

Test the *alphabet* package

With the *alphabet* package, you can write Greek letters “by name” in both, text and math. The mode determines whether the letters are taken from the text or math font. Just like Latin letters, the Greek counterparts are by default italic in math (capital letters upright without *fixmath* or *isomath*) and upright in text:

Text: L Λ l λ, math: $L \Lambda l \lambda$, emphasized: $L \Lambda l \lambda$

Greek alphabet

Greek letters via Latin transscription 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 τ υ φ χ ψ ω

Greek letters via default macros 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 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 τ υ φ χ ψ ω

Greek letters in math (with “fixmath”) (there are no math macros for Greek letters wich exist with similar shape in the Latin alphabet):

$\Gamma \Delta \Theta \Lambda \Xi \Pi \Sigma \Upsilon \Phi \Psi \Omega$
 $\alpha \beta \gamma \delta \epsilon \zeta \eta \theta \iota \kappa \lambda \mu \nu \xi \pi \rho \sigma \tau \upsilon \phi \chi \psi \omega$

So you can easily write a single Greek symbol (like Ψ or μ) or λογος in non-Greek text as well as ISO-conforming formulas with an upright pi symbol like $A = \pi r^2$ instead of $A = \pi r^2$.

Ἑλληνικά (Ἑλληνικά) in PDF strings

With the *alphabet* package, you get Greek letters in both, the document body and PDF metadata generated by *hyperref* if the input uses Unicode literals or macros. Wrapping in `\TextGreek` ensures the right placement of the accents and breathings (before, not above capital letters). As the *hyperref* packages “PU” encoding uses the `\text...` macros, some diacritics are missing in the PDF

data if the short macros are used (dasia dropped at the start of the heading in the PDF toc).

The generic macros result in warnings like

Package hyperref Warning: Token not allowed in a PDF string (Unicode):
(hyperref) removing ‘\TextOrMath ’ on input line 109.

Package hyperref Warning: Token not allowed in a PDF string (Unicode):
(hyperref) removing ‘\mathlambda’ on input line 109.

that can safely be ignored.

Greek in math $\sin^2 \alpha$

Ensure Greek in math continues to work in both text and PDF metadata:

$$\Gamma = \frac{\sin \alpha}{\cos \beta}.$$

Limitations

Kerning

There is no kerning between Greek letters, if the font encoding is not LGR: compare AYA (LGR) to AYA(T1). Because of this (and for proper hyphenation), use of the Babel package and correct language setting is recommended for Greek quotes.

Diacritics

In LGR encoding, shortcuts as well as named macros are set up for use with the Latin transcription.

Composition of diacritics (like \Dasia\Tonos) fails in other font encodings. Long names (like \DasiaOxia) work, however they do not select precomposed characters (the difference becomes obvious if you drag-and-drop text from the PDF version of this document): ᾱ ῶ ῶ

ῶ

Diacritics (except the dialytika) should be placed before capital letters and dropped with MakeUppercase:

ᾱ ē í ῇ ὄ ὤ ὦ
 ᾿Α ᾿Ε ᾿Ι ᾿Η ὠ ὣ ὤ
 Α Ε Ι Η Ο Υ Ω

However, this does not work with the generic macros (yet), as there are no `TextCompositeCommand` declarations for them in `lgrxenc.def`. TODO: add them in `alphabet.sty`.

No kerning: (AŸA vs. AŸA), misplaced multiple (ǣ vs. ǣ) or Titlecase accents (A E H T vs. A E H T) and strange effects with MakeUppercase:

$$A \ E \ \ddot{I} \ \succ H \ \prec O \ \lesssim \Upsilon \ \gtrsim \Omega$$

The `\TextGreek` `TextCommandDefault` ensures that the argument is typeset with an LGR encoded Text font. This works with the Babel transscription ($\lambda\omicron\gamma\omicron\varsigma$), keeps kerning (if the kerning pair is inside the argument, $\Lambda\Upsilon\Lambda$), and allows iterative accent macros where pre-composed characters are selected ($\tilde{\alpha}$ or $\tilde{\alpha}$).

The Unicode definitions in `lgrenc.dfu` use this to fix the handling of diacritics in pre-composed accented Unicode literals (see `greek-unicode.pdf`).