

The *textalpha* package

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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 to *inputenc*) Unicode literals.

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 ϝ Ϟ ϟ;
Ϡ ϡ ϣ Ϥ ϥ

Diacritics

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

Named macros: `\alpha \beta \gamma \delta \epsilon \zeta \eta \theta \iota \kappa \lambda \mu \nu \xi \omicron \pi \rho \sigma \varsigma \tau \upsilon \phi \chi \psi \omega`

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	*	*	*	*	*	*	*	*	Ϡ	ϡ	Ϣ	ϣ	Ϥ	*		ι
3E0	λ	γ	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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	ί	ί	ί	ί	ί	ί	ί	ί	Ι	Ι	Ι	Ι	Ι	Ι	Ι	Ι
1F40	ό	ό	ό	ό	ό	ό			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 ₁	Α ₁	Α ₁	Α ₁	Α ₁	Α ₁	Α ₁	Α ₁
1F90	ή	ή	ή	ή	ή	ή	ή	ή	Η ₁	Η ₁	Η ₁	Η ₁	Η ₁	Η ₁	Η ₁	Η ₁
1FA0	ί	ί	ί	ί	ί	ί	ί	ί	Ι ₁	Ι ₁	Ι ₁	Ι ₁	Ι ₁	Ι ₁	Ι ₁	Ι ₁
1FB0	ά	ά	ά	ά	ά		ά	ά	Α̂	Α̂	Α̂	Α̂	Α ₁			
1FC0	~	~	ή	ή	ή		ή	ή	Ε̂	Ε̂	Η̂	Η̂	Η ₁			
1FD0	ι̂	ι̂	ι̂	ι̂			ι̂	ι̂	Ι̂	Ι̂	Ι̂	Ι̂				
1FE0	υ̂	υ̂	υ̂	υ̂	ρ̂	ρ̂	υ̂	υ̂	Υ̂	Υ̂	Υ̂	Υ̂	Ρ̂			
1FF0			φ̂	φ̂	φ̂		ω̂	ω̂	Ο̂	Ο̂	Ω̂	Ω̂	Ω ₁			

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): ᾶ ᾷ ῥ ῖ ῑ ῒ (LGR) vs. ᾶ (T1).

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

ᾶ ἔ ῖ ῥ ῖ ῑ ῒ
ᾶ Ἐ Ἰ Ὶ Ὡ Ὶ Ὶ
Α Ε Ι Η Ο Υ Ω.

This fails if the active font encoding is not LGR: ᾶ (LGR) vs. ᾶ (T1). To overcome this, the `\ensuregreek` macro is used in composite Unicode character definitions: ᾶ (LGR) = ᾶ (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 $\text{A}\Upsilon\text{A}(\text{T1})$.