

# Greek LICR definitions with XeTeX/LuaTeX

Typesetting Greek texts requires a font containing Greek letters. With the XeTeX or LuaTeX engines, the user should ensure that the chosen font contains the required glyphs (the default Latin Modern fonts have only capital Greek letters). Examples for suitable fonts are the “Deja Vu” or the “Linux Libertine” OpenType fonts.

## 1 LICR input

### 1.1 Greek alphabet

Greek letters via LICR macros:

$\text{A B \Gamma \Delta E Z H \Theta I K \Lambda M N \Xi O \Pi P \Sigma T Y \Phi X \Psi \Omega}$

$\alpha \beta \gamma \delta \epsilon \zeta \eta \theta \iota \kappa \lambda \mu \nu \xi \omicron \pi \rho \sigma \tau \upsilon \varphi \chi \psi \omega$

The small sigma is set with a different glyph if it ends a word:

$\sigma$  `textsigma`

$\varsigma$  `textfinalsigma` or `textvarsigma`

In the Latin transcription, the letter ‘s’ stands for `\textautosigma` which automatically chooses the glyph according to the position.

### 1.2 Additional Greek symbols

$\text{Ϳ}$  `textkoppa`

$\text{Ͱ}$  `textqoppa` (archaic koppa)

$\text{ͱ}$  `textQoppa` (archaic Koppa)

$\text{Ͳ}$  `textstigma`

$\text{ͳ}$  `textStigma` (Sigma-Tau-Ligature in CB-fonts)<sup>1</sup>

$\text{ʹ}$  `textsampi`

$\text{͵}$  `textSampi`

$\text{Ͷ}$  `textdigamma`

$\text{ͷ}$  `textDigamma`

$\text{͸}$  `textdexiakeraia`

$\text{͹}$  `textaristerikeraia`

Mathematical notation uses variant shapes for pi, kappa, rho, theta, and phi as additional symbols. These variations have no syntactic meaning in Greek text and are not given separate code-points in the LGR text encoding. Some text fonts use the variant shapes in place of the “regular” ones.

TeX’s concept of “standard” vs. “variant” symbols does not map to the distinction between “Greek Letter ...” vs. “Greek Symbol ...” in the Unicode standard:

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<sup>1</sup>the name “stigma” originally applied to a medieval sigma-tau ligature, whose shape was confusably similar to the cursive digamma



## 1.4 Greek and Coptic Unicode block

Greek symbols from the Greek and Coptic Unicode block are fully supported:

' ,  
 ˘ ;  
 ' ˆ A · E H I O Y Ω ĭ  
 A B Γ Δ E Z H Θ I K Λ M N Ξ O Π P Σ T Y Φ X Ψ Ω  
 Ĩ Ÿ á é ĩ ú  
 α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω  
 ĩ ü ó ú ő  
 Q q ζ ς F f ℤ ℋ ℹ

### 1.5 Greek Extended Unicode block

Characters from the Greek Extended Unicode block are only partially supported (multi-accented characters with sub-iota currently use a combining prosgegrammeni or ypoge-grammeni character).

For comparison, the LICR macro is followed by the corresponding literal Unicode character:

[illegible]

Ancient Greek Numbers are missing in most fonts (including Libertine and Deja Vu).  
The “FreeSerif” font works fine.

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