

# Greek support for Babel with XeTeX/LuaTeX

Günter Milde

2016/09/07

The babel option «greek» activates the support for the Greek language defined in the file «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 most of them). Examples for suitable fonts are the «Deja Vu», «Linux Libertine», or «Free Serif» OpenType fonts.

## 1 Language Switch

The declaration `\selectlanguage` switches between languages.

Τί φήις; Ίδων ἐνθέδε παῖδ' ἐλευθέρων τὰς πλησίον Νύμφας στεφανοῦσαν, Σώστρατε, ἐρῶν ἀπῆλθες εὐθύς;

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

## 2 Font Encoding

Every language switch to `greek` calls the `\extrasgreek` command which in turn calls `\greekscript` to ensure a Greek-supporting font encoding (LGR, TU, EU1, or EU2). Under Xe/LuaTeX the font encoding normally just remains Unicode (TU). For customization, you can add to or redefine the `\extrasgreek` command.

The LGR font encoding does not support Latin characters. Therefore, the Babel core defines the declaration `\latintext` and the command `\textlatin` to switch to the TU, EU1, EU2, T1 or OT1 font encoding or typeset the argument using this encoding. At this point, the «latinencoding» is TU.

Every language switch from `greek` calls the `\noextrasgreek` command which in turn calls `\latintext`.

For customization, you can add to or redefine the `\noextrasgreek` command.

With the Unicode font encoding TU, EU1, or EU2, Latin characters can be used in Greek text parts and input via the «LGR Latin transcription» is not possible.<sup>1</sup>

Φίλων τοῦ TeX (ΕΦΤ) – Friends (Filwn) of TeX.<sup>2</sup>

<sup>1</sup>The *xunicode* package provides with the *tipa* emulation an example how this could be achieved also for Unicode fonts. Alternatively, LGR encoded fonts can be used (see *test-unicode-lgr.tex*).

<sup>2</sup>Compare the printout to the similar example in *test-greek.pdf*.

## 3 LICR Macros

Babel defines macros for several autogenerated strings so that they may appear in the chosen language. *babel-greek* uses LICR<sup>3</sup> macros in order to let the string macros work independent of the font encoding.

If *fontspec* is loaded, *babel-greek* loads Greek LICR definitions for the Unicode font encoding (TU, EU1 or EU2) from the file `greek-euenc.def` provided with *greek-fontenc* since version 0.10.

With this setup, it is also possible to use accent macros instead of pre-composed Unicode characters for letters with diacritics: «Τί φήις;», «ὅρα = ὄρα».

### 3.1 Captions

Προοίμιον, Άναφοραί, Περίληψις, Βιβλιογραφία, Κεφάλαιον, Παράρτημα, Περιεχόμενα, Κατάλογος σχημάτων, Κατάλογος πινάκων, Εύρετήριον, Σχήμα, Πίναξ, Μέρος, Συνημμένως, Κοινοποίησις, Πρὸς, Σελίς, ὅρα, ὄρα ώσαύτως, Απόδειξις, Γλωσσάριον

Test correct upcasing (dropping of accents):

ΠΡΟΟΙΜΙΟΝ, ΑΝΑΦΟΡΑΙ, ΠΕΡΙΛΗΨΙΣ, ΒΙΒΛΙΟΓΡΑΦΙΑ, ΚΕΦΑΛΑΙΟΝ, ΠΑΡΑΡΤΗΜΑ, ΠΕΡΙΕΧΟΜΕΝΑ, ΚΑΤΑΛΟΓΟΣ ΣΧΗΜΑΤΩΝ, ΚΑΤΑΛΟΓΟΣ ΠΙΝΑΚΩΝ, ΕΥΡΕΤΗΡΙΟΝ, ΣΧΗΜΑ, ΠΙΝΑΞ, ΜΕΡΟΣ, ΣΥΝΗΜΜΕΝΩΣ, ΚΟΙΝΟΠΟΙΗΣΙΣ, ΠΡΟΣ, ΣΕΛΙΣ, ΟΡΑ, ΟΡΑ ΩΣΑΥΤΩΣ, ΑΠΟΔΕΙΞΙΣ, ΓΛΩΣΣΑΡΙΟΝ

### 3.2 Months

21 Ιανουαρίου 2020  
21 Φεβρουαρίου 2020  
21 Μαρτίου 2020  
21 Απριλίου 2020  
21 Μαΐου 2020  
21 Ιουνίου 2020  
21 Ιουλίου 2020  
21 Αύγουστου 2020  
21 Σεπτεμβρίου 2020  
21 Οκτωβρίου 2020  
21 Νοεμβρίου 2020  
21 Δεκεμβρίου 2020

## 4 Greek Numerals

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

α', β', γ', δ', ε', ζ', η', θ', ι', ια', ιβ', κ', τμε', φ', αϙζ', βιγ',  
Α', Β', Γ', Δ', Ε', Ζ', Η', Θ', Ι', ΙΑ', ΙΒ', Κ', ΤΜΕ', Φ', ΑϘΖ', ΒΙΓ',

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

---

<sup>3</sup>LaTeX internal character representation

- 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

This may be problematic with fonts that only partially support Greek and miss the numeral signs (dexiakeraia and aristerikeraia).

You may redefine the commands `\textdexiakeraia` and `\textaristerikeraia` to some substitute characters. Or, if you prefer the “normal” enumeration, write in the preamble after loading babel:

```
\makeatletter
\addto\extrasgreek{\let\@alph\latin@alph
  \let\@Alph\latin@Alph}
\makeatother
```