The *textalpha* package

Günter Milde

December 21, 2014

With the *textalpha* package, you can easily write a single Greek symbol (like Ψ or μ) or a λογος in non-Greek text as well as ISO-conforming formulas with upright constants (like π): $A = \pi r^2$ vs. $A = \pi r^2$. Input is possible via LICR macros (`\textalpha` ... `\textOmega`) or (with *greek-inputenc* and the utf8 option or XeTeX/LuaTeX) Unicode literals.

See the source of this document `textalpha-doc.tex` for a setup and usage example and the literate source of the package textalpha.sty for the implementation.

1 Greek alphabet

Greek letters via Latin transcription in LGR font encoding:

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω
α β γ δ ε ζ η ϑ ι κ λ μ ν ξ ο π ρ σ ς τ υ φ χ ψ ω

Greek letters via default macros in other font encoding (here T1):

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω
α β γ δ ε ζ η ϑ ι κ λ μ ν ξ ο π ρ σ ς τ υ φ χ ψ ω

Archaic Greek letters and Greek punctuation

Ϝϛϟϡϙ·;
Ͱͳϗϟλϝ,ϛ

Diacritics

Symbol macros:[1] ¨ ´ ` ˜ ᾿ ῾ ˘ ˉ ᾰ ᾱ ᾳ ῃ ῳ ᾴ ῄ

Named macros: ¨´`˜᾿῾ ͺ ᾰ ᾱ ᾳ ῃ ῳ ᾴ ῄ ῀ ˘

Accent macros can start with `\a` instead of `\` when the short form is redefined, e. g. inside a *tabbing* environment. This also works for the new-defined Dasia and Psili shortcuts:

---

[1] Composite diacritics require wrapping in `\ensuregreek`.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
370	*	*	*	*	′		*	*			˙	*	*	*	;	
380					ʹ	ͺ	Ά	·	Έ	Ή	Ί		Ό		Ύ	Ώ
390	ΐ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
3A0	Π	Ρ		Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Ϊ	Ϋ	ά	έ	ή	ί
3B0	ΰ	α	β	γ	δ	ε	ζ	η	ϑ	ι	κ	λ	μ	ν	ξ	ο
3C0	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϊ	ϋ	ό	ύ	ώ	
3D0	*	*	*	*	*	*	*	*	Ϙ	ϙ	Ϛ	ϛ	Ϝ	ϝ	*	ϟ
3E0	Ϡ	ϡ	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3F0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Table 1: Greek and Coptic Unicode Block, input as literal Unicode characters in T1 font encoding (legend: * glyph missing in LGR).

COL1	COL2	COL3	COL4
COL1		COL3	
Viele	Grüße	ἀ	ὠ

2 Greek Unicode characters in non-Greek text

With the *textalpha* package and input encoding `utf8`, Greek Unicode characters can be used in text with any font encoding. See Tables 1 and 2.

Kerning is preserved if the font encoding is LGR. This holds also for pre-composed accented characters: AΫA.

Combined Diacritics work ᾄ, diacritics (except diaeresis) are dropped with Make-Uppercase (μαΐστρος ↦ ΜΑΪΣΤΡΟΣ).

3 PDF strings

With *textalpha* and *greek-inputenc*, there are two options to get Greek letters in PDF strings: LICR macros and literal Unicode input.

3.1 λογος, λογος and λογος

The subsection title above uses: LICR macros, Unicode input and the LGR transcription for the Greek word λογος. Check the table of contents in the PDF viewer: LICR macros and Unicode literals work fine, the Latin transcription remains Latin in the PDF metadata.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1F00	ἀ	ἁ	ἂ	ἃ	ἄ	ἅ	ἆ	ἇ	Ἀ	Ἁ	Ἂ	Ἃ	Ἄ	Ἅ	Ἆ	Ἇ
1F10	ἐ	ἑ	ἒ	ἓ	ἔ	ἕ			Ἐ	Ἑ	Ἒ	Ἓ	Ἔ	Ἕ		
1F20	ἠ	ἡ	ἢ	ἣ	ἤ	ἥ	ἦ	ἧ	Ἠ	Ἡ	Ἢ	Ἣ	Ἤ	Ἥ	Ἦ	Ἧ
1F30	ἰ	ἱ	ἲ	ἳ	ἴ	ἵ	ἶ	ἷ	Ἰ	Ἱ	Ἲ	Ἳ	Ἴ	Ἵ	Ἶ	Ἷ
1F40	ὀ	ὁ	ὂ	ὃ	ὄ	ὅ			Ὀ	Ὁ	Ὂ	Ὃ	Ὄ	Ὅ		
1F50	ὐ	ὑ	ὒ	ὓ	ὔ	ὕ	ὖ	ὗ		Ὑ		Ὓ		Ὕ		Ὗ
1F60	ὠ	ὡ	ὢ	ὣ	ὤ	ὥ	ὦ	ὧ	Ὠ	Ὡ	Ὢ	Ὣ	Ὤ	Ὥ	Ὦ	Ὧ
1F70	ὰ	ά	ὲ	έ	ὴ	ή	ὶ	ί	ὸ	ό	ὺ	ύ	ὼ	ώ		
1F80	ᾀ	ᾁ	ᾂ	ᾃ	ᾄ	ᾅ	ᾆ	ᾇ	ᾈ	ᾉ	ᾊ	ᾋ	ᾌ	ᾍ	ᾎ	ᾏ
1F90	ᾐ	ᾑ	ᾒ	ᾓ	ᾔ	ᾕ	ᾖ	ᾗ	ᾘ	ᾙ	ᾚ	ᾛ	ᾜ	ᾝ	ᾞ	ᾟ
1FA0	ᾠ	ᾡ	ᾢ	ᾣ	ᾤ	ᾥ	ᾦ	ᾧ	ᾨ	ᾩ	ᾪ	ᾫ	ᾬ	ᾭ	ᾮ	ᾯ
1FB0	ᾰ	ᾱ	ᾲ	ᾳ	ᾴ		ᾶ	ᾷ	Ᾰ	Ᾱ	Ὰ	Ά	ᾼ	᾽	ι	᾿
1FC0	῀	῁	ῂ	ῃ	ῄ		ῆ	ῇ	Ὲ	Έ	Ὴ	Ή	ῌ	῍	῎	῏
1FD0	ῐ	ῑ	ῒ	ΐ			ῖ	ῗ	Ῐ	Ῑ	Ὶ	Ί		῝	῞	῟
1FE0	ῠ	ῡ	ῢ	ΰ	ῤ	ῥ	ῦ	ῧ	Ῠ	Ῡ	Ὺ	Ύ	Ῥ	῭	΅	`
1FF0			ῲ	ῳ	ῴ		ῶ	ῷ	Ὸ	Ό	Ὼ	Ώ	ῼ	´	῾	

Table 2: Greek Extended Unicode Block, input as literal Unicode characters in T1 font encoding.

4 Limitations

Because the internal font encoding switch interferes with other work behind the scenes, kerning, diacritics and up/down-casing show problems if Greek letters are used without explicit change of the font encoding. These problems can be avoided by use of *babel* and the correct language setting (greek) or an explicit font encoding switch (e.g. wrapping the Greek text in `\ensuregreek`[2]).

4.1 Diacritics

Composition of diacritics (like `\accdasia\acctonos`) fails in other font encodings. Long names (like `\accdasiaoxia`) work, however they do not select pre-composed characters. With LGR, pre-composed glyphs are chosen if available (the difference becomes obvious if you drag-and-drop text from the PDF version of this document): ἄ ἄ ἄ ἄ (LGR) vs. ἄ (T1).

According to Greek typographical tradition, diacritics (except the dialytika) are placed before capital letters in titlecase and dropped in all-caps:

---

[2]The `\ensuregreek` macro ensures the argument is set in a font encoding supporting Greek. This can be used to fix these problems without adverse side-effects if the active font encoding is already LGR.

ἀ ἐ ί ἤ ὄ ὖ ὦ
Ἀ Ἐ Ϊ Ἤ Ὄ Ῠ Ὤ
Α Ε Ϊ Η Ο Υ Ω.

This fails if the active font encoding is not LGR: ΄Α (LGR) vs. Á(T1). Therefore, named accent macros are used in composite Unicode character definitions: ΄Α (LGR) = ΄Α (T1).

The dialytika marks a *hiatus* (break-up of a diphthong). It must be present in UPPERCASE even where it is redundant in lowercase (the hiatus can also be marked by an accent on the first character of a diphthong). The auto-hiatus feature works in LGR font encoding only: άυ, έι ↦ ΑΫ, ΕΪ vs. ΑΥ, ΕΙ.

Currently, the second vowel of the diphthong must be given as macro, not Unicode literal if the auto-hiatus feature should work: ἀυπνία ↦ ΑΫΠΝΙΑ vs. ΑΥΠΝΙΑ.

4.2   Kerning

No kerning occurs between Greek characters in non-Greek text due to the internal font encoding switch: compare ΑΥΑ (LGR) to ΑΥΑ(T1).

Compiling with LuaTeX provides kerning also over font encoding boundaries.