Greek in Proper ConTeXt

1 For the Impatient

1. Unzip the `zip` archive in one of your `texmf` trees (the canonical places are `texmf-local` or `$HOME/texmf`).

2. In your sourcefile, use the module: **\usemodule[**ancientgreek**]**

3. Shorter Greek passages are included in the **\localgreek{}** command, longer passages in the **\startgreek** ... **\stopgreek** environment.

2 Some Preliminary Remarks

Until a few years ago, typesetting Greek with TeX was a nontrivial exercise because of the limitations of TeX and of computer fonts. With the advent of new font technologies (Truetype and OpenType fonts) and of new TeX engines (XeTeX and luaTeX), this situation has changed. If you are using these newer engines and are typesetting in a font with support for polytonic Greek, your Greek text will appear without any further steps.

Hence, this Greek module is strictly necessary only if you want to typeset Greek in ConTeXt `mkii`, i.e. good old pdfTeX; for XeTeX and luaTeX, you can do without it. However, using the Greek module will offer a number of advantages even with these new engines:

— You can change the font for Greek passages with one simple setup command.

— You can easily mix a Latin font without support for Greek and a Greek font.

— The module allows you to scale the Greek font so that it provides a pleasant optical match with your Latin script.

— The commands provided by the module also switch the language to "Greek" and provide proper hyphenation.

— The module provides a few additional characters which will be handy especially for scholarly texts.

At the time of this writing, ConTeXt can use three TeX engines: traditional pdfTeX, XeTeX, and luaTeX. In theory, there should not be any difference for the user; the same input file should give (nearly) identical output, whether compiled with traditional `tex-exec` command (for pdfTeX), the `--xtx` switch (for XeTeX), or the `context` command (for luaTeX). Utf-8 input is now considered the rule; older solutions are merely treated in an appendix. As is already the case for other parts of ConTeXt, future development

for the Greek module will be restricted to the luaTeX engine and `mkiv`; support for the traditional pdfTeX engine (`mkii`) will be frozen.

3 Installation

Installation of the module is straightforward: unpack the `zip` archive in one of your `texmf`-trees. If you have added these files to a `texmf`-tree that uses `ls-R` files, you will need to rebuild this database by running `texhash` (if you don't know what this means, run it anyway, it won't hurt); if you're using mkiv, you need to run `luatools --gener-ate`. After this, everything should be in its proper place.[1]

4 Usage

Call the module in the preamble of your document and set up the necessary fonts:

```
\usemodule [..1..] [..,..2..,..]
                      OPTIONAL
1   ancientgreek

2   font     = Alkaios Bosporos GFSArtemisia GFSBaskerville GFSBodoni GFSBodoniClassic
               GFSComplutum GFSDidot GFSDidotClassic GFSElpis GFSGazis GFSNeohellenic
               GFSOlga GFSPhilostratos GFSPorson GFSSolomos GFSTheokritos
               GreekArno GreekAsteria GreekCanonica GreekGaramondPrem GreekGentium
               GreekGentiumAlt GreekKerkis GreekLibertine GreekMinion GreekOldStandard
               GreekPorson Ibycus Kadmos NewHellenic
    scale    = NUMBER
    altfont  = values as in parameter "font"
    altscale = NUMBER
```

The module lets you define a main Greek font with the `font` parameter which will be scaled at the `scale` parameter and an alternative Greek font with `altfont` parameter which will be scaled at the `altscale` parameter.

4.1 The Fonts

The module offers support for a variety of Greek fonts. For the casual user, we can distinguish between three categories:

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[1] For `mkii` only: If your ConTeXt-installation has `\autoloadmapfilestrue` set in `cont-sys.tex`, the module will take care of loading the appropriate mapfiles. If you have not enabled this setting or if you want to make the fonts available to other TeX-applications, add the mapfile to the configuration of your postscript- and pdf-drivers: `sudo updmap-sys --enable Map tasgreek.map`.

Fonts that come with the module

GreekCanonica	Free font from the ellak website.
GreekLibertine	LinuxLibertine is a large OpenType font project whose main developer is Philipp H. Poll, hosted on sourceforge.
GreekOldStandard	OpenType font developed by Alexey Kryukov; comes in upright and italic.
Ibycus	An OpenType version of the Ibycus font that was developed by Pierre McKay for the Ibycus-package for LaTeX. No italics or bold.

Fonts that are freely available

The following fonts are not included, either because of licensing issues or because including them would have made the package too big. However, all the support files are in place; all you need to do in order to use them is download the appropriate files at the location indicated below, extract the font files (in `.ttf` or `.otf` format), move them to the appropriate directory in your installation of the Greek module (`.../fonts/truetype/greek/...` or `.../fonts/opentype/greek/...`), and run `texhash` (for `mkii`) or `luatools --generate` (for `mkiv`).

Alkaios	Can be downloaded from Lucius Hartmann's homepage (there is no license information).
GreekAsteria	Can be downloaded at the elpenor website.
GreekKerkis	Can be downloaded at the University of the Aegean.
GreekMinion	The Minion font family comes with the free Adobe Reader software (downloadable at Adobe).
FreeSerif	OpenType developed for Debian Linux by various contributors; can be downloaded from the savannah website. Complete font family.
GFS fonts	All the fonts beginning with "GFS" are relatively recent developments, available at the Greek Font Society. If you use a newer version of TeXLive, many of them will already be present in your installation under `.../texmf-dist/fonts/opentype/public/`; in this case, you should be able to just use them. If you're running the ConTeXt minimals, you will have to download the font files.
Gentium	The Gentium and GentiumAlt fonts are included both in the minimals and in TeXLive 2009, so if you use one of these distributions, they should just work. If you don't have them, they can be downloaded at the gentium site.

Commercial Fonts

The following fonts are commercial. The module offers all necessary support for these fonts, but **not the fonts themselves**. If you want to use them, you will have to contact the

license holders, buy an appropriate license, and then copy the font files to your installation of the Greek module.

Bosporos	Comes with the GreekKeys keyboard macros (for Mac OS X and Windows), which can be purchased at the GreekKeys Page.
GreekArno	The ArnoPro font family, available at Adobe.
GreekGaramondPrem	The Garamond Premier Pro font family, also available at Adobe.
GreekPorson	This is the original Porsonian font such as it has been used by many publishers (e.g., Oxford University Press) for a long time. It can be purchased from the Monotype Corporation.
Kadmos	Comes with the GreekKeys keyboard macros (for Mac OS X and Windows), which can be purchased at the GreekKeys Page.
NewHellenic	The original NewHellenic font such as it has been used by many publishers (e.g., Cambridge University Press) for a long time. It can be purchased from the Monotype Corporation.

For the fonts Alkaios, Bosporos, GreekGentium, GreekGentiumAlt, GreekPorson, Ibycus, Kadmos, and NewHellenic, an alternative "lunate" (rounded) shape of the letter sigma (c, without distinction between final and intermediate sigma) is available. Without making any changes to your input, you can choose this form by adding "lun" directly to the name of the font, e.g., `[font=GreekGentiumlun,scale=1.2]`.

Only a few fonts provide Roman, Italic, Bold, and BoldItalic variants; if you need them, you will have to experiment whether the font switches `\bf`, `\bi` or `\em` work. If the font doesn't offer these variants, they are simply mapped to the normal "Roman" form, so font switches will simply not give any visual effect.[2]

4.2 Scaling

The module allows scaling of the Greek font. As you will probably know, different fonts may look very different even at the same size: Lucida Bright, e.g., at 10 pt is almost as big as Computer Modern at 12 pt. If you want to mix fonts, you cannot simply rely on the design size; you have adapt the different sizes by tweaking the appearance of the fonts. Since our Greek fonts will be mixed with Roman text, the module provides the ability to adapt the size of the Greek font: `[scale=1]` would correspond to the design size of the font; `[scale=0.95]` would shrink the font to 95 %; `[scale=1.05]` magnify to 105 %. Just play around until the relation between both fonts looks right.

Since this scaling is done in relation to the main bodyfont of your document, ConTEXt needs a proper bodyfont environment to calculate it. This environment is set up automatically for "normal" sizes (9pt, 10pt, 11pt, 12pt). If you want to use a bodyfont at an

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[2] At a very early date, typesetters distinguished between an upright ("Roman") and slanted ("Italic") form of Latin letters; both forms were mixed for graphical effect and to add emphasis to parts of the text; whence our use of "Italics." This convention did not exist for Greek typefaces; hence, Greek "italics" really is a spurious notion.

unusual size (say, at 19.5pt), you need to put these lines into the preamble of your document **before** defining the bodyfont:

```
\starttypescript [serif] [default] [size]
  \definebodyfont [19.5pt] [rm] [default]
\stoptypescript
\definebodyfontenvironment [19.5pt]
```

Moreover, if you use an unusual bodyfont size and want Greek text in your footnotes, you will need to set up their size explicitly (and add this size to the **\definebodyfont** typescript just described):

```
\setupfootnotes[bodyfont=14pt]
```

4.3 Greek Text

After setting these values in the preamble, switching to Greek in the body of your documents is easy: use the command **\localgreek{}** for shorter passages and the environment **\startgreek** ... **\stopgreek** for longer stretches (the corresponding commands for the alternate Greek font are **\localaltgreek{}** for shorter passages and the environment **\startaltgreek** ... **\stopaltgreek** for longer stretches).

If you are using mkii, you will see that certain environments (esp. tables and tabulate) cannot be used within the **\startgreek \stopgreek** pair.[3] In that case, you will have to wrap single table cells into **\localgreek{}** commands instead of having the entire table in a **\startgreek\stopgreek** environment. This should not affect mkiv and XƎTEX users.

Moreover, the module provides a couple of convenient commands to typeset symbols that are needed for writing ancient Greek or editing papyrological material:[4]

\digamma	Ϝ	\sampi	Ϡ
\stigma	ϛ	\koppa	ϙ
\lunars	ϲ	\lunarS	Ϲ
\textbraceleft	{	\textbraceright	}
\halfbracketleft	⸤	\halfbracketright	⸥
\doublebracketleft	⟦	\doublebracketright	⟧
\anglebracketleft	⟨	\anglebracketright	⟩
\crux	†		

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[3] Technical explanation: in order for ASCII input to work, the Greek environment has to change some catcodes; this confuses TEX's table mechanisms.

[4] Not all symbols are present in all fonts. In mkiv, there is a fallback mechanism which will try to take these symbols from fonts that do have them; this will work in most (but not all) cases. In mkii and XƎTEX, you will have to experiment with different fonts.

5 Release History

04/2013: ver 1.3
Split type-agr.tex into mkii and mkiv files.

02/2010: ver 1.2
Fallback fonts for missing characters. Support for X∃TEX and `mkiv` improved.

08/2008: ver 1.1
Support for X∃TEX and mkiv added. New mechanism for active characters.

01/2007: ver 1.0
New version of Aristarcoj font; added two new GFS fonts. The module has been pretty stable for a while, so I decided to call it ver 1.0…

11/2006: ver 0.99
Added some new GFS fonts; removed fonts that have become unavailable.
General cleanup of fonts and encodings.

04/2006: ver 0.98
Added the new GFSNeohellenic font.
Compatibility module `t-oldgreek` now als uses the new `moduleparameter` mechanism.
Cleaned up directory structure.

04/2006: ver 0.97
Module now uses the new `moduleparameter` mechanism.
Renamed from `t-greek` to `t-ancientgreek` to avoid clashes in namespace.
Hyphenation of polytonic Greek now works properly.

02/2006: ver 0.95
Supports more Greek fonts.
Greek are now defined as typefaces; normal font switches such as `\em` and `\bf` work within Greek text.

05/2005: ver 0.9
Initial release.

6 Appendix: `ASCII` input

In the time before Unicode input, Greek was usually input via a transliteration scheme developed for LATEX. This was available for ConTEXt mkii; it will not work with either mkiv or the X∃TEX engine. Since this type of input is considered obsolete, I will just give a very brief description of the correspondence between `ASCII` input and the typeset Greek letters:

A	B	G	D	E	Z	H	J	I	K	L	M	N	X	O	P	R	S	T	U	F	Q	Y	W
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	g	d	e	z	h	j	i	k	l	m	n	x	o	p	r	s	t	u	f	q	y	w
α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	τ	υ	φ	χ	ψ	ω

Accents, breathings, and iota subscript are written with ' ` ~ < > |; these can be combined as necessary. I provide just a few examples:

```
>e = ἐ
"~u = ῧ
<~w| = ᾧ
```

The original Greek encoding for LATEX took care of the letter sigma: when it occurred at the end of a word, it would automatically be transformed into a final sigma ς. After some hesitation, I decided not to follow this approach: there are too many cases where users might want a "normal" sigma even in front of a space or a punctuation mark. In order to obtain a final sigma, type "c."

ASCII input was common and useful in `mkii`; in `mkiv`, which expects Unicode input, it doesn't serve any purpose. Nevertheless, it can be convenient if you want just a few words in Greek, to use this convention (not all operating systems and all editors offer intuitive and ready methods of inputting Unicode Greek). For this case (and this case alone), the module offers a convenient shortcut: even in `mkiv`, you can use the command `\asciigreek{}`. It will convert your ASCII input on the fly into Unicode and process it with `mkiv`. This is a hack and is not meant for longer stretches of text. In particular, this conversion will not be able to process TEX commands within the `\asciigreek{}` group, so use at your own risk.