

# XeTeX/LuaTeX with LGR fonts

Günter Milde

2020/11/10

The babel option «greek» activates the support for the Greek language defined in «greek.ldf» (source «greek.dtx»).

Typesetting Greek texts requires a font containing Greek letters. With the XeTeX or LuaTeX engines, the user must ensure that the selected font contains the required glyphs (the default Latin Modern fonts miss them).

Latin Modern can be combined with the matching CB-Greek 8-bit font. For the setup, see the preamble of this document `test-unicode-lgr.tex`

Caveat: Currently, hyphenation does not work with this setup. Use it only for short Greek quotes or as a last resort.

## 1 Language Switch

The declaration `\selectlanguage` switches between languages. With XeTeX or LuaTeX and LGR as `\greekfontencoding`, Unicode input is not possible. Instead, use the Latin transliteration or LICR macros:

```
Τί φήμι; Ἰδὼν ἐνθῆδε πα ἰδ' ἔλευθέραν  
τὰς πλησίον Νύμφας στεφανοῦσαν, Σώστρατε,  
ἔρωτων ἀπὸ γλῶσσας εὐθύς;
```

The macro `\foreignlanguage` sets its second argument in the specified language. This is intended for short text parts like Βιβλιοθήκη.

## 2 Font Encoding

Switching to a font encoding supporting the Greek script is possible without switching the text language using the declarations `\greekscript` or `\greektext` (always LGR) and the macros `\ensuregreek` or `\textgreek`. These commands do not start a new paragraph.

The Babel core defines the declaration `\latintext` and the command `\textlatin` to switch to the T1 or OT1 font encoding or typeset the argument using this encoding. `greek.ldf` adds a test for the Unicode font encodings TU, EU1, and EU2. Here, `\latinencoding` is TU.

With Unicode fonts, the macros `\greektext` and `\textgreek` are only defined, if the LGR font encoding is loaded via the `fontenc` package (see `test-unicode-lgr.tex`).

With LGR, Latin characters in Greek text parts are typeset as Greek characters according to the Latin transcription defined in LGR.

Φίλων τοῦ TeX (ΕΦΤ) – Friends (Φίλων) of TeX.

### 3 MakeUppercase, MakeLowercase

Capital Greek letters have diacritics (except the dialytika and sub-iota) to the left (instead of above) and drop them in uppercase.

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

### 4 LICR Macros

Babel defines macros for several autogenerated strings so that they may appear in the choosen language. *babel-greek* uses LICR macros in order to let the string macros work independent of the font encoding.

If `fontspec` is loaded before `babel`, `babel-greek` loads Greek LICR for TU from the file `tuenc-greek.def` provided with *greek-fontenc* since version 0.14 (2020-02-28).

#### 4.1 Hiatus

The «hiatus» feature works with macro input:

άυλος  $\mapsto$  ΑῤῥΛΟΣ, άυλος  $\mapsto$  ΑῤῥΛΟΣ, μάινα  $\mapsto$  ΜΑἶΝΑ, κείκι  $\mapsto$  ΚΕἶΚ, άυπνία  $\mapsto$  ΑῤῥΠΝΙΑ.

#### 4.2 Captions

Πρόλογος, Αναφορές, Περίληψη, Βιβλιογραφία, Κεφάλαιο, Παράρτημα, Περιεχόμενα, Κατάλογος Σχημάτων, Κατάλογος Πινάκων, Ευρετήριο, Σχήμα, Πίνακας, Μέρος, Συνημμένα, Κοινοποίηση, Προς, Σελίδα, βλέπε, βλέπε επίσης, Απόδειξη, Γλωσσάρι

Test correct upcasing (dropping of accents):

ΠΡΟΛΟΓΟΣ, ΑΝΑΦΟΡΕΣ, ΠΕΡΙΛΗΨΗ, ΒΙΒΛΙΟΓΡΑΦΙΑ, ΚΕΦΑΛΑΙΟ, ΠΑΡΑΡΤΗΜΑ, ΠΕΡΙΕΧΟΜΕΝΑ, ΚΑΤΑΛΟΓΟΣ ΣΧΗΜΑΤΩΝ, ΚΑΤΑΛΟΓΟΣ ΠΙΝΑΚΩΝ, ΕΥΡΕΤΗΡΙΟ, ΣΧΗΜΑ, ΠΙΝΑΚΑΣ, ΜΕΡΟΣ, ΣΤΥΝΗΜΜΕΝΑ, ΚΟΙΝΟΠΟΙΗΣΗ, ΠΡΟΣ, ΣΕΛΙΔΑ, ΒΛΕΠΕ, ΒΛΕΠΕ ΕΠΙΣΗΣ, ΑΠΟΔΕΙΞΗ, ΓΛΩΣΣΑΡΙ

#### 4.3 Months

10 Ιανουαρίου 2020

10 Φεβρουαρίου 2020

10 Μαρτίου 2020  
10 Απριλίου 2020  
10 Μαΐου 2020  
10 Ιουνίου 2020  
10 Ιουλίου 2020  
10 Αυγούστου 2020  
10 Σεπτεμβρίου 2020  
10 Οκτωβρίου 2020  
10 Νοεμβρίου 2020  
10 Δεκεμβρίου 2020

## 5 Greek Numerals

See greek.pdf for the formation rules of Greek numerals. Some examples:

α', β', γ', δ', ε', ς', ζ', η', θ', ι', ια', ιβ', κ', τμε', φ', ,αλ'ιζ', ,βιγ',

A', B', Γ', Δ', E', Γ', Ζ', Η', Θ', Ι', ΙΑ', ΙΒ', Κ', ΤΜΕ', Φ', ,ΑΛ'ιΖ', ,ΒΙΓ',

Enumerated lists use Greek characters/numerals in the second and fourth level:

1. item 1
  - (α') item 1.1
    - i. item 1.1.1
      - A'. item 1.1.1.1
      - B'. item 1.1.1.2
    - ii. item 1.1.2