

Test LGR font encoding definitions

Günter Milde

July 16, 2013

The file `lgrenc.def` provides a comprehensive set of macros to typeset Greek with LGR encoded fonts. It works for both, monotonic and polytonic Greek, independent of the *Babel* package.

The example from `usage.tex` in *babel-greek* input using the LICR macros:

Τί φήεις; Ἰδὼν ἐνθέδε παῖδ' ἐλευθέραν
τὰς πλησίον Νύμφας στεφανοῦσαν, Σώστρατε,
ἔρῳ ἀπῆλθες εὐθύς;

1 Symbols

See the source file lgrenc-test.tex for the macros used to access the symbols.

1.1 Generic text symbols

Latin: + - = < > - — { [()] } \ | % _ % _ _ _ _

LGR: + - = < > - - { [()] } \ | ‰ _ (Per-mille symbol is missing in LGR.)

Quotes: «a» «α», ‘a’ ‘α’, “a” “α” (double quotes wrong with Kerkis fonts),

Single quotes need special attention to prevent conversion to accents.

Test the input conventions: ‘ α ’ ‘ α ’ ‘ α ’ ‘ α ’ but not $\acute{\alpha}$ $\acute{\epsilon}$ $\ddot{\iota}$

Single guillemots and base-quotes (`<a>` „a” ,a’) are missing in LGR.

Ligature break up: AY fi AŸ ü \mapsto AY fi AŸ ü

Spacing accent chars: â á ã ä å æ ç è é ê ë ì í î ï ð ñ ò ó ô õ ö ø ù ú û ü ý þ ÿ

Symbols for SI-units: 5 μm , 5 $\text{k}\Omega$; 5 μm , 5 $\text{k}\Omega$

Letter schwa and Euro symbol: ə, €

Some symbol definitions expect a Latin font. *babel-greek* redefines them with `\latintext`, however this macro is not guaranteed to be defined, so it should

not be used in a font encoding definition file. The `textcomp.sty` package provides copyright, registered, and trademark symbols for use with any font encodings. (Like any other Latin character, the “sharp s” (ß) is not safe to use when LGR is the active font encoding.)

Latin: © ® ™ SS (uppercase of ß).

LGR (with `textcomp`): © ® ™ ΣΣ (uppercase of ß).

1.2 Greek alphabet

Greek letters via Latin transcription and LICR macros:

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

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

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

σ `textsigma`

ς `textfinalsigma` or `textvarsigma`

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

1.3 Additional Greek symbols

ϝ `textkoppa`

Ϟ `textqoppa` (archaic koppa)

Ϡ `textQoppa` (archaic Koppa)

ϣ `textstigma`

ϛ `textvarstigma`

Ϛ `textStigma` (Sigma-Tau-Ligature in CB-fonts)¹

ϛ `textsampi`

Ϝ `textSampi`

ϝ `textdigamma`

Ϟ `textDigamma`

ϟ `textnumeralsigngreek` (Dexia keraia)

Ϡ `textnumeralsignlowergreek` (Aristeri keraia)

Mathematical notation sometimes uses variant shapes for pi (ϖ), kappa (*no TeX symbol available*), rho (ϱ), and theta (ϑ). These variations have no syntactic

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

meaning in Greek text and are not given code-points in the LGR encoding. Some Greek text fonts use variant shapes in place of the “regular” ones.

2 Diacritics

Capital Greek letters have Greek diacritics (except the dialytika) to the left (instead of above) and drop them in UPPERCASE. This is implemented for all combinations for which a pre-composed Unicode character exists (but not, e.g., $\tilde{\text{A}}$).

Different conventions exist for the treatment of the sub-iota with uppercase letters. The CB-Fonts use a capital Iota “index”.

LaTeX standard accents (Latin, Greek, Greek Capitals) \mapsto UPPERCASE

$\grave{\alpha} \acute{\alpha} \tilde{\alpha} \grave{\alpha} \bar{\alpha} \acute{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \mapsto \grave{\text{A}} \acute{\text{A}} \tilde{\text{A}} \grave{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}}$

$\acute{\alpha} \grave{\alpha} \tilde{\alpha} \grave{\alpha} \bar{\alpha} \acute{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \mapsto \text{A} \text{A} \text{A} \tilde{\text{A}} \hat{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}}$

$\grave{\text{A}} \acute{\text{A}} \tilde{\text{A}} \grave{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \mapsto \text{A} \text{A} \text{A} \tilde{\text{A}} \hat{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}}$

The comma-below ($\kern-0.1em\grave{\kern-0.1em}\text{k}$) is not defined in LGR.

Additional Greek diacritics

$\acute{\alpha} \grave{\alpha} \tilde{\alpha} \grave{\alpha} \bar{\alpha} \acute{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \mapsto \text{A} \text{E} \text{I} \tilde{\text{I}} \tilde{\text{I}} \text{H} \text{O} \text{O} \Upsilon \Omega$

$\grave{\text{A}} \acute{\text{A}} \tilde{\text{A}} \grave{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \mapsto \text{A} \text{E} \text{I} \tilde{\text{I}} \tilde{\text{I}} \text{H} \text{O} \text{O} \Upsilon \Omega$

Input variants and their conversion with MakeUppercase:

$\acute{\alpha} \grave{\alpha} \tilde{\alpha} \grave{\alpha} \bar{\alpha} \acute{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \mapsto \text{A} \text{E} \text{I} \tilde{\text{I}} \tilde{\text{I}} \text{H} \text{O} \text{O} \Upsilon \Omega$
 $\tilde{\alpha} \tilde{\alpha}, \tilde{\alpha} \tilde{\alpha} \tilde{\alpha} \tilde{\alpha} \tilde{\alpha} \tilde{\alpha}, \tilde{\eta} \tilde{\eta} \tilde{\eta} \tilde{\eta} \tilde{\eta} \tilde{\eta}, \tilde{\eta} \tilde{\eta}, \tilde{\iota} \tilde{\iota}, \tilde{\iota} \tilde{\iota}, \tilde{\iota} \tilde{\iota} \tilde{\iota},$
 $\tilde{\upsilon} \tilde{\upsilon}, \tilde{\upsilon} \tilde{\upsilon}, \tilde{\omega}, \tilde{\omega}, \tilde{\omega} \tilde{\omega}, \tilde{\omega} \tilde{\omega}.$

$\text{A} \text{A} \text{A}, \text{A} \text{A} \text{A} \text{A} \text{A}, \text{H} \text{H} \text{H} \text{H} \text{H} \text{H}, \text{H} \text{H}, \text{I} \text{I}, \text{I} \text{I}, \tilde{\text{I}} \tilde{\text{I}}, \text{I},$
 $\Upsilon \Upsilon, \Upsilon \Upsilon, \tilde{\Upsilon} \tilde{\Upsilon}, \Omega, \Omega, \Omega \Omega, \Omega \Omega.$

$\acute{\alpha} \grave{\alpha} \tilde{\alpha} \grave{\alpha} \bar{\alpha} \acute{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \grave{\alpha} \mapsto \text{A} \text{E} \text{I} \tilde{\text{I}} \tilde{\text{I}} \text{H} \text{O} \text{O} \Upsilon \Omega$
 $\text{A} \text{E} \text{I} \tilde{\text{I}} \text{H} \text{O} \Upsilon \Omega. \text{A} \text{E} \text{I} \tilde{\text{I}} \text{H} \text{O} \Upsilon \Omega$

$\grave{\text{A}} \acute{\text{A}} \tilde{\text{A}} \grave{\text{A}} \bar{\text{A}} \acute{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \grave{\text{A}} \mapsto \text{A} \text{A} \text{A} \text{A}.$

The tilde character can be used in combined accents. However, in documents not defining the Babel language *greek* or *polutonikogreek*, it will produce a no-break space if converted with `\MakeUppercase`:

$\tilde{\iota} \tilde{\iota} \tilde{\upsilon} \tilde{\upsilon} \tilde{\upsilon} \mapsto \tilde{\text{I}} \tilde{\text{I}} \tilde{\text{I}} \tilde{\text{I}} \tilde{\text{I}} \tilde{\text{I}}$

Use the tilde-accent macro: $\tilde{\text{I}} \tilde{\text{I}}$.

Accent macros can start with `\a` instead of `\` when the short form is redefined, e.g. inside a *tabbing* environment. This also works for the new-defined Dasia and Psili shortcuts: $\acute{\alpha} \acute{\omega}$.

Combinations with named accents: ǎ ǎ ǎ.

The dialytika must be kept in UPPERCASE, e.g. $\mu\alpha\acute{\iota}\sigma\tau\epsilon\rho\omicron\varsigma \mapsto \text{MA}\breve{\text{I}}\Sigma\text{TPO}\Sigma$ or $\epsilon\upsilon\zeta\omega\acute{\iota}\alpha \mapsto \text{EY}\breve{\text{Z}}\Omega\breve{\text{I}}\text{A}$.

This is implemented for all input variants of diacritics with dialytika:

$$\text{ı ı̇ ı̈ ı̊ ı̋ ı̌ ı̍ ı̎ ı̏ ı̐ ı̑ ı̒ ı̓ ı̔ ı̕ ı̖ ı̗ ı̘ ı̙ ı̚ ı̛ ı̜ ı̝ ı̞ ı̟ ı̠ ı̡ ı̢ ı̣ ı̤ ı̥ ı̦ ı̧ ı̨ ı̩ ı̪ ı̫ ı̬ ı̭ ı̮ ı̯ ı̰ ı̱ ı̲ ı̳ ı̴ ı̵ ı̶ ı̷ ı̸ ı̹ ı̺ ı̻ ı̼ ı̽ ı̾ ı̿ ı̺̃ ı̻̃ ı̼̃ ı̽̃ ı̾̃ ı̿̃ ı̺̄ ı̻̄ ı̼̄ ı̽̄ ı̾̄ ı̿̄ ı̺̅ ı̻̅ ı̼̅ ı̽̅ ı̾̅ ı̿̅ ı̺̆ ı̻̆ ı̼̆ ı̽̆ ı̾̆ ı̿̆ ı̺̇ ı̻̇ ı̼̇ ı̽̇ ı̾̇ ı̿̇ ı̺̈ ı̻̈ ı̼̈ ı̽̈ ı̾̈ ı̿̈ ı̺̉ ı̻̉ ı̼̉ ı̽̉ ı̾̉ ı̿̉ ı̺̊ ı̻̊ ı̼̊ ı̽̊ ı̾̊ ı̿̊ ı̺̋ ı̻̋ ı̼̋ ı̽̋ ı̾̋ ı̿̋ ı̺̌ ı̻̌ ı̼̌ ı̽̌ ı̾̌ ı̿̌ ı̺̍ ı̻̍ ı̼̍ ı̽̍ ı̾̍ ı̿̍ ı̺̎ ı̻̎ ı̼̎ ı̽̎ ı̾̎ ı̿̎ ı̺̏ ı̻̏ ı̼̏ ı̽̏ ı̾̏ ı̿̏ ı̺̐ ı̻̐ ı̼̐ ı̽̐ ı̾̐ ı̿̐ ı̺̑ ı̻̑ ı̼̑ ı̽̑ ı̾̑ ı̿̑ ı̺̒ ı̻̒ ı̼̒ ı̽̒ ı̾̒ ı̿̒ ı̺̓ ı̻̓ ı̼̓ ı̽̓ ı̾̓ ı̿̓ ı̺̔ ı̻̔ ı̼̔ ı̽̔ ı̾̔ ı̿̔ ı̺̕ ı̻̕ ı̼̕ ı̽̕ ı̾̕ ı̿̕ ı̺̖ ı̻̖ ı̼̖ ı̖̽ ı̖̾ ı̖̿ ı̺̗ ı̻̗ ı̼̗ ı̗̽ ı̗̾ ı̗̿ ı̺̘ ı̻̘ ı̼̘ ı̘̽ ı̘̾ ı̘̿ ı̺̙ ı̻̙ ı̼̙ ı̙̽ ı̙̾ ı̙̿ ı̺̚ ı̻̚ ı̼̚ ı̽̚ ı̾̚ ı̿̚ ı̛̺ ı̛̻ ı̛̼ ı̛̽ ı̛̾ ı̛̿ ı̺̜ ı̻̜ ı̼̜ ı̜̽ ı̜̾ ı̜̿ ı̺̝ ı̻̝ ı̼̝ ı̝̽ ı̝̾ ı̝̿ ı̺̞ ı̻̞ ı̼̞ ı̞̽ ı̞̾ ı̞̿ ı̺̟ ı̻̟ ı̼̟ ı̟̽ ı̟̾ ı̟̿ ı̺̠ ı̻̠ ı̼̠ ı̠̽ ı̠̾ ı̠̿ ı̡̺ ı̡̻ ı̡̼ ı̡̽ ı̡̾ ı̡̿ ı̢̺ ı̢̻ ı̢̼ ı̢̽ ı̢̾ ı̢̿ ı̺̣ ı̻̣ ı̼̣ ı̣̽ ı̣̾ ı̣̿ ı̺̤ ı̻̤ ı̼̤ ı̤̽ ı̤̾ ı̤̿ ı̺̥ ı̻̥ ı̼̥ ı̥̽ ı̥̾ ı̥̿ ı̺̦ ı̻̦ ı̼̦ ı̦̽ ı̦̾ ı̦̿ ı̧̺ ı̧̻ ı̧̼ ı̧̽ ı̧̾ ı̧̿ ı̨̺ ı̨̻ ı̨̼ ı̨̽ ı̨̾ ı̨̿ ı̺̩ ı̻̩ ı̼̩ ı̩̽ ı̩̾ ı̩̿ ı̺̪ ı̻̪ ı̼̪ ı̪̽ ı̪̾ ı̪̿ ı̺̫ ı̻̫ ı̼̫ ı̫̽ ı̫̾ ı̫̿ ı̺̬ ı̻̬ ı̼̬ ı̬̽ ı̬̾ ı̬̿ ı̺̭ ı̻̭ ı̼̭ ı̭̽ ı̭̾ ı̭̿ ı̺̮ ı̻̮ ı̼̮ ı̮̽ ı̮̾ ı̮̿ ı̺̯ ı̻̯ ı̼̯ ı̯̽ ı̯̾ ı̯̿ ı̺̰ ı̻̰ ı̼̰ ı̰̽ ı̰̾ ı̰̿ ı̺̱ ı̻̱ ı̼̱ ı̱̽ ı̱̾ ı̱̿ ı̺̲ ı̻̲ ı̼̲ ı̲̽ ı̲̾ ı̲̿ ı̺̳ ı̻̳ ı̼̳ ı̳̽ ı̳̾ ı̳̿ ı̴̺ ı̴̻ ı̴̼ ı̴̽ ı̴̾ ı̴̿ ı̵̺ ı̵̻ ı̵̼ ı̵̽ ı̵̾ ı̵̿ ı̶̺ ı̶̻ ı̶̼ ı̶̽ ı̶̾ ı̶̿ ı̷̺ ı̷̻ ı̷̼ ı̷̽ ı̷̾ ı̷̿ ı̸̺ ı̸̻ ı̸̼ ı̸̽ ı̸̾ ı̸̿ ı̺̹ ı̻̹ ı̼̹ ı̹̽ ı̹̾ ı̹̿ ı̺̺ ı̻̺ ı̼̺ ı̺̽ ı̺̾ ı̺̿ ı̺̻ ı̻̻ ı̼̻ ı̻̽ ı̻̾ ı̻̿ ı̺̼ ı̻̼ ı̼̼ ı̼̽ ı̼̾ ı̼̿ ı̺̽ ı̻̽ ı̼̽ ı̽̽ ı̾̽ ı̿̽ ı̺̾ ı̻̾ ı̼̾ ı̽̾ ı̾̾ ı̿̾ ı̺̿ ı̻̿ ı̼̿ ı̽̿ ı̾̿ ı̿̿ ı̺̺̃ ı̻̺̃ ı̼̺̃ ı̺̽̃ ı̺̾̃ ı̺̿̃ ı̺̺̄ ı̻̺̄ ı̼̺̄ ı̺̽̄ ı̺̾̄ ı̺̿̄ ı̺̺̅ ı̻̺̅ ı̼̺̅ ı̺̽̅ ı̺̾̅ ı̺̿̅ ı̺̺̆ ı̻̺̆ ı̼̺̆ ı̺̽̆ ı̺̾̆ ı̺̿̆ ı̺̺̇ ı̻̺̇ ı̼̺̇ ı̺̽̇ ı̺̾̇ ı̺̿̇ ı̺̺̈ ı̻̺̈ ı̼̺̈ ı̺̽̈ ı̺̾̈ ı̺̿̈ ı̺̺̉ ı̻̺̉ ı̼̺̉ ı̺̽̉ ı̺̾̉ ı̺̿̉ ı̺̺̊ ı̻̺̊ ı̼̺̊ ı̺̽̊ ı̺̾̊ ı̺̿̊ ı̺̺̋ ı̻̺̋ ı̼̺̋ ı̺̽̋ ı̺̾̋ ı̺̿̋ ı̺̺̌ ı̻̺̌ ı̼̺̌ ı̺̽̌ ı̺̾̌ ı̺̿̌ ı̺̺̍ ı̻̺̍ ı̼̺̍ ı̺̽̍ ı̺̾̍ ı̺̿̍ ı̺̺̎ ı̻̺̎ ı̼̺̎ ı̺̽̎ ı̺̾̎ ı̺̿̎ ı̺̺̏ ı̻̺̏ ı̼̺̏ ı̺̽̏ ı̺̾̏ ı̺̿̏ ı̺̺̐ ı̻̺̐ ı̼̺̐ ı̺̽̐ ı̺̾̐ ı̺̿̐ ı̺̺̑ ı̻̺̑ ı̼̺̑ ı̺̽̑ ı̺̾̑ ı̺̿̑ ı̺̺̒ ı̻̺̒ ı̼̺̒ ı̺̽̒ ı̺̾̒ ı̺̿̒ ı̺̺̓ ı̻̺̓ ı̼̺̓ ı̺̽̓ ı̺̾̓ ı̺̿̓ ı̺̺̔ ı̻̺̔ ı̼̺̔ ı̺̽̔ ı̺̾̔ ı̺̿̔ ı̺̺̕ ı̻̺̕ ı̼̺̕ ı̺̽̕ ı̺̾̕ ı̺̿̕ ı̺̺̖ ı̻̺̖ ı̼̺̖ ı̺̖̽ ı̺̖̾ ı̺̖̿ ı̺̺̗ ı̻̺̗ ı̼̺̗ ı̺̗̽ ı̺̗̾ ı̺̗̿ ı̺̺̘ ı̻̺̘ ı̼̺̘ ı̺̘̽ ı̺̘̾ ı̺̘̿ ı̺̺̙ ı̻̺̙ ı̼̺̙ ı̺̙̽ ı̺̙̾ ı̺̙̿ ı̺̺̚ ı̻̺̚ ı̼̺̚ ı̺̽̚ ı̺̾̚ ı̺̿̚ ı̛̺̺ ı̛̻̺ ı̛̼̺ ı̛̺̽ ı̛̺̾ ı̛̺̿ ı̺̺̜ ı̻̺̜ ı̼̺̜ ı̺̜̽ ı̺̜̾ ı̺̜̿ ı̺̺̝ ı̻̺̝ ı̼̺̝ ı̺̝̽ ı̺̝̾ ı̺̝̿ ı̺̺̞ ı̻̺̞ ı̼̺̞ ı̺̞̽ ı̺̞̾ ı̺̞̿ ı̺̺̟ ı̻̺̟ ı̼̺̟ ı̺̟̽ ı̺̟̾ ı̺̟̿ ı̺̺̠ ı̻̺̠ ı̼̺̠ ı̺̠̽ ı̺̠̾ ı̺̠̿ ı̡̺̺ ı̡̻̺ ı̡̼̺ ı̡̺̽ ı̡̺̾ ı̡̺̿ ı̢̺̺ ı̢̻̺ ı̢̼̺ ı̢̺̽ ı̢̺̾ ı̢̺̿ ı̺̺̣ ı̻̺̣ ı̼̺̣ ı̺̣̽ ı̺̣̾ ı̺̣̿ ı̺̺̤ ı̻̺̤ ı̼̺̤ ı̺̤̽ ı̺̤̾ ı̺̤̿ ı̺̺̥ ı̻̺̥ ı̼̺̥ ı̺̥̽ ı$$

Tonos and dasia mark a *hiatus* (break-up of a diphthong) if placed on the first vowel of a diphthong (άι, άυ, έι). A dialytika must be placed on the second vowel if they are dropped: (Αῖ, Ἀῦ, Εῖ).

ἄυλος \mapsto AÿΛΟΣ, ἄυλος \mapsto AÿΛΟΣ, μάϊνα \mapsto MAÏNA, κείκ, \mapsto KEÏK ἄυπνία \mapsto AÿΠΝΙΑ

Test the auto-hiatus feature for side-effects:

A B: keep space after A.

[illegible]

Rows 3 ... 7: Look-ahead (to check for a hiatus) breaks kerning before A with Tonos or Psili.

Rows 15 and 16: Like in any font encoding, there is no kerning for non-defined accent-letter-combinations (dialytica on A O Δ).

The uppercase of the zero-width space at the place of “v” is the Dasia-Oxia accent ̣ , the glyph at the position of “V”. It is suppressed for uppercased accents:

[illegible]

Downcasing should keep diacritics (of course, it cannot regenerate “manually” dropped ones): ‘A Ĩ Ÿ °A \mapsto á ĩ ü ã