

The *textalpha* package

Günter Milde

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With the *textalpha* package, you can easily write a single Greek symbol (like Ψ or μ) or a $\lambda\omicron\gamma\omicron\varsigma$ 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:

A B Γ Δ E Z H Θ I K Λ M N Ξ O Π P Σ T Υ Φ X 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):

A B Γ Δ E Z H Θ I K Λ M N Ξ O Π P Σ T Υ Φ X 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

Ϝ Ϟ Ϡ ϡ Ϣ ϣ
Ϥ ϥ Ϧ ϧ Ϩ ϩ

Diacritics

Symbol macros:¹ `ˆ ˘ ˙ ˚ ˛ ˜ ˝ ˞ ˟ ˠ ˡ ˢ ˣ ˤ ˥ ˦ ˧ ˨ ˩ ˪ ˫ ˬ ˭ ˮ ˯ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹ ˺ ˻ ˼ ˽ ˾ ˿`

Named macros: `ˆ ˘ ˙ ˚ ˛ ˜ ˝ ˞ ˟ ˠ ˡ ˢ ˣ ˤ ˥ ˦ ˧ ˨ ˩ ˪ ˫ ˬ ˭ ˮ ˯ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹ ˺ ˻ ˼ ˽ ˾ ˿`

¹Composite diacritics require wrapping in `\ensuregreek`.

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.

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

All characters of the Greek and Coptic Unicode Block present in LGR via literal Unicode input in T1 font encoding (legend: * glyph missing in LGR):

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
370	*	*	*	*	'	'	*	*				*	*	*	;	
380					'	'	'Α	.	Ε	Η	Ι		Ο		Υ	Ω
390	ι	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	ύ	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	*	ι
3E0	λ	λ	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3F0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

All characters of the Greek Extended Unicode Block via literal Unicode input in T1 font encoding:

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1F00	ά	ά	ά	ά	ά	ά	ά	ά	Α	Α	Α	Α	Α	Α	Α	Α
1F10	έ	έ	έ	έ	έ	έ			Ε	Ε	Ε	Ε	Ε	Ε	Ε	
1F20	ή	ή	ή	ή	ή	ή	ή	ή	Η	Η	Η	Η	Η	Η	Η	Η
1F30	ι	ι	ι	ι	ι	ι	ι	ι	Ι	Ι	Ι	Ι	Ι	Ι	Ι	Ι
1F40	ο	ο	ο	ο	ο	ο			Ο	Ο	Ο	Ο	Ο	Ο	Ο	
1F50	ύ	ύ	ύ	ύ	ύ	ύ	ύ	ύ		Υ		Υ		Υ		Υ
1F60	ώ	ώ	ώ	ώ	ώ	ώ	ώ	ώ	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
1F70	ά	ά	έ	έ	ή	ή	ι	ι	ο	ο	υ	υ	ω	ω		
1F80	ά	ά	ά	ά	ά	ά	ά	ά	Α	Α	Α	Α	Α	Α	Α	Α
1F90	ή	ή	ή	ή	ή	ή	ή	ή	Η	Η	Η	Η	Η	Η	Η	Η
1FA0	φ	φ	φ	φ	φ	φ	φ	φ	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
1FB0	ά	ά	ά	ά	ά		ά	ά	Α	Α	Α	Α	Α			
1FC0	~	~	ή	ή	ή		ή	ή	Ε	Ε	Η	Η	Η			
1FD0	ι	ι	ι	ι			ι	ι	Ι	Ι	Ι	Ι				
1FE0	υ	υ	υ	υ	ρ	ρ	υ	υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ
1FF0			φ	φ	φ		ω	φ	Ο	Ο	Ω	Ω	Ω	Ω	Ω	Ω

Combined Diacritics work ά, diacritics (except diaeresis) are dropped with Make-Uppercase (μαίστρος ↦ 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.

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 `\ensuregreek2`).

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): `ǻ ǽ ǿ ǿ` (LGR) vs. `ǻ` (T1).

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

```
ǻ ǽ ǿ ǿ ǿ ǿ
'Α 'Ε 'Ι "Η "Ο "Υ "Ω
Α Ε Ι Η Ο Υ Ω.
```

This fails if the active font encoding is not LGR: `'Α` (LGR) vs. `Á`(T1). To overcome this, the `\ensuregreek` macro is 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

²The `\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.

marked by an accent on the first character of a diphthong). The auto-hiatus feature works in LGR font encoding only: $\acute{\alpha}\upsilon, \acute{\epsilon}\iota \mapsto \text{A}\acute{\Upsilon}, \text{E}\acute{\text{I}}$ vs. $\text{A}\Upsilon, \text{EI}$.

Currently, the second vowel of the diphthong must be given as macro, not Unicode literal if the auto-hiatus feature should work: $\acute{\alpha}\upsilon\pi\nu\acute{\iota}\alpha \mapsto \text{A}\acute{\Upsilon}\Pi\text{NIA}$ vs. $\text{A}\Upsilon\Pi\text{NIA}$.

4.2 Kerning

No kerning occurs between Greek characters in non-Greek text due to the internal font encoding switch: compare $\text{A}\Upsilon\text{A}$ (LGR) to $\text{A}\Upsilon\text{A}(\text{T1})$.

Compiling with LuaTeX provides kerning also over font encoding boundaries.