

## Test the *textalpha* package

With the *textalpha* package, you can easily write a single Greek symbol (like  $\Psi$  or  $\mu$ ) or a  $\lambda\omicron\gamma\omicron\varsigma$  in non-Greek text as well as ISO-conforming formulas with upright constants (like  $\pi$ ):  $A = \pi r^2$  vs.  $A = \pi r^2$ .

## 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

## 2 PDF strings

With the *lgrx* bundle, you can get Greek letters in both, TeX and PDF strings.

### 2.1 $\lambda\omicron\gamma\omicron\varsigma$ , $\lambda\omicron\gamma\omicron\varsigma$ and $\lambda\omicron\gamma\omicron\varsigma$

The subsection title above uses: `text*` macros, Unicode input and the LGR transcription for the Greek word  $\lambda\omicron\gamma\omicron\varsigma$ . Check the table of contents in the PDF viewer: `text*` macros and Unicode literals work fine, the Latin transcription stays Latin in the PDF metadata.

## 3 Limitations

Because the internal font encoding switch interferes with other work behind the scenes, kerning, diacritics and up/downcasing 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 polutoniko-greek) or an explicit font encoding switch.

The `\TextGreek` macro ensures the argument is set in LGR font encoding. This can be used to fix these problems without side-effects if the font encoding is already LGR.

### 3.1 Kerning

No kerning occurs between Greek characters in non-Greek text due to the internal font encoding switch: compare ΑΥΑ (LGR) to ΑΥΑ(T1). Because of this (and for proper hyphenation), use of babel and correct language setting is recommended for Greek quotes.

The `\TextGreek` macro is used for wrapping of combined Unicode character definitions. Check that kerning is preserved also between accented characters if the font encoding is LGR: ΑΨΑ vs. ΑΨΑ (T1).

### 3.2 Diacritics

Composition of diacritics (like `\Dasia\Tonos`) fails in other font encodings. Long names (like `\DasiaOxia`) work, however they do not select precomposed 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): ᾑ ᾒ ᾓ ᾔ (LGR) vs. ᾑ (T1).

Diacritics (except the dialytika) are placed before capital letters in titlecase and dropped in all-caps:

ᾑ ᾒ ᾓ ᾔ ᾕ ᾖ  
‘Α ‘Ε ‘Ι ‘Η ‘Ο ‘Υ ‘Ω  
Α Ε Ι Η Ο Υ Ω.

However, in other font encodings, this does not work: ‘Α (LGR) vs. Á (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, ᾑυ, ᾑι  $\mapsto$  ΑΨ, ΕΨ, but not in T1: ΑΥ, ΕΙ.

## 4 Greek Unicode characters in non-Greek text

With the *textalpha* package and inputencoding "utf8", Greek Unicode characters can be used in text with any font encoding.

Combined Diacritics work ᾑ, diacritics (except diacresis) are dropped with Make-Uppercase (μαίστρος  $\mapsto$  ΜΑΪΣΤΡΟΣ), but the Hiatus-detection does not work: Currently, the second vowel of the diphthong must be given as macro, not Unicode literal: (ᾑπνία  $\mapsto$  ΑΨΙΝΙΑ vs. ΑΥΙΝΙΑ). See `greek-unicode.tex|psf` for more details.

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

The following tables list Greek Unicode characters:

#### 4.1 Greek and Coptic

\* glyph missing in LGR, · Unicode point not defined

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
370	*	*	*	*	´		*	*	·	·	·	*	*	*	;	
380	·	·	·	·	´	´	´A	·	E	H	I	·	O	·	Y	Ω
390	ι	A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
3A0	Π	P	·	Σ	T	Υ	Φ	X	Ψ	Ω	Ι	Υ	α	ε	η	ι
3B0	ϑ	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	*	*	*	*	*	*	*	*	*	*	Γ	τ	F	F	*	ι
3E0	λ	λ	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3F0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

#### 4.2 Greek Extended

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1F00	ᾰ	ᾱ	ᾲ	ᾳ	ᾴ	᾵	ᾶ	ᾷ	Ἀ	Α	Ἀ	Α	Ἀ	Ἀ	Ἀ	Ἀ
1F10	ἔ	ἐ	ἔ	ἔ	ἔ	ἔ	·	·	Ἐ	Ε	Ἐ	Ε	Ἐ	Ε	·	
1F20	ἦ	ἧ	ἦ	ἦ	ἦ	ἦ	ἦ	ἦ	Ἠ	Η	Ἠ	Η	Ἠ	Η	Ἠ	Ἠ
1F30	ἰ	ι	ἰ	ἰ	ἰ	ἰ	ἰ	ἰ	Ἰ	Ι	Ἰ	Ι	Ἰ	Ι	Ἰ	Ἰ
1F40	ὀ	ό	ὀ	ὀ	ὀ	ὀ	·	·	Ὀ	Ο	Ὀ	Ο	Ὀ	Ο	·	
1F50	ὐ	ύ	ὐ	ὐ	ὐ	ὐ	ὐ	ὐ	·	Υ	·	Υ	·	Υ	·	Υ
1F60	ῶ	ώ	ῶ	ῶ	ῶ	ῶ	ῶ	ῶ	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
1F70	ᾶ	ᾷ	ᾷ	ᾷ	ᾷ	ᾷ	ἰ	ι	ὀ	ό	ὐ	ύ	ῶ	ώ	·	
1F80	ᾰ	ᾱ	ᾲ	ᾳ	ᾴ	᾵	ᾶ	ᾷ	Ἀ	Α	Ἀ	Α	Ἀ	Α	Ἀ	Ἀ
1F90	ἦ	ἧ	ἦ	ἦ	ἦ	ἦ	ἦ	ἦ	Ἠ	Η	Ἠ	Η	Ἠ	Η	Ἠ	Ἠ
1FA0	ῶ	ῷ	ῶ	ῶ	ῶ	ῶ	ῶ	ῶ	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
1FB0	ᾰ	ᾱ	ᾲ	ᾳ	ᾴ	·	ᾶ	ᾷ	Ἀ	Ἀ	Ἀ	Ἀ	Ἀ		ι	ι
1Fc0	·	·	ἦ	ἦ	ἦ	·	ἦ	ἦ	Ἐ	Ε	Ἠ	Ἠ	Ἠ		ι	ι
1FD0	ἰ	ι	ἰ	ἰ	·	·	ἰ	ἰ	Ἰ	Ἰ	Ἰ	Ἰ	·		ι	ι
1FE0	ὐ	ύ	ὐ	ὐ	ρ	ρ	ὐ	ὐ	Υ	Υ	Υ	Υ	ρ		ι	ι
1FF0	·	·	ῶ	ῷ	ῶ	·	ῶ	ῶ	Ω	Ω	Ω	Ω	Ω		ι	ι