς ἦν ὁ λόγος. οὗτος ἦν ἐν ἀρχῇ πρὸς τὸν θεόν. πάντα δι᾽ αὐτοὺ ἐγένετο, καὶ χωρὶς αὐτοὺ ἐγένετο οὐδὲ ἕν. ὃ γέγονεν ἐν αὐτῷ ζωὴ ἦν, καὶ ἡ ζωὴ ἦν τὸ φῶς τῶν ἀνθρώπων· καὶ τὸ φῶς ἐν τῇ σκοτίᾳ φαίνει, καὶ ἡ σκοτίᾳ αὐτὸ οὐ κατέλαβεν.

᾽Εν ἀρχῇ ἦν ὁ λόγος, καὶ ὁ λόγος ἦν πρὸς τὸν θεόν, καὶ θεὸς ἦν ὁ λόγος. οὗτος ἦν ἐν ἀρχῇ πρὸς τὸν θεόν. πάντα δι᾽ αὐτοὺ ἐγένετο, καὶ χωρὶς αὐτοὺ ἐγένετο οὐδὲ ἕν. ὃ γέγονεν ἐν αὐτῷ ζωὴ ἦν, καὶ ἡ ζωὴ ἦν τὸ φῶς τῶν ἀνθρώπων· καὶ τὸ φῶς ἐν τῇ σκοτίᾳ φαίνει, καὶ ἡ σκοτίᾳ αὐτὸ οὐ κατέλαβεν.

SIL Galatia – Bold

᾽Εν ἀρχῇ ἦν ὁ λόγος, καὶ ὁ λόγος ἦν πρὸς τὸν θεόν, καὶ θεὸς ἦν ὁ λόγος. οὗτος ἦν ἐν ἀρχῇ πρὸς τὸν θεόν. πάντα δι᾽ αὐτοὺ ἐγένετο, καὶ χωρὶς αὐτοὺ ἐγένετο οὐδὲ ἕν. ὃ γέγονεν ἐν αὐτῷ ζωὴ ἦν, καὶ ἡ ζωὴ ἦν τὸ φῶς τῶν ἀνθρώπων· καὶ τὸ φῶς ἐν τῇ σκοτίᾳ φαίνει, καὶ ἡ σκοτίᾳ αὐτὸ οὐ κατέλαβεν.

᾽Εν ἀρχῇ ἦν ὁ λόγος, καὶ ὁ λόγος ἦν πρὸς τὸν θεόν, καὶ θεὸς ἦν ὁ λόγος. οὗτος ἦν ἐν ἀρχῇ πρὸς τὸν θεόν. πάντα δι᾽ αὐτοὺ ἐγένετο, καὶ χωρὶς αὐτοὺ ἐγένετο οὐδὲ ἕν. ὃ γέγονεν ἐν αὐτῷ ζωὴ ἦν, καὶ ἡ ζωὴ ἦν τὸ φῶς τῶν ἀνθρώπων· καὶ τὸ φῶς ἐν τῇ σκοτίᾳ φαίνει, καὶ ἡ σκοτίᾳ αὐτὸ οὐ κατέλαβεν.

SIL Galatia Extras

Ⱥ Ⱪ Ⱄ Ⱬ Ⱶ ⱻ ⱷ Ⱶ Ⱦ ´ ˆ
ⱥ ⱪ ⱄ ⱬ ⱶ ⱻ ⱷ ⱶ ⱦ ῀ ῁ ῂ ῃ

Ⱥ Ⱪ Ⱄ Ⱬ Ⱶ ⱻ ⱷ Ⱶ Ⱦ ´ ˆ
ⱥ ⱪ ⱄ ⱬ ⱶ ⱻ ⱷ ⱶ ⱦ ῀ ῁ ῂ ῃ

SIL Galatia Extras — Bold

𐍀 𐍈 𐍂 𐍅 𐍄 𐍇 𐍆 𐍊 𐍉 ́ ̓ ̔
𐍐 𐍘 𐍒 𐍕 𐍔 𐍗 𐍖 𐍚 𐍙 𐍛 𐍜 𐍝 𐍞

𐍀 𐍈 𐍂 𐍅 𐍄 𐍇 𐍆 𐍊 𐍉 ́ ̓ ̔
𐍐 𐍘 𐍒 𐍕 𐍔 𐍗 𐍖 𐍚 𐍙 𐍛 𐍜 𐍝 𐍞

SIL Greek Trans

En archḗ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḗ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en aut�here ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḗ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

En archḗ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḗ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en aut�here zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḗ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

SIL Greek Trans — Italic

En archḗ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḗ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en autṑ zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḗ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

En archḗ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḗ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en autṑ zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḗ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

SIL Greek Trans — Bold

En archḗ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḗ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en autṑ zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḗ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

En archḛ̃ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḛ̃ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en aut�here zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḛ̃ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

SIL Greek Trans — Bold Italic

En archḛ̃ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḛ̃ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en aut�here zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḛ̃ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

En archḛ̃ ên ho lógos, kaì ho lógos ên pròs tòn theón, kaì theòs ên ho lógos. hoûtos ên en archḛ̃ pròs tòn theón. Pánta di’ autoù egéneto, kaì chōrìs aûtoù egéneto oudè hén. Hò gégonen en aut�here zōḕ ên, kaì hē zōḕ ên tò phôs tôn anthrṓpōn; kaì tò phôs en tḛ̃ skotíạ phaínei, kaì hē skotíạ autò ou katélaben.

Using the Greek Keyboards

Most people have their own preferences for how they prefer to type Greek text, but many also want to be able to share texts with others. The keyboards in the SIL Greek Font System have been developed with flexibility in mind, but also aid in making resulting text consistent.

Keyboard enhancers such as KeyMan (Windows) and SILKey (Mac OS), when used with the keyboard control files included in this package, intercepts keystrokes, uses the active keyboard control file to process them, then passes the result to the operating system. This allows for multiple ways of entering the same text.

For example, one way to enter ἁ is to type the rough breathing before the vowel—"ha". Another method is to type it after—"ah". Both are accepted, and the result of either (when using the SIL Greek keyboard) is the code 131 (ἁ).

Note that neither KeyMan nor SILKey are included in this package. They must be downloaded separately from SIL's Web site and installed according to the documentation included in those packages. The SIL Greek Font System keyboards can then be installed using the same documentation. For more specific information on the programs and writing control files consult the KeyMan or SILKey documentation.

Keyboard Control Files

Three keyboard control files are included in this package, with an additional one for use with WorldScript on the Mac OS. Each is designed to support a specific encoding. All keyboards support the same keystroke combinations for text entry, but give text to the operating system in their specific encodings. See the next chapter for more information on encodings and their use.

SIL Greek Keyboard

Mac OS file:	SIL Greek kbd
Windows files:	SILGREEK.KMN, ALPHA0.BMP, ALPHA1.BMP

The SIL Greek keyboard is designed for entering text into the SIL Composite Greek encoding—the encoding most likely to be used by most Windows and Mac OS users.

SIL Basic Greek Keyboard

Mac OS file:	SIL Basic Greek kbd
Windows files:	BASGREEK.KMN, BETA0.BMP, BETA1.BMP

The SIL Basic Greek keyboard is designed for entering text into the SIL Basic Greek encoding—the encoding most suitable for cross-platform file sharing and that used with WorldScript and QuickDraw GX.

SIL Greek Transliteration Keyboard

Mac OS file: SIL Greek Transliteration kbd
Windows files: GREEKTRN.KMN, OMEGA0.BMP, OMEGA1.BMP

The SIL Greek Transliteration keyboard is designed for entering text into the SIL Greek Transliteration encoding for display with the SIL Greek Trans font.

SIL Basic Greek (WS) Keyboard

Mac OS file: SIL Basic Greek (WS) kbd

The SIL Basic Greek (WS) keyboard (only on the Mac OS) is identical to the SIL Basic Greek keyboard, except that it is linked to the WorldScript keyboard system, so that it can be automatically activated whenever a Greek font is chosen. See the chapter on WorldScript for more information.

Keyboard Assignments

The main purpose of the keyboards is to provide a wide range of keying options, so many characters can be entered in multiple ways. If you are typing and make a mistake and use the backspace key to delete characters, the keyboard remembers the context.

Letters

α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ
a	**b**	**g**	**d**	**e**	**z**	**j, e=, e~** *or* **e^**	**q** *or* **th**	**i**	**k**	**l**	**m**	**n**	**x**

ο	π	ρ	σ,ς	τ	υ	φ	χ	ψ	ω
o	**p**	**r**	**s**	**t**	**u**	**f** *or* **ph**	**c, ch** *or* **kh**	**y** *or* **ps**	**w, o=, o~** *or* **o^**

The keyboard automatically chooses the correct code for the *sigma* depending upon the encoding and the context, so the correct final form is used when appropriate.

γγ	γκ	γξ	γχ
ngg	**nk**	**nx**	**nc(h)**

When *gamma* occurs before another *gamma*, it can be typed as **ng**, meaning that ἀγγελος can be typed **anggelos**. When *gamma* occurs before *kappa*, *xi* or *chi*, it can be typed as **n**. Note that **ng** alone produces νγ, as in μενουνγε.

Diacritics

ά	ᾶ	ὰ	ᾳ	ῒ
' *or* **/**	**^, ~** *or* **=**	**`** *or* ****	**!, |, +** *or* **_**	**"**

Diacritics are usually typed after vowels, but may also be typed before word-initial vowels and should be typed before uppercase letters. They can be combined in any order. If you accidentally type the wrong diacritic, you can change it by typing the correct one immediately.

Breath Marks

ᾀ	ᾴ
>	**h** *or* **<**

A smooth breathing is automatically added to a word-initial vowel and a rough breathing to a word-initial *rho*. To get a rough breathing on an initial vowel, type **h**—**huper** for ὑπερ, for example. If you type a word that is all uppercase, the initial breathing mark is automatically removed.

Like other diacritics, they are usually typed after vowels, but may be typed before word-initial vowels. They can also be combined with other diacritics by typing them in any order after the base character. If you type a diphthong, any breath marks and accents on the first vowel are correctly moved to the second vowel.

For example, to type Οὐκ εἰμι ἐγω ὁ Χριστος. (ΙΩΑΝΝΗΝ 3:28) you only need to press the following keys:

O u k SPACE e i m i SPACE e g w SPACE h o SPACE C r i s t o s PERIOD SPACE (I W A N N J N SPACE 3 : 2 8)

You can also press ***** to remove the breathing mark from a vowel or rho.

In a few words, a vowel with *dieresis* follows an accented vowel. You will need to type **@** before the vowel with *dieresis* to get the right behavior. For example, to get ’Ιάϊρος, type **Ia/@i"ros**.

Punctuation

,	.	·	;	’
,	.	:	; *or* ?	'

To type an apostrophe following a vowel (as in δι᾽ αὐτοῦ) press the quote key twice.

Other Characters

The following characters are available for typing directly:

&	(	)	-	0 … 9	[	]	{	}

Others can be typed by preceding them with @ (the @ produces •**):**

!	«	»	*	+	— EM-DASH	– EN-DASH
@!	@(	@)	@*	@+	@~	@-

/	:	<	=	>	\
@/	@:	@<	@=	@>	@\ *or* %

Modifier

When using the SIL Basic Greek or SIL Basic Greek (WS) keyboards, an additional key sequence is available for entering the “modifier” code (124). This is used to access additional glyphs normally not available without the use of WorldScript or GX. See the chapters on WorldScript and GX for more information.

MOD MODIFIER
@@

Working with Encodings

Two Greek Text Encodings

Greek texts that have been prepared with these Greek fonts in mind (or entered using the SIL Basic Greek or SIL Greek keyboards) will be in one of two text *encodings*: **SIL Basic Greek** or **SIL Composite Greek**. An *encoding* is simply a way of connecting numeric access codes stored in a text file with the individual characters they should represent. For example, an *alpha* may be encoded (represented) as 097 in the text file. If the computer program understands that encoding it knows to process code 097 as an *alpha*, and treat it appropriately.

One of the requirements for this font system was to have encodings that met the needs for linguistic analysis while allowing text to be easily displayed in most Windows and Mac OS applications. It was also important that the text be easily read without any Greek fonts installed, allowing for easy use in purely text-based systems. Finally, each encoding needed to unambiguously encode the text.

Each of the SIL Greek encodings allows for the complete, unambiguous representation of most Biblical Greek texts. The SIL Basic Greek encoding treats text as a string of linguistic information, so individual "pieces" of the text are not just symbols, but stand for individual phonological elements. This allows for easy linguistic analysis and data transfer across computer platforms and communications networks. In other words, a *sigma* is always a *sigma* and has only one code—115.

In contrast, the SIL Composite Greek encoding treats text as a string of symbols with no inherent ordering or meaning. This allows for professional-looking documents, but makes document transfer (between computer platforms and over email systems) and linguistic analysis difficult. In the case of *sigma*, there are two *sigmas*, regular and final, that must be considered when searching texts. But because each encoding is unambiguous and similarly complete, texts can be converted between encodings without any loss of information.

For another illustration of the difference between the two encodings, take the example of the ἄ (*alpha-rough-acute*). In the SIL Basic Greek encoding this is encoded as three codes in sequence — *rough breathing* + *alpha* + *acute* — since the rough breathing denotes an initial "h" sound that precedes the vowel:

Computer software (such as WorldScript) that can directly display SIL Basic Greek encoded text takes care of combining the three codes into one symbol on the screen.

In the SIL Composite Greek encoding the same combination of symbols would be represented by one code — *alpha-rough-acute*:

ά = ά

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We recognize that these encodings do not address the full range of encoding needs for Greek text, and do not include some common ancient Greek symbols. As operating systems improve, and we see more widespread use of Unicode and "smart" font technologies, we hope to incorporate support for a wider body of symbols, textual conventions and new or improved encodings. For a preview of what some of this support could offer, see the chapters on WorldScript and QuickDraw GX. Please help us as we look toward improving this font system. We value your expertise and recommendations!

SIL Basic Greek Encoding

Whenever possible, Greek texts should be stored in the SIL Basic Greek encoding. This encoding was developed in order to provide an error-resistant, long-term, platform- and technology-independent method of representing the features of Biblical Greek texts. It is used directly with WorldScript and QuickDraw GX on the Mac OS, but is also useful in other environments when preparing a body of text for wide distribution or long-term use.

Features

1) It is a 7-bit (ASCII-like) encoding. This assures that no character translation will occur when transporting text between platforms or applications. Its simplicity also increases the overall quality of texts passing through multiple stages of text-processing by reducing potential errors introduced in data entry or conversion.

2) The encoded text is recognizable even if no Greek fonts are available. Greek characters are given the same access codes as similar ASCII characters (*alpha*=097=a, *rough breathing*=104=h). An example:

᾽Εν ἀρχῇ ἦν ὁ λόγος

HEn Harcj_^ Hj^n ho lo'gos

3) Text can be entered from any standard keyboard on any platform, without using additional keyboarding utilities such as KeyMan or SILKey, although these utilities will simplify data entry.

4) The order of codes allows for easier linguistic study and analysis. For example, the word ἦν appears in Greek texts in two very different representations:

	ἦν (normal)	᾽Ην (sentence-initial)
Comp	218(*eta-smooth-circ*)+110(*nu*)	175(*smooth-circ*)+074(*Eta*)+110(*nu*)
Basic	072(*smooth*)+106(*eta*)+094(*circ*)+110(*nu*)	072(*smooth*)+074(*Eta*)+094(*circ*)+110(*nu*)

According to the SIL Composite Greek encoding, there are significant changes between the encodings for the normal word and its sentence-initial form—even

the order of codes is different! According to the SIL Basic Greek encoding, the only difference is the capitalization of *eta*. This allows the text to be easily searched using standard searching routines that ignore capitalization differences.

Another example: To search for every occurrence of lowercase *alpha* in SIL Composite Greek encoded text requires searching for 24 separate codes (097, 128-149,152), whereas searching through SIL Basic Greek encoded text requires looking for only a single code (097).

Details

A listing of the access codes used in the SIL Basic Greek encoding and the characters they represent is given in Appendix A. There is, however, a very precise ordering of base characters and diacritics that must be followed to assure that the text works in systems that use the encoding directly and can be correctly converted to other encodings.

Most ordering issues in Biblical Greek center around vowel-diacritic combinations. These combinations are one of four types:

1) Single-vowel without dieresis

(breathing) vowel (iota subscript) (accent)

Single-vowel combinations without *dieresis* begin with an optional breathing mark (*rough* or *smooth*), followed by the vowel, an optional *iota subscript* (only when the vowel is *alpha*, *eta* or *omega*), and an optional accent (*acute*, *grave* or *circumflex*). Note that when both *iota subscript* and accent are present the *iota subscript* always comes first. An example:

ᾷ = ῾ + α + ͅ + ῀

2) Single-vowel with dieresis

vowel dieresis (accent)

Single-vowel combinations with *dieresis* begin with a vowel (*iota* or *upsilon*), followed by a *dieresis* and an optional accent (*acute*, *grave* or *circumflex*). An example:

ΰ = υ + ¨ + ΄

3) Diphthongs

A combination of two vowels is considered a diphthong only if it is one of these eight combinations and the latter vowel is not followed by a *dieresis*:

αι, ει, οι, υι, αυ, ευ, ηυ, ου

These diphthong combinations follow the following ordering:

(breathing) diphthong (accent)

They begin with an optional breathing mark (*rough* or *smooth*), followed by both vowels and an optional accent (*acute*, *grave* or *circumflex*). An example:

οῦ = ῾ + ο + υ + ῀

4) Other Multiple-vowel

Multiple vowel combinations that do not form diphthongs are treated as a sequence of single vowel combinations. An example:

$$\text{᾽Ιάϊροϛ} = \text{᾽I} + \acute{\alpha} + \ddot{\iota} + \rho + o + \sigma$$
$$= \text{᾽} + I + \alpha + \acute{} + \iota + \ddot{} + \rho + o + \sigma$$

There are linguistic factors behind this ordering. Breathing (or lack of it) precedes the vowel in spoken Greek and is written before it in the case of capitalized vowels (note that the above ordering conventions are used even when a vowel is capitalized). Some theorists believe that the accents originally signified tone, which was distributed over the whole vowel combination and hence is a final modifier for everything.

The only other ordering issue concerns the *rho*. As with the vowels, the breathing marks are always encoded first.

Extensions

In order to support additional glyphs available with WorldScript and QuickDraw GX on the Mac OS, a tentative set of extensions have been made to the SIL Basic Greek encoding. Most of these extensions involve the use of the "modifier" code (124) as an escape code that changes the meaning of the following character. For example, the code sequence "|f" (124+102) is used to specify a *digamma* in a string of text. For a complete list of these extensions see the chapter on WorldScript.

Warning: This extension is currently only supported for use with WorldScript or GX. Text including these extensions cannot be accurately converted to the SIL Greek Transliteration or SIL Composite Greek encodings (as there are no access codes for the extended glyphs). The extensions are also tentative and subject to future changes.

We are actively seeking recommendations and opinions on how this type of extended encoding could be used in other parts of this font system. We need ideas on what glyphs should be supported, how they should be encoded, typed and displayed, and how they should be incorporated throughout the system.

Note on use of the SIL Galatia Extras fonts

The additional glyphs available with WorldScript are also available to Windows and other Mac OS users, but with a warning. The SIL Galatia Extras font family includes these additional symbols. *Use of these additional fonts, however, will result in text that matches neither Basic nor Composite encoding and requires character by character font information for correct interpretation and display.* Appendix E lists the extra symbols available in these fonts and their access codes.

In other words, you must switch to the SIL Galatia Extras font when you want to use one of these glyphs, then switch back to the SIL Galatia font for the common Greek glyphs. Text that includes these extra glyphs (and the resultant font change information) cannot be easily converted to either encoding and is not supported throughout this font system.

SIL Composite Greek Encoding

The SIL Composite Greek encoding was prepared to enable easy preparation of professional-looking documents using existing Windows and Mac OS operating systems and applications.

Features

1) It is an 8-bit (ANSI- or Mac-like) encoding. This means that it is easily used on either Mac OS or Windows, but causes problems when trying to transfer text across platforms. It also causes text to be unintelligible if viewed without the Greek font installed. Finally, some older software packages also do not support the use of ANSI or Mac font encodings (such as earlier versions of Ventura Publisher).

2) Lowercase vowel/diacritic combinations are represented with one access code per combination. Applications do not require special rendering systems (such as WorldScript) to correctly display combinations. This makes the encoding more practical for many users and allows the fonts to be used in any Mac OS or Windows application.

3) Diacritics and base characters are expertly combined and aligned into composite glyphs. Non-spacing diacritics are not used. This assures that published text is of the highest quality. It also avoids incompatibilities between the use of non-spacing/overstriking diacritics and some Windows video drivers.

4) Lowercase *sigma* has two access codes: word-final (118) and non-final (115). Neither Windows or the Mac OS have the native capability to contextually display the correct symbol without the use of additional rendering systems.

5) Use of an additional keyboarding utility, such as KeyMan or SILKey, is highly recommended for efficient and accurate data entry. This is due to the use of many more access codes than are easily accessible from standard keyboards.

Details

A listing of the access codes used in the SIL Composite Greek encoding and the characters they represent is given in Appendix B. Codes are ordered as the corresponding symbols would appear in Greek printed text, going from left-to-right. Diacritics, such as breathings, *iota subscripts* and accents have their own distinct codes only when used alone, such as before a capitalized vowel.

Converting Between SIL Greek Encodings

A set of conversion routines for use with the Consistent Changes program (available from SIL's Web site) are provided with this font system. These make it easy to convert texts between encodings. See the chapter on Text Conversions for more information.

Using the Fonts With WorldScript

A WorldScript script file (SIL Greek) and an additional Greek font (SIL Sparta) are included in the Mac OS distribution of this package. Using these with a WorldScript-aware application adds a number of new features to the font system.

Installing the WorldScript Resources

To use the WorldScript resources, you need to have the WorldScript extension installed in your System (it belongs in the "Extensions" folder within your System Folder). If you are using a PowerMacintosh or other PowerPC-based computer, and are using System 7.6.1 or earlier, you also need the WorldScript Power Adapter extension. These extensions can be installed using the Custom Install option in the Installer for Mac OS versions 7.5.3 and later. They are also provided with some of Apple's Language Kits and Language Kit Updaters (available from Apple's web site).

Once the WorldScript extensions are installed (and you have restarted) you can continue by installing the SIL Greek resources. Open the "WorldScript" folder inside the "SIL Greek Font System" folder and drag the "SIL Greek" script file and the "SIL Sparta" font onto the icon of your closed System Folder. The font will be placed in the "Fonts" folder and the script file will be placed in the System file itself. You will need to restart your Mac after installation.

Note: Applications that are not fully WorldScript-aware (such as Microsoft Word) may exhibit strange behavior while editing Greek text when the SIL Greek resources are active.

Encoding Issues

The WorldScript script file takes text in the SIL Basic Greek encoding and automatically combines vowels and diacritics for printing and screen display. This makes text analysis easier and makes it possible to easily enter text without the use of SILKey (although SILKey will make data entry more forgiving of mistakes). It also means, however, that text prepared with WorldScript in mind will not display correctly outside of WS-aware or GX-savvy applications unless the text is first converted to the SIL Composite Greek encoding. See the chapter on encodings for more information.

Another benefit of using the WorldScript script file is the ability to access additional glyphs that are otherwise not supported. A set of extensions to the SIL Basic Greek encoding allow access to these glyphs through the use of the modifier code (124). These additional glyphs, as well as five additional diacritic combinations, are listed here with the character sequences used to access them.

Warning: These additional glyphs are only supported for use with WorldScript or GX. Text including these extensions cannot be accurately converted to the SIL Greek Transliteration or SIL Composite Greek encodings (as there are no access codes for the extended glyphs). They are also tentative and subject to future changes.

Glyph	Name	Sequence	Notes
ᾒ	iota smooth grave	Hi`	rare diacritic combination
ᾔ	epsilon smooth grave	He`	rare diacritic combination
῀	dieresis circumflex	"^	rare diacritic combination
ῗ	iota dieresis circumflex	i"^	rare diacritic combination
ῧ	upsilon dieresis circumflex	u"^	rare diacritic combination
ϐ	curled beta	|b	archaic letter
ϝ	digamma	|f	archaic letter, used in some biblical texts
Ϝ	Digamma	|G	archaic letter
ϟ	alt digamma	|g	alternate form
ϖ	omega pi	|w	archaic letter
ϙ	qoppa	|q	archaic letter
Ϙ	Qoppa	|Q	archaic letter
Ϥ	alt 1 Qoppa	|R	alternate form
ϧ	alt 2 qoppa	|k	alternate form
Ϧ	alt 2 Qoppa	|K	alternate form
ϡ	sampi	|p	archaic letter
Ϡ	Sampi	|P	archaic letter
ϻ	alt sampi	|m	alternate form
Ϻ	alt Sampi	|M	alternate form
ϲ	lunate sigma	|s	archaic letter
Ϲ	lunate Sigma	|S	archaic letter
ϛ	stigma	|t	archaic letter
Ϛ	Stigma	|T	archaic letter
ῖ	turned iota circumflex	|i	archaic letter
Ῠ	Upsilon hook	|U	archaic letter
ʹ	upper num sign	|h	used for the Greek numeral system
͵	lower num sign	|H	used for the Greek numeral system
	no width letter	|n	can be used to make a final sigma use non-final form
	no width space	|#	can be used to make a medial sigma use final form

When WorldScript and the SIL Greek resources are active, each of the glyphs above will automatically be substituted for the character sequence listed. Note that this is not necessarily a keying sequence, but rather a character code sequence.

Entering Text

After you have WorldScript and the SIL Greek WorldScript resources installed, keyboards will work slightly differently. WorldScript provides its own keyboard management that is different from SILKey, but the two actually work quite well together.

Using WorldScript keyboards without SILKey

You do not need to use SILKey to enter Greek text. In your WorldScript-aware application, simply choose one of the SIL Greek fonts and the active keyboard will automatically be changed to the one listed as "Ελληνική" in the Keyboard menu.

The Keyboard menu (in the upper right corner of the menu bar) also allows you to manually switch between keyboards and gives a constant display of the currently active keyboard. Unless you have installed one of Apple's Language Kits, this menu probably does not appear on your menu bar—it has to be activated separately.

Even if you are not using SILKey, you can use Weaver, the editor supplied with SILKey, to turn on the Keyboard menu even if no Language Kits or other WorldScript resources are installed. Double-click on the Weaver application icon. Choose "Preferences..." from the "Edit" menu and check the "Always show keyboard menu" option. You will need to restart your machine for the change to take effect.

WorldScript keyboards, unlike SILKey, do not perform complex processing of keystrokes. Characters must be entered exactly in the order the encoding requires. In this case, this means that keys must be pressed exactly in the order specified in the SIL Basic Greek encoding. *Note: If you are running SILKey, but wish to use this text entry method, be sure the SIL Basic Greek (WS) keyboard is deactivated.*

For example, to enter the WorldScript modifier key (the first character in most of the sequences listed above) without using SILKey, type the "|" key.

Using the SILKey keyboards with WorldScript

The WorldScript keyboard requires a very specific typing order. SILKey offers a much more flexible text entry system than using the WS keyboard alone. SILKey does not replace the WS keyboard, but works with it.

Each SILKey keyboard is "linked" to a specific Mac OS keyboard. Most of the Greek keyboards in this font system are linked to the "U.S." keyboard so that they can work without WorldScript installed. This also means, however, that the SIL Basic Greek (non-WorldScript) and SIL Greek SILKey keyboards will not be active if the Greek fonts are in use (as using the fonts automatically specifies the "Ελληνική" WS keyboard).

A special SILKey keyboard file "SIL Basic Greek (WS)" is provided with this package. This keyboard functions the same way as the other SIL Basic Greek keyboard, but is linked to the "Ελληνική" keyboard, so that it is automatically activated whenever the WS keyboard is active (as long as the SIL Basic Greek (WS) keyboard is turned on in SILKey).

Although this keyboard makes most common Greek text entry easier, it can make other entry more complicated. For example, the "|" key used to type the modifier when SILKey is not active is used as an alternate way of typing the *iota subscript* with the SIL Basic Greek (WS) keyboard. To enter the modifier type @@.

Preparing SIL Composite Greek text

There is no WorldScript-specific version of the SIL Greek keyboard. If you must prepare texts in the SIL Composite Greek encoding while the WorldScript resources are installed, you can either 1) enter the text first in the SIL Basic Greek encoding then use the provided conversion routines to convert the text to SIL Composite Greek encoding, or 2) type the text in a Roman font (such as Times) using the SIL Greek SILKey keyboard (which is linked to the U.S. keyboard), then select the text and change to the SIL Galatia font to check your work. Be aware, however, that if you then edit that text without first switching back to a Roman font, your edits will be in the wrong encoding (Basic).

SIL Sparta

An additional Greek font—SIL Sparta—is included for use only with the WorldScript script file. It is a bitmap-only font, so is unsuitable for printing, but is used in certain system locations such as the Keyboards menu. There are also four glyphs that are not available in this font: *alt 2 qoppa*, *alt 2 Qoppa*, *alt sampi*, *alt Sampi*.

Removing the WorldScript Resources

Should you later wish to remove the SIL Greek script file and the SIL Sparta font, follow this procedure:

1) Restart your computer with Extensions off by holding down the Shift key throughout the startup process (neither the script file or font can be removed while the script is active).

2) Double-click on the System file within your System Folder. The file will open and show the "SIL Greek" script file. Drag the "SIL Greek" script file to the trash.

3) Close the System file and open the "Fonts" folder inside your System Folder. Find the SIL Sparta font suitcase and drag it to the trash.

4) Close your System Folder and empty the trash.

5) Restart your computer.

WorldScript-Aware Applications

The automatic features of the WorldScript script file are only available within WorldScript-aware applications. The following applications are WS-aware, but some of them vary in the completeness of their support.

Word Processing

- SimpleText, from Apple Computer, Inc.
- WorldWrite, from World Software, Inc.
- Nisus Writer (with Language Key), from Nisus Software, Inc.
- WinText, from WinSoft, S.A.

- Style, by Marco Piovanelli

Database

- Shoebox, from SIL
- HyperCard, from Apple Computer, Inc.
- 4D International from ACI
- WinFile, from WinSoft, S.A.

Page Layout

- UniQorn, from SoftPress
- Ready, Set, Go! GX International, from Diwan
- PageMaker ME, from Adobe Corp. (distributed by WinSoft, S.A.)
- AllPage, from World Software, Inc.

Specialty

- Translator's Assistant, from SIL
- TextUtils, from SIL
- Conc, from SIL

Using the Fonts with QuickDraw GX

The SIL Galatia fonts have a number of additional features when used on the Macintosh in conjunction with QuickDraw GX and an GX-based application. These include case transformations, showing/hiding accents, alternate forms for many glyphs and handling of traditional Greek numerals. There are over 430 glyphs available.

These features automatically become available when QuickDraw GX is installed and active. QuickDraw GX is an install option for systems 7.5.x and 7.6.x, but is also available on Apple's web site. The full QuickDraw GX system is not available in Mac OS 8, but a portion of it—the GXGraphics extension—remains, allowing the additional font features to still be used. In both cases, though, these features will only be available within GX-based applications.

Encoding Issues

Like WorldScript, GX takes text in the SIL Basic Greek encoding and automatically combines vowels and diacritics for printing and screen display. It also means, however, that text prepared with GX in mind will not display correctly outside of GX-savvy applications unless the text is first converted to the SIL Composite Greek encoding. See the chapter on encodings for more information.

Unlike WorldScript, accessing additional glyphs does not require a change in the underlying encodings. Most alternate glyphs are accessed by turning font features on and off, not by changing the character codes. An exception to this is the built-in support for the additional glyphs provided for WorldScript. If you use these additional character code sequences be aware of the warnings on their use as mentioned in the chapter on WorldScript.

Entering Text

GX does not require a specific text entry mechanism—it only requires that the entered text be in the SIL Basic Greek encoding. This can be accomplished using the SIL Basic Greek keyboard, the SIL Basic Greek (WS) keyboard, or manually, without any use of SILKey. Consult the chapter on Keyboards for more information.

Setting Font Features

The additional glyphs available when using the fonts with GX are accessed through setting the font features for a specific body of text. Each GX application has a different interface for controlling these features, but they all will display the same list of features.

The general method is to select the desired text then choose the variety of feature settings that should apply to the text. This is often best done through a styles mechanism—setting the desired features for each style so it can be automatically applied to the right portions of the text.

The features are organized into groups of related styles. Some sets of features are exclusive (such as Letter Case), meaning that only one setting within a group can be active at a time, while others are cumulative (such as Alternate Forms). If there is a default feature setting it is listed in *italic*.

Note again that none of these features change the underlying text.

Features Enabled

This setting is normally on—turning it off will display the text without any of the GX features active, even the defaults.

Letter Case

These features allow text to be displayed in varying cases—only one can be active at a time for a specific run of text.

Feature Name	Displays	As
Upper & Lower Case	text with other case features on	text without other case features
All Caps	᾽Εν ἀρχῇ	EN APXH
All Lower Case	᾽Εν ἀρχῇ	ἐν ἀρχῇ
All Caps with Accents	᾽Εν ἀρχῇ	᾽EN ᾽APXHˆ

Diacritics

This feature will either show or hide all accents (including breathings and *iota subscript*)—only one can be active at a time for a specific run of text.

Feature Name	Displays	As
Show Accents	text with Hide Accents on	text with all accents
Hide Accents	᾽Εν ἀρχῇ	Εν αρχη

Diacritic Alternatives

These features turn on alternate methods of displaying diacritics and can be combined—none are on by default.

Feature Name	Displays	As
Circumflex as Tilde	᾽Εν ἀρχῇ	᾽Εν ἀρχῆ
Show Dieresis above Uppercase	ΙΑΙ¨ΡΟΣ	ΙΑΪΡΟΣ
Monotonic Accents	᾽Εν ἀρχῇ … λόγος	Εν αρχή … λόγος

Alternate Forms

These features turn on alternate methods of displaying glyphs and can be combined—none are on by default.

Note that some alternate glyphs have two methods for display. For example, the *curled beta* (ϐ) can be displayed either by entering **b**, selecting it and turning the Curled Beta feature on, or by entering the sequence **|b** (**@@b** if using the SIL Basic

Greek (WS) keyboard), selecting it and turning on **Use Modifier**. The latter method allows special glyphs to be encoded into the text as when using WorldScript.

Feature Name	Displays	As
Use Modifier	◌̱β ◌̱Υ υ◌̈◌̂	β Ύ ῦ
Alternate Epsilon	θεός	θєός
Alternate Phi	φῶς	φῶς
Alternate Theta	θεός	ϑεός
Alternate Rho	κύριος	κύϱιος
Alternate Kappa	κύριος	ϰύριος
Lunate Sigma	σοφία	ϲοφία
F-like Digamma	ϝ	f
Rho-like Qoppa	Ϙ	Ꝗ
Zigzag Qoppa	Ϙ ϙ	ϟ ϟ
Round Sampi	Ͳ ͳ	ͻ ͻ
Curled Beta	β	ϐ
Omega-like Pi	π	ϖ

Numeral Forms

These features allow standard Arabic numerals to be displayed in the ancient Greek numbering system, and vice versa. The *upper num sign* (ʹ) and *lower num sign* (͵) are displayed by the sequences **|h** and **|H**, respectively (**@@h** and **@@H** when using the SIL Basic Greek (WS) keyboard).The system supports transformations up to 9,999.

Feature Name	Displays	As
Show Arabic Numerals as Greek	1 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000 2000 3000 4000 5000 6000 7000 8000 9000	α′ β′ γ′ δ′ ε′ ϝ′ ζ′ η′ θ′ ι′ κ′ λ′ μ′ ν′ ξ′ ο′ π′ Ϙ′ ρ′ σ′ τ′ υ′ φ′ χ′ ψ′ ω′ ϡ′ ͵α ͵β ͵γ ͵δ ͵ε ͵ϝ ͵ζ ͵η ͵θ
Show Greek Numerals as Arabic	α′ β′ γ′ δ′ ε′ ϝ′ ζ′ η′ θ′ ι′ κ′ λ′ μ′ ν′ ξ′ ο′ π′ Ϙ′ ρ′ σ′ τ′ υ′ φ′ χ′ ψ′ ω′ ϡ′ ͵α ͵β ͵γ ͵δ ͵ε ͵ϝ ͵ζ ͵η ͵θ	1 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000 2000 3000 4000 5000 6000 7000 8000 9000

Direct Glyph Access

It is also possible to display glyphs by entering their individual glyph codes. A listing of every glyph in the SIL Galatia font and their glyph codes can be found in Appendix F.

To use Direct Glyph Access, enter a backslash (code 092) followed by the glyph code, then select the code (and the backslash) and turn the Direct Glyph Access feature on. To enter the backslash when using the SILKey keyboards type **@**. *Note that using this feature will make the text non-standard and unconvertable to either Basic or Composite encodings.*

GX-Savvy Applications

The transformation features of the SIL Galatia font are only available within GX-savvy applications. A few of these applications are listed here—some require the full QuickDraw GX system (System 7.5.x, 7.6.x) and others only the GXGraphics extension (System 7.6.x and Mac OS 8.x).

- TeXgX, from SIL
- Creator 2, from Multi-Ad Services
- UniQorn and Freeway, from SoftPress
- Ready, Set, Go! GX International, from Diwan
- LightningDrawGX from Lari Software

Transliteration Issues

There are many methods of transliterating Biblical Greek text into Roman characters. Most of them are quite similar, but differences appear when it comes to consonants such as *phi*, the long vowels *eta* and *omega*, the *iota subscript* and whether and how accents are transliterated. Unfortunately, there is no generally accepted standard throughout the academic community.

The SIL Translation Department has established a set of transliteration guidelines for the use of Greek texts in SIL publications. These guidelines are listed in Appendix D. These fonts are designed to directly support the guidelines, but are also intended to be flexible and useful for other transliteration systems.

The SIL Greek Transliteration Encoding

The SIL Greek Transliteration encoding allows Greek text to be stored in a way that retains all important linguistic information.

Features

1) It is an 8-bit (ANSI- or Mac-like) encoding, and so suffers from the same document transfer and compatibility problems between computing platforms as the SIL Composite Greek encoding.

2) The ordering of codes is linear, also similar to the SIL Composite Greek encoding, with a single code for each vowel/diacritic combination. Diacritics, such as breathings, *iota subscripts* and accents have their own distinct codes only when used alone, such as before a capitalized vowel.

3) The encoding allows all the important linguistic distinctions in the Greek text to be encoded, but only if the SIL Full Transliteration system is used. In this case, texts can then be accurately converted to either of the non-transliteration encodings and viewed using the Greek fonts.

Details

A listing of the access codes used in this encoding and the characters they represent is given in Appendix C.

Extensions

The SIL Greek Trans fonts provide additional glyphs (primarily accented capitals) that are not used in the SIL guidelines and are not part of the SIL Greek Transliteration encoding. If you use these characters in your text, you will not be able to use the conversion routines to convert your text into the SIL Greek Basic or SIL Greek Composite encodings.

Text Conversions

Consistent Changes (CC) is a program that converts flat (non-formatted) documents using a series of commands in a CC table. The CC programming language is very powerful and has been widely used in SIL. The CC tables included here are for the purpose of converting texts between encodings.

Included Tables

Macintosh filename	*PC filename*
Greek Basic -> Composite	GRBA-CO.CCT
Greek Basic -> Full Trans	GRBA-FT.CCT
Greek Basic -> Simple Trans	GRBA-ST.CCT
Greek Composite -> Basic	GRCO-BA.CCT
Greek Composite -> Full Trans	GRCO-FT.CCT
Greek Composite -> Simple Trans	GRCO-ST.CCT
Greek Full Trans -> Basic*	GRFT-BA.CCT*
Greek Full Trans -> Composite*	GRFT-CO.CCT*
Greek Full Trans -> Simple Trans	GRFT-ST.CCT
Ulysses -> Galatia	ULY-GAL.CCT
Greek Trans 1.2 -> 1.3	TR12-13.CCT

The tables that convert from transliteration to Greek (*) convert the words with word-medial breathings in the Greek NT and the Septuagint (LXX) correctly (e.g. kagō becomes κᾀγω). However, vowel-initial Hebrew and Aramaic words which are transcribed in the NT or LXX without a breathing gain a smooth breathing when converted (e.g. Abba becomes ᾽Αββα not Αββα).

The Ulysses -> Galatia table (ULY-GAL.CCT) converts text prepared for the SIL Ulysses fonts (as released in Translators Workplace and LinguaLinks) to the current SIL Composite Greek encoding.

The Greek Trans 1.2 -> 1.3 table (TR12-13.CCT) converts text prepared for version 1.2 of the SIL Greek Trans font to the current SIL Greek Transliteration encoding (as used with the SIL Greek Trans fonts version 1.3).

The Consistent Changes programs (for both PC and Macintosh) are available on SIL's web site.

Appendix A — SIL Basic Greek Encoding

The following chart displays every access code allowed in the SIL Basic Greek encoding, the basic character it represents and the ASCII equivalent of that code. The code and ASCII character are displayed below the Greek character. Shaded boxes represent access codes that are not used.

When using the fonts on the Mac OS with WorldScript or QuickDraw GX applications, additional glyphs are available. Most of these are accessed through the modifier access code (124) See chapters on WorldScript and QuickDraw GX for more information.

Access Code Chart

	!	¨		«	»	&	′	(	)	*	+	,	-	.	/
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
0	1	2	3	4	5	6	7	8	9	:	·	<	=	>	;
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
’	Α	Β	Χ	Δ	Ε	Φ	Γ	’	Ι	Η	Κ	Λ	Μ	Ν	Ο
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
Π	Θ	Ρ	Σ	Τ	Υ		Ω	Ξ	Ψ	Ζ	[	\	]	ˆ	˛
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
‘	α	β	χ	δ	ε	φ	γ	῾	ι	η	κ	λ	μ	ν	ο
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
π	θ	ρ	σ	τ	υ		ω	ξ	ψ	ζ	{	MOD	}	—	DEL
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127

Access Code Listing—SIL Basic Greek Encoding

Access Code	ASCII	Greek	Description
032			space
033	!	!	exclamation
034	"	¨	dieresis
035	#		fixed space
036	$	«	open quote
037	%	»	close quote
038	&	&	ampersand
039	'	´	acute
040	(	(	open parenthesis
041	)	)	close parenthesis
042	*	*	asterisk
043	+	+	plus
044	,	,	comma
045	-	-	hyphen
046	.	.	period
047	/	/	slash
048	0	0	zero
049	1	1	one
050	2	2	two
051	3	3	three
052	4	4	four
053	5	5	five
054	6	6	six
055	7	7	seven
056	8	8	eight
057	9	9	nine
058	:	:	colon
059	;	·	semicolon
060	<	<	less
061	=	=	equals
062	>	>	greater
063	?	;	question
064	@	’	apostrophe
065	A	Α	Alpha
066	B	Β	Beta
067	C	Χ	Chi
068	D	Δ	Delta
069	E	Ε	Epsilon
070	F	Φ	Phi
071	G	Γ	Gamma
072	H	’	smooth breathing
073	I	Ι	Iota
074	J	Η	Eta
075	K	Κ	Kappa
076	L	Λ	Lambda
077	M	Μ	Mu
078	N	Ν	Nu
079	O	Ο	Omicron
080	P	Π	Pi
081	Q	Θ	Theta
082	R	Ρ	Rho
083	S	Σ	Sigma
084	T	Τ	Tau
085	U	Υ	Upsilon
086	V		(unused)
087	W	Ω	Omega
088	X	Ξ	Xi
089	Y	Ψ	Psi
090	Z	Ζ	Zeta
091	[	[	open bracket
092	\	\	backslash
093	]	]	close bracket
094	^	ˆ	circumflex
095	_	˛	iota subscript
096	`	`	grave
097	a	α	alpha
098	b	β	beta
099	c	χ	chi
100	d	δ	delta
101	e	ε	epsilon
102	f	φ	phi
103	g	γ	gamma
104	h	῾	rough breathing
105	i	ι	iota
106	j	η	eta
107	k	κ	kappa
108	l	λ	lambda
109	m	μ	mu
110	n	ν	nu
111	o	ο	omicron
112	p	π	pi
113	q	θ	theta
114	r	ρ	rho
115	s	σ	sigma
116	t	τ	tau
117	u	υ	upsilon
118	v		(unused)
119	w	ω	omega
120	x	ξ	xi
121	y	ψ	psi
122	z	ζ	zeta
123	{	{	open brace
124	|		modifier
125	}	}	close brace
126	~	—	em dash
127			(delete)

Appendix B — SIL Composite Greek Encoding

The following charts display every access code allowed in the SIL Composite Greek encoding. When using the fonts with WorldScript or QuickDraw GX on the Mac OS, use of the SIL Basic Greek encoding is recommended — see the chapters on WorldScript and QuickDraw GX.

Access Code Chart for 32-127

This chart displays access codes 32-127, the glyphs they represent and the ASCII equivalent of that code. The code and ASCII character are displayed below the Greek character. This chart is identical to the SIL Basic Greek encoding chart with one exception — the final *sigma* (118). Shaded boxes represent access codes that are not used. When not using an additional keyboard utility, characters can be entered directly by typing the standard keystroke for the ASCII symbol.

	!	¨		«	»	&	′	(	)	*	+	,	-	.	/
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
0	1	2	3	4	5	6	7	8	9	:	·	<	=	>	;
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
’	Α	Β	Χ	Δ	Ε	Φ	Γ	’	Ι	Η	Κ	Λ	Μ	Ν	Ο
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
Π	Θ	Ρ	Σ	Τ	Υ		Ω	Ξ	Ψ	Ζ	[	\	]	ˆ	˛
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
‘	α	β	χ	δ	ε	φ	γ	῾	ι	η	κ	λ	μ	ν	ο
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
π	θ	ρ	σ	τ	υ	ς	ω	ξ	ψ	ζ	{	MOD	}	—	DEL
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127

Access Code Chart for 128-255

This chart displays access codes 128-255 and the glyphs they represent. These characters are best entered through the use of an additional keyboard utility such as KeyMan or SILKey. Otherwise, Windows users can directly enter characters by holding down the **Alt** key and typing **0** plus the three digit access code. Mac OS users can use standard System 7 keystrokes for entering these characters. These keystrokes are also listed under each glyph in the chart for your convenience. "SOe" means hold down the Shift and Option keys and type "e". "OuA" means hold down the Option key and type "u", then release the Option key and type "A" (Shift-a).

ά	ὰ	ᾶ	ἀ	ἄ	ἂ	ἆ	ἁ	ἅ	ἃ	ἇ	ᾳ	ά	ὰ	ᾶ	ἀ
OuA	SOa	SOc	OeE	OnN	OuO	OuU	Oea	O`a	Oia	Oua	Ona	Oa	Oc	Oee	O`e
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
ᾴ	ᾲ	ᾷ	ᾳ	ᾄ	ᾂ	–	—	ᾆ	έ	ὲ	ἑ	ἕ	ἐ	ἔ	ἓ
Oie	Oue	Oei	O`i	Oii	Oui	Onn	Oeo	O`o	Oio	Ouo	Ono	Oeu	O`u	Oiu	Ouu
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	ῴ	ῲ	ῷ	¤	ᾠ	ᾤ	ᾢ	ᾦ	‘	’	‛	¬	”	’	‟
Ot	SO8	O4	O3	O6	O8	O7	Os	Or	Og	O2	SOe	SOu	O=	SO'	SOo
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
ί	ὶ	ῖ	ἰ	ΐ	ἶ	¶	•	ἰ	ΐ	ἶ	ϊ	ΐ	ἴ	ῒ	ῤ
O5	SO=	O,	O.	Oy	Om	Od	Ow	SOp	Op	Ob	O9	O0	Oz	O'	Oo
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
ύ	ὺ	ῦ	ὐ	ὔ	ὖ	ὗ	ὐ	ὔ	ὒ	ὗ	ϋ	ΰ	ὕ	ῢ	ῥ
SO/	O1	Ol	Ov	Of	Ox	Oj	O\	SO\	O;	Ospc	O`A	OnA	OnO	SOq	Oq
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
ή	ὴ	ῆ	ἡ	ἤ	ἢ	ἦ	ἡ	ἤ	ἢ	ἦ	ῃ	ή	ὴ	ῆ	ῄ
O-	SO-	O[	SO[	O]	SO]	O/	SOv	Ouy	OuY	SO1	SO2	SO3	SO4	SO5	SO6
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
ῇ	ῇ	ῇ	ἡ	ἧ	ἣ	ἧ	ó	ò	ó	ő	ὃ	ὸ	ő	‧	‧
SO7	SO9	SO0	SOw	SOr	SOm	OiE	SOy	OuE	O`E	SOs	SOd	SOf	O`I	SOh	SOj
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
ώ	ὼ	ῶ	ὠ	ὤ	ὢ	ὦ	ὠ	ὤ	ὢ	ὦ	ῳ	ώ	ὼ	ῶ	ῴ
SOk	SOl	SO;	OiU	O`U	SOb	SOi	SOn	SO,	SO.	Oh	Ok	SOz	SOg	SOx	SOt
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Access Code Listing—SIL Composite Greek Encoding

Access Code	Greek	Description
032		space
033	!	exclamation
034	¨	dieresis
035		fixed space
036	«	open quote
037	»	close quote
038	&	ampersand
039	´	acute
040	(	open parenthesis
041	)	close parenthesis
042	*	asterisk
043	+	plus
044	,	comma
045	-	hyphen
046	.	period
047	/	slash
048	0	zero
049	1	one
050	2	two
051	3	three
052	4	four
053	5	five
054	6	six
055	7	seven
056	8	eight
057	9	nine
058	:	colon
059	·	semicolon
060	<	less
061	=	equals
062	>	greater
063	;	question
064	’	apostrophe
065	A	Alpha
066	B	Beta
067	X	Chi
068	Δ	Delta
069	E	Epsilon
070	Φ	Phi
071	Γ	Gamma
072	’	smooth breathing
073	I	Iota
074	H	Eta
075	K	Kappa
076	Λ	Lambda
077	M	Mu
078	N	Nu
079	O	Omicron
080	Π	Pi
081	Θ	Theta
082	P	Rho
083	Σ	Sigma
084	T	Tau
085	Y	Upsilon
086		(unused)
087	Ω	Omega

Access Code	Greek	Description
088	Ξ	Xi
089	Ψ	Psi
090	Z	Zeta
091	[	open bracket
092	\	backslash
093	]	close bracket
094	ˆ	circumflex
095	̥	iota subscript
096	`	grave
097	α	alpha
098	β	beta
099	χ	chi
100	δ	delta
101	ε	epsilon
102	φ	phi
103	γ	gamma
104	῾	rough breathing
105	ι	iota
106	η	eta
107	κ	kappa
108	λ	lambda
109	μ	mu
110	ν	nu
111	ο	omicron
112	π	pi
113	θ	theta
114	ρ	rho
115	σ	sigma
116	τ	tau
117	υ	upsilon
118	ς	sigma-final
119	ω	omega
120	ξ	xi
121	ψ	psi
122	ζ	zeta
123	{	open brace
124	̳	modifier
125	}	close brace
126	—	em dash
127		delete
128	ά	alpha-acute
129	ὰ	alpha-grave
130	ᾶ	alpha-circ
131	ἁ	alpha-rough
132	ἅ	alpha-rough-acute
133	ἃ	alpha-rough-grave
134	ἇ	alpha-rough-circ
135	ἀ	alpha-smooth
136	ἄ	alpha-smooth-acute
137	ἂ	alpha-smooth-grave
138	ἆ	alpha-smooth-circ
139	ᾳ	alpha-iota
140	ᾴ	alpha-iota-acute
141	ᾲ	alpha-iota-grave
142	ᾷ	alpha-iota-circ
143	ᾅ	alpha-iota-rough

Access Code	Greek	Description
144	ᾷ	alpha-iota-rough-acute
145	ᾁ	alpha-iota-rough-grave
146	ᾇ	alpha-iota-rough-circ
147	ᾅ	alpha-iota-smooth
148	ᾴ	alpha-iota-smooth-acute
149	ᾲ	alpha-iota-smooth-grave
150	–	en dash
151	—	em dash
152	ᾆ	alpha-iota-smooth-circ
153	έ	epsilon-acute
154	ὲ	epsilon-grave
155	ἑ	epsilon-rough
156	ἕ	epsilon-rough-acute
157	ἐ	epsilon-smooth
158	ἔ	epsilon-smooth-acute
159	ἓ	epsilon-rough-grave
160		(unused)
161	ῷ	omega-iota-rough-acute
162	ῳ	omega-iota-rough-grave
163	ῇ	omega-iota-rough-circ
164	¤	currency
165	ᾠ	omega-iota-smooth
166	ᾤ	omega-iota-smooth-acute
167	ᾢ	omega-iota-smooth-grave
168	ᾧ	omega-iota-smooth-circ
169	῾	rough-acute
170	῎	rough-grave
171	῞	rough-circ
172	¬	logicalnot
173	᾽	smooth-acute
174	᾿	smooth-grave
175	ι	smooth-circ
176	ί	iota-acute
177	ὶ	iota-grave
178	ῖ	iota-circ
179	ἱ	iota-rough
180	ἵ	iota-rough-acute
181	ἷ	iota-rough-circ
182	¶	paragraph
183	•	periodcentered
184	ἰ	iota-smooth
185	ἴ	iota-smooth-acute
186	ἶ	iota-smooth-circ
187	ϊ	iota-dieresis
188	ΐ	iota-dieresis-acute
189	ῒ	iota-dieresis-grave
190	ῗ	iota-rough-grave
191	ῥ	rho-rough
192	ύ	upsilon-acute
193	ὺ	upsilon-grave
194	ῦ	upsilon-circ
195	ὑ	upsilon-rough
196	ὕ	upsilon-rough-acute
197	ὗ	upsilon-rough-grave
198	Ὗ	upsilon-rough-circ
199	ὐ	upsilon-smooth
200	ὔ	upsilon-smooth-acute
201	ὒ	upsilon-smooth-grave
202	ὖ	upsilon-smooth-circ
203	ϋ	upsilon-dieresis
204	ΰ	upsilon-dieresis-acute
205	ῢ	upsilon-dieresis-grave
206	ὸ	omicron-smooth-grave
207	ῤ	rho-smooth
208	ή	eta-acute
209	ὴ	eta-grave
210	ῆ	eta-circ
211	ἡ	eta-rough
212	ἥ	eta-rough-acute
213	ἧ	eta-rough-grave
214	ἣ	eta-rough-circ
215	ἠ	eta-smooth
216	ἤ	eta-smooth-acute
217	ἢ	eta-smooth-grave
218	ἦ	eta-smooth-circ
219	ῃ	eta-iota
220	ῄ	eta-iota-acute
221	ῂ	eta-iota-grave
222	ῆ	eta-iota-circ
223	ᾑ	eta-iota-rough
224	ᾕ	eta-iota-rough-acute
225	ᾓ	eta-iota-rough-grave
226	ᾗ	eta-iota-rough-circ
227	ᾐ	eta-iota-smooth
228	ᾔ	eta-iota-smooth-acute
229	ᾒ	eta-iota-smooth-grave
230	ᾖ	eta-iota-smooth-circ
231	ό	omicron-acute
232	ὸ	omicron-grave
233	ὁ	omicron-rough
234	ὅ	omicron-rough-acute
235	ὃ	omicron-rough-grave
236	ὀ	omicron-smooth
237	ὄ	omicron-smooth-acute
238	΅	dieresis-acute
239	`	dieresis-grave
240	ώ	omega-acute
241	ὼ	omega-grave
242	ῶ	omega-circ
243	ὡ	omega-rough
244	ὥ	omega-rough-acute
245	ὣ	omega-rough-grave
246	ὧ	omega-rough-circ
247	ὠ	omega-smooth
248	ὤ	omega-smooth-acute
249	ὢ	omega-smooth-grave
250	ὦ	omega-smooth-circ
251	ῳ	omega-iota
252	ῴ	omega-iota-acute
253	ῲ	omega-iota-grave
254	ῶ	omega-iota-circ
255	ῷ	omega-iota-rough

Appendix C — SIL Greek Transliteration Encoding

The following charts display every access code used in the SIL Greek Trans fonts. When possible, glyphs share the same access code locations as their Greek equivalents in the SIL Composite Greek encoding. A large number of access codes are left unused as less codes are needed for transliteration than for the SIL Composite Greek encoding. Shaded boxes, if empty, represent unused codes. Otherwise they denote characters that are included in the SIL Greek Trans fonts but are not used in the SIL Greek Transliteration encoding.

Access Code Chart for 32-127

This chart displays access codes 32-127, the glyphs they represent and the ASCII equivalent of that code. The code and ASCII character are displayed below the Greek character. When not using an additional keyboard utility, characters can be entered directly by typing the standard keystroke for the ASCII symbol.

	!	¨		“	”	&	´	(	)	*	+	,	-	.	/
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
’	A	B	C	D	E	F	G	H	I	Ē	K	L	M	N	O
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
P		R	S	T	U		Ō	X	Y	Z	[	\	]	^	ˌ
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
`	a	b	c	d	e	f	g	h	i	ē	k	l	m	n	o
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
p		r	s	t	u		ō	x	y	z	{		}	—	DEL
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127

Access Code Chart for 128-255

This chart displays access codes 128-255 and the glyphs they represent. These characters are best entered through the use of an additional keyboard utility such as KeyMan or SILKey. Otherwise, Windows users can directly enter characters by holding down the **Alt** key and typing **0** plus the three digit access code. Mac OS users can use standard System 7 keystrokes for entering these characters. These keystrokes are also listed under each glyph in the chart for your convenience. "SOe" means hold down the Shift and Option keys and type "e". "OuA" means hold down the Option key and type "u", then release the Option key and type "A" (Shift-a).

á	à	â						Á	À	Â	ą	ą́	ą̀	ą̂	
OuA	SOa	SOc	OeE	OnN	OuO	OuU	Oea	O`a	Oia	Oua	Ona	Oa	Oc	Oee	O`e
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
						–	—		é	è				É	
Oie	Oue	Oei	O`i	Oii	Oui	Onn	Oeo	O`o	Oio	Ouo	Ono	Oeu	O`u	Oiu	Ouu
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
				¤								¬			
Ot	SO8	O4	O3	O6	O8	O7	Os	Or	Og	O2	SOe	SOu	O=	SO'	SOo
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
í	ì	î				¶	·		Í	Î	ï	ḯ	̈ì		
O5	SO=	O,	O.	Oy	Om	Od	Ow	SOp	Op	Ob	O9	O0	Oz	O'	Oo
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
ú	ù	û						Ú	Ù	Û	ü	ű	̈ù	Ò	
SO/	O1	Ol	Ov	Of	Ox	Oj	O\	SO\	O;	Ospc	O`A	OnA	OnO	SOq	Oq
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
́e	̀e	̂e						́E	̀E	̂E	̄e	́e	̀e	̂e	
O-	SO-	O[	SO[	O]	SO]	O/	SOv	Ouy	OuY	SO1	SO2	SO3	SO4	SO5	SO6
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
							ó	ò					Ó	̋	̏
SO7	SO9	SO0	SOw	SOr	SOm	OiE	SOy	OuE	O`E	SOs	SOd	SOf	O`I	SOh	SOj
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
ő	̀o	̂o						Ő	̀O	̂O	̄o	ő	̀o	̂o	
SOk	SOl	SO;	OiU	O`U	SOb	SOi	SOn	SO,	SO.	Oh	Ok	SOz	SOg	SOx	SOt
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Access Code Listing—SIL Greek Transliteration Encoding

Unused access codes are not listed. Characters that are included in the SIL Greek Trans fonts, but are not part of the regular SIL Greek Transliteration encoding are marked with an asterisk in the description.

Access Code	Trans	Description
032		space
033	!	exclamation
034	¨	dieresis
035		fixed space
036	“	open quote
037	”	close quote
038	&	ampersand
039	´	acute
040	(	open parenthesis
041	)	close parenthesis
042	*	asterisk
043	+	plus
044	,	comma
045	-	hyphen
046	.	period
047	/	slash
048	0	0
049	1	1
050	2	2
051	3	3
052	4	4
053	5	5
054	6	6
055	7	7
056	8	8
057	9	9
058	:	colon
059	;	semicolon
060	<	less
061	=	equals
062	>	greater
063	?	question
064	’	apostrophe
065	A	A
066	B	B
067	C	C
068	D	D
069	E	E
070	F	F*
071	G	G
072	H	H
073	I	I
074	Ē	E-macron
075	K	K
076	L	L
077	M	M
078	N	N
079	O	O
080	P	P
082	R	R
083	S	S
084	T	T
085	U	U
087	Ō	O-macron
088	X	X
089	Y	Y
090	Z	z
091	[	open bracket
092	\	backslash
093	]	close bracket
094	ˆ	circumflex
095	˙	iota subscript
096	`	grave
097	a	a
098	b	b
099	c	c
100	d	d
101	e	e
102	f	f*
103	g	g
104	h	h
105	i	i
106	ē	e-macron
107	k	k
108	l	l
109	m	m
110	n	n
111	o	o
112	p	p
114	r	r
115	s	s
116	t	t
117	u	u
119	ō	o-macron
120	x	x
121	y	y
122	z	z
123	{	open brace
125	}	close brace
126	—	em dash
128	á	a-acute
129	à	a-grave
130	â	a-circ
136	Á	A-acute*
137	À	A-grave*
138	Â	A-circ*
139	ą	a iota sub
140	ą́	a-acute iota sub
141	ą̀	a-grave iota sub
142	ą̂	a-circ iota sub
150	–	en dash
151	—	em dash
153	é	e-acute
154	è	e-grave

Access Code	Trans	Description
158	É	E-acute*
164	¤	currency
172	¬	logicalnot
176	í	i-acute
177	ì	i-grave
178	î	i-circ
182	¶	paragraph
183	·	periodcentered
185	Í	I-acute*
186	Î	I-circ*
187	ï	i-dieresis
188	ḯ	i-dieresis-acute
189	ῒ	i-dieresis-grave
192	ú	u-acute
193	ù	u-grave
194	û	u-circ
200	Ú	U-acute*
201	Ù	U-grave*
202	Û	U-circ*
203	ü	u-dieresis
204	ǘ	u-dieresis-acute
205	ǜ	u-dieresis-grave
206	Ò	O-grave*
208	ḗ	e-macron-acute
209	ὲ	e-macron-grave
210	ῆ	e-macron-circ
216	Ḗ	E-macron-acute*
217	Ὲ	E-macron-grave*
218	Η͂	E-macron-circ*
219	ᾱ	e-macron iota sub
220	ᾴ	e-macron-acute iota sub
221	ᾲ	e-macron-grave iota sub
222	ᾷ	e-macron-circ iota sub
231	ó	o-acute
232	ò	o-grave
237	Ó	O-acute*
238	΅	dieresis-acute
239	`	dieresis-grave
240	ṓ	o-macron-acute
241	ὸ	o-macron-grave
242	ῶ	o-macron-circ
248	Ṓ	O-macron-acute*
249	Ὸ	O-macron-grave*
250	Ω͂	O-macron-circ*
251	ᾱ	o-macron iota sub
252	ᾴ	o-macron-acute iota sub
253	ᾲ	o-macron-grave iota sub
254	ᾷ	o-macron-circ iota sub

Appendix D — SIL Transliteration Guidelines

The SIL Translation Department has established guidelines for the Roman transliteration of Greek texts in SIL publications. Those guidelines are republished here.

The SIL Greek Trans fonts support both simple and full transliteration systems described below. If you want to be able to convert transliterated text into SIL Basic Greek or SIL Composite Greek encodings, be sure to use the full transliteration system.

SIL Guidelines for the Transliteration of Greek Characters

Revised and updated February 26, 1997

This is intended for use in all SIL publications where transliteration is used instead of Greek script.

Two systems of transliteration are envisaged:

> The **simple transliteration system** does not mark accents, *diaeresis* or smooth breathing. This is the system that will usually be used in SIL publications.
>
> The **full transliteration system** reflects *all* the distinctions that are made in Greek script (so that an automatic transfer is possible, either from full transliteration to Greek, or from Greek to full transliteration.)

Transliteration of basic characters

Alpha	a	
Beta	b	
Gamma	g	
Delta	d	
Epsilon	e	
Zeta	z	
Eta	ē	*(ê may be used if a macron is not available)*
Theta	th	
Iota	i	
Kappa	k	
Lambda	l	
Mu	m	
Nu	n	
Xi	x	
Omicron	o	
Pi	p	

Rho	r	
Sigma	s	
Tau	t	
Upsilon	u	
Phi	ph	
Chi	ch	
Psi	ps	
Omega	ō	*(ô may be used if macron is not available)*

Special combinations with *gamma*

Gamma before a velar consonant is pronounced as a nasal and is transliterated that way.

Gamma-gamma	transliterated as ngg
Gamma-kappa	transliterated as nk
Gamma-xi	transliterated as nx
Gamma-chi	transliterated as nch

Final and non-final forms of *sigma*

In transliteration, both word-final and non-final *sigma* are written as "s".

Breathings

Breathings occur only at the beginning of a word, on a vowel or rho, and in the case of crasis (fused forms).

A rough breathing with a vowel or diphthong is transliterated as "h" before the vowel or diphthong.

A smooth breathing with a vowel or diphthong is not represented. (Any word-initial vowel or diphthong that does not have a rough breathing has a smooth breathing.)

A rough breathing with a *rho* is transliterated as "rh", "Rh".

A smooth breathing with a *rho* occurs very rarely; the combination is transliterated simply as "r", "R".

In transliterated text, when a rough breathing occurs with a capital vowel, the "H" will be capitalized, the vowel will not be capitalized.

Iota subscript

Iota subscript may occur under *alpha*, *eta* or *omega*, and occurs in word-final position, with a few exceptions. Transliterated Greek words are very often quoted in the dictionary entry form, and *iota subscripts* occur very rarely in these forms.

In transliteration (simple or full), *iota subscript* appears as in Greek script.

Accent marks and *diaeresis*

Accents are not represented in simple transliterated forms.

In the full transliteration system accents are represented as follows:

acute accent: á

circumflex: â *(this diacritic only occurs over long vowels)*

grave accent à

Diaeresis (two dots) over i or u: ï ü

Accents are not marked, in Greek or in transliteration, over words written entirely in upper case.

In words with initial caps, accents will be placed before the vowel as in regular Greek script, except when rough breathing causes the vowel to not be capitalized. Example:

῾Αφες is transliterated as ´Aphes, but ῾Αψας is transliterated as Hápsas

Punctuation marks

In transliterated Greek, use English conventions for punctuation. This applies particularly to the question mark (in transliterated forms use ? as in English, not ; as in Greek) and semi-colon (use ; as in English, not raised period as in Greek).

Appendix E —SIL Galatia Extras Fonts

Additional Greek glyphs not included in the SIL Galatia fonts are available in the SIL Galatia Extras fonts. *Use of these additional fonts, however, will result in text that matches neither Basic nor Composite encoding and requires character by character font information for correct interpretation and display.* You must switch to the SIL Galatia Extras font when you want to use one of these glyphs, then switch back to the SIL Galatia font for the common Greek glyphs. Text that includes these extra glyphs (and the resultant font change information) cannot be easily converted to either encoding and is not supported throughout this font system.

Access Code Chart

The following chart displays every glyph included in the SIL Galatia Extras fonts, the codes used to access them, and the ASCII equivalent of those codes. The code and ASCII character are displayed below the Greek character. Shaded boxes represent unused codes. Characters can normally be entered directly by typing the standard keystroke for the ASCII symbol. *To enter these characters when SILKey or KeyMan is active be sure to disable the Greek keyboards.*

	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
							F	ʻ			ϟ		ϑ		
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
Λ	Ϙ	Ꝗ	C	Ϛ	ϒ									˚	
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
		ϐ			ἒ	ϝ	f	ʼ	ϩ		ϟ		ϑ		
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
⍲	ϙ		c	ϛ	ῧ		ϖ	ῒ		ῗ					DEL
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127

Access Code Listing—SIL Galatia Extras Fonts

Unused access codes are not listed.

Access Code	Galatia Extras	Description
032		space
071	F	Digamma
072	ʻ	lower num sign
075	ϟ	alt 2 Qoppa
077	ϡ	alt Sampi
080	Ϡ	Sampi
081	Ϙ	Qoppa
082	Ϥ	alt 1 Qoppa
083	Ϲ	Sigma lunate
084	Ϛ	Stigma
085	Ϋ́	Upsilon hook
094	¨	dieresis circ
098	ϐ	curled beta
101	ἓ	epsilon smooth grave
102	ϝ	digamma
103	f	alt digamma
104	ʼ	upper num sign
105	ι̃	turned iota circumflex
107	ϟ	alt qoppa
109	ϡ	alt sampi
112	ϡ	sampi
113	ϙ	qoppa
115	ϲ	sigma lunate
116	ϛ	stigma
117	ῦ	upsilon dieresis circ
119	ϖ	omega pi
120	ὶ	iota smooth grave
122	ῖ	iota dieresis circ

Appendix F — SIL Galatia Glyph Codes

The SIL Galatia fonts actually contain over 430 glyphs. When using the fonts with QuickDraw GX these glyphs become accessable. See the chapter on using the fonts with QuickDraw GX for information on how to use the GX features. One of these features is Direct Glyph Access, allowing access to every glyph without regard to the surrounding context.

To use Direct Glyph Access, enter a backslash (code 092) followed by the glyph code, then select the code (and the backslash) and turn the Direct Glyph Access feature on. To enter the backslash when using the SILKey keyboards type **@**. *Note that using this feature will make the text non-standard and unconvertable to either Basic or Composite encodings.*

Code	Glyph	Name	Code	Glyph	Name
0		_notdef	42	,	comma
1		_null	43	-	hyphen
2		_return	44	.	period
3		space	45	/	slash
4	Ϝ	Digamma	46	0	zero
5	ϝ	altdigamma	47	1	one
6	ῒ	ismoothgrave	48	2	two
7	ἓ	esmoothgrave	49	3	three
8	ΐ	dieresiscirc	50	4	four
9	ῗ	idieresiscirc	51	5	five
10	ῧ	udieresiscirc	52	6	six
11	῀	turnediotacircumflex	53	7	seven
12	ʹ	uppernumsign	54	8	eight
13	͵	lowernumsign	55	9	nine
14	Ϙ	Qoppa	56	:	colon
15	Ϥ	alt1Qoppa	57	·	question
16	ϙ	qoppa	58	<	less
17	ϟ	alt2Qoppa	59	=	equals
18	ϟ	alt2qoppa	60	>	greater
19	ͻ	altSampi	61	;	semicolon
20	ͼ	altsampi	62	’	apostrophe
21	ϐ	curledbeta	63	α	Alpha
22	ϖ	omegapi	64	β	Beta
23	ϛ	digamma	65	χ	Chi
24	Ϋ	Upsilonhook	66	δ	Delta
25	Ϲ	Sigmalunate	67	ε	Epsilon
26	ϲ	sigmalunate	68	φ	Phi
27	Ϛ	Stigma	69	γ	Gamma
28	ϛ	stigma	70	̓	smooth
29	Ͱ	Sampi	71	ι	Iota
30	ͱ	sampi	72	η	Eta
31	!	exclamation	73	κ	Kappa
32	¨	dieresis	74	λ	Lambda
33		fixedspace	75	μ	Mu
34	«	openquote	76	ν	Nu
35	»	closequote	77	ο	Omicron
36	&	ampersand	78	π	Pi
37	´	acute	79	θ	Theta
38	(	openparen	80	ρ	Rho
39	)	closeparen	81	σ	Sigma
40	*	asterisk	82	τ	Tau
41	+	plus	83	υ	Upsilon

Code	Glyph	Name
84	ω	Omega
85	ξ	Xi
86	ψ	Psi
87	ζ	Zeta
88	[	openbracket
89	\	backslash
90	]	closebracket
91	ˆ	circumflex
92	◌ͅ	iotasubscript
93	ˋ	grave
94	α	alpha
95	β	beta
96	χ	chi
97	δ	delta
98	ε	epsilon
99	φ	phi
100	γ	gamma
101	◌̔	rough
102	ι	iota
103	η	eta
104	κ	kappa
105	λ	lambda
106	μ	mu
107	ν	nu
108	ο	omicron
109	π	pi
110	θ	theta
111	ρ	rho
112	σ	sigma
113	τ	tau
114	υ	upsilon
115	ς	sigmafinal
116	ω	omega
117	ξ	xi
118	ψ	psi
119	ζ	zeta
120	{	openbrace
121	◌	modifierglyph
122	}	closebrace
123	—	emdash2
124	ά	aacute
125	ὰ	agrave
126	ᾶ	acirc
127	ἁ	arough
128	ἅ	aroughacute
129	ἃ	aroughgrave
130	ἇ	aroughcirc
131	ἀ	asmooth
132	ἄ	asmoothacute
133	ἂ	asmoothgrave
134	ἆ	asmoothcirc
135	ᾳ	aiota
136	ᾴ	aiotaacute
137	ᾲ	aiotagrave
138	ᾷ	aiotacirc
139	ᾁ	aiotarough
140	ᾅ	aiotaroughacute
141	ᾃ	aiotaroughgrave
142	ᾇ	aiotaroughcirc
143	ᾀ	aiotasmooth
144	ᾄ	aiotasmoothacute
145	ᾂ	aiotasmoothgrave
146	–	en
147	—	em
148	ᾆ	aiotasmoothcirc
149	έ	eacute
150	ὲ	egrave
151	ἑ	erough
152	ἕ	eroughacute
153	ἐ	esmooth
154	ἔ	esmoothacute
155	ἒ	eroughgrave
156		nowidthglyph
157	ώ	wiotaroughacute
158	ὼ	wiotaroughgrave
159	ῶ	wiotaroughcirc
160	¤	currency
161	ὠ	wiotasmooth
162	ὤ	wiotasmoothacute
163	ὢ	wiotasmoothgrave
164	ὦ	wiotasmoothcirc
165	◌̓́	roughacute
166	◌̓̀	roughgrave
167	◌̓̂	roughcirc
168	¬	logicalnot
169	◌̓	smoothacute
170	◌̓̀	smoothgrave
171	◌̓̂	smoothcirc
172	ί	iacute
173	ὶ	igrave
174	ῖ	icirc
175	ἱ	irough
176	ἵ	iroughacute
177	ἷ	iroughcirc
178	¶	paragraph
179	•	periodcentered
180	ἰ	ismooth
181	ἴ	ismoothacute
182	ἶ	ismoothcirc
183	ϊ	idieresis
184	ΐ	idieresisacute
185	ῒ	idieresisgrave
186	ἳ	iroughgrave
187	ῥ	rrough
188	ύ	uacute
189	ὺ	ugrave
190	ῦ	ucirc
191	ὑ	urough
192	ὕ	uroughacute
193	ὓ	uroughgrave
194	ὗ	uroughcirc
195	ὐ	usmooth
196	ὔ	usmoothacute
197	ὒ	usmoothgrave
198	ὖ	usmoothcirc
199	ϋ	udieresis
200	ΰ	udieresisacute
201	ῢ	udieresisgrave
202	ὸ	osmoothgrave
203	ῤ	rsmooth
204	ή	hacute
205	ὴ	hgrave
206	ῆ	hcirc
207	ἡ	hrough

Code	Glyph	Name
208	ᾐ	hroughacute
209	ᾑ	hroughgrave
210	ᾒ	hroughcirc
211	ᾓ	hsmooth
212	ᾔ	hsmoothacute
213	ᾕ	hsmoothgrave
214	ᾖ	hsmoothcirc
215	ᾗ	hiota
216	ᾘ	hiotaacute
217	ᾙ	hiotagrave
218	ᾚ	hiotacirc
219	ᾛ	hiotarough
220	ᾜ	hiotaroughacute
221	ᾝ	hiotaroughgrave
222	ᾞ	hiotaroughcirc
223	ᾟ	hiotasmooth
224	ᾠ	hiotasmoothacute
225	ᾡ	hiotasmoothgrave
226	ᾢ	hiotasmoothcirc
227	ό	oacute
228	ὸ	ograve
229	ὁ	orough
230	ὅ	oroughacute
231	ὃ	oroughgrave
232	ὀ	osmooth
233	ὄ	osmoothacute
234	΅	dieresisacute
235	῀	dieresisgrave
236	ώ	wacute
237	ὼ	wgrave
238	ῶ	wcirc
239	ὡ	wrough
240	ὥ	wroughacute
241	ὣ	wroughgrave
242	ὧ	wroughcirc
243	ὠ	wsmooth
244	ὤ	wsmoothacute
245	ὢ	wsmoothgrave
246	ὦ	wsmoothcirc
247	ῳ	wiota
248	ῴ	wiotaacute
249	ῲ	wiotagrave
250	ῷ	wiotacirc
251	ῷ	wiotarough
252-288		uninteresting extra glyphs
289	A	extraAlpha
290	~	tilde
291	ᾶ	atilde
292	ᾷ	aroughtilde
293	ᾷ	asmoothtilde
294	ᾷ	aiotatilde
295	ᾷ	aiotaroughtilde
296	ᾷ	aiotasmoothtilde
297	ῆ	htilde
298	ῆ	hroughtilde
299	ῆ	hsmoothtilde
300	ῆ	hiotatilde
301	ῆ	hiotaroughtilde
302	ῆ	hiotasmoothtilde
303	ῶ	wtilde
304	ῶ	wroughtilde
305	ῶ	wsmoothtilde
306	ῶ	wiotatilde
307	ῶ	wiotaroughtilde
308	ῶ	wiotasmoothtilde
309	῀	roughtilde
310	῀	smoothtilde
311	῀	dieresistilde
312	ῖ	itilde
313	ῖ	iroughtilde
314	ῖ	ismoothtilde
315	ῖ	idieresistilde
316	ῦ	utilde
317	ῦ	uroughtilde
318	ῦ	usmoothtilde
319	ῦ	udieresistilde
320	ϵ	altepsilon
321	έ	alteacute
322	ὲ	altegrave
323	ἑ	alterough
324	ἕ	alteroughacute
325	ἓ	alteroughgrave
326	ἐ	altesmooth
327	ἔ	altesmoothacute
328	ἒ	altesmoothgrave
329	φ	altphi
330	ϑ	alttheta
331	ϱ	altrho
332	ῥ	altrrough
333	ῥ	altrsmooth
334	ϰ	altkappa
335	'	monoaccent
336	΅	dieresismonoaccent
337	'A	Alphamonoaccent
338	'E	Epsilonmonoaccent
339	'H	Etamonoaccent
340	'I	Iotamonoaccent
341	'O	Omicronmonoaccent
342	'Y	Upsilonmonoaccent
343	'Ω	Omegamonoaccent
344	Ϊ	Iotadieresis
345	Ϋ	Upsilondieresis
346	ά	amonoaccent
347	έ	emonoaccent
348	ἐ	altemonoaccent
349	ή	hmonoaccent
350	ί	imonoaccent
351	ό	omonoaccent
352	ύ	umonoaccent
353	ώ	wmonoaccent
354	ΐ	idieresismonoaccent
355	ΰ	udieresismonoaccent
356	'Y̓	Upsilonhookmonoaccent
357	Ϋ̓	Upsilonhookdieresis
358	Ᾱ	Alphaiota
359	Ῑ	Etaiota
360	Ῡ	Omegaiota
361	10	ten
362	20	twenty
363	30	thirty
364	40	fourty
365	50	fifty

Code	Glyph	Name
366	60	sixty
367	70	seventy
368	80	eighty
369	90	ninety
370	100	onehundred
371	200	twohundred
372	300	threehundred
373	400	fourhundred
374	500	fivehundred
375	600	sixhundred
376	700	sevenhundred
377	800	eighthundred
378	900	ninehundred
379	1000	onethousand
380	2000	twothousand
381	3000	threethousand
382	4000	fourthousand
383	5000	fivethousand
384	6000	sixthousand
385	7000	seventhousand
386	8000	eightthousand
387	9000	ninethousand
388	10000	tenthousand
389	α′	greekone
390	β′	greektwo
391	γ′	greekthree
392	δ′	greekfour
393	ε′	greekfive
394	ϵ′	altgreekfive
395	ϛ′	greeksix
396	f′	altgreeksix
397	ζ′	greekseven
398	η′	greekeight
399	θ′	greeknine
400	ϑ′	altgreeknine
401	ι′	greekten
402	κ′	greektwenty
403	ϰ′	altgreektwenty
404	λ′	greekthirty
405	μ′	greekfourty
406	ν′	greekfifty
407	ξ′	greeksixty
408	ο′	greekseventy
409	π′	greekeighty
410	ϙ′	greekninety
411	ρ′	greekonehundred
412	ϱ′	altgreekonehundred
413	σ′	greektwohundred
414	τ′	greekthreehundred
415	υ′	greekfourhundred
416	ϕ′	greekfivehundred
417	φ′	altgreekfivehundred
418	χ′	greeksixhundred
419	ψ′	greeksevenhundred
420	ω′	greekeighthundred
421	ϡ′	greekninehundred
422	͵α	greekonethousand
423	͵β	greektwothousand
424	͵γ	greekthreethousand
425	͵δ	greekfourthousand
426	͵ε	greekfivethousand
427	͵ϵ	altgreekfivethousand
428	͵ϛ	greeksixthousand
429	͵f	altgreeksixthousand
430	͵ζ	greekseventhousand
431	͵η	greekeightthousand
432	͵θ	greekninethousand
433	͵Μ	greektenthousand

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