An essential guide to LaTeX 2ε usage

Obsolete commands and packages

Original German version[*]   English translation
by Mark Trettin[†]   by Jürgen Fenn[‡]

June 17, 2007

Abstract

This is the English version 1.8.5.7 of l2tabu, focusing on obsolete commands and packages, and demonstrating the most severe mistakes most LaTeX users are prone to make. You should read this guide if you want to improve on your LaTeX code.

Legal notice

Acknowledgements

Reading the German-language TeX newsgroup de.comp.text.tex one of us (Mark Trettin) found that most discussions were about obsolete or, say, 'bad' packages, and commands. So he decided to write a brief summary to supply a practical guide to LaTeX. His paper was called altepakete.pdf in the first place and soon it was praised by senior developers writing to the group. It is recommended for reading ever since. Later it was renamed by vote of participants in de.comp.text.tex to l2tabu, corresponding to l2kurz, the German title of lshort [12], and

---

[*] Based on the German version 1.8 of l2tabu.

[†] email: Mark.Trettin@gmx.de

[‡] email: juergen.fenn@gmx.de

1

the German translation of 'taboo'. This was about two years ago.[1] I (Jürgen Fenn) joined Mark later for translating his paper into English in order to help it spread to those users who do not speak German.

In this article we give a demonstration of the most common mistakes in using LaTeX. We also explain how to avoid them. This overview is neither meant to replace introductions such as lshort [12] nor the De-TeX-FAQ [8, version 72] nor the UK FAQ [3, version 3.16]. Our goal is just to give a small overview of how to write 'good' LaTeX 2_ε code.

More translations of this paper

Please note that besides the German original 'Das LaTeX 2_ε-Sündenregister oder Veraltete Befehle, Pakete und andere Fehler. Tipps zu LaTeX 2_ε' and this English version, there are more translations of this paper. They all can be found in the respective subdirectories at

CTAN:info/l2tabu/

So far l2tabu has been translated into English, French, and Italian.

How to get in touch with the authors

We are grateful for any suggestions, improvements, or comments. Please address your emails directly to the translator of the English[2], the French[3], or the Italian[4] version respectively.

Please tell us whether you have found l2tabu useful. We rely on your feedback for improving our guide.

Thanks to...

... Ralf Angeli, Christoph Bier, Christian Faulhammer, Jürgen Fenn, Ulrike Fischer, Yvon Henel, Yvonne Hoffmüller, David Kastrup, Markus Kohm, Thomas Lotze, Frank Mittelbach, Heiko Oberdiek, Walter Schmidt, Stefan Stoll, Knut Wenzig, Emanuele Zannarini, and Reinhard Zierke for tips, remarks, and corrections of the German original version.

Contributors to the English translation

Barbara Beeton, Karl Berry, Christoph Bier, Stephen Eglen, Klas Elmgren, Gernot Hassenpflug, Yvon Henel, Hendrik Maryns, Walter Schmidt, Maarten Sneep, Stefan Ulrich, José Carlos Santos, Knut Wenzig, Bruno Wöhrer, and Federico Zenith have contributed to the English version, making suggestions, or encouraging development.

If we have forgotten anyone please send an email to the maintainer of the respective language version.

---

1 altepakete was first announced on 18 February 2003 on de.comp.text.tex.

2 email: juergen.fenn@gmx.de. – Download of l2tabuen from: CTAN:info/l2tabu/english/

3 See the French translation l2tabufr by Yvon Henel at CTAN:info/l2tabu/french/

4 See the Italian translation l2tabuit by Emanuele Zannarini at CTAN:info/l2tabu/italian/

Contents

1 'Deadly sins' — The most severe mistakes in using LATEX 2ε

In this section we probably have gathered together the most severe mistakes that appear again and again in `de.comp.text.tex`, leaving regulars either with a flush of anger or weeping with tears in their eyes. `;-)`

1.1 *a4.sty*, *a4wide.sty*

Do not use these 'two' packages any longer. You should delete them without replacement from your LATEX source. Use the class option a4paper instead. Speaking in terms of typography these packages, or others similar to these do not provide good layout. What is even worse, there is more than one version of these packages around, and different versions of those packages are incompatible with one another, providing deviating settings for page margins. So you may not trust that your document will look the same — or just as bad? – when being compiled on someone else's system when exchanging LATEX source.
Replace: *a4.sty*, or *a4wide.sty* by class option a4paper

1.2 Modifying page layout

Page margins produced by the standard classes (*article.cls*, *report.cls*, *book.cls*) are often deemed too wide by European users printing on A4 paper. They should use the corresponding classes from the KOMA‑Script bundle instead (*scrartcl.cls*, *scrreprt.cls*, *scrbook.cls*). These classes have been made with a European point of view on typography in mind. You can also use *typearea.sty* which is part of KOMA‑Script with any other document class. The documentation included in the bundle provides some more information. Indeed, this very paper was typeset using *scrartcl.cls*.

If you really need to use page margins altogether different from the ones produced by *typearea.sty* use *geometry.sty*, or *vmargin.sty* because these packages provide reasonable proportions in setting page margins. Do not use \oddsidemargin or similar commands for modifying page layout.

Under no circumstances change \hoffset, or \voffset, unless you really understand what TEX is doing here.

1.3 Changing packages and document classes

Never modify LATEX class files (*e.g.*, *article.cls*, *scrbook.cls*) or packages (style files, *e.g.*, *varioref.sty*, *color.sty*) directly! If you do not want to make yourself a 'container class', or a `.sty` file of your own you should *copy* the class, or style files, edit *the copy*, and save it as a *different* file using a *different* file name.

On how to create container classes see the De-TeX-FAQ [8, question 5.1.5].

4

Note: Install any additional files, or packages in the local texmf tree in your $HOME directory. Otherwise these changes will be overwritten when upgrading your TEX distribution. Styles or packages you only need in one particular project or which you may want to hand on to someone you wish to share your project with may as well be saved in the current working directory. See the De-TeX-FAQ [8, question 5.1.4], or the UK FAQ [3, 'Installing LATEX files', section K, 'Where to put new files', question 90].

1.4 Changing inter-line space using `\baselinestretch`

As a rule of thumb, parameters should be set on the highest possible level within a user interface. So if you want to reset inter-line space you can do so on three levels:

1. Either by using the *setspace.sty* package;

2. or by using the LATEX command \linespread{<factor>};

3. or by redefining \baselinestretch.

Redefining parameters such as \baselinestretch works on the lowest LATEX level available — which should better be left to packages. The \linespread command is provided for this, so it is a better way to get more inter-line space than fiddling with \baselinestretch. It is even better, though, to use *setspace.sty* which also takes care of space in footnotes and list environments that you usually don't want to change when modifying inter-line space.

So if you just need some more spacing between lines, say, you would like to set spacing to one half or to double spacing, *setspace.sty* provides the easiest way to achieve this. However, if you only want to use fonts other than Computer Modern you may use \linespread{<factor>}. For example, when using Palatino \linespread{1.05} would be appropriate.

1.5 Paragraph indent and the spread between paragraphs (`\parindent`, `\parskip`)

It may make sense to change the indent of the first line in paragraphs (\parindent). However, if you do so, please note the following:

• Never use absolute sizes (*e.g.*, 'mm') to modify paragraph indent. Use sizes that depend on font size, such as 'em', for example. The latter does *not* mean that indent adapts automatically when changing the font size. Rather, the value that goes with the font currently activated is used.

• Always use LATEX commands. For example, this may make it easier to parse[5] a LATEX file through an external program, or script. Your code will be easier to maintain, too. So problems concerning compatibility with other packages can be avoided as well (*calc.sty*, for example).

 Replace: \parindent=1em by \setlength{\parindent}{1em}

---

5 That is to say, analyse syntactically, or split up.

In case you prefer some additional space between paragraphs to paragraph indent for marking the start of a new paragraph ('zero paragraph indent') do *not* use

```
\setlength{\parindent}{0pt}
\setlength{\parskip}{\baselineskip}
```

`\parskip` should not be used as it will also modify settings for list environments, table of contents, etc., and headings.

The *parskip.sty* package, however, as well as the KOMA-Script classes go to some lengths to avoid these side effects. On how to use these KOMA-Script class options (parskip, halfparskip, etc.) see scrguien [4]. When using one of the KOMA-Script classes you do *not* need to load *parskip.sty*.

1.6 Separating maths formulae from continuous text using `$$...$$`

Please don't do this! `$$...$$` is a Plain TeX command. It will modify vertical spacing within formulae, rendering them inconsistent. This is why it should be avoided in LaTeX (see section 3.3 on page 15; note the warning concerning `displaymath` along with the *amsmath.sty* package). What's more, class option fleqn won't work any more.

Replace: `$$...$$` by `\[...\]`

  or

```
\begin{displaymath}
...
\end{displaymath}
```

1.7 `\def` vs. `\newcommand`

Always use `\newcommand{\<name>}{...}` for defining macros.[6]

Never use `\def\<name>{...}`. The main problem with `\def` is that no check is done on whether there already exists another macro of the same name. So a macro defined earlier may be overwritten without any error warning.

Macros may be re-defined using `\renewcommand{\<name>}{...}`.

If you know *why* you need to use `\def` you will probably know about the pros and cons of this command. Then, you may as well ignore this subsection.

1.8 Should I use `\sloppy`?

Frankly speaking, the `\sloppy` switch should not be used at all. Most notably you shouldn't use it in the preamble of a document. If line breaks appear in single paragraphs you should

1. check whether the right hyphenation patterns, *e.g.*, *(n)german.sty*, and T1 fonts have been loaded (see De-TeX-FAQ [8, section 5.3]), or the UK FAQ [3, 'Hyphenation', section Q.7];

2. put your text in other words. You do not necessarily need to change the sentence the line break problem appears in. It may suffice to change the preceding, or the next sentence;

6 See [5, section 2.7.2], [7, section 3.4].

3. slightly change some parameters TEX uses for line-breaking, and page-breaking. Axel Reichert suggested the following solution[7] on de.comp.text.tex:[8]:

```
\tolerance 1414
\hbadness 1414
\emergencystretch 1.5em
\hfuzz 0.3pt
\widowpenalty=10000
\vfuzz \hfuzz
\raggedbottom
```

Note that warnings appearing with the above settings *really* should be taken seriously. You *should* consider putting your text in other words, then.

Only if this fails you may try to typeset the following paragraph more 'loosely' using the sloppypar environment.
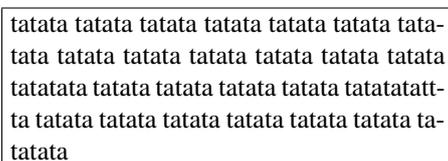
tatata tatata tatata tatata tatata tatata tata- tata tatata tatata tatata tatata tatata tatata tatatata tatata tatata tatata tatata tatatatatt- ta tatata tatata tatata tatata tatata tatata ta- tatata

Figure 1: *LATEX' s default settings*
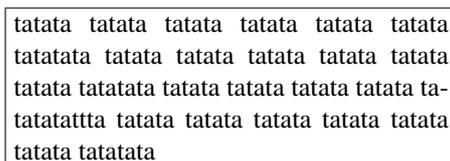
tatata tatata tatata tatata tatata tatata tatatata tatata tatata tatata tatata tatata tatata tatatata tatata tatata tatata tatata ta- tatatatttta tatata tatata tatata tatata tatata tatata tatatata

Figure 2: *This demonstrates the effect of* \sloppy

In figures 1 and 2 I have tried to show the effect of \sloppy. This also depends on the font employed. When using Times the negative effects of \sloppy do not show as extremely as with, say, Computer Modern. The effect in principle, however, should become clear.

In comp.text.tex Markus Kohm has posted an example that shows this effect even better. With his kind permission I quote his code appendix A on page 19.

2 Some obsolete commands and packages

Markus Kohm has written a Perl script you can test your files online with for the most common mistakes. See http://kohm.de.tf/markus/texidate.html. Please note, however, that this script is not a complete TEX parser. This is why it will only check for the most common mistakes. Please test your file first, then post for help to a newsgroup, or to a mailing list.

---

7 Of course you may change these values according to taste, but beware of fiddling with \emergencystretch. Otherwise you'll get quite sloppy justified text as you would get with a rather well-known text processor.

8 The posting may be found as Message-ID: <a84us0$plqcm$7@ID-30533.news.dfncis.de>

Table 1: *Commands for changing font style*

obsolete	Replacement in LATEX 2ε	
	local	global/switch
{\bf ...}	\textbf{...}	\bfseries
—	\emph{...}	\em[a]
{\it ...}	\textit{...}	\itshape
—	\textmd{...}	\mdseries
{\rm ...}	\textrm{...}	\rmfamily
{\sc ...}	\textsc{...}	\scshape
{\sf ...}	\textsf{...}	\sffamily
{\sl ...}	\textsl{...}	\slshape
{\tt ...}	\texttt{...}	\ttfamily
—	\textup{...}	\upshape

a May be useful when defining macros. In continuous text \emph{...} should be preferred to \em.

2.1 Commands

2.1.1 Changing font style

Table 1 shows obsolete and 'proper' commands in LATEX 2ε side by side for changing font style. Macros called 'local' only apply to their own argument whereas those called 'global/switch' will apply to all following text till the end of the document.

Why not use obsolete commands?   Obsolete commands do not support LATEX 2ε's new font selection scheme, or NFSS. {\bf foo}, for example, resets all font attributes which had been set earlier before it prints *foo* in bold face. This is why you cannot simply define a bold-italics style by {\it \bf Test} only. (This definition will produce: **Test**.) On the other hand, the new commands \textbf{\textit{Test}} will behave as expected producing: ***Test***. Apart from that, with the former commands there is no 'italic correction', cf. for instance *half*hearted ({\it half}hearted) to *half* hearted (\textit{half}hearted).

For an overview of NFSS see [6].

2.1.2 Mathematical fractions (**\over** vs. **\frac**)

Avoid the \over command. \over is a TEX command which due to the syntax differing from LATEX's is even more complicated to parse or which cannot be parsed at all. The *amsmath.sty* package redefines \frac{}{} which will result in error messages when using \over. Another point in favour of using \frac{}{} is that it is easier to fill in both the fraction's numerator and denominator, especially with more complex fractions.

Replace: $a \over b$ by $\frac{a}{b}$

2.1.3 Centering text using `\centerline`

The `\centerline` command is another TEX command you should not use. On the one hand `\centerline` is incompatible with some LATEX packages, such as *color.sty*. On the other hand the package may yield unexpected results. *E.g.*:

```
\begin{enumerate}
\item \centerline{An item}
\end{enumerate}
```

An item
1.
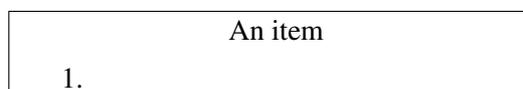
Replace: `\centerline{...}` by `{\centering ...}`

                                    or

```
\begin{center}
...
\end{center}
```

Note: On how to center graphics and tables see section 3.1 on page 14.

2.2 Class files and packages

2.2.1 *scrlettr.cls* vs. *scrlttr2.cls*

scrlettr.cls class from the KOMA‑Script bundle is obsolete. It was replaced by *scrlttr2.cls*. In order to produce a layout *similar* to the former KOMA‑Script letter class use class option KOMAold which provides a compatibility mode.

Replace: by
`\documentclass{scrlettr}` `\documentclass[KOMAold]{scrlttr2}`

Note: For new templates and letters use the new interface. It is definitely more flexible.

It is not possible to elaborate on the differences between the two user interfaces in this overview. See scrguien [4] for details.

2.2.2 *epsf.sty*, *psfig.sty*, *epsfig.sty* vs. *graphics.sty*, *graphicx.sty*

The *epsf.sty* and the *psfig.sty* packages have been replaced by *graphics.sty* and *graphicx.sty*. *epsfig.sty* is just a wrapper[9] for processing old documents which had been done using *psfig.sty* with the *graphicx.sty* package.

As *epsfig.sty* uses *graphicx.sty* internally *epsfig.sty* still *may* be used. You should not use it, though, for new documents. *graphics.sty* or *graphicx.sty* should be preferred, then. *epsfig.sty* is mainly provided for reasons of compatibility, as mentioned above.

For the differences between *graphics.sty*, and *graphicx.sty* see grfguide [2]. For hints on centering graphics see section 3.1 on page 14.

Replace: `\usepackage{psfig}`   by `\usepackage{graphicx}`
        `\psfig{file=image,...}` `\includegraphics[...]{image}`

---

9 A 'wrapper' here denotes a style file which itself loads another one or more style files, hence modelling functions.

2.2.3 *doublespace.sty* vs. *setspace.sty*

For changing inter-line space use the *setspace.sty* package. *doublespace.sty* is obsolete. It was replaced by *setspace.sty*. Cf. section 1.4 on page 5.
Replace: \usepackage{doublespace} by \usepackage{setspace}

2.2.4 *fancyheadings.sty*, *scrpage.sty* vs. *fancyhdr.sty*, *scrpage2.sty*

The *fancyheadings.sty* package was replaced by *fancyhdr.sty*. Another way to modify headings is provided by the *scrpage2.sty* package from the KOMA-Script bundle. Do not use *scrpage.sty* for it is obsolete. For documentation on *scrpage2.sty* see scrguien [4].
Replace: \usepackage{fancyheadings} by \usepackage{fancyhdr}
Replace: \usepackage{scrpage} by \usepackage{scrpage2}

2.2.5 The *caption.sty* family of packages

The *caption2.sty* package should no longer be used because there is a new version (v3.x) of *caption.sty*. Please make sure to use the latest version of this package by loading *caption.sty* like this:
Replace: \usepackage{caption} by \usepackage{caption}[2004/07/16]

   In case you used *caption2.sty* before, please have a look into the package documentation anleitung [13, section 8].

2.2.6 *isolatin.sty*, *umlaut.sty* vs. *inputenc.sty*

Some general notes: Basically there are four ways to input German *umlauts* and other non-ASCII characters:

1. H{\"u}lle: This will work on any given system anytime.

   The main disadvantages, however, are that kerning[10] between letters is disturbed badly; it is extremely complicated to input at least in a German-language text; and it is rather hard to read in source code.

   So this variant should *always* be avoided due to the problems as far as kerning is concerned.

2. With H\"ulle or H\"{u}lle the aforementioned problems as far as kerning is concerned do not appear. It can be used on every system, too.

   However it is just as tricky to input and to read the text as with the above variant.

   This variant does make sense, however, when defining macros or style files for it does not require a particular text file encoding nor any additional packages.

---

10 'Kerning' means including positive or negative space between characters depending on which characters are to be typeset.

3. With *(n)german.sty* or the (n)german option in *babel.sty* German *umlauts* can be input more easily (`H"ulle`). Again this will work on all systems. As both *babel.sty* and *(n)german.sty* are available on all TeX systems there should be no problems as far as compatibility is concerned.

   However, this again is tricky to input, and the source is comparatively hard to read.

   This variant is best for use in continuous text. But it should be avoided in macro definitions and in preambles.

4. Direct input (`Hülle`). The advantage of this variant is obvious. You can input and read the continuous source text just as any other 'normal' text.

   On the other hand you have to tell LaTeX which input encoding is used. There may also be problems when exchanging files between different systems. This is *not* a problem for TeX, or LaTeX itself, but it may cause *problems in displaying text in editors* on different systems. For example, a Euro currency symbol encoded in iso-8859-15 (latin9) may be *displayed* in an editor on a windows box (CP1252) as ¤ .

   This variant is quite good for continuous text. It should, however, be avoided in macro definitions and in preambles.

To sum it up, in macros, in preambles, and in style files `H\"ulle`, or `H\"{u}lle` should be used, while in the rest of the text you should either use `H"ulle`, or `Hülle`.

Input Encoding   Do *not* use the packages *isolatin1.sty*, *isolatin.sty*, or *umlaut.sty* for setting input encoding! Those packages are either obsolete, or they are not available on any given system.

   Use *inputenc.sty*. There are four options available:

latin1/latin9   for Unix-like systems (latin1 also works on MS Windows and Mac OS X)

ansinew   for MS Windows

applemac   for the Macintosh[11]

cp850   for OS/2

Replace: `\usepackage{isolatin1}` by `\usepackage[latin1]{inputenc}`
Replace: `\usepackage{umlaut}` by `\usepackage[latin1]{inputenc}`

---

11 latin1 encoding is recommended for OS X users, too, as it is better fit for exchanging files cross-platform than applemac. If you do so you should, however, check the encoding settings of your editor first. In the long run you might like to switch to unicode, but please note that unicode support in *inputenc.sty* still is a work in progress at this point of time. Some users say they are content with *ucs.sty* from the unicode package.

2.2.7 *t1enc.sty* vs. *fontenc.sty*

Generally speaking, the topic has been dealt with sufficiently in both the De-TeX-FAQ [8, questions 5.3.2, 5.3.3, 10.1.10], and the UK FAQ [3, 'Why use *fontenc* rather than *t1enc*', question 358]. So all that remains to be said is that *t1enc.sty* is obsolete and hence should be replaced by *fontenc.sty*.

Replace: \usepackage{t1enc} by \usepackage[T1]{fontenc}

2.2.8 *natdin.bst* vs. *dinat.bst*

Style file *natdin.bst* was replaced by *dinat.bst*.

Replace: \bibliographystyle{natdin} by \bibliographystyle{dinat}

2.3 Fonts

'Fonts and LATEX' is a troublesome topic. Most discussions in de.comp.text.tex start with the question why fonts display so 'fuzzy' in Adobe Acrobat® Reader. Most answers point to the *times.sty* or *pslatex.sty* packages. However, those packages use completely different sets of fonts.

For an overview of LATEX 2$_\varepsilon$'s New Font Selection Scheme, or NFSS see [6].

For making Computer Modern fonts display just fine in *acroread* see De-TeX-FAQ [8, question 9.2.3], or UK FAQ [3, 'The wrong type of fonts in PDF', question 114].

2.3.1 *times.sty*

times.sty is obsolete (see psnfss2e [10]). It does set \rmdefault to Times, \sfdefault to Helvetica, and \ttdefault to Courier. But it does *not* use the corresponding mathematical fonts. What's more, Helvetica is not scaled correctly which makes it appear too big in comparison. So if you want to use the combination Times/Helvetica/Courier you should use:

Replace: \usepackage{times} by \usepackage{mathptmx}
\usepackage[scaled=.90]{helvet}
\usepackage{courier}

Note. The scaling factor for *helvet.sty* together with Times should be somewhere between 0.90 and 0.92.

2.3.2 *mathptm.sty*

mathptm.sty is the predecessor to *mathptmx.sty*. So please use the latter for typesetting mathematical formulae in Times.

Replace: \usepackage{mathptm} by \usepackage{mathptmx}

2.3.3 *pslatex.sty*

pslatex.sty internally works like *mathptm.sty* + *helvet.sty* (scaled). However, it uses a Courier font scaled too narrowly. The main disadvantage in using *pslatex.sty* is that it does *not* work with T1 and TS1 encodings.

Replace: \usepackage{pslatex} by \usepackage{mathptmx}
\usepackage[scaled=.90]{helvet}
\usepackage{courier}

Note on Courier for all combinations of Times/Helvetica   You do not have to load *courier.sty* at all. You may use the usual cmtt font for typewriter faces.

2.3.4 *palatino.sty*

palatino.sty behaves like *times.sty* — apart from setting \rmdefault to Palatino, of course. *palatino.sty* is obsolete, too. This is why it should not be used any more.

Replace: \usepackage{palatino} by \usepackage{mathpazo}
\usepackage[scaled=.95]{helvet}
\usepackage{courier}

Note: Scaling factor for *helvet.sty* in combination with Palatino should be set to 0.95.

Helvetica is *not* the 'best' sans-serif font at all for use with Palatino. It rather is the best *freely-available* one. He that possesses a CorelDraw®-CD (this may well be an older version) can use Palatino quite well along with Frutiger[12], or Optima[13]. Walter Schmidt supplies adaptations for using some PostScript fonts with TeX on his homepage.[14]

2.3.5 *mathpple.sty*

This package was a predecessor to *mathpazo.sty*. It lacks some symbol fonts. So those fonts are taken from the Euler fonts instead. Some other symbols are not fit for use with Palatino as the font metrics are not correct. For details cf. psnfss2e [10].

2.3.6 Typesetting upright greek letters

The passages I have marked as red in the following are not obsolete in the sense of 'you should not use this any more', but now editing text is made much easier by *upgreek.sty*. For some more hints on usage please see the documentation upgreek [9].

---

12   Bitstream Humanist 777, bfr

13   Bitstream Zapf Humanist, bop

14   Fonts for TeX: http://home.vr-web.de/was/fonts

The *pifont.sty* tricks

Replace: by
```
\usepackage{pifont}
\newcommand{\uppi}{\Pisymbol{psy}{112}}
\uppi
```
`\usepackage{upgreek}`
`$\uppi$`

or
```
\newcommand[1]{\upgreek}{%
 \usefont{U}{psy}{m}{n}#1}
\upgreek{p}
```

The *babel.sty* trick

Replace: by
```
\usepackage[greek,...]{babel}
\newcommand[1]{\upgreek}{%
 \foreignlanguage{greek}{#1}}
\upgreek{p}
```
`\usepackage{upgreek}`
`$\uppi$`

2.3.7 *euler.sty* vs. *eulervm.sty*

Use *eulervm.sty* instead of *euler.sty* for mathematical typesetting. *eulervm.sty* is a LaTeX package for using the eulervm fonts. These are virtual math fonts based on both the Euler and the CM fonts. consuming less of TeX's resources and supplying some improved math symbols. Improved `\hslash` and `\hbar` are also supplied. Please see the package documentation eulervm [11] for details.

Replace: `\usepackage{euler}` by `\usepackage{eulervm}`

3 Miscellaneous

This section — apart from 3.2 on the next page — gives some more general advice than the 'deadly sins' section, pp. 4 ff.

3.1 Floats — 'figure', 'table'

For centering a float environment we recommend you use `\centering` instead of `\begin{center}` ... `\end{center}` because the latter will include an additional vertical skip you can do without in most cases.

Replace: `\begin{figure}`   by `\begin{figure}`
```
      \begin{center}              \centering
      \includegraphics{bild}      \includegraphics{bild}
      \end{center}                \end{figure}
      \end{figure}
```

Note: However, when centering a region within continuous text or within a `titlepage` environment this additional space may be welcome!

3.2 The appendix

The appendix is introduced by the \appendix *command*. Note that this is *not an environment*.
Replace: \begin{appendix} by \appendix
   \section{Blub}   \section{Blub}
   \end{appendix}

3.3 Mathematical typesetting

Generally speaking, you should use *amsmath.sty* for advanced mathematical typesetting, providing a number of new environments replacing eqnarray in the first place. The main advantages of the package are these:

- Spacing within and around environments is more consistent.

- Equation numbering will be placed in a way so that they will not be printed over any more.

- Some new environments, *e.g.*, split, provide a solution to split up long equations easily.

- It is easy to define new operators (similar to \sin, etc.) with proper spacing.

Warning: When using *amsmath.sty* you should *never* use the displaymath, eqnarray, or eqnarray* environments because those are not supported by *amsmath.sty*. Otherwise this would lead to inconsistent spacing.

 \[...\] is adapted correctly by *amsmath.sty*. So it may be used instead of displaymath. eqnarray, and eqnarray* may be replaced by align, or align*. For a complete overview of *amsmath.sty* see amsldoc [1].

Replace: \begin{eqnarray}   by \begin{align}
   a &=& b \\   a &= b \\
   b &=& c \\   b &= c \\
   a &=& c   a &= c
   \end{eqnarray}   \end{align}

3.4 How to use \graphicspath

There are several reasons why you should avoid the \graphicspath macro. Replace it by setting environment variable TEXINPUTS:[15]

1. There are *different* separators in path names on different platforms. While MS Windows and Unices both use a slash '/', a colon ':' was used on Macintosh systems before Mac OS X.

2. TEX search takes longer than with using the kpathsea library (with today's fast chips this is not as important an argument as it used to be).

---

15 Cf. David Carlisle's answer on Markus Kohm's 'Bug-Report' at
  http://www.latex-project.org/cgi-bin/ltxbugs2html?pr=latex/2618

3. TEX's memory is limited, and every picture uses part of this memory. What's more, memory is not cleared during the compiling process.

In a Bourne shell use

```
$ TEXINPUTS=PictureDir:$TEXINPUTS latex datei.tex
```

or add to `~/.profile`

```
export TEXINPUTS=./PictureDir:$TEXINPUTS
```

In the latter case the files in `PictureDir` will be found within the current working directory. Up to MS Windows 98 the environment variable is set by adding

```
set TEXINPUTS=.\PictureDir;%TEXINPUTS%
```

to your `autoexec.bat`. On MS Windows NT-based systems according to the 'Microsoft Knowledge Base' the variable can be set by rightclicking at My Computer → System Properties → Advanced → Environment variables.[16]

The above are only some suggestions on how to proceed. I am well aware that `TEXINPUTS` may be set in different ways. Please see the documentation of your operating system, or of your TEX distribution for more.

3.5 Language-specific macros — `\*name`

From time to time the question comes up in de.comp.text.tex how to modify, *e.g.*, the 'References' heading to 'Literaturliste' or to something else. So I have compiled those macros in table 2 on the following page. They have been taken from the *german.sty* package. Users who want to adapt macro output to other languages may as well refer to this table as an example.

So if you want to change the heading 'List of Figures' to, say, 'Pictures' you may use the following command:

```
\renewcommand*{\listfigurename}{Pictures}
```

The other macros are changed in the same way respectively. With *babel.sty* use the `\addto` macro. For more details see the De-TeX-FAQ [8].

---

16 On Windows 2000 you may use: Start → Settings → Control Panel → System.

Table 2: *Macros defined by (n)german.sty or by babel.sty with the (n)german option*

Name of macro	Original definition	Usual output in German
`\prefacename`	Preface	Vorwort
`\refname`[a]	References	Literatur
`\abstractname`	Abstract	Zusammenfassung
`\bibname`[b]	Bibliography	Literaturverzeichnis
`\chaptername`	Chapter	Kapitel
`\appendixname`	Appendix	Anhang
`\contentsname`	Contents	Inhaltsverzeichnis
`\listfigurename`	List of Figures	Abbildungsverzeichnis
`\listtablename`	List of Tables	Tabellenverzeichnis
`\indexname`	Index	Index
`\figurename`	Figure	Abbildung
`\tablename`	Table	Tabelle
`\partname`	Part	Teil
`\enclname`	encl	Anlage(n)
`\ccname`	cc	Verteiler
`\headtoname`	To	An
`\pagename`	Page	Seite
`\seename`	see	siehe
`\alsoname`	see also	siehe auch

a In `article` class only.

b In `report` and `book` classes only.

References

[1] AMERICAN MATHEMATICAL SOCIETY: *User's Guide for the* `amsmath` *Package*. December 1999, Version 2.0.
URL: CTAN:macros/latex/required/amslatex/.

[2] DAVID P. CARLISLE: *Packages in the 'graphics' bundle*. January 1999.
URL: CTAN:macros/latex/required/graphics/.

[3] ROBIN FAIRBAIRNS: *The UK TEX FAQ. Your 407 Questions Answered*. WWW, Version 3.16, 30 June 2006,
URL: http://www.tex.ac.uk/faq.

[4] MARKUS KOHM, FRANK NEUKAM und AXEL KIELHORN: *The KOMA-Script Bundle*. scrguien.
URL: CTAN:macros/latex/supported/koma-script/.

[5] THE LATEX3 PROJECT: LATEX 2ε *for class and package writers*. 1999.
URL: CTAN:macros/latex/doc/clsguide.pdf

[6] THE LATEX3 PROJECT: LATEX 2ε *font selection*. 2000.
URL: CTAN:macros/latex/doc/fntguide.pdf

[7] THE LATEX3 PROJECT: LATEX 2ε *for authors*. 2001.
URL: CTAN:macros/latex/doc/usrguide.pdf

[8] BERND RAICHLE, ROLF NIEPRASCHK und THOMAS HAFNER: *Fragen und Antworten (FAQ) über das Textsatzsystem TEX und DANTE, Deutschsprachige Anwendervereinigung TEX e.V.* WWW, Version 72. September 2003,
URL: http://www.dante.de/faq/de-tex-faq/.

[9] WALTER SCHMIDT: *The upgreek package for LATEX 2ε*. May 2001, Version 1.0.
URL: CTAN:macros/latex/contrib/supported/was/.

[10] WALTER SCHMIDT: *Using common PostScript fonts with LATEX*. April 2002, PSNFSS version 9.0.
URL: CTAN:macros/latex/required/psnfss/psnfss2e.pdf

[11] WALTER SCHMIDT: *The Euler Virtual Math Fonts for use with LATEX*. Januar 2004, Version 3.0a.
URL: CTAN:fonts/eulervm/

[12] WALTER SCHMIDT, JÖRG KNAPPEN, HUBERT PARTL und IRENE HYNA: *LATEX 2ε-Kurzbeschreibung*. April 1999, Version 2.1.
URL: CTAN:info/lshort/german/. English Translation available at
URL: CTAN:info/lshort/english/

[13] AXEL SOMMERFELD: *Setzen von Abbildungs- und Tabellenbeschriftungen mit dem caption-Paket*. Juli 2004, Version 3.0c.
URL: CTAN:macros/latex/contrib/caption/.

$* * *$

A An example illustrating the effect of the `\sloppy` command

This is the example Markus Kohm published earlier:

```
\documentclass{article}

\setlength{\textwidth}{20em}
\setlength{\parindent}{0pt}
\begin{document}
\typeout{First without \string\sloppy\space and underfull \string\hbox}

tatata tatata tatata tatata tatata tatata ta\-ta\-tata
tatata tatata tatata tatata tatata tatata tata\-tata
tatata tatata tatata tatata ta\-tatatatt\-ta
tatata tatata tatata tatata tatata tatata ta\-ta\-ta\-ta

\typeout{done.}

\sloppy
\typeout{Second with \string\sloppy\space and underfull \string\hbox}

tatata tatata tatata tatata tatata tatata ta\-ta\-tata
tatata tatata tatata tatata tatata tatata tata\-tata
tatata tatata tatata tatata ta\-tatatatt\-ta
tatata tatata tatata tatata tatata tatata ta\-ta\-ta\-ta

\typeout{done.}
\end{document}
```

From: Message-ID: <8557097.gEimXdBtjU@ID-107054.user.dfncis.de>

B GNU Free Documentation Licence

Version 1.2, November 2002
Copyright ©2000,2001,2002 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The purpose of this License is to make a manual, textbook, or other functional and useful document "free" in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondarily, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

1. APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The **"Document"**, below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as **"you"**. You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A **"Modified Version"** of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A **"Secondary Section"** is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The **"Invariant Sections"** are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The **"Cover Texts"** are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A **"Transparent"** copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called **"Opaque"**.

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The **"Title Page"** means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

A section **"Entitled XYZ"** means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as **"Acknowledgements"**, **"Dedications"**, **"Endorsements"**, or **"History"**.) To **"Preserve the Title"** of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

2. VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

3. COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

4. MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.

B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.

C. State on the Title page the name of the publisher of the Modified Version, as the publisher.

D. Preserve all the copyright notices of the Document.

E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.

F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.

G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.

H. Include an unaltered copy of this License.

I. Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.

J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.

K. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.

L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.

M. Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.

N. Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.

O. Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties — for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements".

6. COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

7. AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

8. TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

9. TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

10. FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in

spirit to the present version, but may differ in detail to address new problems or concerns. See http://www.gnu.org/copyleft/.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

> Copyright ©YEAR YOUR NAME. Permission is granted to copy, distribute and/or modify this document under the

terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with...Texts." line with this:

> with the Invariant Sections being LIST THEIR TITLES, with the Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.

C l2tabuen revision history

v1.8.5.7 Some minor changes by *Gernot Hassenpflug* to English typography and style.

v1.8.5.6 Adapted to the UK TEX FAQ v3.16.

v1.8.5.5 Minor fix in the section on `\graphicspath` as to the correct notation regarding Mac OS X. Thanks to *Stephen Eglen*. Adapted to the UK TEX FAQ v3.15a.

v1.8.5.4 Minor additions and changes in source code applied. Additions to the section on `\baselinestretch`. Thanks to *Karl Berry*.

v1.8.5.3 Adapted to the UK TEX FAQ v3.13b. *Legal Notice* modified again, hopefully for the benefit of Debian users and maintainers (*'There are no invariant sections in this document.'*).

v1.8.5.2 Legal notice modified.

v1.8.5.1 Some typos fixed in the section on 'graphicspath'. Thanks to *José Carlos Santos*.

v1.8.5 Adapted to the UK TEX FAQ v3.13.

v1.8.4 GNU FDL made applicable to l2tabuen. 'Revision history' added.

∗ ∗ ∗