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:

\texttt{Tί φής; Ἰδὼν ἐνθέδε παιδ’ ἐλευθέραν
tάς πλησίον Νύμφας στεφανοῦσαν, Σώστρατε,
ἐρῶν 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: + - = < > -- [ ] { } \ | %/perthousandzero %/perthousandzero/perthousandzero /uni2423
LGR: + - = < > -- [ ]

\begin{verbatim}
< \textless
> \textgreater
{ \textbraceleft
} \textbraceright
\backslash \textbackslash
\textbar
\textperthousand (Per-mille symbol is missing in LGR.)
\textvisiblespace
\end{verbatim}

Quotes:\footnote{Single quotes need special attention to prevent conversion to accents. Test the input conventions: ‘α’ ‘α’ ‘α’ ‘α’ but not α’ έ’ ό’}

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

Single guillemots and base-quotes («α» „α”, „α”) are missing in LGR.

Ligature break up with \textcompwordmark: AY fi ΑΥ ‘i ↔ AY fi ΑΥ ‘i

1
Spacing accent chars: ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i ^a ^x ^i 
Letter schwa and Euro symbol: ο \textschwa, Ε \texteuro

Some ASCII symbols are replaced by different symbols in LGR encoding other symbols are composed from Latin letters and show Greek letters in LGR, babel-greek redefines some with \latintext, however this cannot be done in a font encoding definition file.

Beware that "#&';<>@ becomes "¨΅·΄·῾῾;╮╯

The textcomp package provides pre-composed copyright ©, registered ® and trademark ™ symbols that work in all font encodings. In LGR (with textcomp), they come out as: © \textcopyright, ® \textregistered, ™ \texttrademark.

textcomp also provides the upright MICRO SIGN and OHM SIGN for SI units: R = 5 µΩ

In LGR, \textmu and \textOmega are aliases to \textmu and \textOmega that do not change case: Αντίσταση = 5 µΩ, ΑΝΤΙΣΤΑΣΗ = 5 µΩ, αντίσταση = 5 µΩ.

1.2 Greek alphabet

Greek letters via Latin transcription and LICR macros:

A B Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ 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
ζ \textfinalsigma

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

1.3 additional Greek symbols

½ \textkoppa (numeral koppa = 90)
¼ \textKoppa (numeral Koppa = 90)²
ϕ \textqoppa (archaic koppa)
ϑ \textQoppa (archaic Koppa)
σ \textstigma
σ \textvarstigma

²Modern typographical practice normally does not observe a contrast between uppercase and lowercase forms for numeric koppa. In LGR, there is no separate code point for Koppa.
(\textStigma \text{ (Sigma-Tau-Ligature in CB-fonts)}) \footnote{The name \textquote{\textstigmagreek} originally applied to a medieval sigma-tau ligature, whose shape was confusingly similar to the cursive digamma}
\text{sampi}
\text{sampi}
\text{digamma}
\text{digamma}
\text{dexiakeraia (Dexia keraia)}
\text{aristerikeraia (Aristeri keraia)}

Up/Downcasing of the additional Symbols from the Greek And Coptic Unicode block:

\textacccoxia = \textaccpsili
\textacckoronis = \textaccpsili

1.4 aliases

Aliases are defined in the included file \texttt{greek-fontenc.def}.

Names matching mathematical variant symbols:

\textepsilon = \textepsilon
\textvarphi = \textphi
\textvarsigma = \textfinalsigma

Compatibility aliases for hyperref's puenc.def:

\textmugreek = \textmu
\textkoppagreek = \textkoppa
\textKoppagreek = \textKoppa
\textStigmagreek = \textStigma
\textstigmagreek = \textstigma
\textSampigreek = \textSampi
\textSampigreek = \textSampi
\textdigaggreek = \textdigamma
\textdigammagreek = \textdigamma
\textnumeralsigngreek = \textdexiakeraia
\textnumeralsgreek = \textaristerikeraia

\textacccoxia = \textaccpsili
\textacckoronis = \textaccpsili

\textacccoxia = \textaccpsili
\textacckoronis = \textaccpsili
1.5 symbol variants

Mathematical notation distinguishes variant shapes for pi (\(\pi\), \(\varpi\)), rho (\(\rho\), \(\varrho\)), theta (\(\theta\)), beta, and kappa (characters for the last two symbols are not included in TeX's standard math fonts). These variations have no syntactic meaning in Greek text and are not given code-points in the LGR encoding. Greek text fonts use the shape variants interchangeably.

2 Diacritics

Capital Greek letters have Greek diacritics (except the dialytika and sub-iota) to the left (instead of above) and drop them if text is set in UPPERCASE. This is implemented for all combinations that are used in Greek texts (i.e. for which pre-composed Unicode character exist), but not for, e.g., \(\Omega\).

Different conventions exist for the treatment of the sub-iota with uppercase letters. The CB-Fonts use a capital Iota “index” (\(\mathrm{Α_i}\), \(\mathrm{Η_i}\), \(\mathrm{Ω_i}\)).

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

\[
\begin{align*}
\mathring{a} & \mapsto \mathring{A} & \mathring{á} & \mapsto \mathring{Á} & \mathring{ã} & \mapsto \mathring{Â} & \mathring{ä} & \mapsto \mathring{Â} & \mathring{â} & \mapsto \mathring{Á} & \mathring{ą} & \mapsto \mathring{Ą} \\
\mathring{á} & \mapsto \mathring{á} & \mathring{ã} & \mapsto \mathring{ã} & \mathring{ä} & \mapsto \mathring{ä} & \mathring{â} & \mapsto \mathring{â} & \mathring{å} & \mapsto \mathring{Å} & \mathring{ă} & \mapsto \mathring{Ă} & \mathring{ˇ} & \mapsto \mathring{ˇ} & \mathring{á} & \mapsto \mathring{á} & \mathring{ă} & \mapsto \mathring{ă} & \mathring{ą} & \mapsto \mathring{ą} \\
\mathring{A} & \mapsto \mathring{A} & \mathring{Á} & \mapsto \mathring{Á} & \mathring{Â} & \mapsto \mathring{Â} & \mathring{Ä} & \mapsto \mathring{Ä} & \mathring{Å} & \mapsto \mathring{Å} & \mathring{Ă} & \mapsto \mathring{Ă} & \mathring{α} & \mapsto \mathring{α} & \mathring{˘} & \mapsto \mathring{˘} & \mathring{β} & \mapsto \mathring{β} & \mathring{δ} & \mapsto \mathring{δ} & \mathring{ε} & \mapsto \mathring{ε} & \mathring{ι} & \mapsto \mathring{ι} & \mathring{ι} & \mapsto \mathring{ι} & \mathring{κ} & \mapsto \mathring{κ} & \mathring{λ} & \mapsto \mathring{λ} & \mathring{μ} & \mapsto \mathring{μ} & \mathring{ν} & \mapsto \mathring{ν} & \mathring{ɔ} & \mapsto \mathring{ɔ} & \mathring{φ} & \mapsto \mathring{φ} & \mathring{ψ} & \mapsto \mathring{ψ} & \mathring{χ} & \mapsto \mathring{χ} & \mathring{ω} & \mapsto \mathring{ω} \\
\end{align*}
\]

Additional Greek diacritics (Greek, Greek Capitals \(\Rightarrow\) UPPERCASE)

\[
\begin{align*}
\mathring{ά} & \mapsto \mathring{Α} & \mathring{έ} & \mapsto \mathring{Ε} & \mathring{ί} & \mapsto \mathring{Ι} & \mathring{ϊ} & \mapsto \mathring{Ι} & \mathring{ή} & \mapsto \mathring{Η} & \mathring{ύ} & \mapsto \mathring{Υ} & \mathring{ο} & \mapsto \mathring{Ο} & \mathring{ό} & \mapsto \mathring{Ό} & \mathring{ω} & \mapsto \mathring{Ω} & \mathring{ώ} & \mapsto \mathring{Ώ} \\
\end{align*}
\]

Input variants and their conversion with MakeUppercase:

\[
\begin{align*}
\varepsilon & \mapsto \varepsilon & \epsilon & \mapsto \epsilon & \eta & \mapsto \eta & \iota & \mapsto \iota & \iota \iota & \mapsto \iota \iota & \upsilon & \mapsto \upsilon & \upsilon & \mapsto \upsilon & \phi & \mapsto \phi & \psi & \mapsto \psi & \chi & \mapsto \chi & \omega & \mapsto \omega \\
\end{align*}
\]

Input variants and their conversion with MakeLowercase:

\[
\begin{align*}
\varepsilon & \mapsto \varepsilon & \epsilon & \mapsto \epsilon & \eta & \mapsto \eta & \iota & \mapsto \iota & \iota \iota & \mapsto \iota \iota & \upsilon & \mapsto \upsilon & \upsilon & \mapsto \upsilon & \phi & \mapsto \phi & \psi & \mapsto \psi & \chi & \mapsto \chi & \omega & \mapsto \omega \\
\end{align*}
\]

\(^4\)The ogonek (little hook) accent \(\langle\rangle\) is not defined in LGR.

\(^5\)The dialytika is not used on Initial letters.
The tilde character can be used in combined accents. However, in documents not defining the Babel language greek or polutonikogreek, better use the tilde-accent macro, as the tilde produces a no-break space if converted with \MakeUppercase or \MakeLowercase:

\[ \Lambda \Lambda \Lambda \Lambda \rightarrow \tilde{\Lambda} \tilde{\Lambda} \tilde{\Lambda} \tilde{\Lambda} \]

Accents input via the Latin transliteration are not dropped with MakeUppercase, unless Babel is loaded and the current language is Greek (because the required local re-definitions of the \uccode are done in greek.ldf from the babel-greek package).

\[ \acute{\alpha} \acute{\alpha} \acute{\alpha} \acute{\alpha} \rightarrow \tilde{A} \tilde{A} \tilde{A} \tilde{A} \]

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 locally defined Dasia and Psili shortcuts \< and \>:

<table>
<thead>
<tr>
<th>COL1</th>
<th>COL2</th>
<th>COL3</th>
<th>COL4</th>
</tr>
</thead>
<tbody>
<tr>
<td>COL1</td>
<td>COL3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Viele Grüße

Combinations with named accents: ä ä å å.

The dialytika must be kept in UPPERCASE, e.g.

\[ \mu\acute{a}\acute{r}\acute{p}\acute{r}\acute{o}z \rightarrow \text{MAIΣΤΡΟΣ} \text{ or } \epsilon\upsilon\omicron\omicron\alpha \rightarrow \text{EΤΖΩΙΑ}. \]

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

\[ \tau\tau\tau\tau\tau \rightarrow \text{T T T T T}. \]

Tonos and dasia mark a hiatus (break-up of a diphthong) if placed on the first vowel of a diphthong (\ä, \å, \é). A dialytika must be placed on the second vowel if they are dropped: (\Ä, \Å, \É).

\[ \acute{\omega}\lambda\acute{o}z \rightarrow \text{ΑΠΛΟΣ}, \grave{\omega}\lambda\grave{o}z \rightarrow \text{ΑΠΛΟΣ}, \mu\acute{a}ν\alpha \rightarrow \text{MAÎNA}, \chi\acute{e}x, \rightarrow \text{KEÎK} \]

\[ \grave{\omega}\upsilon\nu\acute{a} \rightarrow \text{ΑΠΙΝΙΑ} \]
Test the auto-hiatus feature for side-effects:

A B (must keep space after A).

Kerning (see the input):

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 Α Ο Δ).

Downcasing should keep diacritics (of course, it cannot regenerate “manually” dropped ones): 'Α İ ῦ'Α → ə ù ¯