

Doulos SIL Font Home

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Note:

Updates to this font, FAQ and Known-issues list will be available online. Go to
<http://scripts.sil.org/DoulosSILfont>.

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Introduction to the Doulos SIL Font Package



Welcome to the Doulos SIL font package. The goal for this product was to provide a single Unicode-based font family that would contain a comprehensive inventory of glyphs needed for almost any Roman- or Cyrillic-based writing system, whether used for phonetic or orthographic needs. In addition, there is provision for other characters and symbols useful to linguists. This font makes use of state-of-the-art font technologies to support complex typographic issues, such as the need to position arbitrary combinations of base glyphs and diacritics optimally.

One font from this typeface family is included in this release:

- Doulos SIL Regular

Overview of the Doulos SIL Font

This Doulos SIL font is essentially the same design as the SIL Doulos font first released by SIL in 1992. The design has been changed from the original in that it has been scaled down to be a better match with contemporary digital fonts, such as Times New Roman®. This current release is a regular typeface, with no bold or italic version available or planned.

Note:

We reserve the right to alter metrics in future releases. Future versions of the font may result in different lines, line spacing, or paragraph lengths. Do not expect that a document laid out in one version will always have the same page breaks, etc., in future fonts.

The Doulos SIL font differs significantly from SIL Doulos in the following ways:

- SIL Doulos, as other fonts included in the *SIL Encore Fonts* package, was provided not as a working font but as a “library” font from which working fonts could be made using the *TypeCaster* program. In contrast, Doulos SIL is a working font to be used as is, not as a basis for derivative fonts.
- Doulos SIL is a Unicode-encoded font. The encoding is *entirely* different from the old font, or most working fonts produced from it. Data created for use with the old font (or its derivatives) will most likely have to be re-typed or converted before it will display with the Doulos SIL font.
- Doulos SIL is a TrueType font with “smart font” capabilities added using the Graphite, OpenType®, and AAT font technologies. This means that complex typographic issues such as the placement of diacritics or the formation of ligatures are handled by the *font*, provided you are running an application that provides an adequate level of support for one of these smart font technologies. With the old font (and its derivatives), diacritic placement was handled using non-standard character encodings that incorporated multiple versions of a diacritic as distinctly-encoded characters.

System requirements

The Doulos SIL font is designed to work on systems and with applications that provide support for TrueType fonts and for Unicode character encoding. This includes all 32-bit versions of Microsoft Windows®, as well as recent versions of the Mac OS (version 9.0 and later), and also some implementations of Unix / Linux (TrueType font support on Unix and Linux may depend upon the particular applications in use). On some systems (true, at least, of 32-bit Windows), it can also be used with older applications that use legacy, industry-standard, 8-bit character encodings.

The preceding characterization of system requirements describes the minimum needed to display characters. *Realizing the full capabilities of this font involves additional requirements.* The first release of this font was designed to work with either of two advanced font technologies, Graphite or OpenType; beginning with release 4.0.12, it also contains AAT tables to offer selection of alternate glyphs on Mac OS X. To take advantage of the advanced typographic capabilities of this font, you must be using applications that provide an adequate level of support¹ for Graphite and OpenType. At the time of release, no application supports all of the OpenType features of this font. Paratext 6 and Microsoft Office 2003 support many of the automatic ligatures as well as dynamic positioning of most diacritics. While Adobe InDesign 2/CS/CS2 does not offer support for dynamic diacritic positioning, it is one of the few applications to offer selection of alternate glyphs from OpenType fonts. There are currently few applications which make use of the Graphite capabilities of the font. These are WorldPad², a beta version of Mozilla³ and all applications in the FieldWorks Suite⁴ (such as Data Notebook).

Features of the font

The Doulos SIL font contains near-complete coverage of all the characters defined in Unicode 4.1 for Latin and Cyrillic. In total, over 2,400 glyphs are included, providing support for over 1,900 characters as well as a large number of ligated character sequences (e.g., contour tone letters used in phonetic transcription of tonal languages).

In addition, alternately-designed glyphs are also provided for a number of characters for use in particular contexts. The glyphs are accessible in applications that support advanced font technologies, specifically the Graphite or OpenType technologies. These technologies are also utilized to provide automatic positioning of diacritics relative to base characters in arbitrary base+diacritic combinations (including combinations involving multiple diacritics).

Some important issues with respect to Unicode need to be borne in mind. Unicode is a character encoding and not a glyph encoding. Thus you should endeavor to use the character that reflects your character needs rather than finding a glyph that looks right and using its character code. Thus, for example, there is only one code for CAPITAL ENG (U+014A), although there are 4 different glyph shapes for this character in use around the world. Therefore it is necessary to use other means, such as user-selectable font features, to ensure that your document displays the right glyph for the character that you are anticipating. The advanced typographic capabilities mentioned above provide this very capability.

Samples

Type samples showing some of the unusual inventory of glyphs and features can be downloaded from the website. A sample from one page is shown below. For a complete list of characters included in Doulos SIL, see Supported character ranges, below.

¹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=DoulosSIL_AdLvSup

² http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=WorldPadDownload

³ <http://sila.mozdev.org/>

⁴ <http://www.sil.org/computing/fieldworks/index.html>

Doulos SIL Sample - Precomposed Latin Diacritics

Miscellaneous Technical	U+230A..U+230B
Geometric Shapes	U+25CA, U+25CC
Misc. Math. Symbols-A	U+27E6..U+27E7
PUA: Specials	U+F130..U+F135
PUA: Combining Marks	U+F170..U+F17A
PUA: Modifier letters (e.g. superscripts)	U+F180..U+F182, U+F18B, U+F18B, U+F195..U+F1CE, U+F1D0..U+F1EA
PUA: Latin	U+F208..U+F265
PUA: Cyrillic	U+F320..U+F329
Alphabetic Presentation Forms	U+FB00..U+FB04
Arabic Presentation Forms-B	U+FEFF (zero-width no-break space)
Mathematical Alphanumeric Symbols	U+1D510, U+1D52D

Supported character ranges

Private-use (PUA) characters

There are 208 private-use characters that are supported in this font. These conform to SIL International's corporate registry⁶ for usage of the Unicode private-use areas. These are shown below.

Specials

U+F130	┘	FONT BASELINE AND SIDE-BEARING MARKER LEFT
U+F131	┘	FONT BASELINE AND SIDE-BEARING MARKER RIGHT
U+F132	┐	FONT VERTICAL METRICS MARKER LEFT
U+F133	┐	FONT VERTICAL METRICS MARKER RIGHT

Combining Marks

U+F171	˘	COMBINING MACRON-ACUTE
U+F172	˘	COMBINING GRAVE-MACRON
U+F173	˘	COMBINING MACRON-GRAVE
U+F174	˘	COMBINING ACUTE-MACRON
U+F175	˘	COMBINING GRAVE-ACUTE-GRAVE
U+F178	ᵣ	COMBINING LATIN SMALL LETTER R BELOW
U+F179	˘	COMBINING ACUTE-GRAVE-ACUTE

Modifier Letters

U+F195	˘	MODIFIER LETTER CHINANTEC TONE MARK BACKSLASH
U+F196	˘	MODIFIER LETTER CHINANTEC TONE MARK VERTICAL BAR
U+F197	˘	MODIFIER LETTER CHINANTEC TONE MARK SLASH

⁶ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=PUA_home

U+F198	˙	MODIFIER LETTER DOT VERTICAL BAR
U+F199	/	MODIFIER LETTER DOT SLASH
U+F19A	˘	MODIFIER LETTER DOT HORIZONTAL BAR
U+F19B	↗	MODIFIER LETTER RIGHT CORNER ANGLE
U+F19C	↑	MODIFIER LETTER RAISED UP ARROW
U+F19D	↓	MODIFIER LETTER RAISED DOWN ARROW
U+F19E	!	MODIFIER LETTER AFRICANIST DOWNSTEP = MODIFIER LETTER RAISED EXCLAMATION MARK
U+F19F	¡	MODIFIER LETTER AFRICANIST UPSTEP
U+F1A1	æ	MODIFIER LETTER SMALL AE
U+F1A3	◊	MODIFIER LETTER SMALL REVERSED E
U+F1A4	◊	MODIFIER LETTER SMALL CLOSED REVERSED OPEN E
U+F1AB	ø	MODIFIER LETTER SMALL O WITH STROKE
U+F1AD	œ	MODIFIER LETTER SMALL LIGATURE OE
U+F1AE	◊	MODIFIER LETTER SMALL CAPITAL OE
U+F1B4	Ƴ	MODIFIER LETTER SMALL CAPITAL Y
U+F1B5	⚡	MODIFIER LETTER SMALL RAMS HORN
U+F1BC	h	MODIFIER LETTER SMALL H WITH STROKE
U+F1CD	u	MODIFIER LETTER SMALL CAPITAL U BAR
U+F1CE	ʏ	MODIFIER LETTER SMALL TURNED Y
U+F1E7	˘	MODIFIER LETTER LOW CIRCUMFLEX ACCENT
U+F1E8	ˇ	MODIFIER LETTER LOW CARON
U+F1E9	:	MODIFIER LETTER COLON
U+F1EA	=	MODIFIER LETTER SHORT EQUAL

Latin

U+F208	Α	LATIN CAPITAL LETTER SMALL ALPHA
U+F209	Ɽ	LATIN CAPITAL LETTER SMALL TURNED ALPHA
U+F20A	Ɓ	LATIN CAPITAL LETTER B WITH STROKE
U+F20D	Ɖ	LATIN CAPITAL LETTER D WITH STROKE AND HOOK
U+F20E	Ł	LATIN SMALL LETTER DOUBLE-BARRED L
U+F20F	Ł	LATIN CAPITAL LETTER DOUBLE-BARRED L
U+F211	q	LATIN SMALL LETTER Q WITH HOOK TAIL
U+F212	Q	LATIN CAPITAL LETTER SMALL Q WITH HOOK TAIL
U+F213	ƒ	LATIN SMALL LETTER R WITH STROKE
U+F214	Ŕ	LATIN CAPITAL LETTER R WITH STROKE
U+F215	Ŗ	LATIN CAPITAL LETTER SMALL R WITH TAIL

U+F218	Ů	LATIN CAPITAL LETTER U BAR
U+F219	Λ	LATIN CAPITAL LETTER TURNED V
U+F21A	Ƶ	LATIN SMALL LETTER W WITH HOOK
U+F21B	Ʒ	LATIN CAPITAL LETTER W WITH HOOK
U+F21D	'	MODIFIER LETTER STRAIGHT APOSTROPHE = <i>LATIN LETTER DOTLESS EXCLAMATION</i>
U+F21E	ʔ	LATIN SMALL LETTER GLOTTAL STOP
U+F220	ø	LATIN SMALL LETTER E WITH STROKE
U+F221	Ǝ	LATIN CAPITAL LETTER E WITH STROKE
U+F222	h	LATIN SMALL LETTER H WITH DESCENDER
U+F223	H	LATIN CAPITAL LETTER H WITH DESCENDER
U+F225	ç	LATIN SMALL LETTER C WITH PALATAL HOOK
U+F234	Ʒ	LATIN CAPITAL LETTER Z WITH PALATAL HOOK
U+F235	Ʒ	LATIN SMALL LETTER EZH WITH PALATAL HOOK
U+F242	Ł	LATIN CAPITAL LETTER L WITH MIDDLE TILDE
U+F243	Ƴ	LATIN SMALL LETTER Y WITH STROKE
U+F244	Ƴ	LATIN CAPITAL LETTER Y WITH STROKE
U+F245	ξ	LATIN LETTER TRESILLO
U+F246	Ꞑ	LATIN LETTER CUATRILLO
U+F247	@	LATIN SMALL LETTER AT
U+F248	Ⓐ	LATIN CAPITAL LETTER AT
U+F258	ɪ̥	LATIN LETTER SMALL CAPITAL I OVER SMALL SCHWA
U+F259	ʊ̥	LATIN LETTER SMALL UPSILON OVER SMALL SCHWA
U+F25A	h	LATIN SMALL LETTER HENG
U+F25B	Ʒ	LATIN CAPITAL LETTER M WITH HOOK
U+F25C	Ɔ	LATIN CAPITAL LETTER P WITH STROKE
U+F25E	ƴ	LATIN SMALL LETTER V WITH CURL
U+F25F	ƶ	LATIN SMALL LETTER V WITH RIGHT HOOK
U+F260	ƶ	LATIN SMALL LETTER J WITH STROKE
U+F261	ƶ	LATIN CAPITAL LETTER J WITH STROKE
U+F262	ƶ	LATIN SMALL LETTER K WITH DESCENDER
U+F263	ƶ	LATIN CAPITAL LETTER K WITH DESCENDER
U+F264	ƶ	LATIN SMALL LETTER Z WITH DESCENDER
U+F265	ƶ	LATIN CAPITAL LETTER Z WITH DESCENDER

Cyrillic

U+F322	Ѓ	CYRILLIC CAPITAL LETTER EL WITH HOOK
U+F323	Ѣ	CYRILLIC SMALL LETTER EL WITH HOOK
U+F324	Ѧ	CYRILLIC CAPITAL LETTER HA WITH HOOK
U+F325	ѧ	CYRILLIC SMALL LETTER HA WITH HOOK
U+F326	Ѩ	CYRILLIC CAPITAL LETTER GHE WITH STROKE AND DESCENDER
U+F327	ѩ	CYRILLIC SMALL LETTER GHE WITH STROKE AND DESCENDER
U+F328	Ѫ	CYRILLIC CAPITAL LETTER HA WITH STROKE
U+F329	ѫ	CYRILLIC SMALL LETTER HA WITH STROKE
U+F32A	Ѭ	CYRILLIC CAPITAL LETTER REVERSED ZE
U+F32B	ѭ	CYRILLIC SMALL LETTER REVERSED ZE

Deprecated PUA characters (still in our SIL Unicode Roman fonts)

These PUA characters have been added to Unicode and are being deprecated. This page lists those PUA characters along with the appropriate Unicode codepoints. Please use the Unicode codepoint instead of the PUA codepoint. Our SIL Unicode Roman fonts (Doulos SIL⁷ and Charis SIL⁸) will continue to support the PUA codepoint for backwards compatibility purposes. If you have data that contains these PUA codes, it should be updated by replacing each PUA character with its official Unicode counterpart. This will facilitate data interchange and the use of standard fonts and software. A mapping file is provided for this purpose⁹.

PUA Character	Glyph	Unicode code point
U+F134	└	U+230A LEFT FLOOR
U+F135	┘	U+230B RIGHT FLOOR
U+F170	⚡	U+1DC2 COMBINING SNAKE BELOW
U+F176	◌̣	U+035C COMBINING DOUBLE BREVE BELOW
U+F17A	¨	U+0308 COMBINING DIAERESIS (using feature 1052, in our SIL Unicode Roman fonts ¹⁰)
U+F180	ṁ	U+1D50 MODIFIER LETTER SMALL M
U+F181	ṅ	U+1DAE MODIFIER LETTER SMALL N WITH LEFT HOOK
U+F182	ṇ	U+1D51 MODIFIER LETTER SMALL ENG
U+F18B	ᵑ	U+1D9F MODIFIER LETTER SMALL REVERSED OPEN E

⁷ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=DoulosSILfont

⁸ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=CharisSILfont

⁹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=MappingFiles#SILPUAtoUnicode

¹⁰ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=SILUnicodeRF_Features#features

PUA Character	Glyph	Unicode code point
U+F1A0	ᵀ	U+1D9B MODIFIER LETTER SMALL TURNED ALPHA
U+F1A2	ᶘ	U+1D9D MODIFIER LETTER SMALL C WITH CURL
U+F1A5	ᶜ	U+1DA0 MODIFIER LETTER SMALL F
U+F1A6	ᶑ	U+1DA2 MODIFIER LETTER SMALL SCRIPT G
U+F1A7	ᶢ	U+1DA4 MODIFIER LETTER SMALL I WITH STROKE
U+F1A8	ᶦ	U+1DA6 MODIFIER LETTER SMALL CAPITAL I
U+F1A9	ᶫ	U+1DA1 MODIFIER LETTER SMALL DOTLESS J WITH STROKE
U+F1AA	ᶬ	U+1DA9 MODIFIER LETTER SMALL L WITH RETROFLEX HOOK
U+F1AC	ᶮ	U+1DB1 MODIFIER LETTER SMALL BARRED O
U+F1AF	ᶯ	U+1DB4 MODIFIER LETTER SMALL ESH
U+F1B0	ᶰ	U+1DB6 MODIFIER LETTER SMALL U BAR
U+F1B1	ᶱ	U+1DB7 MODIFIER LETTER SMALL UPSILON
U+F1B2	ᶲ	U+1DAD MODIFIER LETTER SMALL TURNED M WITH LONG LEG
U+F1B3	ᶳ	U+1DBA MODIFIER LETTER SMALL TURNED V
U+F1B6	ᶴ	U+1DBB MODIFIER LETTER SMALL Z
U+F1B7	ᶵ	U+1DBD MODIFIER LETTER SMALL Z WITH CURL
U+F1B8	ᶶ	U+1DBE MODIFIER LETTER SMALL EZH
U+F1B9	ᶷ	U+1D9C MODIFIER LETTER SMALL C
U+F1BA	ᶸ	U+1D9E MODIFIER LETTER SMALL ETH
U+F1BB	ᶹ	U+1DA3 MODIFIER LETTER SMALL TURNED H
U+F1BD	ᶻ	U+1DA8 MODIFIER LETTER SMALL J WITH CROSSED-TAIL
U+F1BE	ᶼ	U+1DAA MODIFIER LETTER SMALL L WITH PALATAL HOOK
U+F1BF	ᶽ	U+1DAB MODIFIER LETTER SMALL CAPITAL L
U+F1C0	ᶾ	U+1DAC MODIFIER LETTER SMALL M WITH HOOK
U+F1C1	ᶿ	U+1DAF MODIFIER LETTER SMALL N WITH RETROFLEX HOOK
U+F1C2	ᶽ	U+1DB0 MODIFIER LETTER SMALL CAPITAL N
U+F1C3	ᶿ	U+1DB2 MODIFIER LETTER SMALL PHI
U+F1C4	ᶽ	U+1DB3 MODIFIER LETTER SMALL S WITH HOOK
U+F1C5	ᶽ	U+1DB5 MODIFIER LETTER SMALL T WITH PALATAL HOOK
U+F1C6	ᶽ	U+1DB9 MODIFIER LETTER SMALL V WITH HOOK

PUA Character	Glyph	Unicode code point
U+F1C7	ʐ	U+1DBC MODIFIER LETTER SMALL Z WITH RETROFLEX HOOK
U+F1C8	ʑ	U+02C0 MODIFIER LETTER GLOTTAL STOP
U+F1C9	θ	U+1DBF MODIFIER LETTER SMALL THETA
U+F1CA	ɪ	U+1DA5 MODIFIER LETTER SMALL IOTA
U+F1CB	ɨ	U+1DA7 MODIFIER LETTER SMALL CAPITAL I WITH STROKE
U+F1CC	ʊ	U+1DB8 MODIFIER LETTER SMALL CAPITAL U
U+F1D0	┐	U+A712 MODIFIER LETTER EXTRA-HIGH LEFT-STEM TONE BAR
U+F1D1	┑	U+A713 MODIFIER LETTER HIGH LEFT-STEM TONE BAR
U+F1D2	┒	U+A714 MODIFIER LETTER MID LEFT-STEM TONE BAR
U+F1D3	┓	U+A715 MODIFIER LETTER LOW LEFT-STEM TONE BAR
U+F1D4	└	U+A716 MODIFIER LETTER EXTRA-LOW LEFT-STEM TONE BAR
U+F1D5	┐̣	U+A708 MODIFIER LETTER EXTRA-HIGH DOTTED TONE BAR
U+F1D6	┑̣	U+A709 MODIFIER LETTER HIGH DOTTED TONE BAR
U+F1D7	┒̣	U+A70A MODIFIER LETTER MID DOTTED TONE BAR
U+F1D8	┓̣	U+A70B MODIFIER LETTER LOW DOTTED TONE BAR
U+F1D9	└̣	U+A70C MODIFIER LETTER EXTRA-LOW DOTTED TONE BAR
U+F1DA	┐̣̣	U+A70D MODIFIER LETTER EXTRA-HIGH DOTTED LEFT-STEM TONE BAR
U+F1DB	┑̣̣	U+A70E MODIFIER LETTER HIGH DOTTED LEFT-STEM TONE BAR
U+F1DC	┒̣̣	U+A70F MODIFIER LETTER MID DOTTED LEFT-STEM TONE BAR
U+F1DD	┓̣̣	U+A710 MODIFIER LETTER LOW DOTTED LEFT-STEM TONE BAR
U+F1DE	└̣̣	U+A711 MODIFIER LETTER EXTRA-LOW DOTTED LEFT-STEM TONE BAR
U+F1DF	ㄥ	U+A700 MODIFIER LETTER CHINESE TONE YIN PING
U+F1E0	ㄜ	U+A702 MODIFIER LETTER CHINESE TONE YIN SHANG
U+F1E1	ㄝ	U+A704 MODIFIER LETTER CHINESE TONE YIN QU
U+F1E2	ㄞ	U+A706 MODIFIER LETTER CHINESE TONE YIN RU
U+F1E3	ㄟ	U+A701 MODIFIER LETTER CHINESE TONE YANG PING
U+F1E4	ㄠ	U+A703 MODIFIER LETTER CHINESE TONE YANG SHANG
U+F1E5	ㄡ	U+A705 MODIFIER LETTER CHINESE TONE YANG QU
U+F1E6	ㄢ	U+A707 MODIFIER LETTER CHINESE TONE YANG RU
U+F20B	ç	U+023C LATIN SMALL LETTER C WITH STROKE

PUA Character	Glyph	Unicode code point
U+F20C	đ	U+1D91 LATIN SMALL LETTER D WITH HOOK AND TAIL
U+F210	þ	U+1D7D LATIN SMALL LETTER P WITH STROKE
U+F216	ƒ	U+1D98 LATIN SMALL LETTER ESH WITH RETROFLEX HOOK
U+F217	Ʒ	U+01B7 LATIN CAPITAL LETTER EZH (using feature 1042, in our SIL Unicode Roman fonts ¹¹)
U+F21C	Ʒ	U+1D9A LATIN SMALL LETTER EZH WITH RETROFLEX HOOK
U+F21F	Ł	U+023D LATIN CAPITAL LETTER L WITH BAR
U+F224	ɸ	U+1D80 LATIN SMALL LETTER B WITH PALATAL HOOK
U+F226	ɖ	U+1D81 LATIN SMALL LETTER D WITH PALATAL HOOK
U+F227	ɸ	U+1D82 LATIN SMALL LETTER F WITH PALATAL HOOK
U+F228	ɢ	U+1D83 LATIN SMALL LETTER G WITH PALATAL HOOK
U+F229	ɥ	U+1D84 LATIN SMALL LETTER K WITH PALATAL HOOK
U+F22A	ɹ	U+1D85 LATIN SMALL LETTER L WITH PALATAL HOOK
U+F22B	ɱ	U+1D86 LATIN SMALL LETTER M WITH PALATAL HOOK
U+F22C		U+1D87 LATIN SMALL LETTER N WITH PALATAL HOOK
U+F22D	ɹ	U+1D88 LATIN SMALL LETTER P WITH PALATAL HOOK
U+F22E	ɹ	U+1D89 LATIN SMALL LETTER R WITH PALATAL HOOK
U+F22F	ɹ	U+1D8A LATIN SMALL LETTER S WITH PALATAL HOOK
U+F230	ɹ	U+1D8B LATIN SMALL LETTER ESH WITH PALATAL HOOK
U+F231	ɹ	U+1D8C LATIN SMALL LETTER V WITH PALATAL HOOK
U+F232	ɹ	U+1D8D LATIN SMALL LETTER X WITH PALATAL HOOK
U+F233	ɹ	U+1D8E LATIN SMALL LETTER Z WITH PALATAL HOOK
U+F236	ɹ	U+1D8F LATIN SMALL LETTER A WITH RETROFLEX HOOK
U+F237	ɹ	U+1D90 LATIN SMALL LETTER ALPHA WITH RETROFLEX HOOK
U+F238	ɹ	U+1D92 LATIN SMALL LETTER E WITH RETROFLEX HOOK
U+F239	ɹ	U+1D93 LATIN SMALL LETTER OPEN E WITH RETROFLEX HOOK
U+F23A	ɹ	U+1D94 LATIN SMALL LETTER REVERSED OPEN E WITH RETROFLEX HOOK
U+F23B	ɹ	U+1D95 LATIN SMALL LETTER SCHWA WITH RETROFLEX HOOK
U+F23C	ɹ	U+1D96 LATIN SMALL LETTER I WITH RETROFLEX HOOK
U+F23D	ɹ	U+1D97 LATIN SMALL LETTER OPEN O WITH RETROFLEX HOOK

¹¹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=SILUnicodeRF_Features#features

PUA Character	Glyph	Unicode code point
U+F23E	u	U+1D99 LATIN SMALL LETTER U WITH RETROFLEX HOOK
U+F23F	U	U+1D7E LATIN SMALL CAPITAL LETTER U WITH STROKE
U+F240	db	U+0238 LATIN SMALL LETTER DB DIGRAPH
U+F241	qp	U+0239 LATIN SMALL LETTER QP DIGRAPH
U+F249	b̃	U+1D6C LATIN SMALL LETTER B WITH MIDDLE TILDE
U+F24A	d̃	U+1D6D LATIN SMALL LETTER D WITH MIDDLE TILDE
U+F24B	f̃	U+1D6E LATIN SMALL LETTER F WITH MIDDLE TILDE
U+F24C	m̃	U+1D6F LATIN SMALL LETTER M WITH MIDDLE TILDE
U+F24D	ñ	U+1D70 LATIN SMALL LETTER N WITH MIDDLE TILDE
U+F24E	p̃	U+1D71 LATIN SMALL LETTER P WITH MIDDLE TILDE
U+F24F	r̃	U+1D72 LATIN SMALL LETTER R WITH MIDDLE TILDE
U+F250	ṛ	U+1D73 LATIN SMALL LETTER R WITH FISHHOOK AND MIDDLE TILDE
U+F251	s̃	U+1D74 LATIN SMALL LETTER S WITH MIDDLE TILDE
U+F252	t̃	U+1D75 LATIN SMALL LETTER T WITH MIDDLE TILDE
U+F253	z̃	U+1D76 LATIN SMALL LETTER Z WITH MIDDLE TILDE
U+F254	Ĩ	U+1D7B LATIN SMALL CAPITAL LETTER I WITH STROKE
U+F255	υ̃	U+1D7F LATIN SMALL LETTER UPSILON WITH STROKE
U+F256	ſ̃	U+023F LATIN SMALL LETTER S WITH SWASH TAIL
U+F257	ẓ	U+0240 LATIN SMALL LETTER Z WITH SWASH TAIL
U+F25D	ι̃	U+1D7C LATIN SMALL LETTER IOTA WITH STROKE
U+F320	Г̃	U+04F6 CYRILLIC CAPITAL LETTER GHE WITH DESCENDER
U+F321	г̃	U+04F7 CYRILLIC SMALL LETTER GHE WITH DESCENDER

Deprecated PUA characters (still in our SIL Unicode Roman fonts)

Deprecated PUA characters (*no longer* in our SIL Unicode Roman fonts)

Because these characters were added to Unicode before we ever had a public release of a font using these codepoints, they are only in our PUA codepoint space, they are not in current fonts. They are listed here for completeness in documentation.

PUA Character	Glyph	Unicode code point
U+F177	—	U+035E COMBINING DOUBLE MACRON
U+F183	ˆ	U+1D43 MODIFIER LETTER SMALL A

PUA Character	Glyph	Unicode code point
U+F184	ɐ	U+1D44 MODIFIER LETTER SMALL TURNED A
U+F185	ɑ	U+1D45 MODIFIER LETTER SMALL ALPHA
U+F186	b	U+1D47 MODIFIER LETTER SMALL B
U+F187	d	U+1D48 MODIFIER LETTER SMALL D
U+F188	c	U+1D49 MODIFIER LETTER SMALL E
U+F189	ə	U+1D4A MODIFIER LETTER SMALL SCHWA
U+F18A	ɛ	U+1D4B MODIFIER LETTER SMALL OPEN E
U+F18C	g	U+1D4D MODIFIER LETTER SMALL G
U+F18D	k	U+1D4F MODIFIER LETTER SMALL K
U+F18E	o	U+1D52 MODIFIER LETTER SMALL O
U+F18F	ɔ	U+1D53 MODIFIER LETTER SMALL OPEN O
U+F190	p	U+1D56 MODIFIER LETTER SMALL P
U+F191	t	U+1D57 MODIFIER LETTER SMALL T
U+F192	u	U+1D58 MODIFIER LETTER SMALL U
U+F193	ʷ	U+1D5A MODIFIER LETTER SMALL TURNED M
U+F194	v	U+1D5B MODIFIER LETTER SMALL V
U+F200	Ɽ	U+1D00 LATIN LETTER SMALL CAPITAL A
U+F201	ⱦ	U+0221 LATIN SMALL LETTER D WITH CURL
U+F202	ⱥ	U+1D07 LATIN LETTER SMALL CAPITAL E
U+F203	ⱪ	U+0234 LATIN SMALL LETTER L WITH CURL
U+F204	Ɱ	U+0235 LATIN SMALL LETTER N WITH CURL
U+F205	ⱦ	U+0236 LATIN SMALL LETTER T WITH CURL
U+F206	ŧ	U+02AE LATIN SMALL LETTER TURNED H WITH FISHHOOK
U+F207	Ⱨ	U+02AF LATIN SMALL LETTER TURNED H WITH FISHHOOK AND TAIL

Deprecated PUA characters (*no longer* in our SIL Unicode Roman fonts0029

Advanced typographic capabilities

This font supports various advanced typographic capabilities using the Graphite, OpenType, or AAT font technologies.

- Automatic conversion of sequences of pitch letters (U+02E5..U+02E9) into ligatures.
- Automatic *fi*-type ligatures.

- Auto placement of diacritics to a sufficient level of stacking.
- Auto placement of double-width diacritics (U+035D..U+0362, and the private-use characters U+F176 and U+F17A) according to heights and depths of adjacent clusters (in Graphite only)
- Vietnamese diacritic placement handling (enabled via a user-selectable font feature).

The automatic placement of diacritics is supported for data that may or may not be canonically ordered (as defined by the Unicode Standard). This should normally be the responsibility of application software and text-processing resources (such as input methods), however, and not the user.

These capabilities are available in any application that supports the Graphite technology. They are also available via the OpenType technology, though this requires applications that provide a sufficient level of support for OpenType features. (See System Requirements.) With AAT applications, only limited combinations of base characters and diacritics will work correctly; beyond the supported set of combinations, diacritic placement may be inferior.

Additional capabilities available via font features

When Charis SIL¹² or Doulos SIL¹³ are used in applications that support Graphite and that provide an appropriate user interface, various user-controllable font features are available that allow access to certain alternately-designed glyphs that would be appropriate for use in certain contexts. These font features are also available for use in InDesign 2 (and above) and on Mac OS X. The following font features¹⁴ are available in these font:

*Capital Eng
alternates
(ID=1024)*

Four forms of U+014A LATIN CAPITAL LETTER ENG are available:

	Large eng with descender: a taller form of the lowercase eng, with a curved tail that hangs below the baseline. This is the default rendering. (Value = 0.)	Ŋ
	Large eng on baseline: a taller form of the lowercase eng, with the right vertical stroke curving to the left above the baseline. (Value = 1.)	Თ
	Large eng with short stem: a taller form of the lowercase eng, with the right vertical stroke curving to the left above the baseline and a shorter left stem. (Value = 2.)	Ი
	Capital N with tail: resembles the uppercase N, with a curved tail hanging from the right vertical stroke. (Value = 3.)	Კ

*Rams horn
alternates
(ID=1025)*

Three forms of U+0264 LATIN SMALL LETTER RAMS HORN are available:

	Small bowl (Value = 0)	Ლ
	Large bowl (Value = 1)	Მ
	Small gamma (Value = 2)	Ნ

*Tone numbers
(ID=1026)*

Modifies appearance of U+02E5 through U+02E9, the modifier letter tone bars, and of ligatures formed from sequences of these characters. Possible settings are:

	<i>Characters</i> : characters are represented by tone bars. This is the default rendering. (Value = 0)	Ჟ / 115
	<i>Numbers</i> : characters are represented using superscript numerals. (Value = 1)	

¹² http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=CharisSILfont

¹³ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=DoulosSILfont

¹⁴ Most of the glyphs in this chart are from [Doulos SIL](#)¹⁴ rather than [Charis SIL](#)¹⁴. However, features work the same in both fonts.

<i>Cyrillic E alternates</i> (ID=1027)	Provides alternates for Cyrillic letters with the central horizontal stroke slightly curved, as is appropriate for Mongolian.		
	U+042D CYRILLIC CAPITAL LETTER E	Э / Э	
	U+044D CYRILLIC SMALL LETTER E	э / э	
<i>Combining breve Cyrillic form</i> (ID=1028)	Provides alternates for U+0306 COMBINING BREVE that is appropriate for Cyrillic script.	Ӈ / Ӈ	
<i>Vietnamese-style diacritics</i> (ID=1029)	Turning this feature on causes some pairs of diacritics to be rendered side-by-side as is appropriate for Vietnamese. When the feature is off, the result is standard stacking diacritics.	ă / ă	
<i>Show invisible characters</i> (ID=1030)	Provides visible alternates for invisible characters. (U+00AD, U+034F, U+200B..U+200F, U+202A..U+202E, U+2060..U+2063, U+FE00..U+FE0F, U+FEFF)	/ SHY	
<i>Barred-bowl forms</i> (ID=1031)	Provides alternates for variants of characters that are needed for phonetic transcriptions conforming to Americanist linguistic traditions:		
	U+0111 LATIN SMALL LETTER D WITH STROKE	đ / đ	
	U+0180 LATIN SMALL LETTER B WITH STROKE	ɓ / ɓ	
	U+01E5 LATIN SMALL LETTER G WITH STROKE	ƒ / ƒ	
<i>Literacy alternates</i> (ID=1032)	Provides alternates for literacy forms:		
	U+0061 LATIN SMALL LETTER A	a / a	
	U+0067 LATIN SMALL LETTER G	g / g	
	U+01E5 LATIN SMALL LETTER G WITH STROKE	ƒ / ƒ	
<i>Small v-hook alternate</i> (ID=1033)	Provides an alternate for U+028B LATIN SMALL LETTER V WITH HOOK.	v / v	
<i>Capital Y-hook alternate</i> (ID=1034)	Provides an alternate for U+01B3 LATIN CAPITAL LETTER Y WITH HOOK.	Ÿ / Ÿ	
<i>Capital N-left-hook alternate</i> (ID=1035)	Provides an alternate for U+019D LATIN CAPITAL LETTER N WITH LEFT HOOK.	Ŋ / Ŋ	
<i>Small ezh-curl alternate</i> (ID=1036)	Provides an alternate for U+0293 LATIN SMALL LETTER EZH WITH CURL.	ɷ / ɷ	
<i>Capital T-hook alternate</i> (ID=1037)	Provides an alternate for U+01AC LATIN CAPITAL LETTER T WITH HOOK.	Ŧ / Ŧ	
<i>Capital H-stroke alternate</i> (ID=1038)	Provides an alternate for U+0126 LATIN CAPITAL LETTER H WITH STROKE.	Ħ / Ħ	
<i>Capital R-tail alternate</i> (ID=1039)	Provides an alternate for U+F215 LATIN CAPITAL LETTER R WITH TAIL.	Ŗ / Ŗ	
<i>Small p-hook alternate</i> (ID=1040)	Provides an alternate for U+01A5 LATIN SMALL LETTER P WITH HOOK.	Ṗ / Ṗ	
<i>Romanian-style diacritics</i> (ID=1041)	Provides alternates for Romanian-style variants:		
	U+015E LATIN CAPITAL LETTER S WITH CEDILLA	Ș / Ș	
	U+015F LATIN SMALL LETTER S WITH CEDILLA	ș / ș	
	U+0162 LATIN CAPITAL LETTER T WITH CEDILLA	Ț / Ț	
	U+0163 LATIN SMALL LETTER T WITH CEDILLA	ț / ț	

<i>Capital Ezh alternates</i> (ID=1042)	Provides alternates for:		
	U+01B7 LATIN CAPITAL LETTER EZH		3 / Ʒ
	U+04E0 CYRILLIC CAPITAL LETTER ABKHASIAN DZE		3 / Ӏ
<i>Ogonek alternates</i> (ID=1043)	Provides straight form alternates (Value = 1) for characters using the ogonek rather than curved forms (Value = 0).		ǯ / ǯ
<i>Modifier apostrophe alternates</i> (ID=1044)	Provides large alternates for:		
	U+02BC MODIFIER LETTER APOSTROPHE		’ / ’
	U+F21D MODIFIER LETTER STRAIGHT APOSTROPHE		’ / ’
<i>OU alternates</i> (ID=1045)	Provides open top alternates for:		
	U+0222 LATIN CAPITAL LETTER OU		8 / 8
	U+0223 LATIN SMALL LETTER OU		8 / 8
<i>Empty set alternates</i> (ID=1046)	Provides an alternate for U+2205 EMPTY SET.		∅ / ∅
<i>Modifier colon alternate</i> (ID=1047)	Provides an alternate (wider) for U+F1E9 MODIFIER LETTER COLON.		: / :
<i>Orthographic glottal alternate</i> (ID=1048)	Provides an x-height alternate for U+0294 LATIN LETTER GLOTTAL STOP.		ʔ / ʔ
<i>J stroke hook alternate</i> (ID=1049)	Provides a top serifed alternate for U+0284 LATIN SMALL LETTER DOTLESS J WITH STROKE AND HOOK.		f / f
<i>Hide tone contour staves</i> (ID=1050)	Provides alternates without the staff.		ㄱ / ㄱ
<i>Diacritic selection</i> (ID=1051)	Allows independent selection of diacritics		
<i>Bridging diacritics</i> (ID=1052)	Diacritic specials for Naso and Konai languages		
	Naso: L + U+0308 + L		Ĺ Ĺ Ĺ Ĺ / Ĺ Ĺ Ĺ Ĺ
	Konai: O + U+0311 + U and O + U+0311 + U+035F + U		Ô Ů Ů Ů / Ô Ů Ů Ů Ô Ů Ů Ů / Ô Ů Ů Ů
<i>Slant italic specials</i> (ID=1053)	Provides special italic versions of U+0061 a LATIN SMALL LETTER A, U+0250 æ LATIN SMALL LETTER TURNED A, U+00E6 æ LATIN SMALL LETTER AE, U+0066 f LATIN SMALL LETTER F, U+0069 i LATIN SMALL LETTER I, U+0131 ĭ LATIN SMALL LETTER DOTLESS I, U+0069 ĭ LATIN SMALL LETTER I, U+006C l LATIN SMALL LETTER L, U+0076 v LATIN SMALL LETTER V) (known issue: does not work for fi, ffi, fl, ffi, ff ligatures)		a, v, æ, f, i, i, i, l, v / a, v, æ, f, i, i, i, l, v

Font features

AAT

This font includes AAT tables that provide limited diacritic placement, automatic ligatures, and selection of alternate glyphs in applications that fully support Unicode and Apple Advanced Typography. However, diacritic placement for arbitrary base+diacritic combinations may be less than ideal because of limitations in the AAT technology.

The user-selectable features for choosing alternate glyph shapes are typically accessed via the Typography palette, available in applications such as TextEdit via a pop-up menu in the Fonts panel. (The user interface may differ in other applications.)

Conversion

In order to use this font with existing data that was created for use with fonts developed using the *Encore Fonts* system, or with custom-encoded fonts created by other means, it is necessary to re-type or convert data to produce data that is encoded in conformance with the Unicode Standard. TECKit is one program that can be used for character encoding conversion. TECKit allows users to write their own custom conversion mappings.

The TECKit package is available for download from SIL's TECKit¹⁵ Web site:

Some TECKit mapping files¹⁶ have already been created for some of the more widely used SIL legacy fonts.

The Unicode 4.1 standard includes 139 characters that were previously allocated to codepoints in the Private Use Area by SIL's PUA committee.

All processes (input methods, mappings) that create Unicode data should be revised to generate the proper Unicode values instead of PUA codes.

If you have data that contains these PUA codes, it should be updated by replacing each PUA character with its official Unicode counterpart. This will facilitate data interchange and the use of standard fonts and software. SIL PUA to Unicode 4.1 Mapping¹⁷ is provided for converting your data.

Keyboarding

The ability to obtain full benefits of this font is also dependent upon having means for Unicode character input. This package does not include keyboard input methods. Most current operating systems provide keyboard input methods for a number of different languages that have writing systems based on the Roman or Cyrillic scripts. Various means may be available for different operating-system platforms to create additional input methods for other languages. For instance, Microsoft Keyboard Layout Creator¹⁸ or Tavultesoft Keyman¹⁹ version 5 or later can be used for this purpose on Microsoft Windows. Some existing Keyman keyboards can also be downloaded from here²⁰. For the Mac, version 10.2 of Mac OS X includes a mechanism for users to create custom Unicode keyboard layouts (see <http://developer.apple.com/technotes/tn2002/tn2056.html>).

¹⁵ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=TECKitIntro

¹⁶ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=MappingFiles

¹⁷ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=MappingFiles#SILPUAtoUnicode

¹⁸ <http://www.microsoft.com/globaldev/tools/msklc.mspx>

¹⁹ <http://www.tavultesoft.com>

²⁰ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=inputtoolinks

Distribution Restrictions

This font package consists of the Doulos SIL font plus this (and possibly other) associated documentation. This font was prepared to facilitate linguists from SIL International and other partner organizations in preparing for a transition from using non-standard custom character encodings for their data to using the Unicode Standard for character encoding.

SIL International (SIL) is an organization of linguists dedicated to the study and promotion of the thousands of languages around the world. We are happy to make this font available at no charge. You may share this font with your friends and co-workers, but with the following restrictions:

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

Even though this font is freely distributable, SIL retains all copyright and ownership of the included font and any utilities and reserves the right to restrict their use and distribution at any time. They may be placed on websites, etc. but cannot be included in (or bundled with) any commercial product including hard disks or CD-ROMs without specific written permission.

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Manufacturer is SIL International, 7500 West Camp Wisdom Rd., Dallas, Texas, 75236, United States of America.

Note

While Doulos SIL 4.0.14 (a public beta) is being distributed under this license, a future release is likely to be distributed under the SIL Open Font License (OFL)²¹.

Installation and Use

Once the package has been downloaded, if you downloaded the .exe package you can double-click on it to install the files in a temporary folder.

Otherwise you will need a decompression utility such as WinZip²² (Windows) or Stuffit Expander²³ (Macintosh) to expand the archive. Within the archive is the font file and documentation (DoulosSIL4FontDocumentation.pdf).

Note that these packages only include the font itself. If you want to use the font to type languages that use special non-European letters, or to type Cyrillic, then you may need a separate keyboard manager.

This font can be installed using standard font installation procedures for the given operating-system platform. There are no additional installation steps required to use Graphite-related functionality. Note that certain applications may not see the new font immediately. You may have to quit and restart the application for the font to become available.

Release History

21 October, 2005 Public beta release (4.0.14)

22 October, 2004 Maintenance beta release (4.0.12)

31 March, 2004 First official release of Doulos SIL (4.0.10 and 4.0.04)

Support

As this font is 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.

Please note that this font is intended for use by experienced computer users. Installing and using this font is not a trivial matter. The most effective technical support is usually provided by an experienced computer user who can personally sit down with you at your computer to troubleshoot the problem.

Before requesting technical support, please:

- Carefully read all the documentation provided with the font.
- Check out all the links on this and the other Doulos SIL font web pages, and read all the information and instructions the web pages contain.

²¹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=OFL

²² <http://www.winzip.com/>

²³ <http://www.aladdinsys.com/downloads/software.html>

- Review the list of Frequently Asked Questions above and on the general Font FAQ²⁴ page to see if your question has already been answered.

If that fails to answer your question, or for more information, contact:

User Support
SIL International
Non-Roman Script Initiative
7500 W. Camp Wisdom Rd.
Dallas, TX 75236
USA
Telephone: (972) 708-7495 FAX: (972) 708-7388
Email: ✉ SIL_fonts@sil.org

²⁴ <http://scripts.sil.org/FontFAQ>

Appendix A: Applications that provide an adequate level of support for SIL Unicode Roman fonts

Users who do not require dynamically positioned diacritics, ligatures, or alternate glyphs can use almost any application with the font, but otherwise there are three basic categories of font usage:

Uniscribe

Uniscribe users should be aware that base+diacritic combinations that exist in Unicode (and the font) as precomposed chars are handled differently than those that are not (Uniscribe favors the use of the precomposed). (Note however: PUA characters needing special handling, e.g., diacritics, will not work properly in Uniscribe-based apps. Nor do the double-wide diacritics).

- Office2003 (Word and Publisher)
- Paratext 6 (<http://paratext.ubs-translations.org>)
- NotePad (will work only if you put the Uniscribe DLL from Paratext 6 or Office 2003 in a directory along with a copy of Notepad.exe and then use that Notepad.exe)
- In order for dynamic positioning of diacritics to render correctly in a Uniscribe application, Uniscribe version 1.468.4015.0 or later must be available for that application to use.

Non-Uniscribe OpenType

The only application we are aware of on Windows is InDesign (or perhaps any of the new Creative Suite from Adobe). Adobe applications do not yet handle dynamic diacritic placement. But one thing they permit that Uniscribe-based apps do not is selection of alternate glyphs.

- InDesign 2 or CS (can download an evaluation version from: <http://www.adobe.com/products/indesign/main.html>)

There are also some applications on Mac OS X that support ligatures and diacritic placement via OpenType:

- Mellel²⁵
- XeTeX²⁶

²⁵ <http://www.redlers.com/>

²⁶ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=xetex

Graphite

Graphite handles the double-diacritics and PUA chars correctly and presents a menu for changing font features.

- WorldPad 2.0²⁷ or greater
- SILA Beta 2 RC1 (Mozilla)²⁸
- Data Notebook (FieldWorks)

AAT

AAT (Apple Advanced Typography) handles limited diacritic placement (not all arbitrary combinations will work well), and offers user-selectable features for choosing alternate glyph shapes.

- TextEdit, and other applications that use the Mac OS X text frameworks.
- Intaglio²⁹
- Create³⁰
- XeTeX³¹

²⁷ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=WorldPadDownload

²⁸ <http://sila.mozdev.org/>

²⁹ <http://www.purgatorydesign.com/Intaglio/index.html>

³⁰ <http://www.stone.com/Create/Create.html>

³¹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=xetex

Appendix B: Frequently Asked Questions

Question: Why is the line spacing so much looser than other fonts, such as Times New Roman or Gentium³²?

Answer: Our SIL Unicode Roman fonts include characters with multiple stacked diacritics that need a much looser line spacing (for example, U+1EA8 Å). We cannot make the line spacing tighter without experiencing “clipping” of those characters. You may be able to overcome this by adjusting the line spacing in the application. For example, in Microsoft Word select **Format / Paragraph** and set the line spacing to use the **Exactly** setting and a value more suited to your needs. For example, if the font size is 12 pt, select line spacing of **Exactly** 13 pt. This will give a tighter line spacing. You can adjust the value up or down depending on how many diacritics you need to stack.

Question: I see on there are four **Eng** (D) variants. How do I choose which variant displays?

Answer: The answer depends on the application in question:

- **Graphite-enabled apps:** Assuming they support features, then you can select the desired Eng variant from the **Format / Font / Feature** menu (or however the interface is arranged).
- **InDesign and similar Adobe apps:** Select an Eng in your text and then use the glyph palette (select **Type / Glyphs / Access All Alternates** to pick an alternate. (The available features will depend on the font selected.)
- **Word and other Uniscribe-based apps:** Sorry, but at this time there is no mechanism to select features or alternate glyphs.
- **TextEdit and other AAT-enabled applications on Mac OS X:** Open the **Typography** palette, available from the **tools** (gear icon) menu in the **Font** panel (enlarge the window if necessary to make this visible). Using the Typography palette you can choose different settings for a variety of features, including Uppercase Eng shape in Doulos SIL. (The available features will depend on the font selected.)
- **With the XeTeX typesetting system:** Include “feature=setting” pairs in the font specification within the source document or stylesheet; e.g., `fontbodytext="Doulos SIL/AAT:Uppercase Eng alternates=Large eng with short stem"` at 12pt

For more information and examples, see XeTeX³³ documentation and sample files.

So, anticipating your (or someone’s) next question: What do I do if I’m using Word or other Uniscribe-based apps?

- In the long run, we hope that future versions of the Windows OS and application software will provide an architecture and user interface that supports some form of user-selectable font feature mechanism. We’ll see.
- In the meantime, the only alternative is to create derivative fonts that have the desired behaviors (e.g., alternate glyphs) “turned on” by default. So one could imagine a font such as “Doulos En4 SIL” that is just like Doulos SIL except it renders Eng using the 4th alternate. The NRSI is currently investigating mechanisms to allow for creation of derivative fonts.

Question: Will documents created with earlier (legacy) fonts such as the SIL IPA and IPA93 fonts be compatible with the new (Unicode) version?

Answer: No, documents which were created (encoded) with legacy fonts are not compatible with Unicode fonts. You will need to convert your data to Unicode. You can use TECKit³⁴ for this process. We have

³² http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=Gentium

³³ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=XeTeX

³⁴ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=TECKitIntro

mapping files³⁵ (which work with TECKit) for converting documents which used SIL's IPA fonts to Unicode. For instructions, see SIL IPA93 Data Conversion³⁶.

Question: Why is there an inversion of names? SIL Doulos -> Doulos SIL

Answer: If SIL is in *front* of a font name then that probably means it is a legacy font. If it is *after* the font name it probably means it is Unicode.

Question: I've been told I have to have Uniscribe 1.0468.4015.0 (main.030328-1500) or later for accurate diacritic positioning. How do I tell what version of Uniscribe I'm using? I stuck `usp10.dll` in with `notepad.exe` in a directory, but I am not sure that it is actually using that Uniscribe.

Answer: The key is a program called `msinfo32.exe`. It certainly will be on your machine if you have MS Office, but may be provided in other configurations. On some machines it is in `C:\Program Files\Common Files\Microsoft Shared\MSInfo\msinfo32.exe`. (This is the app that is launched if you click the **System Info** button on an Office application's **About** button.)

First, launch `msinfo32.exe`. Under **Software Environment**, select **Loaded Modules**. It will take a bit to load the list. Then scroll down looking for `usp10.dll`. You may see it loaded several times, from several different directories. But if you haven't yet launched your special copy of Notepad.exe, then you probably won't see that directory mentioned. Now launch your Notepad and then refresh the **System Info** display -- you should see a `usp10.dll` loaded from your directory -- a sure sign that Notepad is using the local copy.

Question: I am using Word 2003 and some of the diacritics are not shown, although they are there (as can be proven with the Show Unicode Macro of the `UnicodeWordMacros.dot`³⁷ and also when I copy/paste data from Word to Notepad). What is going on?

Answer: Check to see if **Tools / Options / Complex Scripts / Show Diacritics** is set. If you do not have a **Complex Scripts** tab under **Tools / Options**, you should:

- Close down all Office applications
- If you do not have the **Microsoft Office 2003 Language Settings** applet available (typically in **Start / Programs / Microsoft Office 2003 / Microsoft Office Tools**), use **Add/Remove programs** to add the this component to your Microsoft Office 2003 configuration (under **Office Tools** category, it is the **Language Settings Tool**)
- Fire up **Microsoft Office 2003 Language Settings** applet and enable a language like Arabic or Hebrew. After clicking **OK**, you should find the **Complex Scripts** tab is available under **Tools / Options**.
- Once you have ticked the box and confirmed this fixes the problem, you may remove those languages (from **Microsoft Office 2003 Language Settings** applet) if you want.

Question: Can Doulos SIL be used with Word 2004 on Mac OS X?

Answer: Since Word 2004 is Unicode-based, and the Doulos SIL font is a Unicode font, you would expect to be able to use Doulos SIL with Word 2004. And you can -- to a point. The Doulos SIL font relies on the Uniscribe and Graphite "smart rendering" technologies to position diacritics, contour tone letters, handle ligatures, etc. Unfortunately, both of these technologies are Windows-only at this point, and only a few programs use either of these technologies. A partial list of programs that support these technologies is available here³⁸.

Microsoft has not implemented "smart rendering" in Word 2004, and therefore Doulos SIL will not position diacritics properly, contour tone letters, or handle ligatures.

³⁵ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=MappingFiles

³⁶ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=SILIPA93DataConversion

³⁷ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=UnicodeWordMacrosIntro

³⁸ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=DoulosSIL_AdLvSup

So, the combination of Word 2004 and Doulos SIL isn't a complete solution either. Whether it's adequate for you depends on whether you need the capabilities that are missing due to the lack of smart rendering in Word 2004.

Generally speaking, it looks like the best approach at this time for Mac users wishing to use SIL IPA fonts is to use Word X (or earlier versions of Word) and the IPA93 fonts³⁹.

Question: Why does Doulos SIL have some Greek characters, but not all?

Answer: While it is true that the font includes some Greek characters, it is not intended to provide general support for the Greek language. Those Greek characters that were included were done so in order to support various (primarily linguistic) notational systems. If Greek language support is needed, the Galatia SIL⁴⁰ font is one available option.

Question: Why aren't the tone marks at U+0340..U+0345 in Doulos SIL?

Answer: The Unicode standard deprecates U+0340 and U+0341, so we omitted those. The marks U+0342..U+0345 are primarily for Greek usage and, as mentioned above, the font is not intended to provide general support for Greek.

Question: I noticed that when I put a cedilla under some characters it renders it as a "comma". When I do "Show Unicode"⁴¹, it gives me the same Unicode codepoint for both, so it is just a rendering issue. Is this intentional?

Answer: A careful study of the Unicode repertoire shows that, for example, character U+0157 LATIN SMALL LETTER R WITH CEDILLA (which decomposes to typically is drawn with the comma-shape rather than cedilla shape. This happens for a number of characters, including g/G, k/K, l/L, n/N, and r/R. (Interesting aside: notice that for lower case g the cedilla, drawn as a comma mark, is actually rendered *above* the g)

Additionally, s/S and t/T with cedilla are *sometimes* rendered with the comma shape -- thus we have a feature in the Graphite code (**Romanian Style**) and language-specific behavior in the OpenType code (attached to language "Romanian") that cause these combinations to be rendered with the comma style. (This alternate rendering predates the introduction into Unicode 3.0 of s/S and t/T with comma below [U+0218, U+0219, U+021A and U+021B] which are now the preferred way to distinguish these characters).

Question: Will font and glyph metrics stay the same in future versions?

Answer: We do not guarantee to keep metrics stable in future versions. The practical result of this means that you should expect to have different line lengths, paragraph length may be different, and line spacing may even be different. *You should not expect your document to have the same page layout as you do with the current font.*

Question: Do I still need to use the "SIL Unicode IPA font beta" (SILDoulosUnicodeIPA) font or can I just use "Doulos SIL"?

Answer: With a few exceptions, everything in the "SIL Unicode IPA font beta" is included in the "Doulos SIL" font so you no longer need the IPA font.

Exceptions include:

- U+0334 ~COMBINING TILDE OVERLAY was in "SIL Unicode IPA font beta" and is not in "Doulos SIL Regular". Precomposed characters should be used.
- U+2191 ↑ UPWARDS ARROW and U+2193 ↓ DOWNWARDS ARROW were used for "Upstep and "Downstep" respectively in the "IPA Unicode 1.0" Keyman keyboard. These no longer have the same glyph in "Doulos SIL Regular" as they did for "SIL Unicode IPA font beta". It is recommended that U+F19C † MODIFIER LETTER RAISED UP ARROW and U+F19D ‡ MODIFIER LETTER RAISED DOWN ARROW, respectively, are used for "Upstep" and "Downstep".

³⁹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=encore-ipa

⁴⁰ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=silgrkuni

⁴¹ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=UnicodeWordMacrosIntro

Question: Why don't my tonebars ligate?

Answer: See [“Why don't my diacritics position properly?”](#)

Question: When I type data, I get the proper characters, but the stacked diacritics show up on top of one another, rather than stacked, and not properly centered. What am I doing wrong?

Answer: See [“Why don't my diacritics position properly?”](#)

Question: Why don't my diacritics position properly?

Answer: **Cause 1:** The application you are using is neither Graphite-aware nor OpenType-aware, or your Uniscribe needs to be updated, or you are using characters from the Private Use Area (PUA)⁴² in a Uniscribe-based application.

More info:

In order for complex behaviors such as diacritic positioning and ligatures to work, the application must be able to use the Graphite or OpenType tables in the font. For example, until Microsoft Office 2003 was released there were no versions of Microsoft Office and of the system component Uniscribe that had the ability to use either of these for Latin script. Unfortunately, even the latest versions of Uniscribe ignore OpenType information for characters from the PUA area, so neither diacritic positioning nor ligation occur. Microsoft says this is by design.

Cause 2: If you are using Word 2000 or Word XP with an updated version of Uniscribe, some kinds of display problems can be fixed by saving and reopening the file.

Cause 3: While some of these problems are font errors (that we want to know about), another common cause is formatting issues within the application. In order for diacritic positioning or ligatures to work correctly, the application must render the complete character sequence in one operation. The most common reason for this condition to fail is if some characters in the sequence have different formatting than the others. If there is any difference at all in the formatting (e.g., in character spacing or color, font names or sizes, etc.) the application may have to break the sequence into separate runs.

Solution: In order to rule out formatting problems, make absolutely sure that the characters in the sequence are formatted identically. Some applications let you copy the affected text to the clipboard and then use **Edit / Paste Special** to paste unformatted text back into the document. Another approach, available in Microsoft Word, is to select the text and press **Ctrl** – **space** to reset all character formatting to the paragraph default. (This assumes your default paragraph style is formatted with Doulos SIL).

Note

In Word, even formatting such as Complex Scripts font and Asian Text font settings must match exactly for the entire sequence, even though these settings aren't actually used to render Latin text.

Question: Why don't my diacritics positioned above or below characters appear onscreen, but they do show up in print?

Answer: **Solution:** The vertical metrics for this font have been set to accommodate the majority of situations, but in some scenarios, especially with stacking diacritics, you may get clipping onscreen. You may be able to overcome this by adjusting the line spacing in the application. For example, in Microsoft Word select **Format / Paragraph** and set the line spacing to use the **Exactly** setting and a value approximately twice the font size. For example, if the font size is 12 pt, select line spacing of **Exactly** 24 pt. You can adjust the value up or down depending on how many diacritics you need to stack.

Question: Why don't the PUA characters work properly (diacritic positioning, tone ligation, etc)?

Answer: Uniscribe ignores complex behaviors that have been provided in fonts for PUA characters⁴³, and thus in Uniscribe-based applications such as Paratext 6 and Microsoft Word the PUA characters will not display correctly.

⁴² http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=PUA_home

⁴³ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=PUA_home

Question: In certain combinations, two upper diacritics (e.g., tilde over macron) display in a fixed order (the tilde below the macron), no matter what order they are typed in. Why is that?

Answer: See [“Combining mark sequences may be incorrectly rendered”](#).

Question: Why aren't there any overlaid combining marks in the font?

Answer: See [“The following overlaid combining marks are not present in the font”](#).

Question: Why don't some of my characters render in Internet Explorer?

Answer: See [“Some characters do not render properly in Internet Explorer”](#).

Question: Why are some of my diacritics colliding with nearby letters?

Answer: When combined with some narrow glyphs (such as 'i'), wide diacritics (such as the tilde) may collide with adjacent glyphs. In many cases this is not a problem (it is sometimes OK for glyphs to collide). If this causes difficulty with the legibility of the text, then manually space those letters apart in your text using manual kerning or character spacing settings in your application. We do not have a generally feasible solution for this problem, but will continue to look for one.

Appendix C: Known Issues

Some features are not implemented in OpenType

There were a number of technical challenges in implementing some of the features in OpenType (see below) and, due to time constraints, they are currently not implemented in OpenType, just in Graphite and/or AAT.

- smaller diacritics over modifier letters
- tone letter sequences are still limited to three segments

Left-stemmed tone marks U+A712..U+A716 do not shape in Word 2003.

This is an issue with Word 2003. It has been reported to Microsoft. The version of Uniscribe that ships with Office 11 will shape the left-stemmed tone bars, but Word will not.

, U+1DC2 COMBINING SNAKE BELOW does not combine properly in Word 2003 or in InDesign CS2.

This is an issue with Word 2003. It has been reported to Microsoft. The version of Uniscribe that ships with Office 11 will shape the COMBINING SNAKE BELOW, but Word will not. Adobe applications (and thus InDesign) do not yet handle dynamic diacritic placement.

WordArt

WordArt has struggles with Unicode. Font linking may be going on, but the problem has not been clarified.

Some characters do not render properly in Internet Explorer

This is a problem in Internet Explorer for the following characters:

- U+02C8 ^ˆ MODIFIER LETTER VERTICAL LINE
- U+02C9 ^ˊ MODIFIER LETTER MACRON
- U+02CA ^ˋ MODIFIER LETTER ACUTE ACCENT
- U+02CB ^ˌ MODIFIER LETTER GRAVE ACCENT
- U+02CC ^ˍ MODIFIER LETTER LOW VERTICAL LINE
- U+F198 [˙] MODIFIER LETTER DOT VERTICAL BAR
- U+F199 [˘] MODIFIER LETTER DOT SLASH

Microsoft has been alerted but we do not know a solution as yet.

The font does not support some combining marks

The following **overlaid combining marks** are present in the font but do not have attachment points and so will not render properly:

- U+0334 ~ COMBINING TILDE OVERLAY
- U+0335 - COMBINING SHORT STROKE OVERLAY
- U+0336 — COMBINING LONG STROKE OVERLAY
- U+0337 ✓ COMBINING SHORT SOLIDUS OVERLAY
- U+0338 / COMBINING LONG SOLIDUS OVERLAY

The following **combining marks** are *not* present in the font:

- U+0321 ˘ COMBINING PALATALIZED HOOK BELOW
- U+0322 ˙ COMBINING RETROFLEX HOOK BELOW

Cause: This is by design. For various technical reasons it is best to avoid using overlay combining marks. That is why, for instance, Unicode does not define a decomposition of U+026B † LATIN SMALL LETTER L WITH MIDDLE TILDE to U+006C l LATIN SMALL LETTER L + U+0334~COMBINING TILDE OVERLAY.

For reasons similar to the overlay diacritics, U+0321 ˘ COMBINING PALATALIZED HOOK BELOW and U+0322 ˙ COMBINING RETROFLEX HOOK BELOW are absent from the font ... by design. In this and the overlay diacritic case, Unicode (or the SIL PUA area⁴⁴) provide for most uses of these marks through precomposed characters.

There is an oddity in the way MS Word 2004 under Mac OS 10.4 handles the Doulos SIL font

The font installs fine and works normally in TextEdit and AppleWorks except that it appears in the part of the font menu grouped with the Cyrillic fonts. There may be similar issues with other system and/or application versions and other applications (such as FileMaker Pro 7). Under Word it causes a switch to the Russian Phonetic keyboard and Cyrillic characters are inserted unless Word's preferences are used to disable "match font with keyboard". At the moment we do not know what is causing this behavior.

Combining mark sequences may be incorrectly rendered

This is not a bug in the font, but it is a Uniscribe bug which has been reported to Microsoft (update: it is reportedly fixed in Uniscribe version 1.0606.5078.0). It will only be a problem in applications using OpenType, not applications using Graphite. Failure depends on surrounding text. The following table lays out which character sequences will be a problem.

First combining mark		Second combining mark								
		0301	0302	0303	0304	0306	0307	0308	030A	030C
		Acute	Circumflex	Tilde	Macron	Breve	Dot	Diaeresis	Ring	Caron
0300	Grave		AaEeOo		EeOo	Aa		Uu		
0301	Acute		AaEeOo	OoUu	EeOo	Aa		liUu	Aa	
0303	Tilde		AaEeOo			Aa				
0304	Macron			Oo			AaOo	AaOo		
0307	Dot	Ss								Ss
0308	Diaeresis			Oo						
0309	Hook		AaEeOo			Aa				
030C	Caron							Uu		

Base characters for which the indicated combining mark sequence may be incorrectly rendered.

⁴⁴ http://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&item_id=PUA_home

Also, with versions of Uniscribe prior to Windows XP SP2 and Office 2003, the sequence U+006E n LATIN SMALL LETTER N + U+0329, COMBINING VERTICAL LINE BELOW is incorrectly rendered as U+019E n LATIN SMALL LETTER N WITH LONG RIGHT LEG

Dotted digraphs with diacritics:

Unicode specifies that, unlike i or j, etc., these characters do not lose their dots:

- U+0133 *ij* LATIN SMALL LIGATURE IJ
- U+01C8 *Lj* LATIN CAPITAL LETTER L WITH SMALL LETTER J
- U+01C9 *lj* LATIN SMALL LETTER LJ
- U+01CB *Nj* LATIN CAPITAL LETTER N WITH SMALL LETTER J
- U+01CC *nj* LATIN SMALL LETTER NJ