Grzegorz 'Natror' Murzynowski

The gmdoc Package
i.e., gmdoc.sty and gmdocc.cls

August 2008

Contents

a. The gmdoc.sty Package[1]

August 6, 2008

This is (a documentation of) file gmdoc.sty, intended to be used with LaTeX 2ε as a package for documenting (La)TeX files and to be documented with itself.

Written by Natror (Grzegorz Murzynowski),
natror at o2 dot pl

Many thanks to my TeX Guru Marcin Woliński for his TeXnical support.

```
\ifnum\catcode`\@=11 % Why this test here—will come out in chapter The Driver.
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmdoc}
          [2008/08/06 v0.99l a documenting package (GM)]
\fi
```

Readme

This package is a tool for documenting of (La)TeX packages, classes etc., i.e., the .sty, .cls files etc. The author just writes the code and adds the commentary preceded with % sign (or another properly declared). No special environments are necessary.

The package tends to be (optionally) compatible with the standard doc.sty package, i.e., the .dtx files are also compilable with gmdoc (they may need very little adjustment, in some rather special cases).

The tools are integrated with hyperref's advantages such as hyperlinking of index entries, contents entries and cross-references.

The package also works with XeTeX (switches automatically).

Installation

Unpack the gmdoc-tds.zip archive (this is an archive conforming the TDS standard, see CTAN/tds/tds.pdf) in a texmf directory or put the gmdoc.sty, gmdocc.cls and gmoldcomm.sty somewhere in the texmf/tex/latex branch on your own. (Creating a texmf/tex/latex/gm directory may be advisable if you consider using other packages written by me. And you *have* to use four of them to make gmdoc work.)

You should also install gmverb.sty, gmutils.sty and gmiflink.sty (e.g., put them into the same gm directory). These packages are available on CTAN as separate .zip archives also in TDS-compliant zip archives.

[1] This file has version number v0.99l dated 2008/08/06.

Moreover, you should put the gmglo.ist file, a MakeIndex style for the changes' history, into some texmf/makeindex (sub)directory.

Then you should refresh your TEX distribution's files' database most probably.

Contents of the gmdoc.zip Archive

The distribution of the gmdoc package consists of the following five files and a TDS-compliant archive.

gmdoc.sty
gmdocc.cls
gmglo.ist
README
gmdoc.pdf
gmdoc.tds.zip

Compiling the Documentation

The last of the above files (the .pdf, i.e., *this file*) is a documentation compiled from the .sty and .cls files by running XELATEX on the gmdoc.sty twice (`xelatex gmdoc.sty` in the directory you wish the documentation to be in, you don't have copy the .sty file there, TEX will find it), then MakeIndex on the gmdoc.idx and gmdoc.glo files, and then XELATEX on gmdoc.sty once more. (Using LATEX instead of XELATEX should do, too.)

MakeIndex shell commands:

```
makeindex -r gmdoc
makeindex -r -s gmglo.ist -o gmdoc.gls gmdoc.glo
```

The `-r` switch is to forbid MakeIndex to make implicit ranges since the (code line) numbers will be hyperlinks.

Compiling the documentation requires the packages: gmdoc (gmdoc.sty and gmdocc.cls), gmutils.sty, gmverb.sty, gmiflink.sty and also some standard packages: hyperref.sty, xcolor.sty, geometry.sty, multicol.sty, lmodern.sty, fontenc.sty that should be installed on your computer by default.

If you had not installed the mwcls classes (available on CTAN and present in TEX Live e.g.), the result of your compilation might differ a bit from the .pdf provided in this .zip archive in formatting: If you had not installed mwcls, the standard article.cls class would be used.

Dependencies

The gmdoc bundle depends on some other packages of mine:

gmutils.sty,
gmverb.sty,
gmiflink.sty
gmeometric (for the driver of The LATEX 2_ε Source)

and also on some standard packages:

hyperref.sty,
color.sty,
geometry.sty,
multicol.sty,
lmodern.sty,
fontenc.sty

that should be installed on your computer by default.

Bonus: base Drivers

As a bonus and example of doc-compatibility there are driver files included (cf. Palestrina, *Missa papae Marcelli* ;-):

source2e_gmdoc.tex
docstrip_gmdoc.tex
doc_gmdoc.tex

gmoldcomm.sty
(gmsource2e.ist is generated from source2e_gmdoc.tex)

These drivers typeset the respective files from the

.../texmf-dist/source/latex/base

directory of the TEXLive2005 distribution (they only read that directory).

Probably you should redefine the `\BasePath` macro in them so that it points that directory on your computer.

Introduction

There are very sophisticated and effective tools for documenting LATEX macro packages, namely the doc package and the ltxdoc class. Why did I write another documenting package then?

I like comfort and doc is not comfortable enough for me. It requires special marking of the macro code to be properly typeset when documented. I want TEX to know 'itself' where the code begins and ends, without additional marks.

That's the difference. One more difference, more important for the people for whom the doc's conventions are acceptable, is that gmdoc makes use of hyperref advantages and makes a hyperlinking index and toc entries and the cross-references, too. (The css in the code maybe in the future.)

The rest is striving to level the very high doc/ltxdoc's standard, such as (optional) numbering of the codelines and authomatic indexing the control sequences e.g.

The doc package was and still is a great inspiration for me and I would like this humble package to be considered as a sort of hommage to it[2]. If I mention copying some code or narrative but do not state the source explicitly, I mean the doc package's documentation (I have v2.1b dated 2004/02/09).

The User Interface

Used Terms

When I write of a **macro**, I mean a macro in *The TEXbook*'s meaning, i.e., a control sequence whose meaning is `\(e/g/x)defined`. By a **macro's parameter** I mean each of #⟨*digit*⟩s in its definition. When I write about a **macro's argument**, I mean the value (list of tokens) subsituting the corresponding parameter of this macro. (These understandings are according to *The TEXbook*, I hope: TEX is a religion of Book ;-) .)

I'll use a shorthand for 'control sequence', **cs**.

When I talk of a **declaration**, I mean a macro that expands to a certain assignment, such as `\itshape` or `\@onlypreamble{`⟨*cs*⟩`}`.

Talking of declarations, I'll use the **ocsr** acronym as a shorthand for 'observes/ing common TEX scoping rules'.

[2] As Grieg's Piano Concerto is a hommage to the Schumann's.

By a **command** I mean a certain abstract visible to the end user as a cs but consisting possibly of more than one macro. I'll talk of a **command's argument** also in the 'sense -for-the-end-user', e.g., I'll talk of the `\verb` *command's* argument although *the macro* `\verb` has no #⟨*digit*⟩ in its definition.

The **code** to be typeset verbatim (and with all the bells and whistles) is everything that's not commented out in the source file and what is not a leading space(s).

The **commentary** or **narrative** is everything after the comment char till the end of a line. The **comment char** is a character the `\catcode` of which is 14 usually i.e., when the file works; if you don't play with the `\catcodes`, it's just the %. When the file is documented with gmdoc, such a char is re`\catcoded` and its rôle is else: it becomes the **code delimiter**.

A line containing any TEX code (not commented out) will be called a **codeline**. A line that begins with (some leading spaces and) a code delimiter will be called a **comment line** or **narration line**.

The **user** of this package will also be addressed as **you**.

Not to favour any particular gender (of the amazingly rich variety, I mean, not of the vulgarly simplified two-element set), in this documentation I use alternating pronouns
`\heshe` of third person (`\heshe` etc. commands provided by gmutils), so let one be not surprised if 'he' sees 'herself' altered in the same sentence :-) .

Preparing the Source File

When (LA)TEX with gmdoc.sty package loaded typesets the comment lines, the code delimiter is ommitted. If the comment continues a codeline, the code delimiter is printed. It's done so because ending a TEX code line with a % is just a concatenation with the next line sometimes. Comments longer than one line are typeset continuously with the code delimiters ommitted.

The user should just write his splendid code and brilliant commentary. In the latter she may use usual (LA)TEX commands. The only requirement is, if an argument is divided
`^^B` in two lines, to end such a dividing line with `^^B` sequence that'll enter the (active) ⟨*char2*⟩ which shall gobble the line end.

Moreover, if he wants to add a meta-comment i.e., a text that doesn't appear in the
`^^A` code layer nor in the narrative, she may use the `^^A` sequence that'll be read by TEX as ⟨*char1*⟩, which is in gmdoc active and defined to gobble the stuff between itself and the next line end.

Note that `^^A` behaves much like comment char although it's active in fact: it re`\catcodes` the special characters including \, { and } so you don't have to worry about unbalanced braces or `\ifs` in its scope. But `^^B` doesn't re`\catcode` anything (it would be useless in an argument) so any text between `^^B` and line end has to be balanced.

However, it may be a bit confusing for someone acquainted with the doc conventions. If you don't fancy the `^^B` special sequence, instead you may restore the standard mean-
`\StraightEOL` ing of the line end with the `\StraightEOL` declaration which OCSR. As almost all the control sequences, it may be used also as an environment, i.e., `\begin{StraightEOL}` … `\end{StraightEOL}`. However, if for any reason you don't want to make an envi-
`\QueerEOL` ronment (a group), there's a `\StraightEOL`'s counterpart, the `\QueerEOL` declaration that restores again the queer[3] gmdoc's meaning of the line end. It OCSR, too. One more point to use `\StraightEOL` is where you wish some code lines to be executed both

[3] In my understanding 'queer' and 'straight' are not the opposites excluding each other but the counterparts that may cooperate in harmony for people's good. And, as I try to show with the `\QueerEOL` and `\StraightEOL` declarations, 'queer' may be very useful and recommended while 'straight' is the standard but not necessarily normative.

while loading the file and during the documentation pass (it's analogous to doc's not embracing some code lines in a `macrocode` environment).

As in standard TEXing, one gets a paragraph by a blank line. Such a line should be %ed of course. A fully blank line is considered a blank *code line* and hence results in a vertical space in the documentation. As in the environments for poetry known to me, subsequent blank lines do not increase such a space.

Then he should prepare a main document file, a **driver** henceforth, to set all the required formattings such as `\documentclass`, paper size etc., and load this package with a standard command i.e., `\usepackage{gmdoc}`, just as doc's documentation says:

"If one is going to document a set of macros with the [gm]doc package one has to prepare a special driver file which produces the formatted document. This driver file has the following characteristics:

```
\documentclass[⟨options⟩]{⟨document-class⟩}
\usepackage[⟨options, probably none⟩]{gmdoc}
   ⟨preamble⟩
\begin{document}
   ⟨special input commands⟩
\end{document}
```
"

The Main Input Commands

\DocInput To typeset a source file you may use the `\DocInput` macro that takes the (path and) name of the file *with the extension* as the only argument, e.g., `\DocInput{%` `mybrilliantpackage.sty}`.

(Note that an *installed* package or class file is findable to TEX even if you don't specify the path.)

\OldDocInput If a source file is written with rather doc than gmdoc in mind, then the `\OldDocInput` command may be more appropriate (e.g., if you break the arguments of commands in the commentary in lines). It also takes the file (path and) name as the argument.

macrocode When using `\OldDocInput`, you have to wrap all the code in `macrocode` environments, which is not necessary when you use `\DocInput`. Moreover, with `\OldDocInput` the `macrocode(*)` environments require to be ended with `%  \end{macrocode(*)}` as in doc. (With `\DocInput` you are not obliged to precede `\end{macrocode(*)}` with The Four Spaces.)

\DocInclude If you wish to document many files in one document, you are provided `\DocInclude` command, analogous to LATEX's `\include` and very likely to ltxdoc's command of the same name. In gmdoc it has one mandatory argument that should be the file name *without extension*, just like for `\include`.

The file extensions supported by `\DocInclude` are .fdd, .dtx, .cls, .sty, .tex and .fd. The macro looks for one of those extensions in the order just given. If you need to document files of other extensions, please let me know and most probably we'll make it possible.

`\DocInclude` has also an optional first argument that is intended to be the path of the included file with the levels separated by / (slash) and also ended with a slash. The path given to `\DocInclude` as the first and optional argument will not appear in the headings nor in the footers.

\maketitle `\DocInclude` redefines `\maketitle` so that it makes a chapter heading or, in the classes that don't support `\chapter`, a part heading, in both cases with respective toc entries. The default assumption is that all the files have the same author(s) so there's no need to print them in the file heading. If you wish the authors names to

\PrintFilesAuthors be printed, you should write `\PrintFilesAuthors` in the preamble or before the rel-

evant \DocIncludes. If you wish to undeclare printing the authors names, there is
\SkipFilesAuthors \SkipFilesAuthors declaration.

Like in ltxdoc, the name of an included file appears in the footer of each page with date and version info (if they are provided).

The \DocIncluded files are numbered with the letters, the lowercase first, as in ltxdoc. Such a filemarker also precedes the index entries, if the (default) codeline index option is in force.

\includeonly As with \include, you may declare \includeonly{⟨*filenames separated by commas*⟩} for the draft versions.

If you want to put the driver into the same .sty or .cls file (see chapter 641 to see how), you may write \DocInput{\jobname.sty}, or \DocInclude{\jobname.sty},
\SelfInclude but there's also a shorthand for the latter \SelfInclude that takes no arguments. By the way, to avoid an infinite recursive input of .aux files in the case of self-inclusion an .auxx file is used instead of (main) .aux.

At the default settings, the \Doc/SelfIncluded files constitute chapters if \chapter is known and parts otherwise. The \maketitles of those files result in the respective headings.

If you prefer more ltxdocish look, in which the files always constitute the parts and those parts have a part's title pages with the file name and the files' \maketitles result
\ltxLookSetup in (article-like) titles not division headings, then you are provided the \ltxLookSetup declaration (allowed only in the preamble). However, even after this declaration the files will be included according to gmdoc's rules not necessarily to the doc's ones (i.e., with minimal marking necessary at the price of active line ends (therefore not allowed between a command and its argument nor inside an argument)).

On the other hand, if you like the look offered by me but you have the files prepared
\olddocIncludes for doc not for gmdoc, then you should declare \olddocIncludes. Unlike the previous one, this may be used anywhere, because I have the account of including both doc-like and gmdoc-like files into one document. This declaration just changes the internal input command and doesn't change the sectioning settings.

It seems possible that you wish to document the 'old-doc' files first and the 'new-doc'
\gmdocIncludes ones after, so the above declaration has its counterpart, \gmdocIncludes, that may be used anywhere, too. Before the respective \DocInclude(s), of course.

Both these declarations OCSR.

If you wish to document your files as with ltxdoc *and* as with doc, you should declare \ltxLookSetup in the preamble *and* \olddocIncludes.

Talking of analogies with ltxdoc, if you like only the page layout provided by that
\ltxPageLayout class, there is the \ltxPageLayout declaration (allowed only in preamble) that only changes the margins and the text width (it's intended to be used with the default paper size). This declaration is contained in the \ltxLookSetup declaration.

If you need to add something at the beginning of the input of file, there's the
\AtBegInput \AtBegInput declaration that takes one mandatory argument which is the stuff to be added. This declaration is global. It may be used more than one time and the arguments of each occurrence of it add up and are put at the beginning of input of every subsequent files.

\AtEndInput Simili modo, for the end of input, there's the \AtEndInput declaration, also one-argument, global and cumulative.

If you need to add something at the beginning of input of only one file, put before
\AtBegInputOnce the respective input command an \AtBegInputOnce{⟨*the stuff to be added*⟩} declaration. It's also global which means that the groups do not limit its scope but it adds its argument only at the first input succeding it (the argument gets wrapped in a macro that's \relaxed at the first use). \AtBegInputOnces add up, too.

\IndexInput One more input command is \IndexInput (the name and idea of effect comes from doc). It takes the same argument as \DocInput, the file's (path and) name with extension. (It *has* \DocInput inside). It works properly if the input file doesn't contain explicit ⟨*char1*⟩ (^^A is OK).

The effect of this command is typesetting of all the input file verbatim, with the code lines numbered and the CSS automatically indexed (gmdoc.sty options are in force).

Package Options

As many good packages, this also provides some options:

linesnotnum Due to best TEX documenting traditions the codelines will be numbered. But if the user doesn't wish that, she may turn it off with the linesnotnum option.

uresetlinecount However, if he agrees to have the lines numbered, she may wish to reset the counter of lines himself, e.g., when she documents many source files in one document. Then he may wish the line numbers to be reset with every {section}'s turn for instance. This is the rôle of the uresetlinecount option, which seems to be a bit obsolete however, since the \DocInclude command takes care of a proper reset.

countalllines Talking of line numbering further, a tradition seems to exist to number only the codelines and not to number the lines of commentary. That's the default behaviour of gmdoc but, if someone wants the comment lines to be numbered too, she is provided the countalllines option. [441] Then the narration acquires a bit biblical look ;-), [442] as shown in this short example. This option is intended [443] for the draft versions and it is not perfect (as if anything [444] in this package was). As you see, the lines [445] are typeset continuously with the numbers printed.

noindex By default the makeidx package is loaded and initialized and the CSS occurring in the code are automatically (hyper)indexed thanks to the hyperref package. If the user doesn't wish to index anything, she should use the noindex option.

pageindex The index comes two possible ways: with the line numbers (if the lines are numbered) and that's the default, or with the page numbers, if the pageindex option is set.

indexallmacros By default, gmdoc excludes some 300 CSS from being indexed. They are the most common CSS, LATEX internal macros and TEX primitives. To learn what CSS are excluded actually, see lines 1307–1407.

If you don't want all those exclusions, you may turn them off with the indexallmacros option.

If you have ambiguous feelings about whether to let the default exclusions or forbid them, see p. 15 to feed this ambiguity with a couple of declarations.

withmarginpar nomarginpar In doc package there's a default behaviour of putting marked macro's or environment's name to a marginpar. In the standard classes it's allright but not all the classes support marginpars. That is the reason why this package enables marginparing when in standard classes, enables or disables it due to the respective option when with Marcin Woliński's classes and in any case provides the options withmarginpar and nomarginpar. So, in non-standard classes the default behaviour is to disable marginpars. If the marginpars are enabled in gmdoc, it will put marked control sequences and environments into marginpars (see \TextUsage etc.). These options do not affect common using marginpars, which depends on the documentclass.

codespacesblank \CodeSpacesBlank My suggestion is to make the spaces in the code visible except the leading ones and that's the default. But if you wish all the code spaces to be blank, I give the option codespacesblank reluctantly. Moreover, if you wish the code spaces to be blank only in some areas, then there's \CodeSpacesBlank declaration (OCSR).

codespacesgrey Another space formatting option is codespacesgrey suggested by Will Robertson. It makes the spaces of code visible only not black but grey. The name of their colour

is codespacesgrey and by default it's defined as {gray}{.5}, you can change it with
\CodeSpacesGrey xcolor's \definecolor. There is also an OCSR declaration \CodeSpacesGrey.

The Packages Required

gmdoc requires (loads if they're not loaded yet) some other packages of mine, namely gmutils, gmverb, analogous to Frank Mittelbach's shortvrb, and gmiflink for conditional making of hyperlinks. It also requires hyperref, multicol, color and makeidx.

gmverb The gmverb package redefines the \verb command and the verbatim environment in such a way that , { and \ are breakable, the first with no 'hyphen' and the other two with the comment char as a hyphen, i.e., {⟨*subsequent text*⟩} breaks into {%
⟨*subsequent text*⟩} and ⟨*text*⟩\mylittlemacro breaks into ⟨*text*⟩%
\mylittlemacro.

As the standard LaTeX one, my \verb issues an error when a line end occurs in its
\verbeolOK scope. But, if you'd like to allow line ends in short verbatims, there's the \verbeolOK declaration. The plain \verb typesets spaces blank and \verb* makes them visible, as in the standard version(s).

\MakeShortVerb Moreover, gmverb provides the \MakeShortVerb declaration that takes a one-char control sequence as the only argument and turns the char used into a short verbatim delimiter, e.g., after

```
\MakeShortVerb*\|
```

(as you see, the declaration has the starred version, which is for visible spaces, and non-starred for blank spaces) to get \mylittlemacro you may type |\mylittlemacro| instead of \verb+\mylittlemacro+. Because the char used in the last example is my favourite and is used this way by DEK in *The TEXbook*'s format, gmverb provides a macro
\dekclubs \dekclubs that expands to the example displayed above.

Be careful because such active chars may interfere with other things, e.g., the | with the vertical line marker in tabulars and with the tikz package. If this happens, you can
\DeleteShortVerb declare e.g., \DeleteShortVerb\| and the previous meaning of the char used shall be restored.

One more difference between gmverb and shortvrb is that the chars \activeated by \MakeShortVerb, behave as if they were 'other' in math mode, so you may type e.g., $k|n$ to get $k|n$ etc.

gmutils The gmutils package provides a couple of macros similar to some basic (LA)TEX ones, rather strictly technical and (I hope) tricky, such as \afterfi, \ifnextcat, \addtomacro etc. It's this package that provides the macros for formatting of names of macros and files, such as \cs, \marg, \pk etc.

hyperref The gmdoc package uses a lot of hyperlinking possibilities provided by hyperref which is therefore probably the most important package required. The recommended situation is that the user loads hyperref package with his favourite options *before* loading gmdoc.

If she does not, gmdoc shall load it with *my* favourite options.

gmiflink To avoid an error if a (hyper)referenced label does not exist, gmdoc uses the gmiflink package. It works e.g., in the index when the codeline numbers have been changed: then they are still typeset, only not as hyperlinks but as a common text.

To typeset the index and the change history in balanced columns gmdoc uses the
multicol multicol package that seems to be standard these days.

color Also the multicol package, required to define the default colour of the hyperlinks, seems to be standard already, and makeidx.

Automatic marking of definitions

gmdoc implements automatic detection of a couple of definitions. By default it detects all occurrences of the following commands in the code:

1. `\def`, `\newcount`, `\newdimen`, `\newskip`, `\newif`, `\newtoks`, `\newbox`, `\newread`, `\newwrite`, `\newlength`, `\newcommand(*)`, `\renewcommand(*)`, `\providecommand(*)`, `\DeclareRobustCommand(*)`, `\DeclareTextCommand(*)`, `\DeclareTextCommandDefault(*)`,
2. `\newenvironment(*)`, `\renewenvironment(*)`, `\DeclareOption(*)`,
3. `\newcounter`,

of the xkeyval package:

4. `\define@key`, `\define@boolkey`, `\define@choicekey`, `\DeclareOptionX`,

and of the kvoptions package:

5. `\DeclareStringOption`, `\DeclareBoolOption`, `\DeclareComplementaryOption`, `\DeclareVoidOption`.

What does 'detects' mean? It means that the main argument of detected command will be marked as defined at this point, i.e. thrown to a margin note and indexed with a 'definition' entry. Moreover, for the definitions 3–5 an alternate index entries will be created: of the css uderlying those definitions, e.g. `\newcounter{foo}` in the code will result in indexing `foo` and `\c@foo`.

`\DeclareDefining` If you want to add detection of a defining command not listed above, use the `\DeclareDefining` declaration. It comes in two flavours: 'sauté' and with star. The 'sauté' version (without star and without an optional argument) declares a defining command of the kind of `\def` and `\newcommand`: its main argument, whether wrapped in braces or not, is a cs. The starred version (without the optional argument) declares a defining command of the kind of `\newenvironment` and `\DeclareOption`: whose main mandatory argument is text. Both versions provide an optional argument in which you can set the keys.

`type` Probably the most important key is `type`. Its default value is `cs` and that is set in the 'sauté' version. Another possible value is `text` and that is set in the starred version. You can also set three other types (any keyval setting of the type overrides the default and 'starred' setting): `dk`, `dox` or `kvo`.

`dk` stands for `\define@key` and is the type of xkeyval definitions of keys (group 4 commands). When detected, it scans furher code for an optional `[`⟨*KVprefix*⟩`]`, mandatory `{`⟨*KVfamily*⟩`}` and mandatory `{`⟨*key name*⟩`}`. The default ⟨*KVprefix*⟩ is `KV`, as in xkeyval.

`dox` stands for `\DeclareOptionX` and launches scanning for an optional `[`⟨*KVprefix*⟩`]`, optional `<`⟨*KVfamily*⟩`>` and mandatory `{`⟨*option name*⟩`}`. Here the default ⟨*KVprefix*⟩ is also `KV` and the default ⟨*KVfamily*⟩ is the input file name. If you want to set another default family (e.g. if the code of foo.sty actually is in file bar.dtx), use `\DeclareDOXHead` `\DeclareDOXHead{`⟨*KVfamily*⟩`}`. This declaration has an optional first argument that is the default ⟨*KVprefix*⟩ for `\DeclareOptionX` definitions.

`kvo` stands for the kvoptions package by Heiko Oberdiek. This package provides a handful of option defining commands (the group 5 commands). Detection of such a command launches a scan for mandatory `{`⟨*option name*⟩`}` and alternate indexing of a cs `\`⟨*KVOfamily*⟩`@`⟨*optionname*⟩. The default ⟨*KVOfamily*⟩ is the input file name. Again, `\DeclareKVOFam` if you want to set something else, you are given the `\DeclareKVOFam{`⟨*KVOfamily*⟩`}` that sets the default family (and prefix: ⟨*KVOfamily*⟩`@`) for all the commands of group 5.

`star` Next key recognized by `\DeclareDefining` is `star`. It determines whether the starred version of a defining command should be taken into account. For example, `\newcommand` should be declared with `[star=true]` while `\def` with `[star=false]`. You can also write just `[star]` instead of `[star=true]`. It's the default if the `star` key is omitted.

KVpref
KVfam

There are also `KVpref` and `KVfam` keys if you want to redeclare the xkeyval definitions with another default prefix and family.

For example, if you wish `\@namedef` to be detected (the original LaTeX version), declare

```
\DeclareDefining*[star=false]\@namedef
```

or

```
\DeclareDefining[type=text,star=false]\@namedef
```

(as stated above, `*` is equivalent `[type=text]`).

\HideDefining
\ResumeDefining

On the other hand, if you want some of the commands listed above *not* to be detected, write `\HideDefining`⟨*command*⟩ in the commentary. Later you can resume detection of it with `\ResumeDefining`⟨*command*⟩.

\HideAllDefining
\ResumeAllDefining

If you wish to turn entire detection mechanism off, write `\HideAllDefining` in the narration layer. Then you can resume detection with `\ResumeAllDefining`.

The basic definition command, `\def`, seems to me a bit controversial. Definitely *not always* it defines important macros. But first of all, if you `\def` a cs excluded from indexing (see section Index Ex/Inclusions), it will not be marked even if detection of `\def` is on. But if the `\def`'s argument is not excluded from indexing and you still don't want it to be marked at this point, in the commentary before this `\def` write `\UnDef`. That will turn off the detection just for this one occurrence of `\def`.

\UnDef

If you don't like `\def` to be detected more times, you may write `\HideDefining\def` of course, but there's a shorthand for this: `\HideDef`. To resume detection of `\def` you are provided also a shorthand, `\ResumeDef` (but `\ResumeDefining\def` also works).

\HideDef
\ResumeDef

If you define things not with easily detectable commands, you can mark them 'manually', with the `\Define` declaration described in the next section.

Manual Marking the Macros and Environments

The concept (taken from doc) is to index virtually all the control sequences occurring in the code. gmdoc does that by default and needs no special command. (See below about exluding some macros from being indexed.)

The next concept (also taken from doc) is to ditinguish some occurrences of some control sequences by putting such a sequence into a marginpar and by special formatting of its index entry. That is what I call marking the macros. gmdoc provides also a possibility of analogous marking for the environments' names and other sequences such as `^^A`.

This package provides two kinds of special formatting of the index entries: 'usage', with the reference number italic by default, and 'def' (in doc called 'main'), with the reference number roman (upright) and underlined by default. All the reference numbers, also those with no special formatting, are made hyperlinks to the page or the codeline according to the respective indexing option (see p. 10).

The macros and environments to be marked appear either in the code or in the commentary. But all the definitions appear in the code, I suppose. Therefore the 'def' marking macro is provided only for the code case. So we have the `\Define`, `\CodeUsage` and `\TextUsage` commands.

\Define
\CodeUsage
\TextUsage

All three take one argument and all three may be starred. The non-starred versions are intended to take a control sequence as the argument and the starred to take whatever (an environment name or a `^^A`-like and also a cs).

\MakePrivateLetters

You don't have to bother whether `@` is a letter while documenting because even if not, these commands do make it a letter, or more precisely, they execute `\MakePrivateLetters` whatever it does: At the default settings this command makes `*` a letter, too, so a starred version of a command is a proper argument to any of the three commands unstarred.

The \Define and \CodeUsage commands, if unstarred, mark the next scanned occurrence of their argument in the code. (By 'scanned occurrence' I mean a situation of the cs having been scanned in the code which happens iff its name was preceded by the char declared as \CodeEscapeChar). The starred versions of those commands mark just the next codeline and don't make TEX looks for the scanned occurrence of their argument (which would never happen if the argument is not a cs). Therefore, if you want to mark a definition of an environment foo, you should put

```
%\Define*{foo}
```

right before the code line

```
\newenvironment{foo}{%
```

i.e., not separated by another code line. The starred versions of the \Code... commands are also intended to mark implicit definitions of macros, e.g., \Define*\@foofalse before the line

```
\newif\if@foo.
```

They both are \outer to dicourage their use inside macros because they actually re\catcode before taking their arguments.

The \TextUsage (one-argument) command is intended to mark usage of a verbatim occurrence of a TEX object in the commentary. Unlike \CodeUsage or \Define, it typesets its argument which means among others that the marginpar appears usually at the same line as the text you wanted to mark. This command also has the starred version primarily intended for the environments names, and secondarily for ^^A-likes and css, too. Currently, the most important difference is that the unstarred version executes \MakePrivateLetters while the starred does both \MakePrivateLetters and \MakePrivateOthers before reading the argument.

If you consider the marginpars a sort of sub(sub...)section marks, then you may wish to have a command that makes a marginpar of the desired cs (or whatever) at the beginning of its description, which may be fairly far from the first occurrence of its object.

\Describe Then you have the \Describe command which puts its argument in a marginpar and indexes it as a 'usage' entry but doesn't print it in the text. It's \outer.

All four commands just described put their (\stringed) argument into a marginpar (if the marginpars are enabled) and create an index entry (if indexing is enabled).

But what if you want just to make a marginpar with macro's or environment's name?

\CodeMarginize Then you have \CodeMarginize to declare what to put into a marginpar in the TEX code

\TextMarginize (it's \outer) and \TextMarginize to do so in the commentary. According to the spirit of this part of the interface, these commands also take one argument and have their starred versions for strings other than control sequences.

The marginpars (if enabled) are 'reverse' i.e., at the left margin, and their contents is

\marginpartt flush right and typeset in a font declared with \marginpartt. By default, this declaration is \let to \tt but it may be advisable to choose a condensed font if there is any. Such a choice is made by gmdocc.cls if the Latin Modern fonts are available: in this case gmdocc.cls uses Latin Modern Typewriter Light Condensed.

If you need to put something in a marginpar without making it typewriter font,

\gmdmarginpar there's the \gmdmarginpar macro (that takes one and mandatory argument) that only flushes its contents right.

On the other hand, if you don't want to put a cs (or another verbatim text) in

\DefIndex a marginpar but only to index it, then there are \DefIndex and \CodeUsgIndex to de-

\CodeUsgIndex clare special formatting of an entry. The unstarred versions of these commands look for their argument's scanned occurrence in the code (the argument should be a cs), and the starred ones just take the next code line as the reference point. Both these commands are \outer.

In the code all the control sequences (except the excluded ones, see below) are indexed by default so no explicit command is needed for that. But the environments and other special sequences are not and the two commands described above in their *ed versions contain the command for indexing their argument. But what if you wish to index a not scanned stuff as a usual entry? The `\CodeCommonIndex*` comes in rescue, starred for the symmetry with the two previous commands (without * it just gobbles it's argument—it's indexed automatically anyway). It's `\outer`.

\CodeCommonIndex*

Similarly, to index a TEX object occurring verbatim in the narrative, you have `\TextUsgIndex` and `\TextCommonIndex` commands with their starless versions for a cs argument and the starred for all kinds of the argument.

\TextUsgIndex
\TextCommonIndex

Moreover, as in doc, the `macro` and `environment` environments are provided. Both take one argument that should be a cs for `macro` and 'whatever' for `environment`. Both add the `\MacroTopsep` glue before and after their contents, and put their argument in a marginpar at the first line of their contents (since it's done with `\strut`, you should not put any blank line (%ed or not) between `\begin{macro/environment}` and the first line of the contents). Then `macro` commands the first scanned occurrence of its argument to be indexed as 'def' entry and `environment` commands TEX to index the argument as if it occurred in the next code line (also as 'def' entry).

macro
environment

Since it's possible that you define a cs implicitly i.e., in such a way that it cannot be scanned in the definition (with `\csname...\endcsname` e.g.) and wrapping such a definition (and description) in an `environment` environment would look misguidedly ugly, there's the `macro*` environment which TEXnically is just an alias for `environment`.

(To be honest, if you give a `macro` environment a non-cs argument, it will accept it and then it'll work as `evironment`.)

Index Ex/Inclusions

It's understandable[4] that you don't want some control sequences to be indexed in your documentation. The doc package gives a brilliant solution: the `\DoNotIndex` declaration. So do I (although here, TEXnically it's done another way). It ocsr. This declaration takes one argument consisting of a list of control sequences not to be indexed. The items of this list may be separated with commas, as in doc, but it's not obligatory. The whole list should come in curly braces (except when it's one-element), e.g.,

\DoNotIndex

```
\DoNotIndex{\some@macros,\are* \too\auxiliary\?}
```

(The spaces after the control sequences are ignored.) You may use as many `\DoNotIndex`es as you wish (about half as many as many css may be declared, because for each cs excluded from indexing a special cs is declared that stores the ban sentence). Excluding the same cs more than once makes no problem.

I assume you wish most of LATEX macros, TEX primitives etc. to be excluded from your index (as I do). Therefore gmdoc excludes some 300 css by default. If you don't like it, just set the `indexallmacros` package option.

On the third hand, if you like the default exclusions in general but wish to undo just a couple of them, you are given `\DoIndex` declaration (ocsr) that removes a ban on all the css given in the argument, e.g.,

\DoIndex

```
\DoIndex{\par \@@par \endgraf}
```

Moreover, you are provided the `\DefaultIndexExclusions` and `\UndoDefaultIndexExclusions` declarations that act according to their names. You may use them in any configuration with the `indexallmacros` option. Both of these declarations ocsr.

\DefaultIndexExclusions
\UndoDefaultIndexExclusions

[4] After reading doc's documentation ;-) .

The DocStrip Directives

gmdoc typesets the DocStrip directives and it does it quite likely as doc, i.e., with math sans serif font. It does it automatically whether you use the traditional settings or the new.

Advised by my TEX Guru, I didn't implement the module nesting recognition (MW told it's not that important.)

So far verbatim mode directive is only half-handled. That is, a line beginning with %<<⟨*END-TAG*⟩ will be typeset as a DocStrip directive, but the closing line %⟨*END-TAG*⟩ will be not. It doesn't seem to be hard to implement, if I only receive some message it's really useful for someone.

The Changes History

The doc's documentation reads:

"To maintain a change history within the file, the `\changes` command may be placed amongst the description part of the changed code. It takes three arguments, thus:

`\changes{`⟨*version*⟩`}{`⟨*YYYY/MM/DD date*⟩`}{`⟨*text*⟩`}`

The changes may be used to produce an auxiliary file (LATEX's `\glossary` mechanism is used for this) which may be printed after suitable formatting. The `\changes` [command] encloses the ⟨*date*⟩ in parentheses and appends the ⟨*text*⟩ to form the printed entry in such a change history [… obsolete remark ommitted].

`\RecordChanges` To cause the change information to be written out, include `\RecordChanges` in the driver['s preamble or just in the source file (gmdocc.cls does it for you)]. To read in `\PrintChanges` and print the sorted change history (in two columns), just put the `\PrintChanges` command as the last (commented-out, and thus executed during the documentation pass through the file) command in your package file [or in the driver]. Alternatively, this command may form one of the arguments of the `\StopEventually` command, although a change history is probably not required if only the description is being printed. The command assumes that MakeIndex or some other program has processed the .glo file to generate a sorted .gls file. You need a special MakeIndex style file; a suitable one `\GlossaryMin` is supplied with doc [and gmdoc], called [… **gmglo.ist** for gmdoc]. The `\GlossaryMin`, `\GlossaryPrologue` `\GlossaryPrologue` and `\GlossaryParms` macros are analagous to the `\Index...` `\GlossaryParms` versions [see sec. The Parameters p. 19]. (The LATEX 'glossary' mechanism is used for the change entries.)"

In gmdoc (unless you turn definitions detection off), you can put `\changes` after the line of definition of a command to set the default argument of `\changes` to that command. For example,

```
\newcommand*\dodecaphonic{...}
% \changes{v0.99e}{2007/04/29}{renamed from \cs{DodecaPhonic}}
```

results with a history (sub)entry:

v0.99e
(…)
`\dodecaphonic`:
renamed from `\DodecaPhonic`, *16*

Such a setting is in force till the next definition and *every* detected definition resets it. In gmdoc `\changes` is `\outer`.

As mentioned in the introduction, the glossary, the changes history that is, uses a special MakeIndex style, gmglo.ist. This style declares another set of the control chars but you don't have to worry: `\changes` takes care of setting them properly. To be pre- `\MakeGlossaryControls` cise, `\changes` executes `\MakeGlossaryControls` that is defined as

```
\def\actualchar{=} \def\quotechar{!}%
\def\levelchar{>} \edef\encapchar{\xiiclub}
```

Only if you want to add a control character yourself in a changes entry, to quote some char, that is (using level or encapsulation chars is not recommended since `\changes` uses them itself), use rather `\quotechar`.

Before writing an entry to the .glo file, `\changes` checks if the date (the second mandatory = the third argument) is later than the date stored in the counter `ChangesStartDate`. You may set this counter with a

ChangesStartDate
\ChangesStart

`\ChangesStart{`⟨*version*⟩`}{`⟨*year*⟩`/`⟨*month*⟩`/`⟨*day*⟩`}`

declaration.

If the `ChangesStartDate` is set to a date contemporary to TEX i.e., not earlier than September 1982[5], then a note shall appear at the beginning of the changes history that informs the reader of ommitting the earlier changes entries.

If the date stored in `ChangesStartDate` is earlier than TEX, no notification of ommitting shall be printed. This is intended for a rather tricky usage of the changes start date feature: you may establish two threads of the changes history: the one for the users, dated with four digit year, and the other for yourself only, dated with two or three digit year. If you declare

`\ChangesStart{`⟨*version?*⟩`}{1000/00/00}`

or so, the changes entries dated with less-than-four digit year shall be ommitted and no notification shall be issued of that.

While scanning the css in the code, gmdoc counts them and prints the information about their number on the terminal and in .log. Moreover, you may declare

\CheckSum

`\CheckSum{`⟨*number*⟩`}` before the code and TEX will inform you whether the number stated by you is correct or not, and what it is. As you guess, it's not my original idea but I took it from doc.

There it is provided as a tool for testing whether the file is corrupted. My TEX Guru says it's a bit old-fashioned nowadays but I like the idea and use it to document the file's growth. For this purpose gmdoc types out lines like

```
% \chschange{vo.98j}{2006/10/19}{4372}
% \chschange{vo.98j}{06/10/19}{4372}
```

and you may place them at the beginning of the source file. Such a line results in setting the check sum to the number contained in the last pair of braces and in making a 'general' changes entry that states the check sum for version ⟨*first brace*⟩ dated ⟨*second brace*⟩ was ⟨*third brace*⟩.

The Parameters

The gmdoc package provides some parameters specific to typesetting the TEX code:

\stanzaskip

`\stanzaskip` is a vertical space inserted when a blank (code) line is met. It's equal `0.75\medskipamount` by default (with the *entire* `\medskipamount`'s stretch- and shrinkability). Subsequent blank code lines do not increase this space.

At the points where narration begins a new line after the code or an inline comment and where a new code line begins after the narration (that is not an inline comment),

\CodeTopsep

a `\CodeTopsep` glue is added. At the beginning and the end of a `macro` or `environment` environment a `\MacroTopsep` glue is added. By default, these two skips are set equal `\stanzaskip`.

The `\stanzaskip`'s value is assigned also to the display skips and to `\topsep`. This

\UniformSkips

is done with the `\UniformSkips` declaration executed by default. If you want to change

[5] DEK in *TEX The Program* mentions that month as of TEX Version 0 release.

\NonUniformSkips some of those values, you should declare \NonUniformSkips in the preamble to discard the default declaration. (To be more precise, by default \UniformSkips is executed twice: when loading gmdoc and again \AtBeginDocument to allow you to change \stanzaskip and have the other glues set due to it. \NonUniformSkips relaxes the \UniformSkips's occurrence at \begin{document}.)

If you want to add a vertical space of \CodeTopsep (equal by default \stanzaskip),
\stanza you are provided the \stanza command. Similarly, if you want to add a vertical space of the \MacroTopsep amount (by default also equal \stanzaskip), you are given the
\chunkskip \chunkskip command. They both act analogously to \addvspace i.e., don't add two consecutive glues but put the bigger of them.

Since \CodeTopsep glue is inserted automatically at each transition from the code (or code with an inline comment) to the narration and reverse, it may happen that you
\nostanza want not to add such a glue exceptionally. Then there's the \nostanza command.

\CodeIndent The TEX code is indented with the \CodeIndent glue and a leading space increases indentation of the line by its (space's) width. The default value of \CodeIndent is 1.5 em.

\TextIndent There's also a parameter for the indent of the narration, \TextIndent, but you should use it only in emergency (otherwise what would be the margins for?). It's 0 sp by default.

By default, the end of a \DocInput file is marked with
'
□'
\EOFMark given by the \EOFMark macro.

\everyeof If you do use the ε-TEX's primitive \everyeof, be sure the contents of it begins with \relax because it's the token that stops the main macro scanning the code.

The crucial concept of gmdoc is to use the line end character as a verbatim group opener and the comment char, usually the %, as its delimiter. Therefore the 'knowledge' what char starts a commentary is for this package crucial and utterly important. The default assumption is that you use % as we all do. So, if you use another character, then
\CodeDelim you should declare it with \CodeDelim typing the desired char preceded by a backslash, e.g., \CodeDelim\&. (As just mentioned implicitly,
\CodeDelim\% is declared by deafult.)

This declaration is always global so when- and wherever you change your mind you should express it with a new \CodeDelim declaration.

The starred version of \CodeDelim changes also the verb 'hyphen', the char appearing at the verbatim line breaks that is.

Talking of special chars, the escape char, \ by default, is also very important for this package as it marks control sequences and allows automatic indexing them for instance. Therefore, if you for any reason choose another than \ character to be the escape char,
\CodeEscapeChar you should tell gmdoc about it with the \CodeEscapeChar declaration. As the previous one, this too takes its argument preceded by a backslash, e.g., \CodeEscapeChar\!. (As you may deduct from the above, \CodeEscapeChar\\ is declared by default.)

The tradition is that in the packages @ char is a letter i.e., of catcode 11. Frank Mittelbach in doc takes into account a possibility that a user wishes some other chars to be
\MakePrivateLetters letters, too, and therefore he (F.M.) provides the \MakePrivateLetters macro. So do I and like in doc, this macro makes @ sign a letter. It also makes * a letter in order to cover the starred versions of commands.

\AddtoPrivateOthers Analogously but for a slightly different purpose, the \AddtoPrivateOthers macro is provided here. It adds its argument, which is supposed to be a one-char cs, to the \doprivateothers list, whose rôle is to allow some special chars to appear in the marking commands' arguments (the commands described in section Macros for Marking the Macros). The default contents of this list is (the space) and ^ so you may mark the environments names and special sequences like ^^A safely. This list is also extended

with every char that is \MakeShortVerbed. (I don't see a need of removing chars from this list, but if you do, please let me know.)

\LineNumFont The line numbers (if enabled) are typeset in the \LineNumFont declaration's scope, which is defined as {\normalfont\tiny} by default. Let us also remember, that for each counter there is a \the⟨*counter*⟩ macro available. The counter for the line numbers codelinenum is called codelinenum so the macro printing it is \thecodelinenum. By default we don't change its LaTeX's definition which is equivalent \arabic{codelinenum}.

\IndexPrefix Three more parameter macros, are \IndexPrefix, \EntryPrefix and \HLPrefix.
\EntryPrefix All three are provided with the account of including multiple files in one document.
\HLPrefix They are equal (almost) \@empty by default. The first may store main level index entry of which all indexed macros and environments would be subentries, e.g., the name of the package. The third may or even should store a text to distinguish equal codeline numbers of distinct source files. It may be the file name too, of course. The second macro is intended for another concept, namely the one from ltxdoc class, to distinguish the codeline numbers from different files *in the index* by the file marker. Anyway, if you document just one file per document, there's no need of redefining those macros, nor when you input multiple files with \DocInclude.

gmdoc automatically indexes the control sequences occurring in the code. Their index entries may be 'common' or distinguished in two (more) ways. The concept is to distinguish the entries indicating the *usage* of the cs and the entries indicating the *definition* of the cs.

\UsgEntry The special formattings of 'usage' and 'def' index entries are determined by \UsgEntry
\DefEntry and \DefEntry one-parameter macros (the parameter shall be substituted with the reference number) and by default are defined as \textit and \underline respectively (as in doc).

\CommonEntryCmd There's one more parameter macro, \CommonEntryCmd that stores the name of the encapsulation for the 'common' index entries (not special) i.e., a word that'll become a cs that will be put before an entry in the .ind file. By default it's defined as {\% relax} and a nontrivial use of it you may see in the source of chapter 641, where \def\% \CommonEntryCmd{UsgEntry} makes all the index entries of the driver formatted as 'usage'.

The index comes in a multicols environment whose columns number is deter-
IndexColumns mined by the IndexColumns counter set by default to 3. To save space, the index begins
\IndexMin at the same page as the previous text provided there is at least \IndexMin of the page height free. By default, \IndexMin = 133.0pt.

\IndexPrologue The text put at the beginning of the index is declared with a one-argument \IndexPrologue. Its default text at current index option you may admire on page 177. Of course, you may write your own \IndexPrologue{⟨*brand new index prologue*⟩}, but if you like the default
\AtDIPrologue and want only to add something to it, you are provided \AtDIPrologue one-argument declaration that adds the stuff after the default text. For instance, I used it to add a label and hypertarget that is referred to two sentences earlier.

By default the colour of the index entry hyperlinks is set black to let Adobe Reader
\IndexLinksBlack work faster. If you don't want this, \let\IndexLinksBlack\relax. That leaves the index links colour alone and hides the text about black links from the default index prologue.

\IndexParms Other index parameters are set with the \IndexParms macro defined in line 1452 of the code. If you want to change some of them, you don't have to use \renewcommand*\%
\gaddtomacro \IndexParms and set all of the parameters: you may \gaddtomacro\IndexParms{\% ⟨*only the desired changes*⟩}. (\gaddtomacro is an alias for LaTeX's \g@addto@macro provided by gmutils.)

At the default gmdoc settings the .idx file is prepared for the default settings of MakeIndex (no special style). Therefore the index control chars are as usual. But if

you need to use other chars as MakeIndex controls, know that they are stored in the four macros: \actualchar, \quotechar, \levelchar and \encapchar whose meaning you infer from their names. Any redefinition of them *should be done in the preamble* because the first usage of them takes place at \begin{document} and on it depends further tests telling TEX what characters of a scanned cs name it should quote before writing it to the .idx file.

\actualchar
\quotechar
\levelchar
\encapchar

Frank Mittelbach in doc provides the \verbatimchar macro to (re)define the \verb's delimiter for the index entries of the scanned cs names etc. gmdoc also uses \verbatimchar but defines it as {&}. Moreover, a macro that wraps a cs name in \verb checks whether the wrapped cs isn't \& and if it is, $ is taken as the delimiter. So there's hardly chance that you'll need to redefine \verbatimchar.

So strange delimiters are chosen deliberately to allow any 'other' chars in the environments names.

\verbatimchar

There's a quadratus of commands taken from doc: \StopEventually, \Finale, \AlsoImplementation and \OnlyDescription that should be explained simultaneously (in a polyphonic song e.g.).

\StopEventually
\Finale
\AlsoImplementation
\OnlyDescription

The \OnlyDescription and \AlsoImplementation declarations are intended to exclude or include the code part from the documentation. The point between the description and the implementation part should be marked with \StopEventually{% ⟨*the stuff to be executed anyway*⟩} and \Finale should be typed at the end of file. Then \OnlyDescription defines \StopEventually to expand to its argument followed by \endinput and
\AlsoImplementation defines \StopEventually to do nothing but pass its argument to \Finale.

The Narration Macros

\verb

To print the control sequences' names you have the \verb macro and its 'shortverb' version whatever you define (see the gmverb package).

\inverb

For short verbatim texts in the inline comments gmdoc provides the \inverb⟨*charX*⟩…⟨*charX*⟩ (the name stands for 'inline verbatim') command that redefines the gmverb breakables to break with % at the beginning of the lower line to avoid mistaking such a broken verbatim commentary text for the code.

But nor \verb(*) neither \inverb will work if you put them in an argument of another macro. For such a situation, or if you just prefer, gmdoc (gmutils) provides a robust command \cs, which takes one obligatory argument, the macro's name without the backslash, e.g., \cs{mymacro} produces \mymacro. I take account of a need of printing some other text verbatim, too, and therefore \cs has the first argument optional, which is the text to be typeset before the mandatory argument. It's the backslash by default, but if you wish to typeset something without the \, you may write \cs[]{not a~macro}. Moreover, for typesetting the environments' names, gmdoc (gmutils) provides the \env macro, that prints its argument verbatim and without a backslash, e.g., \env{an environment} produces an environment.

\cs

\env

\nlpercent
\+

And for line breaking at \cs and \env there is \nlpercent to ensure % if the line breaks at the beginning of a \cs or \env and \+ to use inside their argument for a discretionary hyphen that'll break to - at the end of the upper line and % at the beginning of the lower line. By default hyphenation of \cs and \env arguments is off, you can allow it only at \- or \+.

\pk
\file

To print packages' names sans serif there is a \pk one-argument command, and the \file command intended for the filenames.

\catletter
\catother
\catactive

Because we play a lot with the \catcodes here and want to talk about it, there are \catletter, \catother and \catactive macros that print $_{11}$, $_{12}$ and $_{13}$ respectively

to concisely mark the most used char categories.

I wish my self-documenting code to be able to be typeset each package separately or several in one document. Therefore I need some 'flexible' sectioning commands and here they are: `\division`, `\subdivision` and `\subsubdivision` so far, that by default are `\let` to be `\section`, `\subsection` and `\subsubsection` respectively.

\division
\subdivision
\subsubdivision

One more kind of flexibility is to allow using mwcls or the standard classes for the same file. There was a trouble with the number and order of the optional arguments of the original mwcls's sectioning commands.

It's resolved in gmutils so you are free at this point, and even more free than in the standard classes: if you give a sectioning command just one optional argument, it will be the title to toc and to the running head (that's standard in scls[6]). If you give *two* optionals, the first will go to the running head and the other to toc. (In both cases the mandatory argument goes only to the page).

If you wish the `\DocIncluded` files make other sectionings than the default, you may declare `\SetFileDiv{`⟨*sec name without backslash*⟩`}`.

\SetFileDiv

gmdoc.sty provides also an environment `gmlonely` to wrap some text you think you may want to skip some day. When that day comes, you write `\skipgmlonely` before the instances of `gmlonely` you want to skip. This declaration has an optional argument which is for a text that'll appear in(stead of) the first `gmlonely`'s instance in every `\DocInput` or `\DocIncluded` file within `\skipgmlonely`'s scope.

gmlonely
\skipgmlonely

An example of use you may see in this documentation: the repeated passages about the installation and compiling the documentation are skipped in further chapters thanks to it.

gmdoc (gmutils, to be precise) provides some TEX-related logos:

\AmSTeX typesets $\mathcal{A}\mathcal{M}\mathcal{S}$-TEX,
\BibTeX BIBTEX,
\SliTeX SLITEX,
\PlainTeX PLAIN TEX,
\Web WEB,
\TeXbook *The TEXbook*,
\TB *The TEXbook*
\eTeX ε-TEX,
\pdfeTeX pdfε-TEX
\pdfTeX pdfTEX
\XeTeX XƎTEX (the first E will be reversed if the graphics package is loaded or XƎTEX is at work) and
\LaTeXpar (LA)TEX.
\ds DocStrip not quite a logo, but still convenient.

copyrnote

The `copyrnote` environment is provided to format the copyright note flush left in `\obeylines`' scope.

To put an arbitrary text into a marginpar and have it flushed right just like the macros' names, you are provided the `\gmdmarginpar` macro that takes one mandatory argument which is the contents of the marginpar.

\gmdmarginpar

To make a vertical space to separate some piece of text you are given two macros: `\stanza` and `\chunkskip`. The first adds `\stanzaskip` while the latter `\MacroTopsep`. Both of them take care of not cumulating the vspaces.

\stanza
\chunkskip

quotation

The `quotation` environment is redefined just to enclose its contents in double quotes.

[6] See gmutils for some subtle details.

If you don't like it, just call `\RestoreEnvironment{quotation}` after loading gmdoc. Note however that other environments using `quotation`, such as `abstract`, keep their shape.

\GetFileInfo
\filedate
\fileversion
\fileinfo

The `\GetFileInfo{`⟨*file name with extension*⟩`}` command defines `\filedate`, `\fileversion` and `\fileinfo` as the respective pieces of the info (the optional argument) provided by `\ProvidesClass/Package/File` declarations. The information of the file you process with gmdoc is provided (and therefore getable) if the file is also loaded (or the `\Provide...` line occurs in a `\StraightEOL` scope).

\ProvideFileInfo

If the input file doesn't contain `\Provides...` in the code layer, there are commands `\ProvideFileInfo{`⟨*file name with extension*⟩`}[`⟨*info*⟩`]`. (⟨*info*⟩ should consist of: ⟨*year*⟩/⟨*month*⟩/⟨*day*⟩ ⟨*version number*⟩ ⟨*a short note*⟩.)

\FileInfo

Since we may documentally input files that we don't load, doc in gmdoc e.g., we provide a declaration to be put (in the comment layer) before the line(s) containing `\Provides...`. The `\FileInfo` command takes the subsequent stuff till the closing `]` and subsequent line end, extracts from it the info and writes it to the .aux and rescans the stuff. We use an ε-TEX primitive `\scantokens` for that purpose.

\filenote

A macro for the standard note is provided, `\filenote`, that expands to "This file has version number ⟨*version number*⟩ dated ⟨*date*⟩." To place such a note in the document's

\thfileinfo

title (or heading, with `\DocInclude` at the default settings), there's `\thfileinfo` macro that puts `\fileinfo` in `\thanks`.

\gmdnoindent

Since `\noindent` didn't want to cooperate with my code and narration layers sometimes, I provide `\gmdnoindent` that forces a not indented paragraph if `\noindent` could not.

\CDPerc

If you declare the code delimiter other than % and then want % back, you may write `\CDPerc` instead of `\CodeDelim*\%`.

\CDAnd

If you like & as the code delimiter (as I did twice), you may write `\CDAnd` instead of `\CodeDelim\&`.

For an example driver file see chapter The Driver.

A Queerness of `\label`

You should be loyally informed that `\label` in gmdoc behaves slightly non-standard in the `\DocInput/Included` files: the automatic redefinitions of `\ref` at each code line are *global* (since the code is typeset in groups and the `\refs` will be out of those groups), so a `\reference` in the narrative will point at the last code line not the last section, *unlike* in the standard LATEX.

doc-Compatibility

One of my goals while writing gmdoc was to make compilation of doc-like files with gmdoc possible. I cannot guarantee the goal has been reached but I *did* compile doc.dtx with not a smallest change of that file (actually, there was a tiny little buggie in line 3299 which I fixed remotely with `\AfterMacrocode` tool written specially for that). So, if you wish to compile a doc-like file with my humble package, just try.

The doc commands most important in my opinion are supported by gmdoc. Some commands, mostly the obsolete in my opinion, are not supported but give an info on the terminal and in .log.

I assume that if one wishes to use doc's interface then he won't use gmdoc's options but just the default. (Some gmdoc options may interfere with some doc commands, they may cancel them e.g.)

\OldDocInput
\DocInclude
\olddocIncludes

The main input commands compatible with doc are `\OldDocInput` and `\DocInclude`, the latter however only in the `\olddocIncludes` declaration's scope.

macrocode

Within their scope/argument the `macrocode` environments behave as in doc, i.e. they are a kind of verbatim and require to be ended with `% \end{macrocode(*)}`.

The default behaviour of `macrocode(*)` with the 'new' input commands is different however. Remember that in the 'new' fashion the code and narration layers philosophy is in force and that is sustained within `macrocode(*)`. Which means basically that with 'new' settings when you write

```
% \begin{macrocode}
  \alittlemacro % change it to \blaargh
%\end{macrocode}
```

and `\blaargh`'s definition is `{foo}`, you'll get

```
\alittlemacro % change it to foo
```

(Note that 'my' `macrocode` doesn't require the magical `% \end`.)

oldmc

If you are used to the traditional (doc's) `macrocode` and still wish to use gmdoc new way, you have at least two options: there is the `oldmc` environment analogous to the traditional (doc's) `macrocode` (it also has the starred version), that's the first option (I needed the traditional behaviour once in this documentation, find out where & why).

\VerbMacrocodes

The other is to write `\VerbMacrocodes`. That declaration (OCSR) redefines `macrocode` and `macrocode*` to behave the traditional way. (It's always executed by `\OldDocInput` and `\olddocIncludes`.)

For a more detailed discussion of what is doc-compatible and how, see the code section doc-Compatibiliy.

6 ⟨*package⟩

The Driver Part

In case of a single package, such as gmutils, a driver part of the package may look as follows and you put it before `\ProvidesPackage/Class`.

```
% \iffalse we skip the driver
\ifnum\catcode`\@=12

\documentclass[outeroff,pagella]{gmdocc}
\usepackage{eufrak}% for |\continuum| in the commentary.
\twocoltoc
\begin{document}

\DocInput{\jobname.sty}
\PrintChanges
\thispagestyle{empty}
\typeout{%
  Produce change log with^^J%
  makeindex -r -s gmglo.ist -o \jobname.gls \jobname.glo^^J
  (gmglo.ist should be put into some texmf/makeindex
     directory.)^^J}
\typeout{%
  Produce index with^^J%
  makeindex -r \jobname^^J}
\afterfi{\end{document}}

\fi% of driver pass
%\fi
```

Note %\iffalse … %\fi in the code layer that protects the driver against being typeset.

But gmdoc is more baroque and we want to see the driver typeset—behold.

```
\ifnum\catcode`\@=12
\documentclass[outeroff,debug,mwrep,pagella]{gmdocc}
\twocoltoc
\title{The␣\pk{gmdoc}␣Package\\␣i.e.,␣\pk{gmdoc.sty}␣and
  \pk{gmdocc.cls}}
\author{Grzegorz␣`Natror'␣Murzynowski}
\date{August␣2008}
\begin{document}
\maketitle
\setcounter{page}{2}% hyperref cries if it sees two pages numbered 1.
\tableofcontents
\DoIndex\maketitle
\SelfInclude
\DocInclude{gmdocc}
```

For your convenience I decided to add the documentations of the three auxiliary packages:

```
\skipgmlonely[\stanza␣The␣remarks␣about␣installation␣and␣
     compiling
  of␣the␣documentation␣are␣analogous␣to␣those␣in␣the␣chapter
  \pk{gmdoc.sty}␣and␣therefore␣ommitted.\stanza]
\DocInclude{gmutils}
\DocInclude{gmiflink}
\DocInclude{gmverb}
\DocInclude{gmeometric}
\DocInclude{gmoldcomm}
\typeout{%
  Produce␣change␣log␣with^^J%
  makeindex␣-r␣-s␣gmglo.ist␣-o␣\jobname.gls␣\jobname.glo^^J
  (gmglo.ist␣should␣be␣put␣into␣some␣texmf/makeindex␣
       directory.)^^J}
\PrintChanges
\typeout{%
  Produce␣index␣with^^J%
  makeindex␣-r␣\jobname^^J}
 \PrintIndex
\afterfi{%
\end{document}
```

MakeIndex shell commands:

```
  makeindex␣-r␣gmdoc
  makeindex␣-r␣-s␣gmglo.ist␣-o␣gmdocDoc.gls␣gmdocDoc.glo
```

(gmglo.ist should be put into some texmf/makeindex directory.)

And “That's all, folks” ;-) .

```
}\fi% of \ifnum\catcode`\@=12, of the driver that is.
```

The Code

For debug

```
\catcode`\^^C=9\relax
```

we set the `\catcode` of this char to 13 in the comment layer.

The basic idea of this package is to re`\catcode` `^^M` (the line end char) and % (or any other comment char) so that they start and finish typesetting of what's between them as the TEX code i.e., verbatim and with the bells and whistles.

The bells and whistles are (optional) numbering of the codelines, and automatic indexing the css, possibly with special format for the 'def' and 'usage' entries.

As mentioned in the preface, this package aims at a minimal markup of the working code. A package author writes her splendid code and adds a brilliant comment in %ed lines and that's all. Of course, if he wants tomake a `\section` or `\emph`asise, she has to type respective css.

I see the feature described above to be quite a convenience, however it has some price. See section Life Among Queer EOLs for details, here I state only that in my opinion the price is not very high.

More detailedly, the idea is to make `^^M` (end of line char) active and to define it to check if the next char i.e., the beginnig of the next line is a % and if so to gobble it and just continue usual typesetting or else to start a verbatim scope. In fact, every such a line end starts a verbatim scope which is immediately closed, if the next line begins with (leading spaces and) the code delimiter.

Further details are typographical parameters of verbatim scope and how to restore normal settings after such a scope so that a code line could be commented and still displayed, how to deal with leading spaces, how to allow breaking a moving argument in two lines in the comment layer, how to index and marginpar macros etc.

The Package Options

```
\RequirePackage{xkeyval}% we need key-vals later, but maybe we'll make the option key-val as well.
```

Maybe someone wants the code lines not to be numbered.

\if@linesnotnum
```
\newif\if@linesnotnum
```

linesnotnum
```
\DeclareOption{linesnotnum}{\@linesnotnumtrue}
```

And maybe he or she wishes to declare resetting the line counter along with some sectioning counter him/herself.

\if@uresetlinecount
```
\newif\if@uresetlinecount
```

uresetlinecount
```
\DeclareOption{uresetlinecount}{\@uresetlinecounttrue}
```

And let the user be given a possibility to count the comment lines.

\if@countalllines
```
\newif\if@countalllines
```

countalllines
```
\DeclareOption{countalllines}{\@countalllinestrue}
```

Unlike in doc, indexing the macros is the default and the default reference is the code line number.

\if@noindex
```
\newif\if@noindex
```

noindex
```
\DeclareOption{noindex}{\@noindextrue}
```

\if@pageindex
```
\newif\if@pageindex
```

pageindex
```
\DeclareOption{pageindex}{\@pageindextrue}
```

It would be a great honour to me if someone would like to document LaTeX source with this humble package but I don't think it's really probable so let's make an option that'll switch index exclude list properly (see sec. Index Exclude List).

\if@indexallmacros
```
\newif\if@indexallmacros
```
indexallmacros
```
\DeclareOption{indexallmacros}{\@indexallmacrostrue}
```

Some document classes don't support marginpars or disable them by default (as my favourite Marcin Woliński's classes).

\if@marginparsused
```
\@ifundefined{if@marginparsused}{\newif\if@marginparsused}{}
```

This switch is copied from mwbk.cls for compatibility with it. Thanks to it loading an mwcls with `[withmarginpar]` option shall switch marginpars on in this package, too.

To be compatible with the standard classes, let's `\let`:

```
\@ifclassloaded{article}{\@marginparsusedtrue}{}
\@ifclassloaded{report}{\@marginparsusedtrue}{}
\@ifclassloaded{book}{\@marginparsusedtrue}{}
```

And if you don't use mwcls nor standard classes, then you have the options:

withmarginpar
```
\DeclareOption{withmarginpar}{\@marginparsusedtrue}
```
nomarginpar
```
\DeclareOption{nomarginpar}{\@marginparsusedfalse}
```

The order of the above conditional switches and options is significant. Thanks to it the options are available also in the standard classes and in mwcls.

To make the code spaces blank (they are visible by default except the leading ones).

codespacesblank
```
\DeclareOption{codespacesblank}{%
  \AtBeginDocument{\CodeSpacesBlank}}
```
codespacesgrey
```
\DeclareOption{codespacesgrey}{%
  \AtEndOfPackage{% to put the declaration into the begin-document hook after
      definition of \visiblespace.
    \AtBeginDocument{\CodeSpacesGrey}}}
\ProcessOptions
```

The Dependencies and Preliminaries

We require another package of mine that provides some tricky macros analogous to the LaTeX standard ones, such as `\newgif` and `\@ifnextcat`.

```
\RequirePackage{gmutils}[2008/08/03]
```

A standard package for defining colours,

```
\RequirePackage{xcolor}
```

and a colour definition for the hyperlinks not to be too bright

```
\definecolor{deepblue}{rgb}{0,0,.85}
```

And the standard package probably most important for gmdoc: If the user doesn't load hyperref with his favourite options, we do, with *ours*. If she has done it, we change only the links' colour.

```
\@ifpackageloaded{hyperref}{\hypersetup{colorlinks=true,
    linkcolor=deepblue,␣urlcolor=blue,␣filecolor=blue}}{%
  \RequirePackage[colorlinks=true,␣linkcolor=deepblue,␣
      urlcolor=blue,
  filecolor=blue,␣pdfstartview=FitH,␣pdfview=FitBH,
```

```
  pdfpagemode=UseNone]{hyperref}}
```

Now a little addition to hyperref, a conditional hyperlinking possibility with the `\gmhypertarget` and `\gmiflink` macros. It *has* to be loaded *after* hyperref.

```
\RequirePackage{gmiflink}
```

And a slight redefinition of `verbatim`, `\verb(*)` and providing of `\MakeShortVerb(*)`.

```
\RequirePackage{gmverb}[2007/11/09]
\if@noindex
  \AtBeginDocument{\gag@index}% for the latter macro see line 1124.
\else
   \RequirePackage{makeidx}\makeindex
\fi
```

Now, a crucial statement about the code delimiter in the input file. Providing a special declaration for the assignment is intended for documenting the packages that play with %'s `\catcode`. Some macros for such plays are defined further.

The declaration comes in the starred and unstarred version. The unstarred version besides declaring the code delimiter declares the same char as the verb(atim) 'hyphen'. The starred version doesn't change the verb 'hyphen'. That is intended for the special tricks e.g. for the `oldmc` environment.

If you want to change the verb 'hyphen', there is the `\VerbHyphen\`⟨*one char*⟩ declaration provided by gmverb.

`\CodeDelim`
```
\def\CodeDelim{\@ifstar\Code@Delim@St\Code@Delim}
```

`\Code@Delim`
```
\def\Code@Delim#1{%
  {\escapechar\m@ne
```

`\code@delim`
```
    \@xa\gdef\@xa\code@delim\@xa{\string#1}}}
```

(`\@xa` is `\expandafter`, see gmutils.)

`\Code@Delim@St`
```
\def\Code@Delim@St#1{\Code@Delim{#1}\VerbHyphen{#1}}
```

It is an invariant of gmdocing that `\code@delim` stores the current code delimiter (of catcode 12).

The `\code@delim` should be $_{12}$ so a space is not allowed as a code delimiter. I don't think it *really* to be a limitation.

And let's assume you do as we all do:

```
\CodeDelim*\%
```

We'll play with `\everypar`, a bit, and if you use such things as the `{itemize}` environment, an error would occur if we didn't store the previous value of `\everypar` and didn't restore it at return to the narration. So let's assign a `\toks` list to store the original `\everypar`:

`\gmd@preverypar`
```
\newtoks\gmd@preverypar
```

`\settexcodehangi`
```
\newcommand*\settexcodehangi{%
  \hangindent=\verbatimhangindent␣\hangafter=\@ne}% we'll use it in the
        inline comment case. \verbatimhangindent is provided by the gmverb
        package and = 3 em by default.
\@ifdefinable\@@settexcodehangi{\let\@@settexcodehangi=%
      \settexcodehangi}
```

We'll play a bit with `\leftskip`, so let the user have a parameter instead. For normal text (i.e. the comment):

`\TextIndent`
```
\newlength\TextIndent
```

I assume it's originally equal to \leftskip, i.e. \z@. And for the TEX code:

```
\newlength\CodeIndent
\CodeIndent=1,5em\relax
```

And the vertical space to be inserted where there are blank lines in the source code:

```
\@ifundefined{stanzaskip}{\newlength\stanzaskip}{}
```

I use \stanzaskip in gmverse package and derivatives for typesetting poetry. A computer program code *is* poetry.

```
\stanzaskip=\medskipamount
\advance\stanzaskip␣by-.25\medskipamount% to preserve the stretch- and shrinkability.
```

A vertical space between the commentary and the code seems to enhance readability so declare

```
\newskip\CodeTopsep
\newskip\MacroTopsep
```

And let's set them. For æsthetic minimality[7] let's unify them and the other most important vertical spaces used in gmdoc. I think a macro that gathers all these assignments may be handy.

```
\def\UniformSkips{%
  \CodeTopsep=\stanzaskip
  \MacroTopsep=\stanzaskip
  \abovedisplayskip=\stanzaskip
%\abovedisplayshortskip remains untouched as it is 0.0 pt plus 3.0 pt by default.
  \belowdisplayskip=\stanzaskip
  \belowdisplayshortskip=.5\stanzaskip% due to DEK's idea of making the short below display skip half of the normal.
  \advance\belowdisplayshortskip␣by\smallskipamount
  \advance\belowdisplayshortskip␣by-1\smallskipamount% We advance \be-
% lowdisplayshortskip forth and back to give it the \smallskipamount's shrink- and stretchability components.
  \topsep=\stanzaskip
  \partopsep=\z@
}
```

We make it the default,

```
\UniformSkips
```

but we allow you to change the benchmark glue i.e., \stanzaskip in the preamble and still have the other glues set due to it: we launch \UniformSkips again after the preamble.

```
\AtBeginDocument{\UniformSkips}
```

So, if you don't want them at all i.e., you don't want to set other glues due to \stanzaskip, you should use the following declaration. That shall discard the unwanted setting already placed in the \begin{document} hook.

```
\newcommand*\NonUniformSkips{\@relaxen\UniformSkips}
```

[7] The terms 'minimal' and 'minimalist' used in gmdoc are among others inspired by the *South Park* cartoon's episode *Mr. Hankey The Christmas (…)* in which 'Philip Glass, a Minimalist New York composer' appears in a 'non-denominational non-offensive Christmas play' ;-). (Philip Glass composed the music to the *Qatsi* trilogy among others)

Why do we launch \UniformSkips twice then? The first time is to set all the gmdoc-specific glues *somehow*, which allows you to set not all of them, and the second time to set them due to a possible change of \stanzaskip.

And let's define a macro to insert a space for a chunk of documentation, e.g., to mark the beginning of new macro's explanation and code.

\chunkskip
```
\newcommand*\chunkskip{%
  \skipo=\MacroTopsep
  \if@codeskipput\advance\skipo␣by-\CodeTopsep\fi
  \par\addvspace{\skipo}\@codeskipputgtrue}
```

And, for a smaller part of text,

\stanza
```
\newcommand*\stanza{%
  \skipo=\stanzaskip
  \if@codeskipput\advance\skipo␣by-\CodeTopsep\fi
  \par\addvspace{\skipo}\@codeskipputgtrue}
```

Since the stanza skips are inserted automatically most often (cf. lines 250, 421, 259, 380, 437), sometimes you may need to forbid them.

\nostanza
```
\newcommand*\nostanza{%
  \@codeskipputgtrue\@afternarrgfalse\@aftercodegtrue}% In the 'code to narration' case the first switch is enough but in the countercase 'narration to code' both the second and third are necessary while the first is not.
```

To count the lines where they have begun not before them

```
\newgif\if@newline
```

\newgif is \newif with global effect i.e., it defines \...gtrue and \...gfalse switchers that switch respective Boolean switch *globally*. See gmutils package for details.

To handle the DocStrip directives not *any* %<....

\if@dsdir
```
\newgif\if@dsdir
```

This switch will be falsified at the first char of a code line. (We need a switch independent of the one indicationg whether the line has or has not been counted because of two reasons: 1. line numbering is optional, 2. counting the line falsifies that switch *before* the first char.)

The Core

Now we define main \inputing command that'll change catcodes. The macros used by it are defined later.

\DocInput
```
\newcommand*\DocInput{\bgroup\@makeother\_\Doc@Input}
\begingroup\catcode`\^^M=\active%
\firstofone{\endgroup%
```
\Doc@Input
```
  \newcommand*{\Doc@Input}[1]{\egroup\begingroup%
    \edef\gmd@inputname{#1}% we'll use it in some notifications.
    \let\gmd@currentlabel@before=\@currentlabel% we store it because we'll do \xdefs of \@currentlabel to make proper references to the line numbers so we want to restore current \@currentlabel after our group.
    \gmd@setclubpenalty% we wrapped the assignment of \clubpenalty in a macro because we'll repeat it twice more.
    \@clubpenalty\clubpenalty␣\widowpenalty=3333␣% Most paragraphs of the code will be one-line most probably and many of the narration, too.
    \tolerance=1000␣% as in doc.
```

```
      \catcode`\^^M=\active%
      \@xa\@makeother\csname\code@delim\endcsname%
      \gmd@resetlinecount% due to the option uresetlinecount we reset the
          linenumber counter or do nothing.
      \@beginputhook% my first use of it is to redefine \maketitle just at this point
          not globally.
      \everypar=\@xa{\@xa\@codetonarrskip\the\everypar}%
^^M   \let^^M=\gmd@textEOL%
\gmd@guardedinput  \edef\gmd@guardedinput{%
        \@nx\@@input␣#1\relax% \@nx is \noexpand, see gmutils. \@@input is the
            true TeX's \input.
        \gmd@iihook% cf. line 1938
        \@nx\EOFMark% to pretty finish the input, see line 194.
        \@nx\CodeDelim\@xa\@nx\csname\code@delim\endcsname% to ensure the
            code delimiter is the same as at the beginning of input.
        \@nx^^M\code@delim%
      }% we add guardians after \inputing a file; somehow an error occurred without
          them.
      \catcode`\%=9␣% for doc-compatibility.
      \setcounter{CheckSum}{0}% we initialize the counter for the number of the
          escape chars (the assignment is \global).
      \everyeof{\relax}% \@nx moved not to spoil input of toc e.g.
      \@xa\@xa\@xa^^M\gmd@guardedinput%
      \par%
      \@endinputhook% It's a hook to let postpone some stuff till the end of input.
          We use it e.g. for the doc-(not)likeliness notifications.
      \glet\@currentlabel=\gmd@currentlabel@before% we restore value from
          before this group. In a very special case this could cause unexpected be-
          haviour of crossrefs, but anyway we acted globally and so acts hyperref.
      \endgroup%
    }% end of \Doc@Input's definition.
}% end of \firstofone's argument.
```

So, having the main macro outlined, let's fill in the details.

First, define the queer EOL. We define a macro that `^^M` will be let to. `\gmd@textEOL` will be used also for checking the `%^^M` case (`\@ifnextchar` does `\ifx`).

```
\gmd@textEOL  \def\gmd@textEOL{␣% a space just like in normal TeX. We put it first to cooperate
                  with \^^M's \expandafter\ignorespaces. It's no problem since a space
                  doesn't drive TeX out of the vmode.
    \ifhmode\@afternarrgtrue\@codeskipputgfalse\fi% being in the horizon-
        tal mode means we've just typeset some narration so we turn the respec-
        tive switches: the one bringing the message 'we are after narration' to
        True (@afternarr) and the 'we have put the code-narration glue' to False
        (@codeskipput). Since we are in a verbatim group and the information
        should be brought outside it, we switch the switches globally (the letter g in
        both).
    \@newlinegtrue% to \refstep the lines' counter at the proper point.
    \@dsdirgtrue% to handle the DocStrip directives.
    \@xa\@trimandstore\the\everypar\@trimandstore% we store the previous
        value of \everypar register to restore it at a proper point. See line 450 for
        the details.
    \begingroup%
```

```
    \gmd@setclubpenalty% Most paragraphs will be one-line most probably. Since
        some sectioning commands may change \clubpenalty, we set it again here
        and also after this group.
    \aftergroup\gmd@setclubpenalty%
    \let\par\@@par% inside the verbatim group we wish \par to be genuine.
    \ttverbatim% it does \tt and makes specials other or \active-and-breakable.
    \gmd@DoTeXCodeSpace%
    \@makeother\|% because \ttverbatim doesn't do that.
    \MakePrivateLetters% see line 518.
    \@xa\@makeother\code@delim% we are almost sure the code comment char is
        among the chars having been 12ed already. For 'almost' see the \IndexInput
        macro's definition.
```

So, we've opened a verbatim group and want to peek at the next character. If it's %, then we just continue narration, else we process the leading spaces supposed there are any and, if after them is a %, we just continue the commentary as in the previous case or else we typeset the TEX code.

```
    \@xa\@ifnextchar\@xa{\code@delim}{%
      \gmd@continuenarration}{%
      \gmd@dolspaces% it will launch \gmd@typesettexcode.
    }% end of \@ifnextchar's else.
}% end of \gmd@textEOL's definition.
```

\gmd@setclubpenalty
```
\def\gmd@setclubpenalty{\clubpenalty=3333␣}
```

For convenient adding things to the begin- and endinput hooks:

\AtEndInput
\@endinputhook
```
\def\AtEndInput{\g@addto@macro\@endinputhook}
\def\@endinputhook{}
```

Simili modo

\AtBegInput
\@beginputhook
```
\def\AtBegInput{\g@addto@macro\@beginputhook}
\def\@beginputhook{}
```

For the index input hooking now declare a macro, we define it another way at line 1938.

```
\emptify\gmd@iihook
```

And let's use it instantly to avoid a disaster while reading in the table of contents.

\tableofcontents
```
\AtBegInput{\let\gmd@@toc\tableofcontents
  \def\tableofcontents{%
    \@ifQueerEOL{\StraightEOL\gmd@@toc\QueerEOL}{\gmd@@toc}}}
```

As you'll learn from lines 479 and 473, we use those two strange declarations to change and restore the very special meaning of the line end. Without such changes \tableofcontents would cause a disaster (it did indeed). And to check the catcode of ^^M is the rôle of \@ifQueerEOL:

\@ifQueerEOL
```
\long\def\@ifQueerEOL#1#2{%
  \ifnum\the\catcode`\^^M=\active␣\afterfi{#1}\else\afterfi{#2}%
      \fi}
```

The declaration below is useful if you wish to put sth. just in the nearest input/included file and no else: at the moment of putting the stuff it will erase it from the hook. You may declare several \AtBegInputOnces, they add up.

\gmd@ABIOnce
```
\@emptify\gmd@ABIOnce
\AtBegInput\gmd@ABIOnce
```

\AtBegInputOnce
```
\long\def\AtBegInputOnce#1{%
  \gaddtomacro\gmd@ABIOnce{\g@emptify\gmd@ABIOnce#1}}
```

Many tries of finishing the input cleanly led me to setting the guardians as in line 148 and to

\EOFMark
```
\def\EOFMark{\<eof>}
```

Other solutions did print the last code delimiter or would require managing a special case for the macros typesetting TEX code to suppress the last line's numbering etc.

If you don't like it, see line 2129.

Due to the `codespacesblank` option in the line **??** we launch the macro defined below to change the meaning of a gmdoc-kernel macro.

```
\begin{obeyspaces}%
\gdef\CodeSpacesVisible{%
```
\gmd@DoTeXCodeSpace
```
\def\gmd@DoTeXCodeSpace{%
\obeyspaces\let␣=\breakablevisspace}}%
```
\CodeSpacesBlank
```
\gdef\CodeSpacesBlank{%
\let\gmd@DoTeXCodeSpace\gmobeyspaces%
\let\gmd@texcodespace=\ }% the latter \let is for the \if...s.
```
\CodeSpacesSmall
```
\gdef\CodeSpacesSmall{%
```
\gmd@DoTeXCodeSpace
```
\def\gmd@DoTeXCodeSpace{%
\obeyspaces\def␣{\,\hskip\z@}}%
```
\gmd@texcodespace
```
\def\gmd@texcodespace{\,\hskip\z@}}%
\end{obeyspaces}
```
\CodeSpacesGrey
```
\def\CodeSpacesGrey{%
  \providecolor{codespacesgrey}{gray}{0.5}%
  \CodeSpacesVisible%
  \gmd@preambleABD{%
    \unless\ifdefined\gmd@visspace
      \let\gmd@visspace\visiblespace
    \fi
```
\visiblespace
```
    \def\visiblespace{%
      \hbox{\textcolor{codespacesgrey}\gmd@visspace}}%
  }}%
```

Note that `\CodeSpacesVisible` doesn't revert `\CodeSpacesGrey`.

```
\let\gmd@preambleABD\AtBeginDocument
\AtBeginDocument{\let\gmd@preambleABD\firstofone}
\CodeSpacesVisible
```

How the continuing of the narration should look like?

\gmd@continuenarration
```
\def\gmd@continuenarration{%
  \endgroup
  \gmd@countnarrationline% see below.
  \@xa\@trimandstore\the\everypar\@trimandstore
  \everypar=\@xa{\@xa\@codetonarrskip\the\everypar}%
  \@xa\gmd@checkifEOL\@gobble}
```

Simple, isn't it? (We gobble the 'other' code delimiter. Despite of `\egroup` it's $_{12}$ because it was touched by `\futurelet` contained in `\@ifnextchar` in line 174. And in line 302 it's been read as $_{12}$. That's why it works in spite of that `%` is of category 'ignored'.)

Whether we count the narration lines depends on the option `countalllines` which is off by default.

```
\if@countalllines
  \def\gmd@countnarrationline{%
    \if@newline
      \grefstepcounter{codelinenum}\@newlinegfalse% the \grefstepcounter
          macro, defined in gmverb, is a global version of \refstepcounter, ob-
          serving the redefinition made to \refstepcounter by hyperref.
      \everypar=\@xa{%
        \@xa\@codetonarrskip\the\gmd@preverypar}% the \hyperlabel@-
            % line macro puts a hypertarget in a \raise i.e., drives TeX into
            the horizontal mode so \everypar shall be issued. Therefore we
            should restore it.
      \hyperlabel@line
      {\LineNumFont\thecodelinenum}\,\ignorespaces
    \fi}%
\else
  \@emptify\gmd@countnarrationline%
\fi
```

\gmd@countnarrationline

And typesetting the TeX code?

```
\begingroup\catcode`\^^M=\active%
\firstofone{\endgroup%
  \def\gmd@typesettexcode{%
    \gmd@parfixclosingspace% it's to eat a space closing the paragraph, see be-
        low. It contains \par. A verbatim group has already been opened by
        \ttverbatim and additional \catcode.
    \everypar={\@@settexcodehangi}% At first attempt we thought of giving
        the user a \toks list to insert at the beginning of every code line, but
        what for?
    \def^^M{%
      \@newlinegtrue% to \refstep the counter in proper place.
      \@dsdirgtrue% to handle the DocStrip directives.
      \global\gmd@closingspacewd=\z@% we don't wish to eat a closing space
          after a codeline, because there isn't any and a negative rigid \hskip
          added to \parfillskip would produce a blank line.
      \ifhmode\par\@codeskipputgfalse\else%
        \if@codeskipput%
        \else\addvspace{\stanzaskip}\@codeskipputgtrue%
        \fi% if we've just met a blank (code) line, we insert a \stanzaskip glue.
      \fi%
      \prevhmodegfalse% we want to know later that now we are in the vmode.
      \@ifnextchar{\gmd@texcodespace}{%
        \@dsdirgfalse\gmd@dolspaces}{\gmd@charbychar}%
    }% end of ^^M's definition.
    \let\gmd@texcodeEOL=^^M% for further checks inside \gmd@charbychar.
    \raggedright\leftskip=\CodeIndent%
    \if@aftercode\gmd@nocodeskip1{iaC}\else\if@afternarr%
        \if@codeskipput\else\gmd@codeskip1\@codeskipputgtrue%
            \@aftercodegfalse\fi%
    \else\gmd@nocodeskip1{naN}\fi\fi% if now we are switching from the
        narration into the code, we insert a proper vertical space.
    \@aftercodegtrue\@afternarrgfalse%
```

\gmd@typesettexcode
^^M
\@newlinegtrue

```
    \ifdim\gmd@ldspaceswd>\z@% and here the leading spaces.
      \leavevmode\@dsdirgfalse%
      \if@newline\grefstepcounter{codelinenum}\@newlinegfalse%
      \fi%
      \printlinenumber% if we don't want the lines to be numbered, the respective option \lets this cs to \relax.
      \hyperlabel@line%
      \mark@envir% index and/or marginize an environment if there is some to be done so, see line 1073.
      \hskip\gmd@ldspaceswd%
      \advance\hangindent␣by\gmd@ldspaceswd%
      \xdef\settexcodehangi{%
        \@nx\hangindent=\the\hangindent% and also set the hanging indent setting for the same line comment case. BTW., this % or rather lack of it costed me five hours of debugging and rewriting. Active lineends require extreme caution.
        \@nx\hangafter=1\space}%
    \else%
      \glet\settexcodehangi=\@@settexcodehangi%
          % \printlinenumber here produced line numbers for blank lines which is what we don't want.
    \fi% of \ifdim
    \gmd@ldspaceswd=\z@%
    \prevhmodegfalse% we have done \par so we are not in the hmode.
    \@aftercodegtrue% we want to know later that now we are typesetting a code-line.
    \gmd@charbychar% we'll eat the code char by char to scan all the macros and thus to deal properly with the case \% in which the % will be scanned and won't launch closing of the verbatim group.
  }%
}% end of \gmd@typesettexcode's definitions's group's \firstofone.
```

Now let's deal with the leading spaces once forever. We wish not to typeset s but to add the width of every leading space to the paragraph's indent and to the hanging indent, but only if there'll be any code character not being % in this line (e.g., the end of line). If there'll be only %, we want just to continue the comment or start a new one. (We don't have to worry about whether we should \par or not.)

\gmd@spacewd
\gmd@ldspaceswd

```
\newlength\gmd@spacewd% to store the width of a (leading)  12.
\newlength\gmd@ldspaceswd% to store total length of gobbled leading spaces.
```

It costed me some time to reach that in my verbatim scope a space isn't 12 but 13, namely \let to \breakablevisspace. So let us \let for future:

\gmd@texcodespace

```
\let\gmd@texcodespace=\breakablevisspace
```

And now let's try to deal with those spaces.

\gmd@dolspaces

```
\def\gmd@dolspaces{%
  \ifx\gmd@texcodespace\@let@token
    \@dsdirgfalse
    \afterfi{\settowidth{\gmd@spacewd}{\visiblespace}%
    \gmd@ldspaceswd=\z@
    \gmd@eatlspace}%
  \else\afterfi{% about this smart macro and other of its family see gmutils sec. 3.
    \par\gmd@typesettexcode}%
  \fi}
```

And now, the iterating inner macro that'll eat the leading spaces.

\gmd@eatlspace
```
\def\gmd@eatlspace#1{%
  \ifx\gmd@texcodespace#1%
    \advance\gmd@ldspaceswd␣by\gmd@spacewd% we don't \advance it \globally
        because the current group may be closed iff we meet % and then we'll
        won't indent the line anyway.
    \afteriffifi\gmd@eatlspace
  \else
    \if\code@delim\@nx#1%
      \gmd@ldspaceswd=\z@
      \gmd@continuenarration#1%
    \else␣\afterfifi{\gmd@typesettexcode#1}%
    \fi
  \fi}%
```

We want to know whether we were in hmode before reading current `\code@delim`. We'll need to switch the switch globally.

```
\newgif\ifprevhmode
```

And the main iterating inner macro which eats every single char of verbatim text to check the end. The case \% should be excluded and it is indeed.

\gmd@charbychar
```
\newcommand*\gmd@charbychar[1]{%
  \ifhmode\prevhmodegtrue
  \else\prevhmodegfalse\fi
  \if\code@delim\@nx#1%
    \def\next{\gmd@percenthack% to typeset % if a comment continues the code-
        line.
    \endgroup%
    \gmd@checkifEOLmixd}% to see if next is ^^M and then do \par.
  \else% i.e., we've not met the code delimiter
    \ifx\relax#1\def\next{\endgroup}% special case of end of file thanks to
        \everyeof.
    \else
      \if\code@escape@char\@nx#1%
        \@dsdirgfalse% yes, just here not before the whole \if because then we
            would discard checking for DocStrip directives doable by the active
            % at the 'old macrocode' setting.
        \def\next{\gmd@countheline#1\scan@macro}%
      \else
        \def\next{\gmd@EOLorcharbychar#1}%
      \fi
    \fi
  \fi\next}
```

One more inner macro because `^^M` in TEX code wants to peek at the next char and possibly launch `\gmd@charbychar`. We deal with counting the lines thorougly. Increasing the counter is divided into cases and it's very low level in one case because `\refstepcounter` and `\stepcounter` added some stuff that caused blank lines, at least with hyperref package loaded.

\gmd@EOLorcharbychar
```
\def\gmd@EOLorcharbychar#1{%
  \ifx\gmd@texcodeEOL#1%
    \if@newline
      \if@countalllines\global\advance\c@codelinenum␣by\@ne
```

```
      \@newlinegfalse\fi
    \fi
    \afterfi{#1}% here we print #1.
  \else% i.e., #1 is not a (very active) line end,
    \afterfi
    {\gmd@countheline#1\gmd@charbychar}% or here we print #1. Here we
        would also possibly mark an environment but there's no need of it be-
        cause declaring an environment to be marked requires a bit of comment-
        tary and here we are after a code ^^M with no commentary.
\fi}
```

\gmd@countheline
```
\def\gmd@countheline{%
  \ifvmode
    \if@newline
      \grefstepcounter{codelinenum}\@newlinegfalse
      \hyperlabel@line
    \fi
    \printlinenumber
    \mark@envir
  \else
    \if@newline
      \grefstepcounter{codelinenum}\@newlinegfalse
      \hyperlabel@line
    \fi
  \fi}
```

If before reading current % char we were in horizontal mode, then we wish to print % (or another code delimiter).

\gmd@percenthack
```
\def\gmd@percenthack{%
  \ifprevhmode\code@delim\aftergroup\space% We add a space after %, be-
      cause I think it looks better. It's done \aftergroup to make the spaces
      possible after the % not to be typeset.
  \else\aftergroup\gmd@narrcheckifds@ne% remember that \gmd@precent-
      hack is only called when we've the code delimiter and soon we'll close the
      verbatim group and right after \endgroup there waits \gmd@checkifEOLmixd.
  \fi}
```

\gmd@narrcheckifds@ne
```
\def\gmd@narrcheckifds@ne#1{%
  \@dsdirgfalse\@ifnextchar<{%
    \@xa\gmd@docstripdirective\@gobble}{#1}}
```

The macro below is used to look for the %^^M case to make a commented blank line make a new paragraph. Long searched and very simple at last.

\gmd@checkifEOL
```
\def\gmd@checkifEOL{%
  \gmd@countnarrationline
  \everypar=\@xa{\@xa\@codetonarrskip% we add the macro that'll insert a ver-
      tical space if we leave the code and enter the narration.
    \the\gmd@preverypar}%
  \@ifnextchar{\gmd@textEOL}{%
    \@dsdirgfalse\par\ignorespaces}{\gmd@narrcheckifds}}%
```

We check if it's %<, a DocStrip directive that is.

\gmd@narrcheckifds
```
\def\gmd@narrcheckifds{%
  \@dsdirgfalse\@ifnextchar<{%
    \@xa\gmd@docstripdirective\@gobble}{\ignorespaces}}
```

In the ‘mixed’ line case it should be a bit more complex, though. On the other hand, there’s no need to checking for DocStrip directives.

\gmd@checkifEOLmixd
```
\def\gmd@checkifEOLmixd{%
  \gmd@countnarrationline
  \everypar=\@xa{\@xa\@codetonarrskip\the\gmd@preverypar}%
  \@afternarrgfalse\@aftercodegtrue
  \ifhmode\@codeskipputgfalse\fi
  \@ifnextchar{\gmd@textEOL}{%
    {\raggedright\gmd@endpe\par}% without \raggedright this \par would
          be justified which is not appropriate for a long codeline that should be
          broken, e.g., 368.
    \prevhmodegfalse
    \gmd@endpe\ignorespaces}{%
```

If a codeline ends with % (`prevhmode` == True) first \gmd@endpe sets the parameters at the TEX code values and \par closes a paragraph and the latter \gmd@endpe sets the parameters at the narration values. In the other case both \gmd@endpes do the same and \par between them does nothing.

\par
```
    \def\par{%
      \ifhmode% (I added this \ifhmode as a result of a heavy debug.)
        \@@par
        \if@afternarr
          \if@aftercode
            \if@codeskipput\else\gmd@codeskip2\@aftercodegfalse%
                 \@codeskipputgtrue\fi
          \else\gmd@nocodeskip2{naC}%
          \fi
        \else\gmd@nocodeskip2{naN}%
        \fi
        \prevhmodegfalse\gmd@endpe% when taken out of \ifhmode, this line
              caused some codeline numbers were typeset with \leftskip = 0.
        \everypar=\@xa{%
          \@xa\@codetonarrskip\the\gmd@preverypar}%
        \let\par\@@par%
      \fi}%
    \gmd@endpe\ignorespaces}}
```

As we announced, we play with \leftskip inside the verbatim group and therefore we wish to restore normal \leftskip when back to normal text i.e. the commentary. But, if normal text starts in the same line as the code, then we still wish to indent such a line.

\gmd@endpe
```
\def\gmd@endpe{%
  \ifprevhmode
    \settexcodehangi%ndent
    \leftskip=\CodeIndent
  \else
    \leftskip=\TextIndent
    \hangindent=\z@
    \everypar=\@xa{%
      \@xa\@codetonarrskip\the\gmd@preverypar}%
  \fi}
```

Numbering (or Not) of the Lines

Maybe you want codelines to be numbered and maybe you want to reset the counter within sections.

```
\if@uresetlinecount% with uresetlinecount option…
  \@relaxen\gmd@resetlinecount% … we turn resetting the counter by \DocIn-
       % put off…
\resetlinecountwith  \newcommand*\resetlinecountwith[1]{%
  codelinenum          \newcounter{codelinenum}[#1]}% … and provide a new declaration of the
                            counter.
\else% With the option turned off…
  DocInputsCount       \newcounter{DocInputsCount}%
  codelinenum          \newcounter{codelinenum}[DocInputsCount]% … we declare the \DocInputs'
                            number counter andthe codeline counter to be reset with stepping of it.
\gmd@resetlinecount    \newcommand*\gmd@resetlinecount{\stepcounter{DocInputsCount}}% …
                            and let the \DocInput increment the \DocInputs number count and thus
                            reset the codeline count. It's for unique naming of the hyperref labels.
\fi
```

Let's define printing the line number as we did in gmvb package.

```
\printlinenumber  \newcommand*\printlinenumber{%
                    \leavevmode\llap{\rlap{\LineNumFont$\phantom{999}$\llap{%
                         \thecodelinenum}}%
                      \hskip\leftskip}}
\LineNumFont      \def\LineNumFont{\normalfont\tiny}
                  \if@linesnotnum\@relaxen\printlinenumber\fi
\hyperlabel@line  \newcommand*\hyperlabel@line{%
                    \if@pageindex% It's good to be able to switch it any time not just define it once
                         according to the value of the switch set by the option.
                    \else
                      \raisebox{2ex}[1ex][\z@]{\gmhypertarget[clnum.%
                        \HLPrefix\arabic{codelinenum}]{}}%
                    \fi}
```

Spacing with `\everypar`

Last but not least, let's define the macro inserting a vertical space between the code and the narration. Its parameter is a relic of a very heavy debug of the automatic vspacing mechanism. Let it remain at least until this package is 2.0 version.

```
\gmd@codeskip  \newcommand*\gmd@codeskip[1]{\@@par\addvspace\CodeTopsep%
                    \@codeskipputgtrue}
```

Sometimes we add the `\CodeTopsep` vertical space in `\everypar`. When this happens, first we remove the `\parindent` empty box, but this doesn't reverse putting `\parskip` to the main vertical list. And if `\parskip` is put, `\addvspace` shall see it not the 'true' last skip. Therefore we need a Boolean switch to keep the knowledge of putting similar vskip before `\parskip`.

```
@codeskipput
\if@codeskipput  \newgif\if@codeskipput
```

The below is another relic of the heavy debug of the automatic vspacing. Let's give it the same removal clause as above.

```
\gmd@nocodeskip  \newcommand*\gmd@nocodeskip[2]{}
```

And here is how the two relic macros looked like during the debug. As you see, they are disabled by a false \if (look at it closely ;-).

```
\if1␣1
  \renewcommand*\gmd@codeskip[1]{%
    \hbox{\rule{1cm}{3pt}␣#1!!!}}
  \renewcommand*\gmd@nocodeskip[2]{%
    \hbox{\rule{1cm}{0.5pt}␣#1:␣#2␣}}
\fi
```

We'll wish to execute \gmd@codeskip wherever a codeline (possibly with an inline comment) is followed by a homogenic comment line or reverse. Let us dedicate a Boolean switch to this then.

```
\newgif\if@aftercode
```

This switch will be set true in the moments when we are able to switch from the TEX code into the narration and the below one when we are able to switch reversely.

```
\newgif\if@afternarr
```

To insert vertical glue between the TEX code and the narration we'll be playing with \everypar. More precisely, we'll add a macro that the \parindent box shall move and the glue shall put.

```
\long\def\@codetonarrskip{%
  \if@codeskipput\else
    \if@afternarr\gmd@nocodeskip4{iaN}\else
      \if@aftercode
```

We are at the beginning of \everypar, i.e., TEX has just entered the hmode and put the \parindent box. Let's remove it then.

```
        {\setboxo=\lastbox}%
```

Now we can put the vertical space and state we are not 'aftercode'.

```
        \gmd@codeskip4\@codeskipputgtrue
        \leftskip\TextIndent% this line is a patch against a bug-or-feature that
              in certain cases the narration \leftskip is left equal the code left-
              skip. (It happens when there're subsequent code lines after an inline
              comment not ended with an explicit \par.)
        \else\gmd@nocodeskip4{naC}%
      \fi%
    \fi
  \fi\@aftercodegfalse}
```

But we play with \everypar for other reasons too, and while restoring it, we don't want to add the \@codetonarrskip macro infinitely many times. So let us define a macro that'll check if \everypar begins with \@codetonarrskip and trim it if so. We'll use this macro with proper \expandaftering in order to give it the contents of \everypar. The work should be done in two steps first of which will be checking whether \everypar is nonempty (we can't have two delimited parameters for a macro: if we define a two-parameter macro, the first is undelimited so it has to be nonempty; it costed me some one hour to understand it).

```
\long\def\@trimandstore#1\@trimandstore{%
  \def\@trimandstore@hash{#1}%
  \ifx\@trimandstore@hash\@empty% we check if #1 is nonempty. The \if%
      % \relax#1\relax trick is not recommended here because using it we
      couldn't avoid expanding #1 if it'd be expandable.
```

```
    \gmd@preverypar={}%
  \else
    \afterfi{\@xa\@trimandstore@ne\the\everypar\@trimandstore}%
  \fi}
\long\def\@trimandstore@ne#1#2\@trimandstore{%
  \def\trimmed@everypar{#2}%
  \ifx\@codetonarrskip#1%
    \gmd@preverypar=\@xa{\trimmed@everypar}%
  \else
    \gmd@preverypar=\@xa{\the\everypar}%
  \fi}
```

We prefer not to repeat `#1` and `#2` within the `\ifs` and we even define an auxiliary macro because `\everypar` may contain some `\ifs` or `\fis`.

Life Among Queer eols

When I showed this package to my TEX Guru he commended it and immediately pointed some disadvantages in the comparison with the doc package.

One of them was an expected difficulty of breaking a moving argument (e.g., of a sectioning macro) in two lines. To work it around let's define a line-end eater:

```
\catcode`\^^B=\active% note we re\catcode ⟨char2⟩ globally, for the entire document.
\foone{\catcode`\^^M=\active}%
  {\def\QueerCharTwo{%
      \def^^B##1^^M{\ignorespaces}}%
  }
\QueerCharTwo
\AtBegInput{\@ifQueerEOL{\catcode`\^^B\active}{}\QueerCharTwo}% We repeat redefinition of ⟨char2⟩ at begin of the documenting input, because doc.dtx suggests that some packages (namely inputenc) may re\catcode such unusual characters.
```

As you see the `^^B` active char is defined to gobble everything since itself till the end of line and the very end of line. This is intended for harmless continuing a line. The price is affecting the line numbering when `countalllines` option is enabled.

I also liked the doc's idea of comment[2] i.e., the possibility of marking some text so that it doesn't appear nor in the working version neither in the documentation, got by making `^^A` (i.e., ⟨*char1*⟩) a comment char.

However, in this package such a trick would work another way: here the line ends are active, a comment char would disable them and that would cause disasters. So let's do it an `\active` way.

```
\catcode`\^^A=\active% note we re\catcode ⟨char1⟩ globally, for the entire document.
\foone{\catcode`\^^M=\active}%
  {\def\QueerCharOne{%
      \def^^A{%
        \bgroup\let\do\@makeother\dospecials\gmd@gobbleuntilM}}%
    \def\gmd@gobbleuntilM#1^^M{\egroup\ignorespaces^^M}%
  }
\QueerCharOne
```

```
\AtBegInput{\@ifQueerEOL{\catcode`\^^A\active}\QueerCharOne}%
```
see note after line 463.

As I suggested in the users' guide, `\StraightEOL` and `\QueerEOL` are intended to cooperate in harmony for the user's good. They take care not only of redefining the line end but also these little things related to it.

One usefulness of `\StraightEOL` is allowing linebreaking of the command arguments. Another making possible executing some code lines during the documentation pass.

\StraightEOL
```
\def\StraightEOL{%
  \catcode`\^^M=5
  \catcode`\^^A=14
  \catcode`\^^B=14
  \def\^^M{\ }}
\foone{\catcode`\^^M=\active}%
```
\QueerEOL
```
{\def\QueerEOL{%
    \catcode`\^^M=\active%
    \let^^M\gmd@textEOL%
    \catcode`\^^A=\active%
    \catcode`\^^B=\active%
```
I only re`\catcode` ⟨*char1*⟩ and ⟨*char2*⟩ hoping no one but me is *that* perverse to make them `\active` and (re)define. (Let me know if I'm wrong at this point.)
```
    \let\^^M=\gmd@bslashEOL}%
}
```

To make `^^M` behave more like a 'normal' lineend I command it to add a $_{10}$ at first. It works but has one uwelcome feature: if the line has nearly `\textwidth`, this closing space may cause line breaking and setting a blank line. To fix this I `\advance` the `\parfillskip`:

\gmd@parfixclosingspace
```
\def\gmd@parfixclosingspace{{%
    \advance\parfillskip␣by-\gmd@closingspacewd\par}}
```

We'll put it in a group surrounding `\par` but we need to check if this `\par` is executed after narration or after the code, i.e., whether the closing space was added or not.

\gmd@closingspacewd
\gmd@setclosingspacewd
```
\newskip\gmd@closingspacewd
\newcommand*\gmd@setclosingspacewd{%
  \global\gmd@closingspacewd=\fontdimen2\font%
    plus\fontdimen3\font␣minus\fontdimen4\font\relax}
```

See also line 246 to see what we do in the codeline case when no closing space is added.

And one more detail:

\gmd@bslashEOL
```
\bgroup\catcode`\^^M=\active%
\firstofone{\egroup%
  \def\gmd@bslashEOL{\ \@xa\ignorespaces^^M}}
```

The `\QueerEOL` declaration will `\let` it to `\^^M` to make `\^^M` behave properly. If this definition was ommitted, `\^^M` would just expand to `\ ` and thus not gobble the leading `%` of the next line leave alone typesetting the TEX code. I type `\ ` etc. instead of just `^^M` which adds a space itself because I take account of a possibility of redefining the `\ ` cs by the user, just like in normal TEX.

We'll need it for restoring queer definitions for doc-compatibility.

Adjustment of `verbatim` and `\verb`

To make `verbatim(*)` typeset its contents with the TEX code's indentation:

\@verbatim
```
\gaddtomacro\@verbatim{\leftskip=\CodeIndent}
```

And a one more little definition to accomodate `\verb` and pals for the lines commented out.

\check@percent
```
\AtBegInput{\long\def\check@percent#1{%
    \@xa\ifx\code@delim#1\else\afterfi{#1}\fi}}
```

We also redefine gmverb's `\AddtoPrivateOthers` that has been provided just with gmdoc's need in mind.

\AddtoPrivateOthers
```
\def\AddtoPrivateOthers#1{%
  \@xa\def\@xa\doprivateothers\@xa{%
    \doprivateothers\do#1}}%
```

We also redefine an internal `\verb`'s macro `\gm@verb@eol` to put a proper line end if a line end char is met in a short verbatim: we have to check if we are in 'queer' or 'straight' EOLs area.

```
\begingroup
\obeylines%
```
\gm@verb@eol
\verb@egroup
```
\AtBegInput{\def\gm@verb@eol{\obeylines%
    \def^^M{\verb@egroup\@latex@error{%
        \@nx\verb␣ended␣by␣end␣of␣line}%
      \@ifQueerEOL{\gmd@textEOL}{\@ehc}}}}%
\endgroup
```

Macros for Marking The Macros

A great inspiration for this part was the doc package again. I take some macros from it, and some tasks I solve a different way, e.g., the \ (or another escapechar) is not active, because anyway all the chars of code are scanned one by one. And exclusions from indexing are supported not with a list stored as `\toks` register but with separate control sequences for each excluded cs.

The doc package shows a very general approach to the indexing issue. It assumes using a special MakeIndex style and doesn't use explicit MakeIndex controls but provides specific macros to hide them. But here in gmdoc we prefer no special style for the index.

\actualchar
\quotechar
\encapchar
\levelchar
```
\edef\actualchar{\string␣@}
\edef\quotechar{\string␣"}
\edef\encapchar{\xiiclub}
\edef\levelchar{\string␣!}
```

However, for the glossary, i.e., the change history, a special style is required, e.g., gmglo.ist, and the above macros are redefined by the `\changes` command due to gmglo.ist and gglo.ist settings.

Moreover, if you insist on using a special MakeIndex style, you may redefine the above four macros in the preamble. The `\edef`s that process them further are postponed till `\begin{document}`.

\CodeEscapeChar
\code@escape@char
```
\def\CodeEscapeChar#1{%
  \begingroup
  \escapechar\m@ne
  \xdef\code@escape@char{\string#1}%
  \endgroup}
```

As you see, to make a proper use of this macro you should give it a \⟨*one char*⟩ cs as an argument. It's an invariant assertion that `\code@escape@char` stores 'other' version of the code layer escape char.

```
\CodeEscapeChar\\
```

As mentioned in doc, someone may have some chars $_{11}$ed.

```
\@ifundefined{MakePrivateLetters}{%
  \def\MakePrivateLetters{\makeatletter\catcode`\*=11␣}}{}
```

\MakePrivateLetters

A tradition seems to exist to write about e.g., 'command `\section` and command `\section*`' and such an uderstanding also of 'macro' is noticeable in doc. Making the `*` a letter solves the problem of scanning starred commands.

And you may wish some special chars to be $_{12}$.

```
\def\MakePrivateOthers{\let\do=\@makeother␣\doprivateothers}
```

\MakePrivateOthers

We use this macro to re`\catcode` the space for marking the environments' names and the caret for marking chars such as `^^M`, see line 1144. So let's define the list:

```
\def\doprivateothers{\do\ \do\^}
```

\doprivateothers

Two chars for the beginning, and also the `\MakeShortVerb` command shall this list enlarge with the char(s) declared. (There's no need to add the backslash to this list since all the relevant commands `\string` their argument whatever it is.)

Now the main macro indexing a macro's name. It would be a verbatim :-) copy of the doc's one if I didn't ommit some lines irrelevant with my approach.

```
\def\scan@macro#1{% we are sure to scan at least one token and therefore we define
    this macro as one-parameter.
```

\scan@macro

Unlike in doc, here we have the escape char $_{12}$ so we may just have it printed during main scan char by char, i.e., in the lines 331 and 334.

So, we step the checksum counter first,

```
  \step@checksum% (see line 1619 for details),
```

Then, unlike in doc, we do *not* check if the scanning is allowed, because here it's always allowed and required.

Of course, I can imagine horrible perversities, but I don't think they should really be taken into account. Giving the letter `a` `\catcode` other than $_{11}$ surely would be one of those perversities. Therefore I feel safe to take the character `a` as a benchmark letter.

```
  \ifcat␣a\@nx#1%
    \quote@char#1%
    \xdef\macro@iname{\gmd@maybequote#1}% global for symmetry with line
        531.
    \xdef\macro@pname{\string#1}% we'll print entire name of the macro later.
```

We `\string` it here and in the lines 535 and 541 to be sure it is whole $_{12}$ for easy testing for special indexentry formats, see line 923 etc. Here we are sure the result of `\string` is $_{12}$ since its argument is $_{11}$.

```
    \afterfi{\@ifnextcat{a}{\gmd@finishifstar#1}{%
        \finish@macroscan}}%
  \else% #1 is not a letter, so we have just scanned a one-char cs.
```

Another reasonable `\catcodes` assumption seems to be that the digits are $_{12}$. Then we don't have to type (%)`\expandafter\@gobble\string\a`. We do the `\uccode` trick to be sure that the char we write as the macro's name is $_{12}$.

```
    {\uccode`9=`#1%
```

```
      \uppercase{\xdef\macro@iname{9}}%
    }%
    \quote@char#1%
    \xdef\macro@iname{\gmd@maybequote\macro@iname}%
    \xdef\macro@pname{\xiistring#1}%
    \afterfi␣\finish@macroscan
  \fi}
```

The \xiistring macro, provided by gmutils, is used instead of original \string because we wish to get $_{12}$('other' space).

Now, let's explain some details, i.e., let's define them. We call the following macro having known #1 to be $_{11}$.

\continue@macroscan
```
\def\continue@macroscan#1{%
  \quote@char#1%
  \xdef\macro@iname{\macro@iname␣\gmd@maybequote#1}%
  \xdef\macro@pname{\macro@pname␣\string#1}% we know#1 to be 11, so we don't need \xiistring.
  \@ifnextcat{a}{\gmd@finishifstar#1}{\finish@macroscan}%
}
```

As you may guess, \@ifnextcat is defined analogously to \@ifnextchar but the test it does is \ifcat (not \ifx). (Note it wouldn't work for an active char as the 'pattern'.)

We treat the star specially since in usual LaTeX it should finish the scanning of a cs name—we want to avoid scanning \command*argum as one cs.

\gmd@finishifstar
```
\def\gmd@finishifstar#1{%
  \if*\@nx#1\afterfi\finish@macroscan% note we protect #1 against expansion. In gmdoc verbatim scopes some chars are active (e.g. \ ).
  \else\afterfi\continue@macroscan
  \fi}
```

If someone *really* uses * as a letter please let me know.

\quote@char
```
\def\quote@char#1{{\uccode`9=`#1% at first I took digit 1 for this \uccodeing but then #1 meant #⟨#1⟩ in \uppercase's argument, of course.
    \uppercase{%
      \gmd@ifinmeaning␣9\of␣\indexcontrols
      {\glet\gmd@maybequote\quotechar}%
      {\g@emptify\gmd@maybequote}%
    }%
  }}
```

And now let's take care of the MakeIndex control characters. We'll define a list of them to check whether we should quote a char or not. But we'll do it at \begin{% document} to allow the user to use some special MakeIndex style and in such a case to redefine the four MakeIndex controls' macros. We enrich this list with the backslash because sometimes MakeIndex didn't like it unquoted.

\indexcontrols
```
\AtBeginDocument{\xdef\indexcontrols{%
    \bslash\levelchar\encapchar\actualchar\quotechar}}
```

\gmd@ifinmeaning
```
\long\def␣\gmd@ifinmeaning#1\of#2#3#4{% explained in the text paragraph below.
```

\gmd@in@@
```
  \long\def\gmd@in@@##1#1##2\gmd@in@@{%
    \ifx^^A##2^^A\afterfi{#4}%
    \else\afterfi{#3}%
```

```
    \fi}%
  \@xa\gmd@in@@#2#1\gmd@in@@}%
```

This macro is used for catching chars that are MakeIndex's controls. How does it work?

`\quote@char` sort of re`\catcode`s its argument through the `\uccode` trick: assigns the argument as the uppercase code of the digit 9 and does further work in the `\uppercase`'s scope so the digit 9 (a benchmark 'other') is substituted by `#1` but the `\catcode` remains so `\gmd@ifinmeaning` gets `\quote@char`'s `#1` 'other'ed as the first argument.

The meaning of the `\gmd@ifinmeaning` parameters is as follows:

`#1` the token(s) whose presence we check,
`#2` the macro in whose meaning we search `#1` (the first token of this argument is expanded one level with `\expandafter`),
`#3` the 'if found' stuff,
`#4` the 'if not found' stuff.

In `\quote@char` the second argument for `\gmd@ifinmeaning` is `\indexcontrols` defined as the (expanded and 'other') sequence of the MakeIndex controls. `\gmd@ifinmeaning` defines its inner macro `\gmd@in@@` to take two parameters separated by the first and the second `\gmd@ifinmeaning`'s parameter, which are here the char investigated by `\quote@char` and the `\indexcontrols` list. The inner macro's parameter string is delimited by the macro itself, why not. `\gmd@in@@` is put before a string consisting of `\gmd@ifinmeaning`'s second and first parameters (in such a reversed order) and `\gmd@in@@` itself. In such a sequence it looks for something fitting its parameter pattern. `\gmd@in@@` is sure to find the parameters delimiter (`\gmd@in@@` itself) and the separator, `\ifismember`'s `#1` i.e., the investigated char, because they are just there. But the investigated char may be found not near the end, where we put it, but among the MakeIndex controls' list. Then the rest of this list and `\ifismember`'s `#1` put by us become the secong argument of `\gmd@in@@`. What `\gmd@in@@` does with its arguments, is just a check whether the second one is empty. This may happen *iff* the investigated char hasn't been found among the MakeIndex controls' list and then `\gmd@in@@` shall expand to `\iffalse`, otherwise it'll expand to `\iftrue`. (The `\after...` macros are employed not to (mis)match just got `\if...` with the test's `\fi`.) "(Deep breath.) You got that?" If not, try doc's explanation of `\ifnot@excluded`, pp. 36–37 of the v2.1b dated 2004/02/09 documentation, where a similar construction is attributed to Michael Spivak.

Since version 0.99g `\gmd@ifinmeaning` is used also in testing whether a detector is already present in the carrier in the mechanism of automatic detection of definitions (line 610).

`\ifgmd@glosscs`

```
\newif\ifgmd@glosscs% we use this switch to keep the information whether a history entry is a cs or not.
```

`\finish@macroscan`

```
\newcommand*\finish@macroscan{%
```

First we check if the current cs is not just being defined. The switch may be set true in line 578

```
  \ifgmd@adef@cshook% if so, we throw it into marginpar and index as a def entry…
  \@ifundefined{gmd/iexcl/\macro@pname}{% … if it's not excluded from indexing.
    \@xa\Code@MarginizeMacro\@xa{\macro@pname}%
    \@xa\@defentryze\@xa{\macro@pname}{1}}{}% here we declare the kind of index entry and define \last@defmark used by \changes
```

```
    \global\gmd@adef@cshookfalse% we falsify the hook that was set true just
        for this cs.
  \fi
```

We have the cs's name for indexing in `\macro@iname` and for print in `\macro@pname`. So we index it. We do it a bit countercrank way because we wish to use more general indexing macro.

```
  \if\verbatimchar\macro@pname% it's important that \verbatimchar comes
      before the macro's name: when it was reverse, the \tt cs turned this test
      true and left the \verbatimchar what resulted with '\+tt' typeset. Note
      that this test should turn true iff the scanned macro name shows to be the
      default \verb's delimiter. In such a case we give \verb another delimiter,
      namely $:
\im@firstpar    \def\im@firstpar{[$]}%
\im@firstpar  \else\def\im@firstpar{}\fi
  \@xa␣\index@macro\im@firstpar\macro@iname\macro@pname
  \maybe@marginpar\macro@pname
  \macro@pname
  \let\next\gmd@charbychar
  \gmd@detectors% for automatic detection of definitions. Defined and explained
      in the next section. It redefines \next if detects a definition command amd
      thus sets the switch of line 564 true.
  \next
}
```

Now, the macro that checks whether the just scanned macro should be put into a marginpar: it checks the meaning of a very special cs: whose name consists of `gmd/2marpar/` and of the examined macro's name.

```
\maybe@marginpar  \def\maybe@marginpar#1{%
  \@ifundefined{gmd/2marpar/#1}{}{%
    \@xa\Text@Marginize\@xa{\bslash#1}% \expandafters
        because the \Text@Marginize command applies \string to its argument.
        % \macro@pname, which will be the only possible argument to \maybe-
        % @marginpar, contains the macro's name without the escapechar so we
        added it here.
    \@xa\g@relaxen\csname␣gmd/2marpar/#1\endcsname% we reset the switch.
  }}
```

Since version 0.99g we introduce automatic detection of definitions, it will be implemented in the next section. The details of indexing css are implemented in the section after it.

Automatic detection of definitions

To begin with, let's introduce a general declaration of a defining command. `\DeclareDefining` comes in two flavours: 'sauté', and with star. The 'sauté' version without an optional argument declares a defining command of the kind of `\def` and `\newcommand`: whether wrapped in braces or not, its main argument is a cs. The star version without the optional argument declares a defining command of the kind of `\newenvironment` and `\DeclareOption`: whose main mandatory argument is text. Both versions provide an optional argument in which you can set the keys. Probably the most important key is `star`. It determines whether the starred version of a defining command should be taken into account. For example, `\newcommand` should be declared with `[star=true]` while `\def` with `[star=false]`. You can also write just `[star]` instead of `[star=true]`. It's the default if the `star` key is omitted.

Another key is `type`. Its possible values are the (backslashless) names of the defining commands, see below.

We provide now more keys for the xkeyvalish definitions: `KVpref` (the key prefix) and `KVfam` (the key family). If not set by the user, they are assigned the default values as in xkeyval: `KVpref` letters `KV` and `KVfam` the input file name. The latter assignment is done only for the `\DeclareOptionX` defining command because in other xkeyval definitions (`\define@(...)key`) the family is mandatory.

Let's make a version of `\@ifstar` that would work with `*`$_{11}$. It's analogous to `\@ifstar`.

```
\foone{\catcode`\*=11 }
  {\def\@ifstarl#1{\@ifnextchar *{\@firstoftwo{#1}}}}
```

\@ifstarl

\DeclareDefining and the detectors

Note that the main argument of the next declaration should be a cs *without star*, unless you wish to declare only the starred version of a command. The effect of this command is always global.

```
\outer\def\DeclareDefining{\begingroup
  \MakePrivateLetters
  \@ifstarl
    {\gdef\gmd@adef@defaulttype{text}\Declare@Dfng}%
    {\gdef\gmd@adef@defaulttype{cs}\Declare@Dfng}%
}
```

\DeclareDefining

The keys except `star` depend of `\gmd@adef@currdef`, therefore we set them having known both arguments

```
\newcommand*\Declare@Dfng[2][]{%
  \endgroup
  \Declare@Dfng@inner{#1}{#2}%
  \ifgmd@adef@star% this swith may be set false in first \Declare@Dfng@inner
      (it's the star key).
    \Declare@Dfng@inner{#1}{#2*}% The catcode of * doesn't matter since it's
        in \csname ... \endcsname everywhere.
  \fi}
```

\Declare@Dfng

```
\def\Declare@Dfng@inner#1#2{%
  \edef\gmd@resa{%
    \@nx\setkeys[gmd]{adef}{type=\gmd@adef@defaulttype}}%
  \gmd@resa
  {\escapechar\m@ne
    \xdef\gmd@adef@currdef{\string#2}%
  }%
  \gmd@adef@setkeysdefault
  \setkeys[gmd]{adef}{#1}%
  \@xa\gmd@ifinmeaning
    \csname gmd@detect@\gmd@adef@currdef\endcsname
    \of\gmd@detectors{}{%
      \@xa\gaddtomacro\@xa\gmd@detectors\@xa{%
        \csname gmd@detect@\gmd@adef@currdef\endcsname}}% we add a cs
          % \gmd@detect@⟨def name⟩ (a detector) to the meaning of the detectors' carrier. And we define it to detect the #2 command.
  \@xa\xdef\csname gmd@detectname@\gmd@adef@currdef\endcsname{%
```

\Declare@Dfng@inner

\gmd@adef@currdef

```
      \gmd@adef@currdef}%
    \edef\@tempa{% this \edef is to expand \gmd@adef@TYPE.
      \global\@nx\@namedef{gmd@detect@\gmd@adef@currdef}{%
        \@nx\ifx
          \@xa\@nx\csname␣gmd@detectname@\gmd@adef@currdef%
               \endcsname
          \@nx\macro@pname
          \@nx\n@melet{next}{gmd@adef@\gmd@adef@TYPE}%
          \@nx\n@melet{gmd@adef@currdef}{gmd@detectname@%
               \gmd@adef@currdef}%
        \@nx\fi}}%
    \@tempa
    \SMglobal\StoreMacro*{gmd@detect@\gmd@adef@currdef}% we store the cs
         to allow its temporary discarding later.
}
\def\gmd@adef@setkeysdefault{%
  \setkeys[gmd]{adef}{star,prefix,KVpref}}
```

\gmd@adef@setkeysdefault

Note we don't set `KVfam`. We do not so because for `\define@key`-likes family is a mandatory argument and for `\DeclareOptionX` the default family is set to the input file name in line 726.

```
\define@boolkey[gmd]{adef}{star}[true]{}
```

star

The `prefix@`⟨*command*⟩ keyvalue will be used to create additional index entry for detected definiendum (a **definiendum** is the thing defined, e.g. in `\newenvironment{foo}` the env. `foo`). For instance, `\newcounter` is declared with `[prefix=\bslash c@]` in line 866 and therefore `\newcounter{foo}` occurring in the code will index both `foo` and `\c@foo` (as definition entries).

```
\define@key[gmd]{adef}{prefix}[]{%
  \edef\gmd@resa{%
    \def\@xa\@nx\csname␣gmd@adef@prefix@\gmd@adef@currdef␣%
         \endcsname{%
      #1}}%
  \gmd@resa}
```

prefix

```
\def\gmd@KVprefdefault{KV}%
```

\gmd@KVprefdefault

in a separate macro because we'll need it in `\ifx`.

A macro `\gmd@adef@KVprefixset@`⟨*command*⟩ if defined, will falsify an `\ifnum` test that will decide whether create additional index entry together with the tests for `prefix`⟨*command*⟩ and

```
\define@key[gmd]{adef}{KVpref}[\gmd@KVprefdefault]{%
  \edef\gmd@resa{#1}%
  \ifx\gmd@resa\gmd@KVprefdefault
  \else
    \@namedef{gmd@adef@KVprefixset@\gmd@adef@currdef}{1}%
    \gmd@adef@setKV% whenever the KVpreffix is set (not default), the declared
         command is assumed to be keyvalish.
  \fi
  \edef\gmd@resa{#1}% because \gmd@adef@setKV redefined it.
  \edef\gmd@resa{%
    \def\@xa\@nx\csname␣gmd@adef@KVpref@\gmd@adef@currdef%
         \endcsname{%
      \ifx\gmd@resa\empty
      \else#1@\fi}}% as in xkeyval, if the KV prefix is not empty, we add @ to it.
```

KVpref

```
    \gmd@resa}
```

Analogously to KVpref, KVfam declared in \DeclareDefining will override the family scanned from the code and, in \DeclareOptionX case, the default family which is the input file name (only for the command being declared).

KVfam
```
\define@key[gmd]{adef}{KVfam}[]{%
  \edef\gmd@resa{#1}%
  \@namedef{gmd@adef@KVfamset@\gmd@adef@currdef}{1}%
  \edef\gmd@resa{%
    \def\@xa\@nx\csname␣gmd@adef@KVfam@\gmd@adef@currdef%
        \endcsname{%
      \ifx\gmd@resa\empty
      \else#1@\fi}}%
  \gmd@resa
  \gmd@adef@setKV}% whenever the KVfamily is set, the declared command is assumed to be keyvalish.
```

type
```
\define@choicekey[gmd]{adef}{type}
  [\gmd@adef@typevals\gmd@adef@typenr]
  {% the list of possible types of defining commands
    def,
    newcommand,
    cs,% equivalent to the two above, covers all the cases of defining a cs, including the Plain TeX \new... and LaTeX \newlength.
    newenvironment,
    text,% equivalent to the one above, covers all the commands defining its first mandatory argument that should be text, \DeclareOption e.g.
    define@key,% special case of more arguments important; covers the xkeyval defining commands.
    dk,% a shorthand for the one above.
    DeclareOptionX,% another case of special arguments configuration, covers the xkeyval homonym.
    dox,% a shorthand for the one above.
    kvo% one of option defining commands of the kvoptions package by Heiko Oberdiek (a package available o ctan in the oberdiek bundle).
  }
  {% In fact we collapse all the types just to four so far:
    \ifcase\gmd@adef@typenr% if def
      \gmd@adef@settype{cs}{o}%
    \or% when newcommand
      \gmd@adef@settype{cs}{o}%
    \or% when cs
      \gmd@adef@settype{cs}{o}%
    \or% when newenvironment
      \gmd@adef@settype{text}{o}%
    \or% when text
      \gmd@adef@settype{text}{o}%
    \or% when define@key
      \gmd@adef@settype{dk}{1}%
    \or% when dk
      \gmd@adef@settype{dk}{1}%
    \or% when DeclareOptionX
      \gmd@adef@settype{dox}{1}%
    \or% when dox
```

```
      \gmd@adef@settype{dox}{1}%
    \or% when kvo
      \gmd@adef@settype{text}{1}% The kvoptions option definitions take first
          mandatory argument as the option name and they define a keyval key
          whose macro's name begins with the prefix/family, either default or
          explicitly declared. The kvoptions prefix/family is supported in gmdoc
          with [KVpref=,␣KVfam=⟨family⟩].
    \fi}
\gmd@adef@settype \def\gmd@adef@settype#1#2{%
  \gmd@adef@TYPE \def\gmd@adef@TYPE{#1}%
  \ifnum1=#2␣% now we define (or not) a quasi-switch that fires for the keyvalish
       definition commands.
    \gmd@adef@setKV
  \fi}
\gmd@adef@setKV \def\gmd@adef@setKV{%
  \edef\gmd@resa{%
    \def\@xa\@nx\csname␣gmd@adef@KV@\gmd@adef@currdef\endcsname{%
         1}%
  }%
  \gmd@resa}
```

We initialize the carrier of detectors:

```
\emptify\gmd@detectors
```

The definiendum of a command of the `cs` type is the next control sequence. Therefore we only need a self-relaxing hook in `\finish@macroscan`.

```
\ifgmd@adef@cshook \newif\ifgmd@adef@cshook
  \gmd@adef@cs \def\gmd@adef@cs{\global\gmd@adef@cshooktrue\gmd@charbychar}
```

For other kinds of definitions we'll employ active chars of their arguments' opening braces, brackets and seargants. In gmdoc code layer scopes the left brace is active so we only add a hook to its meaning (see line 15 in gmverb) and **??**nd here we switch it according to the type of detected definition.

```
\gmd@adef@text \def\gmd@adef@text{\gdef\gmd@lbracecase{1}\gmd@charbychar}
\foone{%
  \catcode`\[\active
  \catcode`\<\active}
{%
```

The detector of xkeyval `\define@(...)key`:

```
  \gmd@adef@dk \def\gmd@adef@dk{%
    \let[\gmd@adef@scanKVpref
    \catcode`\[\active
    \gdef\gmd@lbracecase{2}%
    \gmd@adef@dfKVpref\gmd@KVprefdefault% We set the default value of the
        xkeyval prefix. Each time again because an assignment in \gmd@adef@dfKVpref
        is global.
    \gmd@adef@checklbracket}
```

The detector of xkeyval `\DeclareOptionX`:

```
  \gmd@adef@dox \def\gmd@adef@dox{%
    \let[\gmd@adef@scanKVpref
    \let<\gmd@adef@scanDOXfam
```

```
    \catcode`[\active
    \catcode`<\active
    \gdef\gmd@lbracecase{1}%
    \gmd@adef@dfKVpref\gmd@KVprefdefault% We set the default values of the
        xkeyval prefix…
    \edef\gmd@adef@fam{\gmd@inputname}% … and family.
    \gmd@adef@dofam
    \gmd@adef@checkDOXopts}%
}
```

The case when the right bracket is next to us is special because it is already touched by `\futurelet` (of css scanning macro's `\@ifnextcat`), therefore we need a 'future' test.

\gmd@adef@checklbracket
```
\def\gmd@adef@checklbracket{%
  \@ifnextchar[{\gmd@adef@scanKVpref}\gmd@charbychar}% note that the pre-
      fix scanning macro gobbles its first argument (undelimited) which in this
      case is [.
```

After a `\DeclareOptionX`-like defining command not only the prefix in square brackets may occur but also the family in seargants. Therefore we have to test presence of both of them.

\gmd@adef@checkDOXopts
```
\def\gmd@adef@checkDOXopts{%
  \@ifnextchar[{\gmd@adef@scanKVpref}%
  {\@ifnextchar<{\gmd@adef@scanDOXfam}\gmd@charbychar}}
```

\gmd@adef@scanKVpref
```
\def\gmd@adef@scanKVpref#1#2]{%
  \gmd@adef@dfKVpref{#2}%
  [#2]\gmd@charbychar}
```

\gmd@adef@dfKVpref
```
\def\gmd@adef@dfKVpref#1{%
  \ifnum1=0\csname␣gmd@adef@KVprefixset@\gmd@adef@currdef%
       \endcsname
    \relax
  \else
    \edef\gmu@resa{%
    \gdef\@xa\@nx
    \csname␣gmd@adef@KVpref@\gmd@adef@currdef\endcsname{%
      \ifx\relax#1\relax
      \else#1@%
      \fi}}%
    \gmu@resa
  \fi}
```

\gmd@adef@scanDOXfam
```
\def\gmd@adef@scanDOXfam{%
  \ifnum12=\catcode`\>\relax
    \let\next\gmd@adef@scanfamoth
  \else
    \ifnum13=\catcode`\>\relax
      \let\next\gmd@adef@scanfamact
    \else
      \PackageError{gmdoc}{>␣neither␣`other'␣nor␣`active'!␣Make␣
          it
        `other'␣with␣\bslash␣AddtoPrivateOthers\bslash\>.}%
    \fi
  \fi
```

```
  \next}
\gmd@adef@scanfamoth
\def\gmd@adef@scanfamoth#1>{%
    \edef\gmd@adef@fam{\@gobble#1}% there is always \gmd@charbychar first.
    \gmd@adef@dofam
    <\gmd@adef@fam>%
  \gmd@charbychar}
\foone{\catcode`\>\active}
\gmd@adef@scanfamact
  {\def\gmd@adef@scanfamact#1>{%
      \edef\gmd@adef@fam{\@gobble#1}% there is always \gmd@charbychar
           first.
      \gmd@adef@dofam
      <\gmd@adef@fam>%
      \gmd@charbychar}%
  }
```

The hook of the left brace consists of `\ifcase` that logically consists of three subcases:

0 —the default: do nothing in particular;

1 —the detected defining command has one mandatory argument (is of the `text` type, including kvoptions option definition);

2–3 —we are after detection of a `\define@key`-like command so we have to scan *two* mandatory arguments (case 2 is for the family, case 3 for the key name).

```
\gm@lbracehook
\def\gm@lbracehook{%
  \ifcase\gmd@lbracecase\relax
  \or% when 1
    \afterfi{%
      \gdef\gmd@lbracecase{0}%
      \gmd@adef@scanname}%
  \or% when 2—the first mandatory argument of two (\define@(...)key)
    \afterfi{%
    \gdef\gmd@lbracecase{3}%
     \gmd@adef@scanDKfam}%
  \or% when 3—the second mandatory argument of two (the key name).
    \afterfi{%
      \gdef\gmd@lbracecase{0}%
      \gmd@adef@scanname}%
  \fi}
\gmd@lbracecase
\def\gmd@lbracecase{0}% we initialize the hook caser.
```

And we define the inner left brace macros:

```
\foone{\catcode`\[1␣\catcode`\]2␣\catcode`\}12␣}
  [% Note that till line ?? the square brackets are grouping and the right brace is
       'other'.
```

Define the macro that reads and processes the `\define@key` family argument. It has the parameter delimited with 'other' right brace. An active left brace that has launched this macro had been passed through iterating `\gmd@charbychar` that now stands next right to us.

```
\gmd@adef@scanDKfam
  \def\gmd@adef@scanDKfam#1}[%
    \edef\gmd@adef@fam[\@gobble#1]% there is always \gmd@charbychar first.
    \gmd@adef@dofam
    \gmd@adef@fam}%
  \gmd@charbychar]
```

\gmd@adef@scanname
```
\def\gmd@adef@scanname#1}[%
  \@makeother\[%
  \@makeother\<%
```
The scanned name begins with \gmd@charbychar, we have to be careful.
```
    \gmd@adef@deftext[#1]%
    \@gobble#1}%
    \gmd@charbychar]
  ]
```
\gmd@adef@dofam
```
\def\gmd@adef@dofam{%
  \ifnum1=0\csname␣gmd@adef@KVfamset@\gmd@adef@currdef\endcsname
    \relax% a family declared with \DeclareDefining overrides the one currently scanned.
  \else
    \edef\gmu@resa{%
      \gdef\@xa\@nx
      \csname␣gmd@adef@KVfam@\gmd@adef@currdef\endcsname
      {\ifx\gmd@adef@fam\empty
        \else\gmd@adef@fam␣@%
        \fi}}%
    \gmu@resa
  \fi}
```
\gmd@adef@deftext
```
\def\gmd@adef@deftext#1{%
  \edef\macro@pname{\@gobble#1}% we gobble \gmd@charbychar, cf. above.
  \@xa\Text@Marginize\@xa{\macro@pname}%
  \gmd@adef@indextext
  \edef\gmd@adef@altindex{%
    \csname␣gmd@adef@prefix@\gmd@adef@currdef␣\endcsname}%
```
and we add the xkeyval header if we are in xkeyval definition.
```
  \ifnum1=0\csname␣gmd@adef@KV@\gmd@adef@currdef␣\endcsname\relax%
```
The CS \gmd@adef@KV@⟨*def. command*⟩ is defined {1} (so \ifnum gets 1=01% \relax—true) iff ⟨*def. command*⟩ is a keyval definition. In that case we check for the KVprefix and KVfamily. (Otherwise \gmd@adef@KV@⟨*def. command*⟩ is undefined so \ifnum gets 1=0\relax—false.)
```
    \edef\gmd@adef@altindex{%
      \gmd@adef@altindex
      \csname␣gmd@adef@KVpref@\gmd@adef@currdef␣\endcsname}%
    \edef\gmd@adef@altindex{%
      \gmd@adef@altindex
      \csname␣gmd@adef@KVfam@\gmd@adef@currdef␣\endcsname}%
  \fi
  \ifx\gmd@adef@altindex\empty
  \else% we make another index entry of the definiendum with prefix/KVheader.
    \edef\macro@pname{\gmd@adef@altindex\macro@pname}%
    \gmd@adef@indextext
  \fi}
```
\gmd@adef@indextext
```
\def\gmd@adef@indextext{%
  \@xa\@defentryze\@xa{\macro@pname}{0}% declare the definiendum has to have a definition entry and in the changes history should appear without backslash.
```

```
\gmd@doindexingtext% redefine \do to an indexing macro.
\@xa\do\@xa{\macro@pname}}
```

So we have implemented automatic detection of definitions. Let's now introduce some.

Default defining commands

Some commands are easy to declare as defining:

```
\DeclareDefining[star=false]\def
```

But `\def` definitely *not always* defines an important macro. Sometimes it's just a scratch assignment. Therefore we define the next declaration. It turns the next occurence of `\def` off (only the next one).

\UnDef
```
\def\UnDef{%
  \gdef\gmd@detect@def{%
    \ifx\gmd@detectname@def\macro@pname
      \def\next{\SMglobal\RestoreMacro\gmd@detect@def}%
    \fi}%
  }
```

```
\StoreMacro\UnDef% because the 'hiding' commands relax it.
```

\HideDef
```
\def\HideDef{\HideDefining\def\relaxen\UnDef}
```

\relaxen
\ResumeDef
```
\def\ResumeDef{\ResumeDefining\def\RestoreMacro\UnDef}
```

\RestoreMacro

Note that I *don't* declare `\gdef`, `\edef` neither `\xdef`. In my opinion their use as 'real' definition is very rare and then you may use `\Define` implemented later.

\newcount
```
\DeclareDefining[star=false]\newcount
```
\newdimen
```
\DeclareDefining[star=false]\newdimen
```
\newskip
```
\DeclareDefining[star=false]\newskip
\DeclareDefining[star=false]\newif
```
\newtoks
```
\DeclareDefining[star=false]\newtoks
```
\newbox
```
\DeclareDefining[star=false]\newbox
```
\newread
```
\DeclareDefining[star=false]\newread
```
\newwrite
```
\DeclareDefining[star=false]\newwrite
```
\newlength
```
\DeclareDefining[star=false]\newlength
```

```
\DeclareDefining\newcommand
```
\renewcommand
```
\DeclareDefining\renewcommand
\DeclareDefining\providecommand
```
\DeclareRobustCommand
```
\DeclareDefining\DeclareRobustCommand
```
\DeclareTextCommand
```
\DeclareDefining\DeclareTextCommand
```
\DeclareTextCommandDefault
```
\DeclareDefining\DeclareTextCommandDefault
```

```
\DeclareDefining*\newenvironment
\DeclareDefining*\renewenvironment
```
\DeclareOption
```
\DeclareDefining*\DeclareOption
%\DeclareDefining*\@namedef
```
\newcounter
```
\DeclareDefining*[prefix=\bslash␣c@]\newcounter% this prefix provides indexing also \c@⟨counter⟩.
```
\define@key
```
\DeclareDefining[type=dk,␣prefix=\bslash]\define@key
```
\define@boolkey
```
\DeclareDefining[type=dk,␣prefix=\bslash␣if]\define@boolkey% the alternate index entry will be \if⟨KVpref⟩@⟨KVfam⟩@⟨key name⟩
```
\define@choicekey
```
\DeclareDefining[type=dk,␣prefix=\bslash]\define@choicekey
```

\DeclareOptionX 870 `\DeclareDefining[type=dox,␣prefix=\bslash]\DeclareOptionX%` the alternate index entry will be \⟨*KVpref*⟩@⟨*KVfam*⟩@⟨*option name*⟩.

For `\DeclareOptionX` the default KVfamily is the input file name. If the source file name differs from the name of the goal file (you TEX a .dtx not .sty e.g.), there is the next declaration. It takes one optional and one mandatory argument. The optional is the `KVpref`, the mandatory the `KVfam`.

```
\DeclareDOXHead 871 \newcommand*\DeclareDOXHead[2][\gmd@KVprefdefault]{%
                872   \csname␣DeclareDefining\endcsname
                873   [type=dox,␣prefix=\bslash,␣KVpref=#1,␣KVfam=#2]%
\DeclareOptionX 874   \DeclareOptionX
                875 }
```

An example:

```
876 \DeclareOptionX[Berg]<Lulu>{EvelynLear}{}
```

Check in the index for `EvelynLear` and `\Berg@Lulu@EvelynLear`. Now we set in the comment layer `\DeclareDOXHead[Webern]{Lieder}` and

```
ChneOelze 877 \DeclareOptionX<AntonW>{ChneOelze}
```

The latter example shows also overriding the option header by declaring the default. By the way, both the example options are not declared in the code actually.

Now the Heiko Oberdiek's kvoptions package option definitions:

```
                878 \DeclareDefining[type=kvo,␣prefix=\bslash,␣KVpref=]%
\DeclareStringOption      \DeclareStringOption
                879 \DeclareDefining[type=kvo,␣prefix=\bslash,␣KVpref=]%
\DeclareBoolOption        \DeclareBoolOption
                880 \DeclareDefining[type=kvo,␣prefix=\bslash,␣KVpref=]%
␣DeclareComplementaryOption  \DeclareComplementaryOption
                881 \DeclareDefining[type=kvo,␣prefix=\bslash,␣KVpref=]%
\DeclareVoidOption        \DeclareVoidOption
```

The kvoptions option definitions allow setting the default family/prefix for all definitions forth so let's provide analogon:

```
882 \def\DeclareKVOFam#1{%
883   \def\do##1{%
884     \csname␣DeclareDefining\endcsname
885     [type=kvo,␣prefix=\bslash,␣KVpref=,␣KVfam=#1]##1}%
886   \do\DeclareStringOption
887   \do\DeclareBoolOption
888   \do\DeclareComplementaryOption
889   \do\DeclareVoidOption
890 }
```

As a nice exercise I recommend to think why this list of declarations had to be preceded (in the comment layer) with `\HideAllDefining` and for which declarations of the above `\DeclareDefining\DeclareDefining` did not work. (The answers are commented out in the source file.)

One remark more: if you define (in the code) a new defining command (I did: a shorthand for `\DeclareOptionX[gmcc]<>`), declare it as defining (in the commentary) *after* it is defined. Otherwise its first occurence shall fire the detector and mark next cs or worse, shall make the detector expect some arguments that it won't find.

Suspending ('hiding') and resuming detection

Sometimes we want to suspend automatic detection of definitions. For \def we defined suspending and resuming declarations in the previous section. Now let's take care of detection more generally.

The next command has no arguments and suspends entire detection of definitions.

\HideAllDefining
```
\def\HideAllDefining{%
  \ifnum0=0\csname␣gmd@adef@allstored\endcsname
    \SMglobal\StoreMacro\gmd@detectors
    \global\@namedef{gmd@adef@allstored}{1}%
  \fi
  \global\emptify\gmd@detectors}% we make the carrier \empty not \relax
        to be able to declare new defining command in the scope of \HideAll...
```

The \ResumeAllDefining command takes no arguments and restores the meaning of the detectors' carrier stored with \HideAllDefining

\ResumeAllDefining
```
\def\ResumeAllDefining{%
  \ifnum1=0\csname␣gmd@adef@allstored\endcsname\relax
    \SMglobal\RestoreMacro\gmd@detectors
    \SMglobal\RestoreMacro\UnDef
    \global\@namedef{gmd@adef@allstored}{0}%
  \fi}
```

Note that \ResumeAllDefining discards the effect of any \DeclareDefining that could have occured between \HideAllDefining and itself.

The \HideDefining command takes one argument which should be a defining command (always without star). \HideDefining suspends detection of this command (also of its starred version) until \ResumeDefining of the same command or \ResumeAllDefining.

\HideDefining
```
\def\HideDefining{\begingroup
  \MakePrivateLetters
  \Hide@Dfng}
```

\Hide@Dfng
```
\def\Hide@Dfng#1{%
  \escapechar\m@ne
  \gn@melet{gmd@detect@\string#1}{relax}%
  \gn@melet{gmd@detect@\string#1*}{relax}%
  \ifx\def#1\global\relaxen\UnDef\fi
  \endgroup}
```

The \ResumeDefining command takes a defining command as the argument and resumes its automatic detection. Note that it restores also the possibly undefined detectors of starred version of the argument but that is harmless I suppose until we have millions of css.

\ResumeDefining
```
\def\ResumeDefining{\begingroup
  \MakePrivateLetters
  \gmd@ResumeDfng}
```

\gmd@ResumeDfng
```
\def\gmd@ResumeDfng#1{%
  \escapechar\m@ne
  \SMglobal\RestoreMacro*{gmd@detect@\string#1}%
  \SMglobal\RestoreMacro*{gmd@detect@\string#1*}%
  \endgroup}
```

Indexing of css

The inner macro indexing macro. #1 is the \verb's delimiter; #2 is assumed to be the macro's name with MakeIndex-control chars quoted. #3 is a macro storing the 12 macro's name, usually \macro@pname, built with \stringing every char in lines 527, 535 and 541. #3 is used only to test if the entry should be specially formatted.

\index@macro
```
\newcommand*\index@macro[3][\verbatimchar]{{%
    \@ifundefined{gmd/iexcl/#3}%
    {% #3 is not excluded from index
      \@ifundefined{gmd/defentry/#3}%
      {% #3 is not def entry
        \@ifundefined{gmd/usgentry/#3}%
        {% #3 is not usg entry
          \edef\kind@fentry{\CommonEntryCmd}}%
        {% #3 is usg entry
```
\kind@fentry
```
          \def\kind@fentry{UsgEntry}%
          \un@usgentryze{#3}}%
      }%
      {% #3 is def entry
```
\kind@fentry
```
        \def\kind@fentry{DefEntry}%
        \un@defentryze{#3}%
      }% of gmd/defentry/ test's 'else'
      \if@pageindex\@pageinclindexfalse\fi% should it be here or there?
```
Definitely here because we'll wish to switch the switch with a declaration.
```
      \if@pageinclindex
        \edef\IndexRefCs{gmdindexpagecs{\HLPrefix}{%
            \kind@fentry}{\EntryPrefix}}%
      \else
        \edef\IndexRefCs{gmdindexrefcs{\HLPrefix}{\kind@fentry}{%
            \EntryPrefix}}%
      \fi
      \edef\@tempa{\IndexPrefix#2\actualchar%
        \quotechar\bslash␣verb*#1\quoted@eschar#2#1% The last macro in
```
this line usually means the first two, but in some cases it's redefined to be empty (when we use \index@macro to index not a cs).
```
        \encapchar\IndexRefCs}%
      \@xa\special@index\@xa{\@tempa}% We give the indexing macro the argument expanded so that hyperref may see the explicit encapchar in order not to add its own encapsulation of |hyperpage when the (default) hyperindex=true option is in force. (After this setting the \edefs in the above may be changed to \defs.)
    }{}% closing of gmd/iexcl/ test.
    }}
```

\un@defentryze
```
\def\un@defentryze#1{%
  \@xa\g@relaxen\csname␣gmd/defentry/#1\endcsname
  \ifx\gmd@detectors\empty
    \g@relaxen\last@defmark
  \fi}% the last macro (assuming \fi is not a macro :-) is only used by \changes. If
```
we are in the scope of automatic detection of definitions, we want to be able not to use \Define but write \changes after a definition and get proper entry. Note that in case of automatic detection of definitions \last@defmark's value keeps until the next definition.

\un@usgentryze
```
\def\un@usgentryze#1{%
  \@xa\g@relaxen\csname␣gmd/usgentry/#1\endcsname}
\@emptify\EntryPrefix% this macro seems to be obsolete now (v0.98d).
```

For the case of page-indexing a macro in the commentary when codeline index option is on:

\if@pageinclindex
```
\newif\if@pageinclindex
```

\quoted@eschar
```
\newcommand*\quoted@eschar{\quotechar\bslash}% we'll redefine it when indexing an environment.
```

Let's initialize \IndexPrefix

\IndexPrefix
```
\def\IndexPrefix{}
```

The \IndexPrefix and \HLPrefix ('HyperLabel Prefix') macros are given with account of a possibility of documenting several files in(to) one document. In such case the user may for each file \def\IndexPrefix{⟨*package name*⟩!} for instance and it will work as main level index entry and \def\HLPrefix{⟨*package name*⟩} as a prefix in hypertargets in the codelines. They are redefined by \DocInclude e.g.

```
\if@linesnotnum\@pageindextrue\fi
\AtBeginDocument{%
  \if@pageindex
```

\gmdindexrefcs
```
    \def\gmdindexrefcs#1#2#3#4{\csname#2\endcsname{\hyperpage{#4}}}%
```
in the page case we gobble the third argument that is supposed to be the entry prefix.
```
    \let\gmdindexpagecs=\gmdindexrefcs
  \else
```

\gmdindexrefcs
```
    \def␣\gmdindexrefcs#1#2#3#4{\gmiflink[clnum.#4]{%
        \csname#2\endcsname{#4}}}%
```

\gmdindexpagecs
```
    \def␣\gmdindexpagecs#1#2#3#4{\hyperlink{page.#4}{%
        \csname#2\endcsname{\gmd@revprefix{#3}#4}}}%
```

\gmd@revprefix
```
    \def\gmd@revprefix#1{%
      \def\@tempa{#1}%
      \ifx\@tempa\@empty␣p.\,\fi}
```

\HLPrefix
```
    \providecommand*\HLPrefix{}%
```
it'll be the hypertargets names' prefix in multi-docs. Moreover, it showed that if it was empty, hyperref saw duplicates of the hyper destinations, which was perfectly understandable (codelinenum.123 made by \refstepcounter and codelinenum.123 made by \gmhypertarget). But since v0.98 it is not a problem anymore because during the automatic \hypertargeting the lines are labeled clnum.⟨*number*⟩. When \HLPrefix was defined as dot, MakeIndex rejected the entries as 'illegal page number'.
```
  \fi}
```

The definition is postponed till \begin{document} because of the \PageIndex declaration (added for doc-compatibility), see line 2088.

I design the index to contain hyperlinking numbers whether they are the line numbers or page numbers. In both cases the last parameter is the number, the one before the last is the name of a formatting macro and in linenumber case the first parameter is a prefix for proper reference in multi-doc.

I take account of three kinds of formatting the numbers: 1. the 'def' entry, 2. a 'usage' entry, 3. a common entry. As in doc, let them be underlined, italic and upright respectively.

\DefEntry
\UsgEntry
```
\def\DefEntry#1{\underline{#1}}
\def\UsgEntry#1{\textit{#1}}
```

The third option will be just \relax by default:

\CommonEntryCmd
```
\def\CommonEntryCmd{relax}
```

In line 927 it's \edefed to allow an 'unmöglich' situation that the user wants to have the common index entries specially formatted. I use this to make *all* the index entries of the driver part to be 'usage', see the source of chapter 641.

Now let's \def the macros declaring a cs to be indexed special way. Each declaration puts the $_{12}$ed name of the macro given it as the argument into proper macro to be \ifxed in lines 923 and 925 respectively.

Now we are ready to define a couple of commands. The * versions of them are for marking environments and *implicit* css.

\DefIndex
```
\outer\def\DefIndex{\begingroup
  \MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Code@DefIndexStar}{%
       \Code@DefIndex}}
```

\Code@DefIndex
```
\long\def\Code@DefIndex#1{\endgroup{%
    \escapechar\m@ne% because we will compare the macro's name with a string
         without the backslash.
    \@defentryze{#1}{1}}}
```

\Code@DefIndexStar
```
\long\def\Code@DefIndexStar#1{%
  \endgroup
  \addto@estoindex{#1}%
  \@defentryze{#1}{0}}
```

\gmd@justadot
```
\def\gmd@justadot{.}
```

\@defentryze
\last@defmark
```
\long\def\@defentryze#1#2{%
  \@xa\glet\csname␣gmd/defentry/\string#1\endcsname\gmd@justadot% The LaTeX \@namedef macro could not be used since it's not 'long'.
  \xdef\last@defmark{\string#1}% we \string the argument just in case it's a control sequence. But when it can be a cs, we \@defentryze in a scope of \escapechar=-1, so there will never be a backslash at the beginning of \last@defmark's meaning (unless we \@defentryze \\).
  \@xa\gdef\csname␣gmd/isaCS/\last@defmark\endcsname{#2}}% #2 is either 0 or 1. It is the information whether this entry is a cs or not.
```

\@usgentryze
```
\long\def\@usgentryze#1{%
  \@xa\let\csname␣gmd/usgentry/\string#1\endcsname\gmd@justadot}
```

Initialize \envirs@toindex

```
\@emptify\envirs@toindex
```

Now we'll do the same for the 'usage' entries:

\CodeUsgIndex
```
\outer\def\CodeUsgIndex{\begingroup
  \MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Code@UsgIndexStar}{%
       \Code@UsgIndex}}
```

The * possibility is for marking environments etc.

\Code@UsgIndex
```
\long\def\Code@UsgIndex#1{\endgroup{%
    \escapechar\m@ne
```

```
      \global\@usgentryze{#1}}}
\Code@UsgIndexStar
\long\def\Code@UsgIndexStar#1{%
  \endgroup
  \addto@estoindex{#1}%
  \@usgentryze{#1}}
```

For the symmetry, if we want to mark a control sequence or an environment's name to be indexed as a 'normal' entry, let's have:

```
\CodeCommonIndex
\outer\def\CodeCommonIndex{\begingroup
  \MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Code@CommonIndexStar}{%
       \Code@CommonIndex}}
\Code@CommonIndex
\long\def\Code@CommonIndex#1{\endgroup}
\Code@CommonIndexStar
\long\def\Code@CommonIndexStar#1{%
  \endgroup\addto@estoindex{#1}}
```

And now let's define commands to index the control sequences and environments occurring in the narrative.

```
\text@indexmacro
\long\def\text@indexmacro#1{%
  {\escapechar\m@ne␣\xdef\macro@pname{\xiistring#1}}%
  \@xa\quote@mname\macro@pname\relax% we process the cs's name char by
       char and quote MakeIndex controls. \relax is the iterating macro's stopper.
       The scanned cs's quoted name shall be the expansion of \macro@iname.
  \if\verbatimchar\macro@pname
\im@firstpar
    \def\im@firstpar{[$]}%
\im@firstpar
  \else\def\im@firstpar{}%
  \fi
  {\do@properindex% see line 1176.
    \@xa␣\index@macro\im@firstpar\macro@iname\macro@pname}}
```

The macro defined below (and the next one) are executed only before a $_{12}$ macro's name i.e. a nonempty sequence of $_{12}$ character(s). This sequence is delimited (guarded) by \relax.

```
\quote@mname
\def\quote@mname{%
\macro@iname
  \def\macro@iname{}%
  \quote@charbychar}
\quote@charbychar
\def\quote@charbychar#1{%
  \if\relax#1% finish quoting when you meet \relax or:
  \else
    \quote@char#1%
    \xdef\macro@iname{\macro@iname␣\gmd@maybequote#1}%
    \afterfi\quote@charbychar
  \fi}
```

The next command will take one argument, which in plain version should be a control sequence and in the starred version also a sequence of chars allowed in environment names or made other by \MakePrivateOthers macro, taken in the curly braces.

```
\TextUsgIndex
\def\TextUsgIndex{\begingroup
  \MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Text@UsgIndexStar}{%
       \Text@UsgIndex}}
\Text@UsgIndex
\long\def\Text@UsgIndex#1{%
```

```
    \endgroup\@usgentryze#1%
    \text@indexmacro#1}
\Text@UsgIndexStar \long\def\Text@UsgIndexStar#1{\endgroup\@usgentryze{#1}%
    \text@indexenvir{#1}}
\text@indexenvir \long\def␣\text@indexenvir#1{%
    \edef\macro@pname{\xiistring#1}%
    \if\bslash\@xa\@firstofmany\macro@pname\@@nil% if \stringed #1 begins with a backslash, we will gobble it to make MakeIndex not see it.
      \edef\@tempa{\@xa\@gobble\macro@pname}%
      \@tempswatrue
    \else
      \let\@tempa\macro@pname
      \@tempswafalse
    \fi
    \@xa\quote@mname\@tempa\relax% we process \stinged #1 char by char and quote MakeIndex controls. \relax is the iterating macro's stopper. The quoted \stringed #1 shall be the meaning of \macro@iname.
    {\if@tempswa
\quoted@eschar    \def\quoted@eschar{\quotechar\bslash}%
      \else\@emptify\quoted@eschar\fi% we won't print any backslash before an environment's name, but we will before a cs's name.
      \do@properindex% see line 1176.
      \index@macro\macro@iname\macro@pname}}
\TextCommonIndex \def\TextCommonIndex{\begingroup
    \MakePrivateLetters
    \@ifstarl{\MakePrivateOthers\Text@CommonIndexStar}{%
        \Text@CommonIndex}}
\Text@CommonIndex \long\def\Text@CommonIndex#1{\endgroup
    \text@indexmacro#1}
\Text@CommonIndexStar \long\def\Text@CommonIndexStar#1{\endgroup
    \text@indexenvir{#1}}
```

As you see in the lines 934 and 930, the markers of special formatting are reset after first use.

But we wish the css not only to be indexed special way but also to be put in marginpars. So:

```
\CodeMarginize \outer\def\CodeMarginize{\begingroup
    \MakePrivateLetters
    \@ifstarl
      {\MakePrivateOthers\egCode@MarginizeEnvir}
      {\egCode@MarginizeMacro}}
```

One more expansion level because we wish `\Code@MarginizeMacro` not to begin with `\endgroup` because in the subsequent macros it's used *after* ending the re`\catcode`ing group.

```
\egCode@MarginizeMacro \long\def\egCode@MarginizeMacro#1{\endgroup
    \Code@MarginizeMacro#1}
\Code@MarginizeMacro \long\def\Code@MarginizeMacro#1{{\escapechar\m@ne
      \@xa\glet\csname␣gmd/2marpar/\string#1\endcsname\gmd@justadot
    }}
```

\egCode@MarginizeEnvir
```
\long\def\egCode@MarginizeEnvir#1{\endgroup
  \Code@MarginizeEnvir{#1}}
```
\Code@MarginizeEnvir
```
\long\def\Code@MarginizeEnvir#1{\addto@estomarginpar{#1}}
```

And a macro really putting the environment's name in a marginpar shall be trigged at the beginning of the nearest codeline.

Here it is:

\mark@envir
```
\def\mark@envir{%
  \ifx\envirs@tomarginpar\@empty
  \else
    \let\do\Text@Marginize
    \envirs@tomarginpar%
    \g@emptify\envirs@tomarginpar%
  \fi
  \ifx\envirs@toindex\@empty
  \else
    \gmd@doindexingtext
    \envirs@toindex
    \g@emptify\envirs@toindex%
  \fi}
```
\gmd@doindexingtext
```
\def\gmd@doindexingtext{%
  \def\do##1{% the \envirs@toindex list contains \stringed macros or environments' names in braces and each preceded with \do. We extract the definition because we use it also in line 836.
    \if\bslash\@firstofmany##1\@@nil% if ##1 begins with a backslash, we will gobble it for MakeIndex not see it.
    \edef\gmd@resa{\@gobble##1}%
    \@tempswatrue
    \else
    \edef\gmd@resa{##1}\@tempswafalse
    \fi
    \@xa\quote@mname\gmd@resa\relax% see line 1047 & subs. for commentary.
    {\if@tempswa
```
\quoted@eschar
```
      \def\quoted@eschar{\quotechar\bslash}%
      \else\@emptify\quoted@eschar\fi
      \index@macro\macro@iname{##1}}}%
}
```

One very important thing: initialisation of the list macros:

```
\@emptify\envirs@tomarginpar
\@emptify\envirs@toindex
```

For convenience we'll make the 'private letters' first not to bother ourselves with `\makeatletter` for instance when we want mark some cs. And `\MakePrivateOthers` for the environment and other string case.

\Define
```
\outer\def\Define{\begingroup
  \MakePrivateLetters
```

We do `\MakePrivateLetters` before `\@ifstarl` in order to avoid a situation that TEX sees a control sequence with improper name (another cs than we wished) (because `\@ifstarl` establishes the `\catcodes` for the next token):

```
  \@ifstarl{\MakePrivateOthers\Code@DefEnvir}{\Code@DefMacro}}
```
\CodeUsage
```
\outer\def\CodeUsage{\begingroup
```

```
  \MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Code@UsgEnvir}{\Code@UsgMacro}}
```

And then we launch the macros that close the group and do the work.

\Code@DefMacro
```
\long\def\Code@DefMacro#1{%
  \Code@DefIndex#1% we use the internal macro; it'll close the group.
  \Code@MarginizeMacro#1}
```

\Code@UsgMacro
```
\long\def\Code@UsgMacro#1{%
  \Code@UsgIndex#1% here also the internal macro; it'll close the group
  \Code@MarginizeMacro#1}
```

The next macro is taken verbatim ;-) from doc and the subsequent \lets, too.

\codeline@wrindex
```
\def\codeline@wrindex#1{\if@filesw
  \immediate\write\@indexfile
  {\string\indexentry{#1}%
    {\HLPrefix\number\c@codelinenum}}\fi}
```

We initialize it due to the option (or lack of the option):

```
\AtBeginDocument{%
  \if@pageindex
    \let\special@index=\index
  \else
    \let\special@index=\codeline@wrindex
  \fi}% postponed till \begin{document} with respect of doc-like declarations.
```

And in case we don't want to index:

\gag@index
```
\def\gag@index{\let\index=\@gobble
  \let\codeline@wrindex=\@gobble}
```

We'll use it in one more place or two. And we'll wish to be able to undo it so let's copy the original meanings:

```
\StoreMacros{\index\codeline@wrindex}
```

\ungag@index
```
\def\ungag@index{\RestoreMacros{\index\@@codeline@wrindex}}
```

Our next task is to define macros that'll mark and index an environment or other string in the code. Because of lack of a backslash, no environment's name is scanned so we have to proceed different way. But we wish the user to have symmetric tools, i.e., the 'def' or 'usage' use of an environment should be declared before the line where the environment occurs. Note the slight difference between these and the commands to declare a cs marking: the latter do not require to be used *immediately* before the line containig the cs to be marked. We separate indexing from marginizing to leave a possibility of doing only one of those things.

\Code@DefEnvir
```
\long\def\Code@DefEnvir#1{%
  \endgroup
  \addto@estomarginpar{#1}%
  \addto@estoindex{#1}%
  \@defentryze{#1}{o}}
```

\Code@UsgEnvir
```
\long\def\Code@UsgEnvir#1{%
  \endgroup
  \addto@estomarginpar{#1}%
  \addto@estoindex{#1}%
  \@usgentryze{#1}}
```

\addto@estomarginpar
```
\long\def\addto@estomarginpar#1{%
```

```
    \edef\@tempa{\@nx\do{\xiistring#1}}% we \string the argument to allow
          it to be a control sequence.
    \@xa\addtomacro\@xa\envirs@tomarginpar\@xa{\@tempa}}
\addto@estoindex \long\def\addto@estoindex#1{%
    \edef\@tempa{\@nx\do{\xiistring#1}}
    \@xa\addtomacro\@xa\envirs@toindex\@xa{\@tempa}}
```

And now a command to mark a 'usage' occurrence of a cs, environment or another string in the commentary. As the 'code' commands this also has plain and starred version, first for css appearing explicitly and the latter for the strings and css appearing implicitly.

```
\TextUsage \def\TextUsage{\begingroup
    \MakePrivateLetters
    \@ifstarl{\MakePrivateOthers\Text@UsgEnvir}{\Text@UsgMacro}}
\Text@UsgMacro \long\def\Text@UsgMacro#1{%
    \endgroup{\tt\xiistring#1}%
    \Text@Marginize#1%
    \begingroup\Code@UsgIndex#1% we declare the kind of formatting of the entry.
    \text@indexmacro#1}
\Text@UsgEnvir \long\def\Text@UsgEnvir#1{%
    \endgroup{\tt\xiistring#1}%
    \Text@Marginize{#1}%
    \@usgentryze{#1}% we declare the 'usage' kind of formatting of the entry and
          index the sequence #1.
    \text@indexenvir{#1}}
```

We don't provide commands to mark a macro's or environment's definition present within the narrative because we think there won't be any: one defines macros and environments in the code not in the commentary.

```
\TextMarginize \def\TextMarginize{\begingroup
    \MakePrivateLetters
    \@ifstarl{\MakePrivateOthers\egText@Marginize}{%
          \egText@Marginize}}
\egText@Marginize \long\def\egText@Marginize#1{\endgroup
    \Text@Marginize#1}
```

We check whether the margin pars are enabled and proceed respectively in either case.

```
\if@marginparsused
    \reversemarginpar
    \marginparpush\z@
    \marginparwidth8pc\relax
```

You may wish to put not only macros and environments to a marginpar.

```
\gmdmarginpar   \long\def\gmdmarginpar#1{%
      \marginpar{\raggedleft\strut
        \hskipoptplus1ooptminus1oopt%
        #1}}%
\else
\gmdmarginpar   \long\def\gmdmarginpar#1{}%
\fi
\Text@Marginize \long\def\Text@Marginize#1{%
```

```
\gmdmarginpar{\marginpartt\xiistring#1}}
```

Note that the above macro will just gobble its argument if the marginpars are disabled.

It may be advisable to choose a condensed typewriter font for the marginpars, if there is any. (The Latin Modern font family provides a light condensed typewriter font, it's set in gmdocc class.)

```
\let\marginpartt\tt
```

If we count all lines then the index entries for css and environments marked in the commentary should have codeline numbers not page numbers and that is `\let` in line 1122. On the other hand, if we count only the codelines, then a macro or an environment marked in the commentary should have page number not codeline number. This we declare here, among others we add the letter p before the page number.

\do@properindex
```
\def\do@properindex{%
  \if@countalllines\else
    \@pageinclindextrue
    \let\special@index=\index
  \fi}
```

In doc all the 'working' TEX code should be braced in(to) the `macrocode` environments. Here another solutions are taken so to be doc-compatible we only should nearly-ignore `macrocode(*)`s with their Percent and The Four Spaces Preceding ;-). I.e., to ensure the line ends are 'queer'. And that the DocStrip directives will be typeset as the DocStrip directives. And that the usual code escape char will be restored at `\end{%macrocode}`. And to add the vertical spaces.

If you know doc conventions, note that gmdoc *does not* require `\end{macrocode}` to be preceded with any particular number of any char :-).

macrocode*
```
\newenvironment*{macrocode*}{%
  \if@codeskipput\else\par\addvspace\CodeTopsep%
       \@codeskipputgtrue\fi
  \QueerEOL}%
  {\par\addvspace\CodeTopsep\CodeEscapeChar\\}
```

Let's remind that the starred version makes ␣ visible, which is the default in gmdoc outside `macrocode`.

So we should make the spaces *invisible* for the unstarred version.

macrocode
```
\newenvironment*{macrocode}{%
  \if@codeskipput\else\par\addvspace\CodeTopsep%
       \@codeskipputgtrue\fi
  \QueerEOL}%
  {\par\addvspace\CodeTopsep\CodeEscapeChar\\}
```

Note that at the end of both the above environments the `\`'s rôle as the code escape char is restored. This is crafted for the `\SpecialEscapechar` macro's compatibility: this macro influences only the first `macrocode` environment. The situation that the user wants some queer escape char in general and in a particular `macrocode` yet another seems to me "unmöglich, Prinzessin"[8].

Since the first .dtx I tried to compile after the first published version of gmdoc uses a lot of commented out code in `macrocodes`, it seems to me necessary to add a possibility to typeset `macrocodes` as if they were a kind of `verbatim`, that is to leave the code layer and narration layer philosophy.

oldmc
```
\let\oldmc\macrocode
```

[8] Richard Strauss after Oscar Wilde, *Salome*.

```
\let\endoldmc\endmacrocode
\n@melet{oldmc*}{macrocode*}
\n@melet{endoldmc*}{endmacrocode*}
```

Now we arm `oldmc` and `olmc*` with the the macro looking for `% \end{`*envir name*`}`.

```
\addtomacro\oldmc{\@oldmacrocode@launch}%
\@xa\addtomacro\csname␣oldmc*\endcsname{%
  \@oldmacrocode@launch}
\def\@oldmacrocode@launch{%
  \emptify\gmd@textEOL% to disable it in \gmd@docstripdirective launched
      within the code.
  \glet\stored@code@delim\code@delim
  \@makeother\^^B\CodeDelim\^^B%
  \ttverbatim␣\gmd@DoTeXCodeSpace%
  \@makeother\|% because \ttverbatim doesn't do that.
  \MakePrivateLetters% see line 518.
  \docstrips@percent␣\@makeother\>%
```

sine qua non of the automatic delimiting is replacing possible $*_{12}$in the environment's name with $*_{11}$. Not to complicate assume `*` may occur at most once and only at the end. We also assume the environment's name consists only of character tokens whose catcodes (except of `*`) will be the same in the verbatim text.

```
  \@xa\gmd@currenvxistar\@currenvir*\relax
  \@oldmacrocode}
\bgroup\catcode`*11
\firstofone{\egroup
  \def\gm@xistar{*}}
\def\gmd@currenvxistar#1*#2\relax{%
  \edef\@currenvir{#1\if*#2\gm@xistar\fi}}
```

The trick is that `#2` may be either $*_{12}$ or empty. If it's `*`, the test is satisfied and `\if...\fi` expands to `\gm@xistar`. If `#2` is empty, the test is also satisfied since `\gm@xistar` expands to `*` but there's nothing to expand to. So, if the environment's name ends with $*_{12}$, it'll be substituted with $*_{11}$or else nothing will be added. (Note that a `*` not at the end of env. name would cause a disaster.)

```
\bgroup
\catcode`[=1␣\catcode`]=2
\catcode`\{=\active␣\@makeother\}
\@makeother\^^B
\catcode`!=0␣\catcode`\\=\active
!catcode`&=14 !catcode‘*=11
!catcode`!%=!active␣!obeyspaces&
!firstofone[!egroup&
!def!@oldmacrocode[&
```

```
!bgroup!let␣=!relax& to avoid writing !noexpand  four times.
!xdef!oldmc@def[&
!def!noexpand!oldmc@end####1!noexpand%␣␣␣␣!noexpand\end&
!noexpand{!@currenvir}[&
####1^^B!noexpand!end[!@currenvir]!noexpand!gmd@oldmcfinis]]&
!egroup& now \oldmc@edef is defined to have one parameter delimited with
      \end{⟨current env.'s name⟩}
!oldmc@def&
!oldmc@end]&
]
\def\gmd@oldmcfinis{%
  \@xa\CodeDelim\stored@code@delim
  \gmd@mchook}% see line 2021
\def\VerbMacrocodes{%
  \let\macrocode\oldmc
  \n@melet{macrocode*}{oldmc*}}
```

To handle DocStrip directives in the code (in the old macrocodes case that is).

```
\foone{\catcode`\%\active}
{\def\docstrips@percent{\catcode`\%\active
    \let%\gmd@codecheckifds}}
```

The point is, the active % will be expanded when just after it is the `\gmd@charbychar` cs token and next is some char, the `^^B` code delimiter at least. So, if that char is <, we wish to launch DocStrip directive typesetting. (Thanks to `\ttverbatim` all the < are 'other'.)

\gmd@codecheckifds

```
\def\gmd@codecheckifds#1#2{% note that #1 is just to gobble \gmd@charbychar
      token.
  \if@dsdir\@dsdirgfalse
    \if\@nx<\@nx#2\afterfifi\gmd@docstripdirective
    \else\afterfifi{\xiipercent#1#2}%
    \fi
  \else\afterfi{\xiipercent#1#2}%
  \fi}
```

macro

Almost the same we do with the `macro(*)` environments, stating only their argument to be processed as the 'def' entry. Of course, we should re`\catcode` it first.

macro

```
\newenvironment{macro}{%
  \@tempskipa=\MacroTopsep
  \if@codeskipput\advance\@tempskipa␣by-\CodeTopsep\fi
  \par\addvspace{\@tempskipa}\@codeskipputgtrue
  \begingroup\MakePrivateLetters\MakePrivateOthers% we make also the
      'private others' to cover the case of other sequence in the argument. (We'll
      use the \macro macro also in the environment for describing and defining
      environments.)
  \gmd@ifonetoken\Hybrid@DefMacro\Hybrid@DefEnvir}%
  {\par\addvspace\MacroTopsep\@codeskipputgtrue}
```

It came out that the doc's author(s) give the `macro` environment also starred versions of commands as argument. It's OK since (the default version of) `\MakePrivateLetters` makes * a letter and therefore such a starred version is just one cs. However, in doc.dtx occur `macro`s that mark *implicit* definitions i.e., such that the defined cs is not scanned in the subsequent code.

macro*

And for those who want to to use this environment for marking implicit definitions, define the star version:

```
\@namedef{macro*}{\let\gmd@ifonetoken\@secondoftwo\macro}
\@xa\let\csname␣endmacro*\endcsname\endmacro
```

Note that `macro` and `macro*` have the same effect for more-than-one-token arguments thanks to `\gmd@ifonetoken`'s meaning inside unstarred `macro` (it checks whether the argument is one-token and if it isn't, `\gmd@ifonetoken` switches execution to 'other sequence' path).

The two environments behave different only with a one-token argument: `macro` postpones indexing it till the first scanned occurrence while `macro*` till the first code line met.

Now, let's complete the details. First define an `\if`-like macro that turns true when the string given to it consists of just one token (or one {⟨*text*⟩}, to tell the whole truth).

\gmd@ifsingle

```
\def\gmd@ifsingle#1#2\@@nil{%
  \def\@tempa{#2}%
  \ifx\@tempa\@empty}
```

Note it expands to an open `\if...` test (unbalanced with `\fi`) so it has to be used as all the `\if`s, with optional `\else` and obligatory `\fi`. And cannot be used in the possibly skipped branches of other `\if...`s (then it would result with 'extra `\fi`/extra `\else`' errors). But the below usage is safe since both `\gmd@ifsingle` and its `\else` and `\fi` are hidden in a macro (that will not be `\expandaftered`).

Note also that giving `\gmd@ifsingle` an `\if...` or so as the first token of the argument will not confuse TEX since the first token is just gobbled. The possibility of occurrence of `\if...` or so as a not-first token seems to be negligible.

\gmd@ifonetoken

```
\def\gmd@ifonetoken#1#2#3{%
  \def\@tempb{#3}% We hide #3 from TeX in case it's \if... or so. \@tempa is
       used in \gmd@ifsingle.
  \gmd@ifsingle#3\@@nil
    \afterfi{\@xa#1\@tempb}%
  \else
    \edef\@tempa{\@xa\string\@tempb}%
    \afterfi{\@xa#2\@xa{\@tempa}}%
  \fi}
```

Now, define the mysterious `\Hybrid@DefMacro` and `\Hybrid@DefEnvir` macros. They mark their argument with a certain subtlety: they put it in a marginpar at the point where they are and postpone indexing it till the first scanned occurrence or just the first code line met.

\Hybrid@DefMacro

```
\long\def\Hybrid@DefMacro#1{%
  \Code@DefIndex{#1}% this macro closes the group opened by \macro.
  \Text@MarginizeNext{#1}}
```

\Hybrid@DefEnvir

```
\long\def\Hybrid@DefEnvir#1{%
  \Code@DefIndexStar{#1}% this macro also closes the group begun by \macro.
  \Text@MarginizeNext{#1}}
```

\Text@MarginizeNext

```
\long\def\Text@MarginizeNext#1{%
  \gmd@evpaddonce{\Text@Marginize{#1}\ignorespaces}}
```

The following macro adds its argument to `\everypar` using an auxiliary macro to wrap the stuff in. The auxiliary macro has a self-destructor built in so it `\relax`es itself after first use.

\gmd@evpaddonce
```
\long\def\gmd@evpaddonce#1{%
  \stepnummacro\gmd@oncenum
  \@xa\long\@xa\edef%
    \csname␣gmd/evp/NeuroOncer\gmd@oncenum\endcsname{%
      \@nx\g@relaxen
      \csname␣gmd/evp/NeuroOncer\gmd@oncenum\endcsname}% Why does it work despite it shouldn't? Because when the cs got with \csname... % \endcsname is undefined, it's equivalent \relax and therefore unexpandable. That's why it passes \edef and is able to be assigned.
  \@xa\addtomacro\csname␣gmd/evp/NeuroOncer\gmd@oncenum%
       \endcsname{#1}%
  \@xa\addto@hook\@xa\everypar\@xa{%
    \csname␣gmd/evp/NeuroOncer\gmd@oncenum\endcsname}%
}
\nummacro\gmd@oncenum% We store the number uniquifying the auxiliary macro in a macro to save count registers (cf. gmutils sec. To Save Precious Count Registers).
```

environment

Wrapping a description and definition of an environment in a `macro` environment would look inappropriate ('zgrzytało by' in Polish) although there's no TEXnical obstacle to do so. Therefore we define the `environment`, because of æsthetic and psychological reasons.

```
\@xa\let\@xa\environment\csname␣macro*\endcsname
\@xa\let\@xa\endenvironment\csname␣endmacro*\endcsname
```

Index Exclude List

We want some css not to be indexed, e.g., the LATEX internals and TEX primitives.

doc takes `\index@excludelist` to be a `\toks` register to store the list of expelled css. Here we'll deal another way. For each cs to be excluded we'll make (`\let`, to be precise) a control sequence and then we'll be checking if it's undefined (`\if`x-equivalent `\relax`).[9]

\DoNotIndex
```
\def\DoNotIndex{\bgroup\MakePrivateLetters\DoNot@Index}
```

\DoNot@Index
```
\long\def\DoNot@Index#1{\egroup% we close the group,
  \let\gmd@iedir\gmd@justadot% we declare the direction of the cluding to be excluding. We act this way to be able to reverse the exclusions easily later.
  \dont@index#1.}
```

\dont@index
```
\long\def\dont@index#1{%
  \def\@tempa{\@nx#1}% My TEX Guru's trick to deal with \fi and such, i.e., to hide from TEX when it is processing a test's branch without expanding.
  \if\@tempa.% a dot finishes expelling
  \else
    \if\@tempa,% The list this macro is put before may contain commas and that's O.K., we just continue the work.
      \afterfifi\dont@index
    \else% what is else shall off the Index be expelled.
      {\escapechar\m@ne
        \xdef\@tempa{\string#1}}%
      \@xa\let%
      \csname␣gmd/iexcl/\@tempa\endcsname=\gmd@iedir% In the default case explained e.g. by the macro's name, the last macro's meaning is such
```

[9] This idea comes from Marcin Woliński.

that the test in line 921 will turn false and the subject cs shall not be indexed. We \let not \def to spare TEX's memory.

```
      \afterfifi\dont@index
    \fi
  \fi}
```

Let's now give the exclude list copied ~verbatim ;-) from doc.dtx. I give it in the code layer because I suppose one will document not LaTeX source but normal packages.

```
\DoNotIndex\{ \DoNotIndex\}% the index entries of these two css would be rejected by MakeIndex anyway.
\begin{MakePrivateLetters}% Yes, \DoNotIndex does \MakePrivateLetters on its own but No, it won't have any effect if it's given in another macro's \def.
\DefaultIndexExclusions  \gdef\DefaultIndexExclusions{%
    \DoNotIndex{\@ \@@par \@beginparpenalty \@empty}%
    \DoNotIndex{\@flushglue \@gobble \@input}%
    \DoNotIndex{\@makefnmark \@makeother \@maketitle}%
    \DoNotIndex{\@namedef \@ne \@spaces \@tempa}%
    \DoNotIndex{\@tempb \@tempswafalse \@tempswatrue}%
    \DoNotIndex{\@thanks \@thefnmark \@topnum}%
    \DoNotIndex{\@@ \@elt \@forloop \@fortmp \@gtempa
        \@totalleftmargin}%
    \DoNotIndex{\" \/ \@ifundefined \@nil \@verbatim \@vobeyspaces}%
    \DoNotIndex{\| \~ \  \active \advance \aftergroup \begingroup
        \bgroup}%
    \DoNotIndex{\mathcal \csname \def \documentstyle \dospecials
        \edef}%
    \DoNotIndex{\egroup}%
    \DoNotIndex{\else \endcsname \endgroup \endinput \endtrivlist}%
    \DoNotIndex{\expandafter \fi \fnsymbol \futurelet \gdef \global}%
    \DoNotIndex{\hbox \hss \if \if@inlabel \if@tempswa
        \if@twocolumn}%
    \DoNotIndex{\ifcase}%
    \DoNotIndex{\ifcat \iffalse \ifx \ignorespaces \index \input
        \item}%
    \DoNotIndex{\jobname \kern \leavevmode \leftskip \let \llap
        \lower}%
    \DoNotIndex{\m@ne \next \newpage \nobreak \noexpand
        \nonfrenchspacing}%
    \DoNotIndex{\obeylines \or \protect \raggedleft \rightskip \rm
        \sc}%
    \DoNotIndex{\setbox \setcounter \small \space \string \strut}%
    \DoNotIndex{\strutbox}%
    \DoNotIndex{\thefootnote \thispagestyle \topmargin \trivlist
        \tt}%
    \DoNotIndex{\twocolumn \typeout \vss \vtop \xdef \z@}%
    \DoNotIndex{\, \@bsphack \@esphack \@noligs \@vobeyspaces
        \@xverbatim}%
    \DoNotIndex{\` \catcode \end \escapechar \frenchspacing
        \glossary}%
    \DoNotIndex{\hangindent \hfil \hfill \hskip \hspace \ht \it
        \langle}%
    \DoNotIndex{\leaders \long \makelabel \marginpar \markboth
        \mathcode}%
```

```
    \DoNotIndex{\mathsurround\mbox}%% \newcount \newdimen \newskip
    \DoNotIndex{\nopagebreak}%
    \DoNotIndex{\parfillskip\parindent\parskip\penalty\raise
        \rangle}%
    \DoNotIndex{\section\setlength\TeX\topsep\underline\unskip}%
    \DoNotIndex{\vskip\vspace\widetilde\\\%\@date\@defpar}%
    \DoNotIndex{\[\]}% see line 1304.
    \DoNotIndex{\count@\ifnum\loop\today\uppercase\uccode}%
    \DoNotIndex{\baselineskip\begin\tw@}%
    \DoNotIndex{\a\b\c\d\e\f\g\h\i\j\k\l\m\n\o\p\q}%
    \DoNotIndex{\r\s\t\u\v\w\x\y\z\A\B\C\D\E\F\G\H}%
    \DoNotIndex{\I\J\K\L\M\N\O\P\Q\R\S\T\U\V\W\X\Y\Z}%
    \DoNotIndex{\1\2\3\4\5\6\7\8\9\o}%
    \DoNotIndex{\!\#\$\&\'\(\)\.\:\;\<\=\>\?\_}% \+ seems to be
        so rarely used that it may be advisable to index it.
    \DoNotIndex{\discretionary\immediate\makeatletter
        \makeatother}%
    \DoNotIndex{\meaning\newenvironment\par\relax
        \renewenvironment}%
    \DoNotIndex{\repeat\scriptsize\selectfont\the\undefined}%
    \DoNotIndex{\arabic\do\makeindex\null\number\show\write
        \@ehc}%
    \DoNotIndex{\@author\@ehc\@ifstar\@sanitize\@title}%
    \DoNotIndex{\if@minipage\if@restonecol\ifeof\ifmmode}%
    \DoNotIndex{\lccode\%%\newtoks
      \onecolumn\openin\p@\SelfDocumenting}%
    \DoNotIndex{\settowidth\@resetonecoltrue\@resetonecolfalse
        \bf}%
    \DoNotIndex{\clearpage\closein\lowercase\@inlabelfalse}%
    \DoNotIndex{\selectfont\mathcode\newmathalphabet\rmdefault}%
    \DoNotIndex{\bfdefault}%
```

From the above list I removed some `\new...` declarations because I think it may be useful to see gathered the special `\new...s` of each kind. For the same reason I would not recommend excluding from the index such declarations as `\AtBeginDocument`, `\AtEndDocument`, `\AtEndOfPackage`, `\DeclareOption`, `\DeclareRobustCommand` etc. But the common definitions, such as `\new/providecommand` and `\(e/g/x)defs`, as the most common, in my opinion excluded should be.

And some my exclusions:

```
    \DoNotIndex{\@@input\@auxout\@currentlabel\@dblarg}%
    \DoNotIndex{\@ifdefinable\@ifnextchar\@ifpackageloaded}%
    \DoNotIndex{\@indexfile\@let@token\@sptoken\^}% the latter comes
        from css like \^^M, see sec. 668.
    \DoNotIndex{\addto@hook\addvspace}%
    \DoNotIndex{\CurrentOption}%
    \DoNotIndex{\emph\empty\firstofone}%
    \DoNotIndex{\font\fontdimen\hangindent\hangafter}%
    \DoNotIndex{\hyperpage\hyperlink\hypertarget}%
    \DoNotIndex{\ifdim\ifhmode\iftrue\ifvmode\medskipamount}%
    \DoNotIndex{\message}%
    \DoNotIndex{\NeedsTeXFormat\newcommand\newif}%
    \DoNotIndex{\newlabel}%
    \DoNotIndex{\of}%
```

```
    \DoNotIndex{\phantom \ProcessOptions \protected@edef}%
    \DoNotIndex{\protected@xdef \protected@write}%
    \DoNotIndex{\ProvidesPackage \providecommand}%
    \DoNotIndex{\raggedright}%
    \DoNotIndex{\raisebox \refstepcounter \ref \rlap}%
    \DoNotIndex{\reserved@a \reserved@b \reserved@c \reserved@d}%
    \DoNotIndex{\stepcounter \subsection \textit \textsf \thepage
        \tiny}%
    \DoNotIndex{\copyright \footnote \label \LaTeX}%
    \DoNotIndex{\@eha \@endparenv \if@endpe \@endpefalse
        \@endpetrue}%
    \DoNotIndex{\@evenfoot \@oddfoot \@firstoftwo \@secondoftwo}%
    \DoNotIndex{\@for \@gobbletwo \@idxitem \@ifclassloaded}%
    \DoNotIndex{\@ignorefalse \@ignoretrue \if@ignore}%
    \DoNotIndex{\@input@ \@input}%
    \DoNotIndex{\@latex@error \@mainaux \@nameuse}%
    \DoNotIndex{\@nomath \@oddfoot}% %\@onlypreamble should be indexed
        IMO.
    \DoNotIndex{\@outerparskip \@partaux \@partlist \@plus}%
    \DoNotIndex{\@sverb \@sxverbatim}%
    \DoNotIndex{\@tempcnta \@tempcntb \@tempskipa \@tempskipb}%
        I think the layout parameters even the kernel, should not be excluded:
        % \@topsep \@topsepadd \abovedisplayskip \clubpenalty etc.
    \DoNotIndex{\@writeckpt}%
    \DoNotIndex{\bfseries \chapter \part \section \subsection}%
    \DoNotIndex{\subsubsection}%
    \DoNotIndex{\char \check@mathfonts \closeout}%
    \DoNotIndex{\fontsize \footnotemark \footnotetext
        \footnotesize}%
    \DoNotIndex{\g@addto@macro \hfilneg \Huge \huge}%
    \DoNotIndex{\hyphenchar \if@partsw \IfFileExists }%
    \DoNotIndex{\include \includeonly \indexspace}%
    \DoNotIndex{\itshape \language \LARGE \Large \large}%
    \DoNotIndex{\lastbox \lastskip \m@th \makeglossary}%
    \DoNotIndex{\maketitle \math@fontsfalse \math@fontstrue
        \mathsf}%
    \DoNotIndex{\MessageBreak \noindent \normalfont \normalsize}%
    \DoNotIndex{\on@line \openout \outer}%
    \DoNotIndex{\parbox \part \rmfamily \rule \sbox}%
    \DoNotIndex{\sf@size \sffamily \skip}%
    \DoNotIndex{\textsc \textup \toks@ \ttfamily \vbox}%
%%\DoNotIndex{\begin*} maybe in the future, if the idea gets popular…
    \DoNotIndex{\hspace* \newcommand* \newenvironment*
        \providecommand*}%
    \DoNotIndex{\renewenvironment* \section* \chapter*}%
  }% of \DefaultIndexExclusions.
```

I put all the expellings into a macro because I want them to be optional.

```
\end{MakePrivateLetters}
```

And we execute it due to the (lack of) counter-corresponding option:

```
\if@indexallmacros\else
  \DefaultIndexExclusions
\fi
```

If we expelled so many CSs, someone may like it in general but he/she may need one or two expelled to be indexed back. So

\DoIndex
```
\def\DoIndex{\bgroup\MakePrivateLetters\Do@Index}
```
\Do@Index
```
\long\def\Do@Index#1{\egroup\@relaxen\gmd@iedir\dont@index#1.}%
```
note we only redefine an auxiliary CS and launch also `\dont@index` inner macro.

And if a user wants here make default exclusions and there do not make them, he may use the `\DefaultIndexExclusions` declaration herself. This declaration OCSR, but anyway let's provide the counterpart. It OCSR, too.

\UndoDefaultIndexExclusions
```
\def\UndoDefaultIndexExclusions{%
  \StoreMacro\DoNotIndex
  \let\DoNotIndex\DoIndex
  \DefaultIndexExclusions
  \RestoreMacro\DoNotIndex}
```

Index Parameters

"The `\IndexPrologue` macro is used to place a short message into the document above the index. It is implemented by redefining `\index@prologue`, a macro which holds the default text. We'd better make it a `\long` macro to allow `\par` commands in its argument."

\IndexPrologue
\index@prologue
```
\long\def\IndexPrologue#1{\@bsphack\def\index@prologue{#1}%
      \@esphack}
```
\indexdiv
```
\def\indexdiv{\@ifundefined{chapter}{\section*}{\chapter*}}
```
\index@prologue
```
\@ifundefined{index@prologue}␣{\def\index@prologue{\indexdiv{%
     Index}%
   \markboth{Index}{Index}%
   Numbers␣written␣in␣italic␣refer␣to␣the␣\if@pageindex␣pages␣%
        \else
   code␣lines␣\fi␣where␣the
   corresponding␣entry␣is␣described;␣numbers␣underlined␣refer␣
        to␣the
   \if@pageindex\else␣code␣line␣of␣the␣\fi␣definition;␣numbers␣
        in
   roman␣refer␣to␣the␣\if@pageindex␣pages\else␣code␣lines␣\fi␣
        where
   the␣entry␣is␣used.
   \if@pageindex\else
     \ifx\HLPrefix\@empty
       The␣numbers␣preceded␣with␣`p.'␣are␣page␣numbers.
     \else␣The␣numbers␣with␣no␣prefix␣are␣page␣numbers.
   \fi\fi
   \ifx\IndexLinksBlack\relax\else
     All␣the␣numbers␣are␣hyperlinks.
   \fi
   \gmd@dip@hook% this hook is intended to let a user add something without
        redefining the entire prologue, see below.
 }}{}
```

During the preparation of this package for publishing I needed only to add something at the end of the default index prologue. So

```
\@emptify\gmd@dip@hook
\long\def\AtDIPrologue#1{\g@addto@macro\gmd@dip@hook{#1}}
```

The Author(s) of doc assume multicol is known not to everybody. My assumption is the other so

```
\RequirePackage{multicol}
```

"If multicol is in use, when the index is started we compute the remaining space on the current page; if it is greater than \IndexMin, the first part of the index will then be placed in the available space. The number of columns set is controlled by the counter \c@IndexColumns which can be changed with a \setcounter declaration."

```
\newdimen\IndexMin \IndexMin=133pt\relax% originally it was set 80 pt, but with my default prologue there's at least 4.7 cm needed to place the prologue and some index entries on the same page.
\newcount\c@IndexColumns \c@IndexColumns=3
\renewenvironment{theindex}
  {\begin{multicols}\c@IndexColumns[\index@prologue][\IndexMin]%
      \IndexLinksBlack
      \IndexParms\let\item\@idxitem\ignorespaces}%
    {\end{multicols}}
\def\IndexLinksBlack{\hypersetup{linkcolor=black}}% To make Adobe Reader work faster.
\@ifundefined{IndexParms}
  {\def\IndexParms{%
      \parindent\z@
      \columnsep 15pt
      \parskip 0pt plus 1pt
      \rightskip 15pt
      \mathsurround\z@
      \parfillskip=-15pt plus 1 fil% doc defines this parameter rigid but that's because of the stretchable space (more precisely, a \dotfill) between the item and the entries. But in gmdoc we define no such special delimiters, so we add an ifinite stretch.
      \small
      \def\@idxitem{\par\hangindent 30pt}%
      \def\subitem{\@idxitem\hspace*{15pt}}%
      \def\subsubitem{\@idxitem\hspace*{25pt}}%
      \def\indexspace{\par\vspace{10pt plus 2pt minus 3pt}}%
      \ifx\EntryPrefix\@empty\else\raggedright\fi% long (actually, a quite *short but nonempty* entry prefix) made space stretches so terribly large in the justified paragraphs that we should make \raggedright rather.
      \ifnum\c@IndexColumns>\tw@\raggedright\fi% the numbers in narrow columns look better when they are \raggedright in my opinion.
    }}{}
\def\PrintIndex{% we ensure the standard meaning of the line end character not to cause a disaster.
  \@ifQueerEOL{\StraightEOL\printindex\QueerEOL}{\printindex}}
```

Remember that if you want to change not all the parameters, you don't have to redefine the entire \IndexParms macro but you may use a very nice LaTeX command \g@addto@macro (it has \global effect, also with an apeless name (\gaddtomacro) provided by gmutils. (It adds its second argument at the end of definition of its first argument provided the first argument is a no-argument macro.) Moreover, gmutils provides also \addtomacro that has the same effect except it's not \global.

```
\foone{\@makeother\<\@makeother\>
  \glet\sgtleftxii=<}
{
\gmd@docstripdirective  \def\gmd@docstripdirective{%
    \begingroup\let\do=\@makeother
    \do\*\do\/\do\+\do\-\do\,\do\&\do\|\do\!\do\(\do\)\do\>\do\<%
    \@ifnextchar{<}{%
      \let\do=\@makeother␣\dospecials
      \gmd@docstripverb}
    {\gmd@docstripinner}}%
\gmd@docstripinner  \def\gmd@docstripinner#1>{%
    \endgroup
\gmd@modulehashone  \def\gmd@modulehashone{%
      \Module{#1}\space
      \@afternarrgfalse\@aftercodegtrue\@codeskipputgfalse}%
    \gmd@textEOL\gmd@modulehashone}
```

A word of explanation: first of all, we close the group for changed `\catcodes`; the directive's text has its `\catcodes` fixed. Then we put the directive's text wrapped with the formatting macro into one macro in order to give just one token the gmdoc's TEX code scanner. Then launch this big TEX code scanning machinery by calling `\gmd@textEOL` which is an alias for the 'narrative' meaning of the line end. This macro opens the verbatim group and launches the char-by-char scanner. That is this scanner because of what we encapsulated the directive's text with the formatting into one macro: to let it pass the scanner. That's why in the 'old' macrocodes case the active % closes the group before launching `\gmd@docstripdirective`.

The 'verbatim' directive macro works very similarly.

```
}
\foone{\@makeother\<\@makeother\>
  \glet\sgtleftxii=<
  \catcode`\^^M=\active}%
{
\gmd@docstripverb  \def\gmd@docstripverb<#1^^M{%
    \endgroup%
\gmd@modulehashone  \def\gmd@modulehashone{%
      \ModuleVerb{#1}\@afternarrgfalse\@aftercodegtrue%
      \@codeskipputgfalse}%
    \gmd@docstripshook%
    \gmd@textEOL\gmd@modulehashone^^M}%
}
```

(~Verbatim ;-) from doc:)

```
\Module  \providecommand*\Module[1]{{\mod@math@codes$\langle\mathsf{#1}%
           \rangle$}}
\ModuleVerb  \providecommand*\ModuleVerb[1]{{\mod@math@codes$\langle\langle%
           \mathsf{#1}$}}
\mod@math@codes  \def\mod@math@codes{\mathcode`\|="226A␣\mathcode`\&="2026␣}
```

The Changes History

The contents of this section was copied ~verbatim from the doc's documentation, with only smallest necessary changes. Then my additions were added :-)) .

"To provide a change history log, the \changes command has been introduced. This takes [one optional and] three [mandatory] arguments, respectively, [the macro that'll become the entry's second level,] the version number of the file, the date of the change, and some detail regarding what change has been made [i.e., the description of the change]. The [second] of these arguments is otherwise ignored, but the others are written out and may be used to generate a history of changes, to be printed at the end of the document. [… I ommit an obsolete remark about then-older MakeIndex's versions.]

The output of the \changes command goes into the ⟨*Glossary_File*⟩ and therefore uses the normal \glossaryentry commands. Thus MakeIndex or a similar program can be used to process the output into a sorted "glossary". The \changes command commences by taking the usual measures to hide its spacing, and then redefines \protect for use within the argument of the generated \indexentry command. We re-code nearly all chars found in \@sanitize to letter since the use of special package which make some characters active might upset the \changes command when writing its entries to the file. However we have to leave % as comment and as ⟨*space*⟩ otherwise chaos will happen. And, of course the \ should be available as escape character."

We put the definition inside a macro that will be executed by (the first use of) \RecordChanges. And we provide the default definition of \changes as a macro just gobbling its arguments. We do this to provide no changes' writing out if \RecordChanges is not used.

\gmd@DefineChanges
```
\def\gmd@DefineChanges{%
```
\changes
```
  \outer\long\def\changes{\@bsphack\begingroup\@sanitize
    \catcode`\\\z@␣\catcode`\ 10␣\MakePercentIgnore
    \MakePrivateLetters␣\StraightEOL
    \MakeGlossaryControls
    \changes@}}
```
\changes
```
\newcommand\changes[4][]{\PackageWarningNoLine{gmdoc}{%
    ^^JThe␣\bslash␣changes␣command␣used␣\on@line
    ^^Jwith␣no␣\string\RecordChanges\space␣declared.
    ^^JI␣shall␣not␣warn␣you␣again␣about␣it}%
```
\changes
```
  \renewcommand\changes[4][]{}}
```
\MakeGlossaryControls
```
\def\MakeGlossaryControls{%
  \edef\actualchar{\string=}\edef\quotechar{\string!}%
  \edef\levelchar{\string>}\edef\encapchar{\xiiclub}}%
```
for the glossary the 'actual', the 'quote' and the 'level' chars are respectively =, ! and >, the 'encap' char remains untouched. I decided to preserve the doc's settings for the compatibility.

\changes@
```
\newcommand\changes@[4][\generalname]{%
  \if@RecentChange{#3}%
```
if the date is later than the one stored in \c@Changes-
```
    %
```
StartDate,
```
    \@tempswafalse
    \ifx\generalname#1%
```
then we check whether a cs-entry is given in the optional first argument or is it unchanged.
```
      \ifx\last@defmark\relax\else%
```
if no particular cs is specified in #1, we check whether \last@defmark contains something and if so, we put it into \@tempb scratch macro.
```
        \@tempswatrue
```

```
      \edef\@tempb{% it's a bug fix: while typesetting traditional .dtxes, \last@defmark
          came out with \ at the beginning (which resulted with \\⟨name⟩
          in the change log) but while typesetting the 'new' way, it occurred
          without the bslash. So we gobble the bslash if it's present and two
          lines below we handle the exception of \last@defmark = {\}
          (what would happen if a definition of \\ was marked in new way
          gmdocing).
        \if\bslash\last@defmark\else\last@defmark\fi}%
      \ifx\last@defmark\bslash\let\@tempb\last@defmark\fi%
      \n@melet{gmd@glossCStest}{gmd/isaCS/\last@defmark}%
    \fi
  \else% the first argument isx not \generalname i.e., a particular cs is specified
       by it (if some day one wishes to \changes \generalname, he should type
       \changes[generalname]...)
    \@tempswatrue
    {\escapechar\m@ne
      \xdef\@tempb{\string#1}}%
    \if\bslash\@xa\@firstofmany\string#1\relax\@@nil% we check whether
        #1 is a cs...
\gmd@glossCStest      \def\gmd@glossCStest{1}% ... and tell the glossary if so.
    \fi
  \fi
\gmd@glossCStest  \@ifundefined{gmd@glossCStest}{\def\gmd@glossCStest{0}}{}%
  \protected@edef\@tempa{\@nx\glossary{%
      \if\relax\GeneralName\relax\else
        \GeneralName% it's for the \DocInclude case to precede every \changes
            of the same file with the file name, cf. line 1668.
      \fi
      #2\levelchar%
      \if@tempswa% If the macro \last@defmark doesn't contain any cs name
          (i.e., is empty) nor #1 specifies a cs, the current changes entry was
          done at top-level. In this case we precede it by \generalname.
        \@tempb
        \actualchar\bslash␣verb*%
        \if\verbatimchar\@tempb$\else\verbatimchar\fi
        \if1\gmd@glossCStest\quotechar\bslash\fi␣\@tempb
        \if\verbatimchar\@tempb$\else\verbatimchar\fi
      \else
        \space\actualchar\generalname
      \fi
      :\levelchar#4\encapchar␣hyperpage}}%
  \@tempa
  \grelaxen\gmd@glossCStest
\fi\endgroup\@esphack}
```

Let's initialize `\last@defmark` and `\GeneralName`.

```
\@relaxen\last@defmark
\@emptify\GeneralName
```

`\ChangesGeneral` `\def\ChangesGeneral{\grelaxen\last@defmark}%` If automatic detection of definitions is on, the default entry of `\changes` is the meaning of `\last@defmark`, the last detected definiendum that is. The declaration defined here serves to start a scope of 'general' `\changes` entries.

```
\AtBegInput{\ChangesGeneral}
```

Let's explain \if@RecentChange. We wish to check whether the change's date is later than date declared (if any limit date *was* declared). First of all, let's establish a counter to store the declared date. The untouched counters are equal 0 so if no date is declared there'll be no problem. The date will have the ⟨*YYYYMMDD*⟩ shape both to be easily compared and readable.

\c@ChangesStartDate
```
\newcount\c@ChangesStartDate
```
\if@RecentChange
```
\def\if@RecentChange#1{%
  \gmd@setChDate#1\@@nil\@tempcnta
  \ifnum\@tempcnta>\c@ChangesStartDate}
```
\gmd@setChDate
```
\def\gmd@setChDate#1/#2/#3\@@nil#4{% the last parameter will be a \count
      register.
  #4=#1\relax
  \multiply#4␣by\@M
  \count8=#2\relax% I know it's a bit messy not to check whether the #4 \count
      is \count8 but I know this macro will only be used with \counto (\@te-
  % mpcnta) and some higher (not a scratch) one.
  \multiply\count8␣by100␣%
  \advance#4␣by\count8␣\count8=\z@
  \advance#4␣by#3\relax}
```

Having the test defined, let's define the command setting the date counter. #1 is to be the version and #2 the date {⟨*year*⟩/⟨*month*⟩/⟨*day*⟩}.

\ChangesStart
```
\def\ChangesStart#1#2{%
  \gmd@setChDate#2\@@nil\c@ChangesStartDate
  \typeout{^^JPackage␣gmdoc␣info:␣^^JChanges'␣start␣date␣#1␣
      memorized
    as␣\string<\the\c@ChangesStartDate\string>␣\on@line.^^J}
  \advance\c@ChangesStartDate\m@ne% we shall show the changes at the speci-
      fied day and later.
  \ifnum\c@ChangesStartDate>19820900␣%[10] see below.
    \edef\@tempa{%
      \@nx\g@addto@macro\@nx\glossary@prologue{%
        The␣changes
        \if\relax\GeneralName\relax\else␣of␣\GeneralName\space\fi
        earlier␣than
        #1␣\if\relax#1\relax␣#2\else(#2)\fi\space␣are␣not␣
            shown.}}%
    \@tempa
  \fi}
```

(Explanation to line 1573.) My TEX Guru has remarked that the change history tool should be used for documenting the changes that may be significant for the users not only for the author and talking of what may be significant to the user, no changes should be hidden since the first published version. However, the changes' start date may be used to provide hiding the author's 'personal' notes: she should only date the 'public' changes with the four digit year and the 'personal' ones with two digit year and set \ChangesStart{}{1000/0/0} or so.

In line 1573 I establish a test value that corresponds to a date earlier than any TEX stuff and is not too small (early) to ensure that hiding the two digit year changes shall not be mentioned in the changes prologue.

[10] DEK writes in *TEX, The Program* of September 1982 as the date of TEX Version 0.

"The entries [of a given version number] are sorted for convenience by the name of [the macro explicitly specified as the first argument or] the most recently introduced macroname (i.e., that in the most recent \begin{macro} command [or \Define]). We therefore provide [\last@defmark] to record that argument, and provide a default definition in case \changes is used outside a macro environment. (This is a wicked hack to get such entries at the beginning of the sorted list! It works providing no macro names start with ! or ".)

This macro holds the string placed before changes entries on top-level."

\generalname
```
\def\generalname{General}
```

"To cause the changes to be written (to a .glo) file, we define \RecordChanges to invoke LaTeX's usual \makeglossary command."

I add to it also the \writeing definition of the \changes macro to ensure no changes are written out without \RecordChanges.

\RecordChanges
```
\def\RecordChanges{\makeglossary\gmd@DefineChanges
  \@relaxen\RecordChanges}
```

"The remaining macros are all analogues of those used for the theindex environment. When the glossary is started we compute the space which remains at the bottom of the current page; if this is greater than \GlossaryMin then the first part of the glossary will be placed in the available space. The number of columns set [is] controlled by the counter \c@GlossaryColumns which can be changed with a \setcounter declaration."

\GlossaryMin \c@GlossaryColumns
```
\newdimen\GlossaryMin          \GlossaryMin       = 8opt
\newcount\c@GlossaryColumns    \c@GlossaryColumns = 2
```

"The environment theglossary is defined in the same manner as the theindex environment."

theglossary
```
\newenvironment{theglossary}{%
  \begin{multicols}\c@GlossaryColumns
    [\glossary@prologue][\GlossaryMin]%
    \GlossaryParms␣\let\item\@idxitem␣\ignorespaces}%
  {\end{multicols}}
```

Here is the MakeIndex style definition:

```
⟨/package⟩
⟨+gmglo⟩ preamble
⟨+gmglo⟩ "\n␣\\begin{theglossary}␣\n
⟨+gmglo⟩ \\makeatletter\n"
⟨+gmglo⟩ postamble
⟨+gmglo⟩ "\n\n␣\\end{theglossary}\n"
⟨+gmglo⟩ keyword␣"\\glossaryentry"
⟨+gmglo⟩ actual␣'='
⟨+gmglo⟩ quote␣'!'
⟨+gmglo⟩ level␣'>'
⟨*package⟩
```

The MakeIndex shell command for the glossary should look as follows:

`makeindex -r -s gmglo.ist -o` ⟨*myfile*⟩`.gls` ⟨*myfile*⟩`.glo`

where -r commands MakeIndex not to make implicit page ranges, -s commands MakeIndex to use the style stated next not the default settings and the -o option with the subsequent filename defines the name of the output.

"The \GlossaryPrologue macro is used to place a short message above the glossary into the document. It is implemented by redefining \glossary@prologue, a macro

which holds the default text. We better make it a long macro to allow \par commands in its argument."

\GlossaryPrologue
\glossary@prologue
```
\long\def\GlossaryPrologue#1{\@bsphack
  \def\glossary@prologue{#1}%
  \@esphack}
```

"Now we test whether the default is already defined by another package file. If not we define it."

\glossary@prologue
```
\@ifundefined{glossary@prologue}
  {\def\glossary@prologue{\indexdiv{{Change␣History}}%
      \markboth{{Change␣History}}{{Change␣History}}%
    }}{}
```

"Unless the user specifies otherwise, we set the change history using the same parameters as for the index."

\GlossaryParms
```
\AtBeginDocument{%
  \@ifundefined{GlossaryParms}{\let\GlossaryParms\IndexParms}{}}
```

"To read in and print the sorted change history, just put the \PrintChanges command as the last (commented-out, and thus executed during the documentation pass through the file) command in your package file. Alternatively, this command may form one of the arguments of the \StopEventually command, although a change history is probably not required if only the description is being printed. The command assumes that MakeIndex or some other program has processed the .glo file to generate a sorted .gls file."

\PrintChanges
```
\def\PrintChanges{% to avoid a disaster among queer EOLs:
  \@ifQueerEOL
    {\StraightEOL\@input@{\jobname.gls}\QueerEOL}%
    {\@input@{\jobname.gls}}%
  \g@emptify\PrintChanges}
```

The Checksum

doc provides a checksum mechanism that counts the backslashes in the scanned code. Let's do almost the same.

At the beginning of the source file you may put the \CheckSum macro with a number (in one of TEX's formats) as its argument and TEX with gmdoc shall count the number of the *escape chars* in the source file and tell you in the .log file (and on the terminal) whether you have typed the right number. If you don't type \CheckSum, TEX anyway will tell you how much it is.

\check@sum
```
\newcount\check@sum
```

\CheckSum
```
\def\CheckSum#1{\@bsphack\global\check@sum#1\relax\@esphack}
```

CheckSum
```
\newcounter{CheckSum}
```

\step@checksum
```
\newcommand*\step@checksum{\stepcounter{CheckSum}}
```

And we'll use it in the line 523 (\stepcounter is \global). See also the \chschange declaration, l. 1655.

However, the check sum mechanism in gmdoc behaves slightly different than in doc which is nicely visible while gmdocing doc: doc states its check sum to be 2171 and our count counts 2126. The mystery lies in the fact that doc's CheckSum mechanism counts the code's backslashes no matter what they mean and the gmdoc's the escape chars so, among others, \\ at the default settings increases doc's CheckSum by 2 while

the gmdoc's by 1. (There are 38 occurrences of \\ in doc.dtx `macrocodes`, I counted myself.)[11]

"But `\Finale` will be called at the very end of a file. This is exactly the point were we want to know if the file is uncorrupted. Therefore we also call `\check@checksum` at this point."

In gmdoc we have the `\AtEndInput` hook.

```
\AtEndInput{\check@checksum}
```

Based on the lines 723–741 of doc.dtx.

`\check@checksum`

```
\def\check@checksum{\relax
  \ifnum\check@sum=\z@
    \typeout{**********************************}%
    \typeout{* The input file \gmd@inputname\space has no
        Checksum
      stated.}%
    \typeout{* The current checksum is \the\c@CheckSum.}%
    \gmd@chschangeline% a check sum changes history entry, see below.
    \typeout{* (package gmdoc info.)}
    \typeout{**********************************}%
  \else
    \ifnum\check@sum=\c@CheckSum
      \typeout{**********************}%
      \typeout{* The input file \gmd@inputname: Checksum
          passed.}%
      \gmd@chschangeline
      \typeout{* (package gmdoc info.)}
      \typeout{**********************}%
    \else
      \typeout{********!*!*!*!*!*!*!*!*!*!*!}%
      \typeout{*! The input file \gmd@inputname:}
      \typeout{*! The CheckSum stated: \the\check@sum\space<> my
        count: \the\c@CheckSum.}
      \gmd@chschangeline
      \typeout{*! (package gmdoc info.)}
      \typeout{********!*!*!*!*!*!*!*!*!*!*!}%
    \fi
  \fi
  \global\check@sum\z@}
```

As I mentioned above, I use the check sum mechanism to mark the file growth. Therefore I provide a macro that produces a line on the terminal to be put somewhere at the beginning of the source file's commentary for instance.

`\gmd@chschangeline`

```
\def\gmd@chschangeline{%
  \typeout{\xiipercent\space\string\chschange{%
      \csname fileversion\endcsname}{\the\year/\the\month/\the%
          \day}{\the\c@CheckSum}}
  \typeout{\xiipercent\space\string\chschange{\csname
       fileversion\endcsname}{%
      \@xa\@gobbletwo\the\year/\the\month/\the\day}{% with two digit
          year in case you use \ChangesStart.
      \the\c@CheckSum}}}
```

[11] My opinion is that nowadays a check sum is not necessary for checking the completness of a file but I like it as a marker of file development and this more than that is its rôle in gmdoc.

And here the meaning of such a line is defined:

\chschange
```
\newcommand*\chschange[3]{%
  \csname␣changes\endcsname{#1}{#2}{CheckSum␣#3}%\csname... because
      % \changes is \outer.
  \CheckSum{#3}}
```

It will make a 'General' entry in the change history unless used in some `\Define`'s scope or inside a `macro` environment. It's intended to be put somewhere at the beginning of the documented file.

Macros from ltxdoc

I'm not sure whether this package still remains 'minimal' but I liked the macros provided by ltxdoc.cls so much…

The next page setup declaration is intended to be used with the article's default Letter paper size. But since

\ltxPageLayout
```
\newcommand*\ltxPageLayout{%
```

"Increase the text width slightly so that width the standard fonts 72 columns of code may appear in a `macrocode` environment."

```
  \setlength{\textwidth}{355pt}%
```

"Increase the marginpar width slightly, for long command names. And increase the left margin by a similar amount."

To make these settings independent from the defaults (changed e.g. in gmdocc.cls) we replace the original `\addtolengths` with `\setlengths`.

```
  \setlength\marginparwidth{95pt}%
  \setlength\oddsidemargin{82pt}%
  \setlength\evensidemargin{82pt}}
```

`\DocInclude` and the ltxdoc-Like Setup

Let's provide a command for including multiple files into one document. In the ltxdoc class such a command is defined to include files as parts. But we prefer to include them as chapters in the classes that provide `\chapter`. We'll redefine `\maketitle` so that it make a chapter or a part heading *unlike* in ltxdoc where the file parts have their titlepages with only the filename and article-like titles made by `\maketitle`.

But we will also provide a possibility of typesetting multiple files exactly like with the ltxdoc class.

\DocInclude

So, define the `\DocInclude` command, that acts

"more or less exactly the same as `\include`, but uses `\DocInput` on a dtx [or .fdd] file, not `\input` on a tex file."

Our version will accept also .sty, .cls, and .tex files.

\DocInclude
```
\newcommand*\DocInclude{\bgroup\@makeother\_\Doc@Include}%
```
First, we make _ 'other' in order to allow it in the filenames.

\Doc@Include
```
\newcommand*{\Doc@Include}[2][]{%
```
originally it took just one argument. Here we make it take two, first of which is intended to be the path (with the closing % /). This is intended not to print the path in the page footers only the filename.

```
  \egroup%
```
having the arguments read, we close the group opened by the previous macro for $_{12}$.

\HLPrefix
```
  \gdef\HLPrefix{\filesep}%
```

```
\gdef\EntryPrefix{\filesep}% we define two rather kernel parameters to expand to the file marker. The first will bring the information to one of the default \IndexPrologue's \ifs. Therefore the definition is global. The latter is such for symmetry.
\def\GeneralName{#2\actualchar\pk{#2}␣}% for the changes'history main level entry. Now we check whether we try to include ourselves and if so—we'll (create and) read an .auxx file instead of (the main) .aux to avoid an infinite recursion of \inputs.
  \edef\gmd@jobname{\jobname}%
  \edef\gmd@difilename{% we want the filename all 'other', just as in \jobname.
    \@xa\@xa\@xa\@gobble\@xa\string\csname#2\endcsname}%
  \ifx\gmd@jobname\gmd@difilename
    \def\gmd@auxext{auxx}%
  \else
    \def\gmd@auxext{aux}%
  \fi
\relax
\clearpage
\gmd@docincludeaux
\def\currentfile{gmdoc-IncludeFileNotFound.ooo}%
\let\fullcurrentfile\currentfile
\IfFileExists{#1#2.fdd}{\edef\currentfile{#2.fdd}}{% it's not .fdd,
  \IfFileExists{#1#2.dtx}{\edef\currentfile{#2.dtx}}{% it's not .dtx either,
    \IfFileExists{#1#2.sty}{\edef\currentfile{#2.sty}}{% it's not .sty,
      \IfFileExists{#1#2.cls}{\edef\currentfile{#2.cls}}{% it's not .cls,
        \IfFileExists{#1#2.tex}{\edef\currentfile{#2.tex}}{% it's not .tex,
          \IfFileExists{#1#2.fd}{\edef\currentfile{#2.fd}}{% so it must be .fd or error.
            \PackageError{gmdoc}{\string\DocInclude\space␣file
              #1#2.fdd/dtx/sty/cls/tex/fd␣not␣found.}}}}}}}%
\edef\fullcurrentfile{#1\currentfile}%
\ifnum\@auxout=\@partaux
  \@latexerr{\string\DocInclude\space␣cannot␣be␣nested}\@eha
\else␣\@docinclude{#1}#2␣\fi}% Why is #2 delimited with  not braced as we are used to, one may ask.
\def\@docinclude#1#2␣{% To match the macro's parameter string, is an answer. But why is \@docinclude defined so? Originally, in ltxdoc it takes one argument and it's delimited with a space probably in resemblance to the true \input (\@@input in LaTeX).
  \clearpage
  \if@filesw␣\gmd@writemauxinpaux{#2.\gmd@auxext}\fi% this strange macro with a long name is another thing to allow _ in the filenames (see line 1723).
  \@tempswatrue
  \if@partsw␣\@tempswafalse\edef\@tempb{#2}%
    \@for␣\@tempa:=\@partlist\do{\ifx\@tempa\@tempb\@tempswatrue%
      \fi}%
  \fi
  \if@tempswa␣\let\@auxout\@partaux
    \if@filesw
```

```
      \immediate\openout\@partaux␣#2.\gmd@auxext\relax% Yes, only #2.
          It's to create and process the partial .aux(x) files always in the main
          document's (driver's) directory.
      \immediate\write\@partaux{\relax}%
    \fi
```

"We need to save (and later restore) various index-related commands which might be changed by the included file."

```
    \StoringAndRelaxingDo\gmd@doIndexRelated
    \if@ltxDocInclude\part{\currentfile}% In the ltxdoc-like setup we make
        a part title page with only the filename and the file's \maketitle will
        typeset an article-like title.
    \else\let\maketitle=\InclMaketitle
    \fi% In the default setup we redefine \maketitle to typeset a common chapter
        or part heading.
    \if@ltxDocInclude\xdef@filekey\fi
    \GetFileInfo{\currentfile}% it's my (GM) addition with the account of
        using file info in the included files' title/heading etc.
    \incl@DocInput{\fullcurrentfile}% originally just \currentfile.
    \if@ltxDocInclude\else\xdef@filekey\fi% in the default case we add
        new file to the file key after the input because in this case it's the files
        own \maketitle what launches the sectioning command that increases
        the counter.
```

And here is the moment to restore the index-related commands.

```
    \RestoringDo\gmd@doIndexRelated
    \clearpage
    \gmd@writeckpt{#1#2}%
    \if@filesw␣\immediate\closeout\@partaux␣\fi
  \else\@nameuse{cp@#1#2}%
  \fi
  \let\@auxout\@mainaux}% end of \@docinclude.
```

(Two is a sufficient number of iterations to define a macro for.)

\xdef@filekey
```
\def\xdef@filekey{{\@relaxen\ttfamily% This assignment is very trickly crafted:
    it makes all \ttfamilys present in the \filekey's expansion unexpandable
    not only the one added in this step.
  \xdef\filekey{\filekey,␣\thefilediv={\ttfamily%
    \currentfile}}}}
```

To allow _ in the filenames we must assure _ will be $_{12}$ while reading the filename. Therefore define

\gmd@writemauxinpaux
```
\def\gmd@writemauxinpaux#1{% this name comes from 'write outto main .aux to
    input partial .aux'.
```

We wrap \@input{⟨*partial* .aux⟩} in a $_{12}$ hacked scope. This hack is especially recommended here since the .aux file may contain a non-\global stuff that should not be localized by a group that we would have to establish if we didn't use the hack. (Hope you understand it. If not, notify me and for now I'll only give a hint: "Look at it with the TEX's eyes". More uses of this hack are to be seen in gmutils where they are a bit more explained.)

```
  \immediate\write\@mainaux{%
    \bgroup\string\@makeother\string\_%
    \string\firstofone{\egroup
```

```
    \string\@input{#1}}}}
```

We also slightly modify a LaTeX kernel macro `\@writeckpt` to allow _ in the file name.

`\gmd@writeckpt`
```
\def\gmd@writeckpt#1{%
  \immediate\write\@partaux{%
    \string\bgroup\string\@makeother\string\_%
    \string\firstofone\@charlb\string\egroup}
  \@writeckpt{#1}%
  \immediate\write\@partaux{\@charrb}}
```

`\gmd@doIndexRelated`
```
\def\gmd@doIndexRelated{%
  \do\tableofcontents␣\do\makeindex␣\do\EnableCrossrefs
  \do\PrintIndex␣\do\printindex␣\do\RecordChanges␣\do%
       \PrintChanges
  \do\theglossary␣\do\endtheglossary}
\@emptify\filesep
```

The ltxdoc class establishes a special number format for multiple file documentation numbering needed to document the LaTeX sources. I like it too, so

`\aalph`
```
\def\aalph#1{\@aalph{\csname␣c@#1\endcsname}}
```

`\@aalph`
```
\def\@aalph#1{%
  \ifcase#1\or␣a\or␣b\or␣c\or␣d\or␣e\or␣f\or␣g\or␣h\or␣i\or
         j\or␣k\or␣l\or␣m\or␣n\or␣o\or␣p\or␣q\or␣r\or␣s\or
         t\or␣u\or␣v\or␣w\or␣x\or␣y\or␣z\or␣A\or␣B\or␣C\or
         D\or␣E\or␣F\or␣G\or␣H\or␣I\or␣J\or␣K\or␣L\or␣M\or
         N\or␣O\or␣P\or␣Q\or␣R\or␣S\or␣T\or␣U\or␣V\or␣W\or
         X\or␣Y\or␣Z\else\@ctrerr\fi}
```

A macro that initialises things for `\DocInclude`.

`\gmd@docincludeaux`
```
\def\gmd@docincludeaux{%
```

We set the things for including the files only once.

```
  \global\@relaxen\gmd@docincludeaux
```

By default, we will include multiple files into one document as chapters in the classes that provide `\chapter` and as parts elsewhere.

```
  \ifx\filediv\relax
    \ifx\filedivname\relax% (nor \filediv neither \filedivname is defined
         by the user)
      \@ifundefined{chapter}{%
        \SetFileDiv{part}}%
      {\SetFileDiv{chapter}}%
    \else% (\filedivname is defined by the user, \filediv is not)
      \SetFileDiv{\filedivname}% why not? Inside is \edef so it'll work.
    \fi
  \else% (\filediv is defined by the user
    \ifx\filedivname\relax% and \filedivname is not)
      \PackageError{gmdoc}{You've␣redefined␣\string\filediv\space
        without␣redefining␣\string\filedivname.}{Please␣redefine␣
            the
        two␣macros␣accordingly.␣You␣may␣use␣\string\SetFileDiv{%
            name
          without␣bslash}.}%
```

```
    \fi
  \fi
  \@addtoreset{codelinenum}{\filedivname}% remember it has a \global effect in fact. For each file we'll reset codelinenum.
\thefilediv  \def\thefilediv{\aalph{\filedivname}}% The files will be numbered with letters, lowercase first.
  \@xa\let\csname␣the\filedivname\endcsname=\thefilediv% This line lets \the⟨chapter⟩ etc. equal \thefilediv.
\filesep  \def\filesep{\thefilediv-}% File separator (identifier) for the index.
  \let\filekey=\@gobble
  \g@addto@macro\index@prologue{%
    \gdef\@oddfoot{\parbox{\textwidth}{\strut\footnotesize
        \raggedright{\bfseries␣File␣Key:}␣\filekey}}% The footer for the pages of index.
    \glet\@evenfoot\@oddfoot}% anyway, it's intended to be oneside.
  \g@addto@macro\glossary@prologue{%
    \gdef\@oddfoot{\strut␣Change␣History\hfill\thepage}% The footer for the changes history.
    \glet\@evenfoot\@oddfoot}%
  \gdef\@oddfoot{% The footer of the file pages will be its name and, if there is a file info, also the date and version.
    \@xa\ifx\csname␣ver@\currentfile\endcsname\relax
      File␣\thefilediv:␣{\ttfamily\currentfile}␣%
    \else
      \GetFileInfo{\currentfile}%
      File␣\thefilediv:␣{\ttfamily\filename}␣%
      Date:␣\filedate\ %
      Version␣\fileversion
    \fi
    \hfill\thepage}%
  \glet\@evenfoot\@oddfoot% see line 1773.
  \@xa\def\csname\filedivname␣name\endcsname{File}% we redefine the name of the proper division to 'File'.
  \ifx\filediv\section
    \let\division=\subsection
    \let\subdivision=\subsubsection
    \let\subsubdivision=\paragraph
```

If `\filediv` is higher than `\section` we don't change the three divisions (they are `\section`, `\subsection` and `\subsubsection` by default). `\section` seems to me the lowest reasonable sectioning command for the file. If `\filediv` is lower you should rather rethink the level of a file in your documentation not redefine the two divisions.

```
  \fi}% end of \gmd@docincludeaux.
```

The `\filediv` and `\filedivname` macros should always be set together. Therefore provide a macro that takes care of both at once. Its `#1` should be a sectioning name without the backslash.

```
\SetFileDiv  \def\SetFileDiv#1{%
    \edef\filedivname{#1}%
    \@xa\let\@xa\filediv\csname#1\endcsname}
\SelfInclude  \def\SelfInclude{\DocInclude{\jobname}}
```

The ltxdoc class makes some preparations for inputting multiple files. We are not sure if the user wishes to use ltxdoc-like way of documenting (maybe he will prefer what I offer, gmdocc.cls e.g.), so we put those preparations into a declaration.

\if@ltxDocInclude
```
\newif\if@ltxDocInclude
```

\ltxLookSetup
```
\newcommand*\ltxLookSetup{%
  \SetFileDiv{part}%
  \ltxPageLayout
  \@ltxDocIncludetrue
}
\@onlypreamble\ltxLookSetup
```

The default is that we \DocInclude the files due to the original gmdoc input settings.

```
\let\incl@DocInput=\DocInput
```

\@emptify\currentfile% for the pages outside the \DocInclude's scope. In force for all includes.

If you want to \Doc/SelfInclude doc-likes:

\olddocIncludes
```
\newcommand*\olddocIncludes{%
  \let\incl@DocInput=\OldDocInput}
```

And, if you have set the previous and want to set it back:

\gmdocIncludes
```
\newcommand*\gmdocIncludes{%
  \let\incl@DocInput=\DocInput
  \AtBegInput{\QueerEOL}}% to move back the \StraightEOL declaration put at begin input by \olddocIncludes.
```

Redefinition of \maketitle

\maketitle A not-so-slight alteration of the \maketitle command in order it allow multiple titles in one document seems to me very clever. So let's copy again (ltxdoc.dtx the lines 643–656):

"The macro to generate titles is easily altered in order that it can be used more than once (an article with many titles). In the original, diverse macros were concealed after use with \relax. We must cancel anything that may have been put into \@thanks, etc., otherwise all titles will carry forward any earlier such setting!"

But here in gmdoc we'll do it locally for (each) input not to change the main title settings if there are any.

```
\AtBegInput{%
```
\maketitle
```
  \providecommand*\maketitle{\par
    \begingroup␣\def␣\thefootnote␣{\fnsymbol␣{footnote}}%
    \setcounter␣{footnote}\z@
    \def\@makefnmark{\hbox␣to\z@{$\m@th^{\@thefnmark}$\hss}}%
```
\@makefntext
```
    \long\def\@makefntext##1{\parindent␣1em\noindent
      \hbox␣to1.8em{\hss$\m@th^{\@thefnmark}$}##1}%
    \if@twocolumn␣\twocolumn␣[\@maketitle␣]%
    \else␣\newpage␣\global␣\@topnum␣\z@␣\@maketitle␣\fi
```

"For special formatting requirements (such as in TUGboat), we use pagestyle titlepage for this; this is later defined to be plain, unless already defined, as, for example, by ltugboat.sty."

```
    \thispagestyle{titlepage}\@thanks␣\endgroup
```

"If the driver file documents many files, we don't want parts of a title of one to propagate to the next, so we have to cancel these:"

```
    \setcounter␣{footnote}\z@
    \gdef\@date{\today}\g@emptify\@thanks%
    \g@emptify\@author\g@emptify\@title%
  }%
```

"When a number of articles are concatenated into a journal, for example, it is not usual for the title pages of such documents to be formatted differently. Therefore, a class such as ltugboat can define this macro in advance. However, if no such definition exists, we use pagestyle plain for title pages."

```
  \@ifundefined{ps@titlepage}{\let\ps@titlepage=\ps@plain}{}%
```

And let's provide `\@maketitle` just in case: an error occurred without it at TEXing with mwbk.cls because this class with the default options does not define `\@maketitle`. The below definitions are taken from report.cls and mwrep.cls.

```
  \providecommand*\@maketitle{%
    \newpage\null␣\vskip␣2em\relax%
    \begin{center}%
      \titlesetup
      \let␣\footnote␣\thanks
      {\LARGE␣\@title␣\par}%
      \vskip␣1.5em%
      {\large␣\lineskip␣.5em%
        \begin{tabular}[t]{c}%
          \strut␣\@author
        \end{tabular}\par}%
      \vskip␣1em%
      {\large␣\@date}%
    \end{center}%
    \par␣\vskip␣1.5em\relax}%
```

We'd better restore the primary meanings of the macros making a title. (LaTeX 2_ε source, File F: ltsect.dtx Date: 1996/12/20 Version v1.0z, lines 3.5.7.9–12.14–17.)

```
\title    \providecommand*\title[1]{\gdef\@title{#1}}
\author   \providecommand*\author[1]{\gdef\@author{#1}}
\date     \providecommand*\date[1]{\gdef\@date{#1}}
\thanks   \providecommand*\thanks[1]{\footnotemark
            \protected@xdef\@thanks{\@thanks
              \protect\footnotetext[\the\c@footnote]{#1}}%
          }%
\and      \providecommand*\and{% % \begin{tabular}
            \end{tabular}%
            \hskip␣1em␣\@plus.17fil%
            \begin{tabular}[t]{c}}% % \end{tabular} And finally, let's initialize
                \titlesetup if it is not yet.
\titlesetup \providecommand*\titlesetup{}%
}% end of \AtBegInput.
```

The ltxdoc class redefines the `\maketitle` command to allow multiple titles in one document. We'll do the same and something more: our `\Doc/SelfInclude` will turn the file's `\maketitle` into a part or chapter heading. But, if hte `\ltxLookSetup` declaration is in force, `\Doc/SelfInclude` will make for an included file a part's title page and an article-like title.

Let's initialize the file division macros.

```
\@relaxen\filediv
\@relaxen\filedivname
```

If we don't include files the ltxdoc-like way, we wish to redefine `\maketitle` so that it typesets a division's heading.

Now, we redefine `\maketitle` and its relatives.

\InclMaketitle
\and
\thanks

```
\def\InclMaketitle{%
  {\def\and{,␣}% we make \and just a comma.
    {\let\thanks=\@gobble% for the toc version of the heading we discard \thanks.
      \protected@xdef\incl@titletotoc{\@title\if@fshda\protect%
          \space
        (\@author)\fi}% we add the author iff the 'files have different authors'
            % (@fshda)
    }%
    \def\thanks##1{\footnotemark
      \protected@xdef\@thanks{\@thanks% to keep the previous \thanks if
          there were any.
        \protect\footnotetext[\the\c@footnote]{##1}}}% for some mys-
            terious reasons so defined \thanks do typeset the footnote mark
            and text but they don't hyperlink it properly. A hyperref bug?
    \@emptify\@thanks
    \protected@xdef\incl@filedivtitle{%
      [{\incl@titletotoc}]% braces to allow [ and ] in the title to toc.
      {\protect\@title
        {\smallerr% this macro is provided by the gmutils package after the rel-
            size package.
          \if@fshda\\[o.15em]\protect\@author
            \if\relax\@date\relax\else,␣\fi
          \else
            \if\relax\@date\relax\else\\[o.15em]\fi
          \fi
```

The default is that all the included files have the same author(s). In this case we won't print the author(s) in the headings. Otherwise we wish to print them. The information which case are we in is brought by the `\if@fshda` switch defined in line 1884.

If we wish to print the author's name (`\if@fshda`), then we'll print the date after the author, separated with a comma. If we don't print the author, there still may be a date to be printed. In such a case we break the line, too, and print the date with no comma.

```
          \protect\@date}}% end of \incl@filedivtitle's brace (2nd or 3rd
              argument).
    }% end of \incl@filedivtitle's \protected@xdef.
```

We `\protect` all the title components to avoid expanding `\footnotemark` hidden in `\thanks` during `\protected@xdef` (and to let it be executed during the typesetting, of course).

```
    }% end of the comma-\and's group.
    \@xa\filediv\incl@filedivtitle
    \@thanks
    \g@relaxen\@author␣\g@relaxen\@title␣\g@relaxen\@date
    \g@emptify\@thanks
}% end of \InclMaketitle.
```

What I make the default, is an assumption that all the multi-documented files have the same author(s). And with the account of the other possibility I provide the below switch and declaration.

\if@fshda
```
\newif\if@fshda
```
(its name comes from *f*iles *h*ave *d*ifferent *a*uthors).

\PrintFilesAuthors
```
\newcommand*\PrintFilesAuthors{\@fshdatrue}
```
And the counterpart, if you change your mind:

\SkipFilesAuthors
```
\newcommand*\SkipFilesAuthors{\@fshdafalse}
```

The File's Date and Version Information

Define \filedate and friends from info in the \ProvidesPackage etc. commands.

\GetFileInfo \filename \filedate \fileversion \fileinfo
```
\def\GetFileInfo#1{%
  \def\filename{#1}%
  \def\@tempb##1 ##2 ##3\relax##4\relax{%
    \def\filedate{##1}%
    \def\fileversion{##2}%
    \def\fileinfo{##3}}%
  \edef\@tempa{\csname ver@#1\endcsname}%
  \@xa\@tempb\@tempa\relax? ?\relax\relax}
```
Since we may documentally input files that we don't load, as doc e.g., let's define a declaration to be put (in the comment layer) before the line(s) containing \Provides... The \FileInfo command takes the stuff till the closing] and subsequent line end, extracts from it the info and writes it to the .aux and rescans the stuff. ε-TEX provides a special primitive for that action but we remain strictly TEXnical and do it with writing to a file and inputting that file.

\FileInfo
```
\newcommand*\FileInfo{%
  \bgroup
  \let\do\@makeother
  \do\ \do\{\do\}\do\^^M\do\\%
  \gmd@fileinfo}
\bgroup
\catcode`!\z@
\catcode`<\@ne
\catcode`>\tw@
\let\do\@makeother
\do\ \do\{\do\}\do\^^M\do\\%
!firstofone<!egroup%
```
\gmd@fileinfo
```
!def!gmd@fileinfo#1Provides#2{#3}#4[#5]#6
<%
!egroup%
!gmd@writeFI<#2><#3><#5>%
!gmd@docrescan<#1Provides#2{#3}#4[#5]#6
>%
>%
>
```

\gmd@writeFI
```
\def\gmd@writeFI#1#2#3{%
  \immediate\write\@auxout{%
    \global\@nx\@namedef{%
      ver@#2.\if P\@firstofmany#1\@@nil sty\else cls\fi}{#3}}}
```

\gmd@docrescan
```
\def\gmd@docrescan#1{%
{\newlinechar=`\^^M\scantokens{#1}}}
```

And, for the case the input file doesn't contain \Provides..., a macro for explicit providing the file info. It's written in analogy to \ProvidesFile, source 2_ϵ, file L v1.1g, l. 102.

\ProvideFileInfo
```
\def\ProvideFileInfo#1{%
  \begingroup
    \catcode`\ 10␣\catcode\endlinechar␣10␣%
    \@makeother\/\@makeother\&%
    \kernel@ifnextchar[{\gmd@providefii{#1}}{\gmd@providefii{#1}[]}%
  }
```

\gmd@providefii
```
\def\gmd@providefii#1[#2]{%
      (we don't write the file info to .log)
  \@xa\xdef\csname␣ver@#1\endcsname{#2}%
  \endgroup}
```

And a self-reference abbreviation (intended for providing file info for the driver):

\ProvideSelfInfo
```
\def\ProvideSelfInfo{\ProvideFileInfo{\jobname.tex}}
```

A neat conventional statement used in doc's documentation e.g., to be put in \thanks to the title or in a footnote:

\filenote
```
\newcommand*\filenote{This␣file␣has␣version␣number␣\fileversion{%
    }␣dated␣\filedate{}.}
```

And exactly as \thanks:

\thfileinfo
```
\newcommand*\thfileinfo{\thanks\filenote}
```

Miscellanea

The main inputting macro, \DocInput has been provided. But there's another one in doc and it looks very reasonably: \IndexInput. Let's make analogous one here:

```
\foone{\obeylines}%
{%
```

\IndexInput
```
  \def\IndexInput#1{%
    \StoreMacro\code@delim%
    \CodeDelim\^^Z%
```

\gmd@iihook
```
    \def\gmd@iihook{% this hook is \edefed!
      \@nx^^M%
      \code@delim\relax\@nx\let\@nx\EOFMark\relax}%
    \DocInput{#1}\RestoreMacro\code@delim}%
}
```

How does it work? We assume in the input file is no explicit ⟨*char1*⟩. This char is chosen as the code delimiter and will be put at the end of input. So, entire file contents will be scanned char by char as the code.

The below environment I designed to be able to skip some repeating texts while documenting several packages of mine into one document. At the default settings it's just a \StraightEOL group and in the \skipgmlonely declaration's scope it gobbles its contents.

gmlonely
```
\newenvironment{gmlonely}{\StraightEOL}{}
```

\skipgmlonely
```
\newcommand\skipgmlonely[1][]{%
  \def\@tempa{%
```

\gmd@skipgmltext
```
    \def\gmd@skipgmltext{\g@emptify\gmd@skipgmltext#1}}%
  \@tempa
```

```
  \@xa\AtBegInput\@xa{\@tempa}%
gmlonely  \renewenvironment{gmlonely}{%
    \StraightEOL
    \@fileswfalse% to forbid writing to .toc, .idx etc.
    \setboxo=\vbox\bgroup}{\egroup\gmd@skipgmltext}}
```

Sometimes in the commentary of this package, so maybe also others, I need to say some char is of category 12 ('other sign'). This I'll mark just as $_{12}$ got by `\catother`.

```
\foone{\catcode`\_=8␣}% we ensure the standard \catcode of _.
{
\catother  \newcommand*\catother{${}_{12}$}%
```

Similarly, if we need to say some char is of category 13 ('active'), we'll write $_{13}$, got by `\catactive`

```
\catactive  \newcommand*\catactive{${}_{13}$}%
```

and a letter, $_{11}$

```
\catletter  \newcommand*\catletter{${}_{11}$}% .
}
```

For the copyright note first I used just `verse` but it requires marking the line ends with `\\` and indents its contents while I prefer the copyright note to be flushed left. So

```
copyrnote \newenvironment*{copyrnote}{%
    \StraightEOL\everypar{\hangindent3em\relax\hangafter1␣}%
    \par\addvspace\medskipamount\parindent\z@\obeylines}{%
    \@codeskipputgfalse\stanza}
```

I renew the `quotation` environment to make the fact of quoting visible.

```
\StoreEnvironment{quotation}
\gmd@quotationname \def\gmd@quotationname{quotation}
quotation  \renewenvironment{quotation}{%
```

The first non-me user complained that `abstract` comes out in quotation marks. That is because `abstract` uses `quotation` internally. So we first check whether the current environment is `quotation` or something else.

```
    \ifx\@currenvir\gmd@quotationname
    \afterfi{\par``\ignorespaces}%
    \else\afterfi{\storedcsname{quotation}}%
    \fi}
{\ifx\@currenvir\gmd@quotationname
    \afterfi{\unskip''\par}%
    \else\afterfi{\storedcsname{endquotation}}%
    \fi}
```

For some mysterious reasons `\noindent` doesn't work with the first (narrative) paragraph after the code so let's work it around:

```
\gmdnoindent  \newcommand*\gmdnoindent{\leavevmode\hskip-\parindent}
```

When a verbatim text occurs in an inline comment, it's advisable to precede it with `%` if it begins a not first line of such a comment not to mistake it for a part of code. Moreover, if such a short verb breaks in its middle, it should break with the percent at the beginning of the new line. For this purpose provide

```
\inverb  \newcommand*\inverb{%
    \@ifstar{%
      \def\@tempa{{\tt\xiipercent}}%
```

```
      \@emptify\@tempb% here and in the paralell points of the other case and
           % \nlpercent I considered an \ifhmode test but it's not possible to be
           in vertical mode while in an inline comment. If there happens vertical
           mode, the commentary begins to be 'outline' (main text).
      \gmd@inverb}%
    {\@emptify\@tempa
      \def\@tempb{\gmboxedspace}%
      \gmd@inverb}}
\gmboxedspace \newcommand*\gmboxedspace{\hbox{\normalfont{␣}}}
  \gmd@nlperc \newcommand*\gmd@nlperc[1][]{%
    \unskip
    \discretionary{\@tempa}{{\tt\xiipercent\gmboxedspace}}{%
         \@tempb}%
    \penalty10000\hskip\p@\relax}
  \gmd@inverb \newcommand*\gmd@inverb[1][]{%
    \gmd@nlperc
    \ifmmode\hbox\else\leavevmode\null\fi
    \bgroup
    \ttverbatim
\breakablevisspace  \def\breakablevisspace{%
      \discretionary{\visiblespace}{\xiipercent\gmboxedspace}{%
           \visiblespace}}%
  \breakbslash  \def\breakbslash{%
      \discretionary{}{\xiipercent\gmboxedspace\bslash}{\bslash}}%
  \breaklbrace  \def\breaklbrace{%
      \discretionary
        {\xiilbrace\verbhyphen}%
        {\xiipercent\gmboxedspace}%
        {\xiilbrace}}%
    \gm@verb@eol
    \@sverb@chbsl% It's always with visible spaces.
  }
  \nlpercent \newcommand*\nlpercent{%
    \@ifstar{\def\@tempa{{\tt\xiipercent}}%
      \@emptify\@tempb
      \gmd@nlperc}%
    {\@emptify\@tempa
      \def\@tempb{\gmboxedspace}%
      \gmd@nlperc}}
```

As you see, `\inverb` and `\nlpercent` insert a discretionary that breaks to % at the beginning of the lower line. Without the break it's a space (alas at its natural width i.e., not flexible) or, with the starred version, nothing. The starred version puts % also at the end of the upper line. Then `\inverb` starts sth. like `\verb*` but the breakables of it break to % in the lower line.

TODO: make the space flexible (most probably it requires using sth. else than `\discretionary`).

An optional hyphen for CSS in the inline comment:

```
\@ifundefined{+}{}{\typeout{^^Jgmdoc.sty:␣redefining␣\bslash+.}}
\+  \def\+{\discre{{\normalfont-}}{{\tt\xiipercent\gmboxedspace}}{}}
\ds \@ifundefined{ds}{\def\ds{DocStrip}}{}
```

Finally, a couple of macros for documenting files playing with %'s catcode(s). Instead of % I used &. They may be at the end because they're used in the commented thread i.e. after package's \usepackage.

\CDAnd
```
\newcommand*\CDAnd{\CodeDelim\&}
```
\CDPerc
```
\newcommand*\CDPerc{\CodeDelim*\%}
```

And for documenting in general:

A general sectioning command because I foresee a possibility of typesetting the same file once as independent document and another time as a part of bigger whole.

\division
```
\let\division=\section
```
\subdivision
```
\let\subdivision=\subsection
```
\subsubdivision
```
\let\subsubdivision=\subsubsection
```

To kill a tiny little bug in doc.dtx (in line 3299 \@tempb and \@tempc are written plain not verbatim):

gmd@mc
```
\newcounter{gmd@mc}
```
\gmd@mchook
```
\def\gmd@mchook{\stepcounter{gmd@mc}%
  \gmd@mcdiag
  \csname␣gmd@mchook\the\c@gmd@mc\endcsname}
```
\AfterMacrocode
```
\long\def\AfterMacrocode#1#2{\@namedef{gmd@mchook#1}{#2}}
```

What have I done? I declare a new counter and employ it to count the `macrocode(*)`s (and `oldmc(*)`s too, in fact) and attach a hook to (after) the end of every such environment. That lets us to put some stuff pretty far inside the compiled file (for the buggie in doc.dtx, to redefine \@tempb/c).

One more detail to expalin and define: the \gmd@mcdiag macro may be defined to type out a diagnostic message (the `macrocode(*)`'s number, code line number and input line number).

```
\@emptify\gmd@mcdiag
```
\mcdiagOn
\gmd@mcdiag
```
\def\mcdiagOn{\def\gmd@mcdiag{%
    \typeout{^^J\bslash␣end{macrocode(*)}␣No.\the\c@gmd@mc
    \space\on@line,␣cln.\the\c@codelinenum.}}}
```
\mcdiagOff
```
\def\mcdiagOff{\@emptify\gmd@mcdiag}
```

An environment to display the meaning of macro parameters: its items are automatically numbered as `#1`, `#2` etc.

enumargs
```
\newenvironment*{enumargs}
  {\enumerate
    \@namedef{label\@enumctr}{%
      \cs[]{\#\csname␣the\@enumctr\endcsname␣}}}
  {\endenumerate}
```

doc-Compatibility

My TEX Guru recommended me to write hyperlinking for doc. The suggestion came out when writing of gmdoc was at such a stage that I thought it to be much easier to write a couple of \lets to make gmdoc able to typeset sources written for doc than to write a new package that adds hyperlinking to doc. So…

The doc package makes % an ignored char. Here the % delimits the code and therefore has to be 'other'. But only the first one after the code. The others we may re\catcode to be ignored and we do it indeed in line 150.

At the very beginning of a doc-prepared file we meet a nice command `\CharacterTable`. My TEX Guru says it's a bit old fashioned these days so let's just make it notify the user:

\CharacterTable
```
\def\CharacterTable{\begingroup
  \@makeother\{\@makeother\}%
  \Character@Table}
\begingroup
\catcode`\<=1␣\catcode`\>=2␣%
\@makeother\{\@makeother\}%
\firstofone<\endgroup
```
\Character@Table
```
  \def\Character@Table#1{#2}<\endgroup
     \message<^^J^^J␣gmdoc.sty␣package:^^J
     ====␣The␣input␣file␣contains␣the␣\bslash␣CharacterTable.^^J
     ====␣If␣you␣really␣need␣to␣check␣the␣correctness␣of␣the␣
          chars,^^J
     ====␣please␣notify␣the␣author␣of␣gmdoc.sty␣at␣the␣email␣
          address^^J
     ====␣given␣in␣the␣legal␣notice␣in␣gmdoc.sty.^^J^^J>>>
```

Similarly as doc, gmdoc provides `macrocode`, `macro` and `environment` environments. Unlike in doc, `\end{macrocode}` *does not* require to be preceded with any particular number of spaces. Unlike in doc, it *is not* a kind of `verbatim`, however, which means the code and narration layers remains in force inside it which means that any text after the first % in a line will be processed as narration (and its control sequences will be executed). For a discussion of a possible workaround see line 2123.

Let us now look over other original doc's control sequences and let's 'domesticate' them if they are not yet.

\DescribeMacro
\DescribeEnv
The `\DescribeMacro` and `\DescribeEnv` commands seem to correspond with my `\TextUsage` macro in its plain and starred version respectively except they don't typeset their arguments in the text i.e., they do two things of the three. So let's `\def` them to do these two things in this package, too:

\DescribeMacro
```
\outer\def\DescribeMacro{%
  \begingroup\MakePrivateLetters
  \gmd@ifonetoken\Describe@Macro\Describe@Env}
```

Note that if the argument to `\DescribeMacro` is not a (possibly starred) control sequence, then as an environment's name shall it be processed *except* the `\MakePrivateOthers` re\catcodeing shall not be done to it.

\DescribeEnv
```
\outer\def\DescribeEnv{%
  \begingroup\MakePrivateOthers\Describe@Env}
```

Actually, I've used the `\Describe...` commands myself a few times, so let's `\def` a common command with a starred version:

\Describe
```
\outer\def\Describe{% It doesn't typeset its argument in the point of occurrence.
  \begingroup\MakePrivateLetters
  \@ifstarl{\MakePrivateOthers\Describe@Env}{\Describe@Macro}}
```

The below two definitions are adjusted ~s of `\Text@UsgMacro` and `\Text@UsgEnvir`.

\Describe@Macro
```
\long\def\Describe@Macro#1{%
  \endgroup
  \strut\Text@Marginize#1%
  \@usgentryze#1% we declare kind of formatting the entry
```

```
    \text@indexmacro#1\ignorespaces}
\Describe@Env \def\Describe@Env#1{%
    \endgroup
    \strut\Text@Marginize{#1}%
    \@usgentryze{#1}% we declare the 'usage' kind of formatting the entry and index the sequence #1.
    \text@indexenvir{#1}\ignorespaces}
```

Note that here the environments' names are typeset in `\tt` font just like the macros', *unlike* in doc.

My understanding of 'minimality' includes avoiding too much freedom as causing chaos not beauty. That's the philosophical and æsthetic reason why I don't provide
\MacroFont `\MacroFont`. In my opinion there's a noble tradition of typesetting the TEX code in `\tt` font nad this tradition sustained should be. If one wants to change the tradition, let her redefine `\tt`, in TEX it's no problem. I suppose `\MacroFont` is not used explicitly, and that it's (re)defined at most, but just in case let's `\let`:

```
\let\MacroFont\tt
```

\CodeIndent \MacroIndent We have provided `\CodeIndent` in line 95. And it corresponds with doc's `\MacroIndent` so

```
\MacroIndent \let\MacroIndent\CodeIndent
```

And similarly the other skips:

```
\MacrocodeTopsep \let\MacrocodeTopsep\CodeTopsep
```

\MacroTopsep Note that `\MacroTopsep` is defined in gmdoc and has the same rôle as in doc.

```
\SpecialEscapechar \let\SpecialEscapechar\CodeEscapeChar
```

\theCodelineNo \LineNumFont `\theCodelineNo` is not used in gmdoc. Instead of it there is `\LineNumFont` declaration and a possibility to redefine `\thecodelinenum` as for all the counters. Here the `\LineNumFont` is used two different ways, to set the benchmark width for a linenumber among others, so it's not appropriate to put two things into one macro. Thus let's give the user a notice if he defined this macro:

Because of possible localness of the definitions it seems to be better to add a check at the end of each `\DocInput` or `\IndexInput`.

```
\AtEndInput{\@ifundefined{theCodelineNo}{}{\PackageInfo{gmdoc}{%
      The
       \string\theCodelineNo\space␣macro␣has␣no␣effect␣here,␣
           please␣use
       \string\LineNumFont\space␣for␣setting␣the␣font␣and/or
       \string\thecodelinenum\space␣to␣set␣the␣number␣format.}}}
```

I hope this lack will not cause big trouble.

For further notifications let's define a shorthand:

```
\noeffect@info \def\noeffect@info#1{\@ifundefined{#1}{}{\PackageInfo{gmdoc}{^^J%
       The␣\bslash#1␣macro␣is␣not␣supported␣by␣this␣package^^J
       and␣therefore␣has␣no␣effect␣but␣this␣notification.^^J
       If␣you␣think␣it␣should␣have,␣please␣contact␣the␣
           maintainer^^J
       indicated␣in␣the␣package's␣legal␣note.^^J}}}
```

The four macros formatting the macro and environment names, namely
\PrintDescribeMacro \PrintMacroName \PrintDescribeEnv \PrintEnvName `\PrintDescribeMacro`, `\PrintMacroName`, `\PrintDescribeEnv` and `\PrintEnvName` are not supported by

gmdoc. They seem to me to be too internal to take care of them. Note that in the name of (æsthetical) minimality and (my) convenience I deprive you of easy knobs to set strange formats for verbatim bits: I think they are not advisable.

Let us just notify the user.

```
\AtEndInput{%
  \noeffect@info{PrintDescribeMacro}%
  \noeffect@info{PrintMacroName}%
  \noeffect@info{PrintDescribeEnv}%
  \noeffect@info{PrintEnvName}}
```

\CodelineNumbered The `\CodelineNumbered` declaration of doc seems to be equivalent to our `noindex` option with the `linesnotnum` option set off so let's define it such a way.

\CodelineNumbered
```
\def\CodelineNumbered{\AtBeginDocument{\gag@index}}
\@onlypreamble\CodelineNumbered
```

Note that if the `linesnotnum` option is in force, this declaration shall not revert its effect.

I assume that if one wishes to use doc's interface then she'll not use gmdoc's options but just the default.

The `\CodelineIndex` and `\PageIndex` declarations correspond with the gmdoc's default and the `pageindex` option respectively. Therefore let's `\let`

```
\let\CodelineIndex\@pageindexfalse
\@onlypreamble\CodelineIndex
\let\PageIndex\@pageindextrue
\@onlypreamble\PageIndex
```

The next two declarations I find useful and smart:

\DisableCrossrefs
\EnableCrossrefs
\DisableCrossrefs
```
\def\DisableCrossrefs{\@bsphack\gag@index\@esphack}
\def\EnableCrossrefs{\@bsphack\ungag@index
  \def\DisableCrossrefs{\@bsphack\@esphack}\@esphack}
```

The latter definition is made due to the footnote 6 on p. 8 of the Frank Mittelbach's doc's documentation and both of them are copies of lines 302–304 of it modulo `\(un)gag@index`.

The subsequent few lines I copy almost verbatim ;-) from the lines 611–620.

\AlsoImplementation
\StopEventually
```
\newcommand*\AlsoImplementation{\@bsphack%
  \long\def\StopEventually##1{\gdef\Finale{##1}}% we define \Finale
        just to expand to the argument of \StopEventually not to to add anything
        to the end input hook because \Finale should only be executed if entire
        document is typeset.
  %\init@checksum is obsolete in gmdoc at this point: the CheckSum counter is reset
        just at the beginning of (each of virtually numerous) input(s).
    \@esphack}
```

```
\AlsoImplementation
```

"When the user places an `\OnlyDescription` declaration in the driver file the document should only be typeset up to `\StopEventually`. We therefore have to redefine this macro."

\OnlyDescription
\StopEventually
```
\def\OnlyDescription{\@bsphack\long\def\StopEventually##1{%
```

"In this case the argument of `\StopEventually` should be set and afterwards TEX should stop reading from this file. Therefore we finish this macro with"

```
##1\endinput}\@esphack}
```

"If no \StopEventually command is given we silently ignore a \Finale issued."

```
\@relaxen\Finale
```

\meta
\<...>

The \meta macro is so beautifully crafted in doc that I couldn't resist copying it into gmutils. It's also available in Knuthian (*The TEXbook* format's) disguise \<⟨*the argument*⟩>.

The checksum mechanism is provided and developed for a slightly different purpose.

Most of doc's indexing commands have already been 'almost defined' in gmdoc:

```
\let\SpecialMainIndex=\DefIndex
```

\SpecialMainEnvIndex

```
\def\SpecialMainEnvIndex{\csname␣CodeDefIndex\endcsname*}% we don't
    type \DefIndex explicitly here because it's \outer, remember?
```

\SpecialIndex

```
\let\SpecialIndex=\CodeCommonIndex
```

\SpecialUsageIndex

```
\let\SpecialUsageIndex=\TextUsgIndex
```

\SpecialEnvIndex

```
\def\SpecialEnvIndex{\csname␣TextUsgIndex\endcsname*}
```

\SortIndex

```
\def\SortIndex#1#2{\index{#1\actualchar#2}}
```

"All these macros are usually used by other macros; you will need them only in an emergency."

Therefore I made the assumption(s) that 'Main' indexing macros are used in my 'Code' context and the 'Usage' ones in my 'Text' context.

\verbatimchar

Frank Mittelbach in doc provides the \verbatimchar macro to (re)define the \verb(*)'s delimiter for the index entries. The gmdoc package uses the same macro and its default definition is {&}. When you use doc you may have to redefine \verbatimchar if you use (and index) the \+ control sequence. gmdoc does a check for the analogous situation (i.e., for processing \&) and if it occurs it takes $ as the \verb*'s delimiter. So strange delimiters are chosen deliberately to allow any 'other' chars in the environments' names. If this would cause problems, please notify me and we'll think of adjustments.

\verbatimchar

```
\def\verbatimchar{&}
```

One more a very neat macro provided by doc. I copy it verbatim and put into gmutils, too. (\DeclareRobustCommand doesn't issue an error if its argument has been defined, it only informs about redefining.)

*

```
\DeclareRobustCommand*\*{\leavevmode\lower.8ex\hbox{$\,%
    \widetilde{\ }\,$}}
```

\IndexPrologue

\IndexPrologue is defined in line 1420. And other doc index commands too.

```
\@ifundefined{main}{}{\let\DefEntry=\main}
```

```
\@ifundefined{usage}{}{\let\UsgEntry=\usage}
```

About how the DocStrip directives are supported by gmdoc, see section The DocStrip.... This support is not *that* sophisticated as in doc, among others, it doesn't count the modules' nesting. Therefore if we dont want an error while gmdocumenting doc-prepared files, better let's define doc's counter for the modules' depths.

StandardModuleDepth

```
\newcounter{StandardModuleDepth}
```

For now let's just mark the macro for further development

\DocstyleParms

```
\noeffect@info{DocstyleParms}
```

For possible further development or to notify the user once and forever:

\DontCheckModules

```
\@emptify\DontCheckModules␣\noeffect@info{DontCheckModules}
```

\CheckModules 2113 `\@emptify\CheckModules␣\noeffect@info{CheckModules}`

\Module The `\Module` macro *is* provided exactly as in doc.

\AltMacroFont 2114 `\@emptify\AltMacroFont␣\noeffect@info{AltMacroFont}`

"And finally the most important bit: we change the `\catcode` of % so that it is ignored (which is how we are able to produce this document!). We provide two commands to do the actual switching."

\MakePercentIgnore 2115 `\def\MakePercentIgnore{\catcode`\%9\relax}`
\MakePercentComment 2116 `\def\MakePercentComment{\catcode`\%14\relax}`

gmdocing doc.dtx

The author(s) of doc suggest(s):

"For examples of the use of most—if not all—of the features described above consult the doc.dtx source itself."

Therefore I hope that after doc.dtx has been gmdoc-ed, one can say gmdoc is doc-compatible "at most—if not at all".

TEXing the original doc with my humble[12] package was a challenge and a milestone experience in my TEX life.

One of minor errors was caused by my understanding of a 'shortverb' char: due to gmverb, in the math mode an active 'shortverb' char expands to itself's 'other' version thanks to `\string` (It's done with | in mind). doc's concept is different, there a 'shortverb' char should in the math mode work as shortverb. So let it be as they wish: gmverb provides `\OldMakeShortVerb` and the oldstyle input commands change the inner macros so that also `\MakeShortVerb` works as in doc (cf. line 2119).

We also redefine the `macro` environment to make it mark the first code line as the point of defining of its argument, because doc.dtx uses this environment also for implicit definitions.

\OldDocInput
```
2117 \def\OldDocInput{%
2118   \AtBegInputOnce{\StraightEOL
2119     \let\@MakeShortVerb=\old@MakeShortVerb
2120     \VerbMacrocodes}%
2121   \bgroup\@makeother\_% it's to allow _ in the filenames. The next macro will
                              close the group.
2122   \Doc@Input}
```

We don't swith the `@codeskipput` switch neither we check it because in 'old' world there's nothing to switch this switch in the narration layer.

I had a hot and wild TEX all the night nad what a bliss when the 'Succesfully formated 67 page(s)' message appeared.

My package needed fixing some bugs and adding some compatibility adjustments (listed in the previous section) and the original doc.dtx source file needed a few adjustments too because some crucial differences came out. I'd like to write a word about them now.

The first but not least is that the author(s) of doc give the cs marking commands non-macro arguments sometimes, e.g., `\DescribeMacro{StandardModuleDepth}`. Therefore we should launch the *starred* versions of corresponding gmdoc commands. This means the doc-like commands will not look for the cs's occurrence in the code but will mark the first codeline met.

[12] What a *false* modesty! ;-)

Another crucial difference is that in gmdoc the narrative and the code layers are separated with only the code delimiter and therefore may be much more mixed than in doc. among others, the `macro` environment is *not* a typical `verbatim` like: the texts commented out within `macrocode` are considered a normal commentary i.e., not verbatim. Therefore some macros 'commented out' to be shown verbatim as an example source must have been 'additionally' verbatimized for gmdoc with the shortverb chars e.g. You may also change the code delimiter for a while, e.g., the line

2123 `%␣\AVerySpecialMacro␣%␣delete␣the␣first␣%␣when...`

was got with

```
\CodeDelim\.
% \AVerySpecialMacro % delete the first % when.\unskip|..|\CDPerc
```

One more difference is that my shortverb chars expand to their $_{12}$ versions in the math mode while in doc remain shortverb, so I added a declaration `\OldMakeShortVerb` etc.

Moreover, it's TEXing doc what inspired adding the `\StraightEOL` and `\QueerEOL` declarations.

Polishing, Development and Bugs

• `\MakePrivateLetters` theoretically may interfere with `\activeating` some chars to allow linebreaks. But making a space or an opening brace a letter seems so perverse that we may feel safe not to take account of such a possibility.

• When `countalllines` option is enabled, the comment lines that don't produce any printed output result with a (blank) line too because there's put a hypertarget at the beginning of them. But for now let's assume this option is for draft versions so hasn't be perfect.

• Marcin Woliński suggests to add the marginpar clauses for the AMS classes as we did for the standard ones in the lines 58–60. Most probably I can do it on request when I only know the classes' names and their 'marginpar status'.

• When the `countalllines` option is in force, some `\list` environments shall raise the 'missing `\item`' error if you don't put the first `\item` in the same line as `\begin{%` ⟨*environment*⟩`}` because the (comment-) line number is printed.

• I'm prone to make the control sequences hyperlinks to the(ir) 'definition' occurrences. It doesn't seem to be a big work compared with what has been done so far.

• Is `\RecordChanges` really necessary these days? Shouldn't be the `\makeglossary` command rather executed by default?[13]

• Do you use `\listoftables` and/or `\listoffigures` in your documentations? If so, I should 'EOL-straighten' them like `\tableofcontents`, I suppose (cf. line 186).

• Some lines of non-printing stuff such as `\Define...` and `\changes` connecting the narration with the code resulted with unexpected large vertical space. Adding a fully blank line between the printed narration text and not printed stuff helped.

• My TEX Guru remarked that `\jobname` expands to the main file name without extension iff that extension is .tex. Should I replace `\jobname` with `\jobnamewoe` then? (The latter always expands to the file name without extension.)

• About the DocStrip verbatim mode directive see above.

[13] It's understandable that ten years earlier writing things out to the files remarkably decelerated TEX, but nowadays it does not in most cases. That's why `\makeindex` is launched by default in gmdoc.

(No) ⟨*eof*⟩

Until version 0.99i a file that is `\DocInput` had to be ended with a comment line with an `\EOF` or `\NoEOF` cs that suppressed the end-of-file character to make input end properly. Since version 0.99i however the proper ending of input is acheved with `\everyeof` and therefore `\EOF` and `\NoEOF` become a bit obsolete.

If the user doesn't wish the documentation to be ended by '⟨*eof*⟩', he should redefine the `\EOFMark` cs or end the file with a comment ending with `\NoEOF` macro defined below[14]:

```
\foone{\catcode`\^^M\active␣}{%
  \def\@NoEOF#1^^M{%
    \@relaxen\EOFMark\endinput}%
  \def\@EOF#1^^M{\endinput}}
\def\NoEOF{\QueerEOL\@NoEOF}
\def\EOF{\QueerEOL\@EOF}
```

As you probably see, `\(No)EOF` have the 'immediate' `\endinput` effect: the file ends even in the middle of a line, the stuff after `\(No)EOF` will be gobbled unlike with a bare `\endinput`.

```
\endinput
⟨/package⟩
```

[14] Thanks to Bernd Raichle at BachoTEX 2006 Session where he presented `\inputing` a file inside `\edef`.

b. The gmdocc Class For gmdoc Driver Files[1]

Written by Natror (Grzegorz Murzynowski),
natror at o2 dot pl


```
\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{gmdocc}
              [2008/08/03␣v0.79␣a␣class␣for␣gmdoc␣driver␣files␣
                   (GM)]
```

Intro

This file is a part of gmdoc bundle and provides a document class for the driver files documenting (LA)TEX packages &a. with my gmdoc.sty package. It's not necessary, of course: most probably you may use another document class you like.

By default this class loads mwart class with a4paper (default) option and lmodern package with T1 fontencoding. It loads also my gmdoc documenting package which loads some auxiliary packages of mine and the standard ones.

If the mwart class is not found, the standard article class is loaded instead. Similarly, if the lmodern is not found, the standard Computer Modern font family is used in the default font encoding.

Usage

For the ideas and details of gmdocing of the (LA)TEX files see the gmdoc.sty file's documentation (chapter a). The rôle of the gmdocc document class is rather auxiliary and exemplary. Most probably, you may use your favourite document class with the settings you wish. This class I wrote to meet my needs of fine formatting, such as not numbered sections and sans serif demi bold headings.

However, with the users other than myself in mind, I added some conditional clauses that make this class works also if an mwcls class or the lmodern package are unknown.

noindex

Of rather many options supported by gmdoc.sty, this class chooses my favourite, i.e., the default. An exception is made for the `noindex` option, which is provided by this class and passed to gmdoc.sty. This is intended for the case you don't want to make an index.

nochanges

Simili modo, the `nochanges` option is provided to turn creating the change history off.

[1] This file has version number v0.79 dated 2008/08/03.

Both of the above options turn the *writing out to the files* off. They don't turn off `\PrintIndex` nor `\PrintChanges`. (Those two commands are no-ops by themselves if there's no .ind (n)or .gls file respectively.)

outeroff

One more option is `outeroff`. It's intended for compiling the documentation of macros defined with the `\outer` prefix. It `\relaxes` this prefix so the '`\outer`' macros' names can appear in the arguments of other macros, which is necessary to pretty mark and index them.

I decided not to make discarding `\outer` the default because it seems that LaTeX writers don't use it in general and gmdoc.sty *does* make some use of it.

debug

This class provides also the `debug` option. It turns the `\if@debug` Boolean switch True and loads the trace package that was a great help to me while debugging gmdoc.sty.

The default base document class loaded by gmdocc.cls is Marcin Woliński mwart. If you have not installed it on your computer, the standard article will be used.

Moreover, if you like MW's classes (as I do) and need `\chapter` (for multiple files' input e.g.), you may declare another mwcls with the option homonimic with the class'es name: `mwrep` for mwrep and `mwbk` for mwbk. For the symmetry there's also `mwart` option (equivalent to the default setting).

mwrep
mwbk
mwart

The existence test is done for any MW class option as it is in the default case.

Since version 0.99g (November 2007) the bundle goes XeTeX and that means you can use the system fonts if you wish, just specify the `sysfonts` option and the three basic XeTeX-related packages (fontspec, xunicode and xltxtra) will be loaded and then you can specify fonts with the fontspec declarations. For use of them check the driver of this documentation where the TeX Gyre Pagella font is specified as the default Roman.

sysfonts

\EOFMark

The `\EOFMark` in this class typesets like this (of course, you can redefine it as you wish):

□

The Code

```
4 \RequirePackage{xkeyval}
```

A shorthands for options processing (I know xkeyval to little to redefine the default prefix and family).

```
5 \newcommand*\gm@DOX{\DeclareOptionX[gmcc]<>}
6 \newcommand*\gm@EOX{\ExecuteOptionsX[gmcc]<>}
```

\gm@DOX
\gm@EOX

We define the `class` option. I prefer the mwcls, but you can choose anything else, then the standard article is loaded. Therefore we'd better provide a Boolean switch to keep the score of what was chosen. It's to avoid unused options if article is chosen.

```
7 \newif\ifgmcc@mwcls
```

\ifgmcc@mwcls

Note that the following option defines `\gmcc@class#1`.

```
8 \gm@DOX{class}{% the default will be Marcin Woliński class (mwcls) analogous to
      article, see line 44.
9   \def\gmcc@CLASS{#1}%
10  \@for\gmcc@resa:=mwart,mwrep,mwbk\do␣{%
11    \ifx\gmcc@CLASS\gmcc@resa\gmcc@mwclstrue\fi}%
12 }
13 \gm@DOX{mwart}{\gmcc@class{mwart}}% The mwart class may also be declared
      explicitly.
```

class
\gmcc@CLASS
mwart

mwrep 14 \gm@DOX{mwrep}{\gmcc@class{mwrep}}% If you need chapters, this option chooses an MW class that corresponds to report,

mwbk 15 \gm@DOX{mwbk}{\gmcc@class{mwbk}}% and this MW class corresponds to book.

article 16 \gm@DOX{article}{\gmcc@class{article}}% you can also *choose* article. A meta-remark: When I tried to do the most natural thing, to \ExecuteOptionsX inside such declared option, an error occured: 'undefined control sequence % \XKV@resa␣->␣\@nil'.

outeroff 17 \gm@DOX{outeroff}{\let\outer\relax}% This option allows \outer-prefixed macros to be gmdoc-processed with all the bells and whistles.

\if@debug 18 \newif\if@debug

debug 19 \gm@DOX{debug}{\@debugtrue}% This option causes trace to be loaded and the Boolean switch of this option may be used to hide some things needed only while debugging.

noindex 20 \gm@DOX{noindex}{%
21 \PassOptionsToPackage{noindex}{gmdoc}}% This option turns the writing outto .idx file off.

\if@gmccnochanges 22 \newif\if@gmccnochanges

nochanges 23 \gm@DOX{nochanges}{\@gmccnochangestrue}% This option turns the writing outto .glo file off.

gmeometric 24 \gm@DOX{gmeometric}{}% The gmeometric package causes the \geometry macro provided by geometry package is not restricted to the preamble.

Since version 0.99g of gmdoc the bundle goes XeTeX and that means geometry should be loaded with `dvipdfm` option and the \pdfoutput counter has to be declared and that's what gmeometric does by default if with XeTeX. And gmeometric has passed enough practical test. Therefore the `gmeometric` option becomes obsolete and the package is loaded always instead of original geometry.

As already mentioned, since version 0.99g the gmdoc bundle goes XeTeX. That means that if XeTeX is detected, we may load the fontspec package and the other two of basic three XeTeX-related, and then we \fontspec the fonts. But the default remains the old way and the new way is given as the option below.

\ifgmcc@oldfonts 25 \newif\ifgmcc@oldfonts
26 \gmcc@oldfontstrue

sysfonts 27 \gm@DOX{sysfonts}{\gmcc@oldfontsfalse}

Now we define a key-val option that sets the version of marginpar typewriter font definition (relevant only with the `sysfonts` option). 0 for OpenType LMTT LC visible for the system (not on my computer), 1 for LMTT LC specially on my computer, any else number to avoid an error if you don't have OpenType LMTT LC installed (and leave the default gmdoc's definition of \marginpartt; all the versions allow the user to define marginpar typewriter herself).

mptt 28 \gm@DOX{mptt}[17]{\def\mpttversion{#1}}% the default value (17) works if the
\mpttversion user puts the `mptt` option with no value. In that case leaving the default gmdoc's definition of marginpar typewriter and letting the user to redefine it himself seemed to me most natural.

\gmcc@setfont 29 \def\gmcc@setfont#1{%
30 \gmcc@oldfontsfalse% note that if we are not in XeTeX, this switch will be turned true in line 63
31 \AtBeginDocument{%

```
    \@ifXeTeX{%
      \defaultfontfeatures{Numbers={OldStyle,Proportional}}%
      \setmainfont[Mapping=tex-text]{#1}%
      \setsansfont[Mapping=tex-text,␣Scale=MatchLowercase]{Latin␣
          Modern␣Sans}%
        \setmonofont[Scale=MatchLowercase]{Latin␣Modern␣Mono}%
      \let\sl\it␣\let\textsl\textit
    }{}}%
}
minion \gm@DOX{minion}{\gmcc@setfont{Minion␣Pro}}
pagella \gm@DOX{pagella}{\gmcc@setfont{TeX␣Gyre␣Pagella}%
\gmcc@PAGELLA   \def\gmcc@PAGELLA{1}%
}
\gm@EOX{class=mwart}% We set the default basic class to be mwart.
\gm@EOX{mptt=o}% We default to set the marginpar typewriter font to OpenType
     LMTT LC.
\DeclareOptionX*{\PassOptionsToPackage{\CurrentOption}{gmdoc}}
\ProcessOptionsX[gmcc]<>
\ifgmcc@mwcls
  \IfFileExists{\gmcc@CLASS.cls}{}{\gmcc@mwclsfalse}% As announced,
       we do the ontological test to any mwcls.
\fi
\ifgmcc@mwcls
  \XKV@ifundefined{XeTeXdefaultencoding}{}{%
    \XeTeXdefaultencoding␣"cp1250"}% mwcls are encoding-sensitive because
         MW uses Polish diacritics in the commentaries.
  \LoadClass[fleqn,␣oneside,␣noindentfirst,␣11pt,␣withmarginpar,
  sfheadings]{\gmcc@CLASS}%
  \XKV@ifundefined{XeTeXdefaultencoding}{}{%
    \XeTeXdefaultencoding␣"utf-8"}%
\else
  \LoadClass[fleqn,␣11pt]{article}% Otherwise the standard article is loaded.
\fi
\RequirePackage{gmutils}[2008/08/03]% earlier to provide \@ifXeTeX.
\ifgmcc@mwcls\afterfi\ParanoidPostsec\fi
\@ifXeTeX{}{\gmcc@oldfontstrue}
\AtBeginDocument{\mathindent=\CodeIndent}
```

The `fleqn` option makes displayed formulæ be flushed left and `\mathindent` is their indentation. Therefore we ensure it is always equal `\CodeIndent` just like `\leftskip` in `verbatim`. Thanks to that and the `\edverbs` declaration below you may display single verbatim lines with `\[...\]`:

```
\[|\verbatim\stuff|\].
```

```
\ifgmcc@oldfonts
  \IfFileExists{lmodern.sty}{% We also examine the ontological status of this
       package
    \RequirePackage{lmodern}% and if it shows to be satisfactory (the package
         shows *to be*), we load it and set the proper font encoding.
    \RequirePackage[T1]{fontenc}%
```

```
}{}%
```

A couple of diacritics I met while gmdocing these files and The Source etc. Somewhy the accents didn't want to work at my XeTeX settings so below I define them for XeTeX as respective chars.

```
\def\agrave␣␣{\`a}%
\def\cacute␣␣{\'c}%
\def\eacute␣␣{\'e}%
\def\idiaeres{\"\i}%
\def\nacute␣␣{\'n}%
\def\ocircum␣{\^o}%
\def\oumlaut␣{\"o}%
\def\uumlaut␣{\"u}%
\else% this case happens only with XeTeX.
  \let\do\relaxen
  \do\Finv\do\Game\do\beth\do\gimel\do\daleth% these five caused the 'already defined' error.
  \let\@zf@euenctrue\zf@euencfalse
  \XeTeXthree
  \def\agrave␣␣{\char"00E0␣}%
  \def\cacute␣␣{\char"0107␣}% Note the space to be sure the number ends here.
  \def\eacute␣␣{\char"00E9␣}%
  \def\idiaeres{\char"00EF␣}%
  \def\nacute␣␣{\char"0144␣}%
  \def\oumlaut␣{\char"00F6␣}%
  \def\uumlaut␣{\char"00FC␣}%
  \def\ocircum␣{\char"00F4␣}%
  \AtBeginDocument{%
    \def\ae{\char"00E6␣}%
    \def\l␣{\char"0142␣}%
    \def\oe{\char"0153␣}%
  }%
\fi
```

Now we set the page layout.

```
\RequirePackage{gmeometric}
\def\gmdoccMargins{%
  \geometry{top=77pt,␣height=687pt,␣% =53 lines but the lines option seems not to work 2007/11/15 with TeX Live 2007 and XeTeX 0.996-patch1
    left=4cm,␣right=2.2cm}}
\gmdoccMargins
\if@debug% For debugging we load also the trace package that was very helpful to me.
  \RequirePackage{trace}%
  \errorcontextlines=100␣% And we set an error info parameter.
\fi
\newcommand*\ifdtraceon{\if@debug\afterfi\traceon\fi}
\newcommand*\ifdtraceoff{\if@debug\traceoff\fi}
```

We load the core package:

```
\RequirePackage{gmdoc}
\ifgmcc@oldfonts
```

```
  \@ifpackageloaded{lmodern}{% The Latin Modern font family provides a light
      condensed typewriter font that seems to be the most suitable for the margin-
      par CS marking.
\marginpartt    \def\marginpartt{\normalfont\fontseries{lc}\ttfamily}}{}%
\else
\marginpartt    \def\marginpartt{\fontspec{LMTypewriter10␣LightCondensed}}%
\fi
\ifnum1=0\csname␣gmcc@PAGELLA\endcsname\relax
  \RequirePackage{pxfonts,tgpagella,qpxmath}%
\fi
\raggedbottom
\setcounter{secnumdepth}{0}% We wish only the parts and chapters to be num-
    bered.
\thesection \renewcommand*\thesection{\arabic{section}}% isn't it redundant at the above
    setting?
\@ifnotmw{}{%
  \@ifclassloaded{mwart}{% We set the indentation of Contents:
    \SetTOCIndents{{}{\quad}{\quad}{\quad}{\quad}{\quad}{\quad}}}{%
      % for mwart
    \SetTOCIndents{{}{\bf9.\enspace}{\quad}{\quad}{\quad}{\quad}{%
      \quad}}}% and for the two other mwcls.
  \pagestyle{outer}}% We set the page numbers to be printed in the outer and
    bottom corner of the page.
\titlesetup \def\titlesetup{\bfseries\sffamily}% We set the title(s) to be boldface and
    sans serif.
\if@gmccnochanges\let\RecordChanges\relax\fi% If the nochanges option is
    on, we discard writing outto the .glo file.
\RecordChanges% We turn the writing the \changes outto the .glo file if not the
    above.
\dekclubs% We declare the club sign | to be a shorthand for \verb*.
\edverbs% to redefine \[ so that it puts a shortverb in a \hbox.
\smartunder% and we declare the _ char to behave as usual in the math mode and
    outside math to be just an uderscore.
\exhyphenpenalty\hyphenpenalty% 'cause mwcls set it =10000 due to Polish cus-
    toms.
\RequirePackage{amssymb}
\EOFMark \def\EOFMark{\rightline{\ensuremath{\square}}}
\endinput
```

c. The gmutils Package[1]

Written by Grzegorz Murzynowski,
natror at o2 dot pl

Many thanks to my TeX Guru Marcin Woliński for his TeXnical support.

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmutils}
      [2008/08/06␣v0.91␣some␣rather␣TeXnical␣macros,␣some␣of␣them␣
           tricky␣(GM)]
```

Intro

The gmutils.sty package provides some macros that are analogous to the standard LaTeX ones but extend their functionality, such as `\@ifnextcat`, `\addtomacro` or `\begin(*)`. The others are just conveniences I like to use in all my TeX works, such as `\afterfi`, `\pk` or `\cs`.

I wouldn't say they are only for the package writers but I assume some nonzero (La)TeX-awareness of the user.

For details just read the code part.

The remarks about installation and compiling of the documentation are analogous to those in the chapter gmdoc.sty and therefore ommitted.

Contents of the gmutils.zip Archive

The distribution of the gmutils package consists of the following four files and a TDS-compliant archive.

gmutils.sty
README
gmutilsDoc.tex
gmutilsDoc.pdf
gmutils.tds.zip

```
\ifx\XeTeXversion\relax
\let\XeTeXversion\@undefined% If someone earlier used the \@ifundefined{%
      XeTeXversion} to test whether the engine is XeTeX, then \XeTeXversion is
      defined in the sense of ε-TeX tests. In that case we \let it to something really
      undefined. Well, we might keep sticking to \@ifundefined, but it's a macro
```

[1] This file has version number v0.91 dated 2008/08/06.

and it eats its arguments, freezing their catcodes, which is not what we want in line 1129

```
\fi
\ifdefined\XeTeXversion
\XeTeXinputencoding␣utf-8␣% we use Unicode dashes later in this file.
\fi% and if we are not in XeTeX, we skip them thanks to XeTeX-test.
```

A couple of abbreviations

\@xa \@nx

```
\let\@xa\expandafter
\let\@nx\noexpand
```

The \newgif declaration's effect is used even in the LaTeX 2ε source by redefining some particular user defined ifs (UD-ifs henceforth) step by step. The goal is to make the UD-if's assignment global. I needed it at least twice during gmdoc writing so I make it a macro. It's an almost verbatim copy of LaTeX's \newif modulo the letter *g* and the \global prefix. (File d: ltdefns.dtx Date: 2004/02/20 Version v1.3g, lines 139–150)

\newgif

```
\def\newgif#1{%
  {\escapechar\m@ne
    \global\let#1\iffalse
    \@gif#1\iftrue
    \@gif#1\iffalse
  }}
```

'Almost' is also in the detail that in this case, which deals with \global assignments, we don't have to bother with storing and restoring the value of \escapechar: we can do all the work inside a group.

\@gif

```
\def\@gif#1#2{%
  \@xa\gdef\csname\@xa\@gobbletwo\string#1%
  g% the letter g for '\global'.
  \@xa\@gobbletwo\string#2\endcsname
  {\global\let#1#2}}
```

After \newgif\iffoo you may type {\foogtrue} and the \iffoo switch becomes globally equal \iftrue. Simili modo \foogfalse. Note the letter *g* added to underline globalness of the assignment.

If for any reason, no matter how queer ;-) may it be, you need *both* global and local switchers of your \if . . . , declare it both with \newif and \newgif.

Note that it's just a shorthand. \global\if⟨*switch*⟩true/false *does* work as expected.

There's a trouble with \refstepcounter: defining \@currentlabel is local. So let's \def a \global version of \refstepcounter.

Warning. I use it because of very special reasons in gmdoc and in general it is probably not a good idea to make \refstepcounter global since it is contrary to the original LaTeX approach.

\grefstepcounter

```
\newcommand*\grefstepcounter[1]{%
  {\let\protected@edef=\protected@xdef\refstepcounter{#1}}}
```

Naïve first try \globaldefs=\tw@ raised an error `unknown command \reserved@e`. The matter was to globalize \protected@edef of \@currentlabel.

Thanks to using the true \refstepcounter inside, it observes the change made to \refstepcounter by hyperref.

Another shorthand. It may decrease a number of \expandafters e.g.

\glet
```
\def\glet{\global\let}
```

LaTeX provides a very useful \g@addto@macro macro that adds its second argument to the current definition of its first argument (works iff the first argument is a no argument macro). But I needed it some times in a document, where @ is not a letter. So:

\gaddtomacro
```
\let\gaddtomacro=\g@addto@macro
```

The redefining of the first argument of the above macro(s) is \global. What if we want it local? Here we are:

\addto@macro
```
\long\def\addto@macro#1#2{%
  \toks@\@xa{#1#2}%
  \edef#1{\the\toks@}%
}% (\toks@ is a scratch register, namely \toks0.)
```

And for use in the very document,

\addtomacro
```
\let\addtomacro=\addto@macro
```

\addtotoks
```
\long\def\addtotoks#1#2{%
  #1=\@xa{\the#1#2}}
```

\@emptify
\emptify
```
\newcommand*\@emptify[1]{\let#1=\@empty}
\@ifdefinable\emptify{\let\emptify\@emptify}
```

Note the two following commands are in fact one-argument.

\g@emptify
\gemptify
```
\newcommand*\g@emptify{\global\@emptify}
\@ifdefinable\gemptify{\let\gemptify\g@emptify}
```

\@relaxen
\relaxen
```
\newcommand\@relaxen[1]{\let#1=\relax}
\@ifdefinable\relaxen{\let\relaxen\@relaxen}
```

Note the two following commands are in fact one-argument.

\g@relaxen
\grelaxen
```
\newcommand*\g@relaxen{\global\@relaxen}
\@ifdefinable\grelaxen{\let\grelaxen\g@relaxen}
```

For the heavy debugs I was doing while preparing gmdoc, as a last resort I used \showlists. But this command alone was usually too little: usually it needed setting \showboxdepth and \showboxbreadth to some positive values. So,

\gmshowlists
```
\def\gmshowlists{\showboxdepth=1000␣\showboxbreadth=1000␣%
     \showlists}
```

\nameshow
```
\newcommand*\nameshow[1]{\@xa\show\csname#1\endcsname}
```

Standard \string command returns a string of 'other' chars except for the space, for which it returns 10. In gmdoc I needed the spaces in macros' and environments' names to be always 12, so I define

\xiistring
```
\def\xiistring#1{%
  \if\@nx#1\xiispace
    \xiispace
  \else
    \string#1%
  \fi}
```

\@ifnextcat, \@ifnextac

As you guess, we \def \@ifnextcat à la \@ifnextchar, see LaTeX 2ε source dated 2003/12/01, file d, lines 253–271. The difference is in the kind of test used: while \@ifnextchar does \ifx, \@ifnextcat does \ifcat which means it looks not at the meaning of a token(s) but at their \catcode(s). As you (should) remember from *The TEXbook*, the former test doesn't expand macros while the latter does. But in \@ifnextcat the peeked token is protected against expanding by \noexpand. Note that the first parameter is not protected and therefore it shall be expanded if it's a macro. Because an assignment is involved, you can't test whether the next token is an active char.

\@ifnextcat
```
\long\def\@ifnextcat#1#2#3{%
  \def\reserved@d{#1}%
  \def\reserved@a{#2}%
  \def\reserved@b{#3}%
  \futurelet\@let@token\@ifncat}
```

\@ifncat
```
\def\@ifncat{%
  \ifx\@let@token\@sptoken
    \let\reserved@c\@xifncat
  \else
    \ifcat\reserved@d\@nx\@let@token
      \let\reserved@c\reserved@a
    \else
      \let\reserved@c\reserved@b
    \fi
  \fi
  \reserved@c}
{\def\:{\let\@sptoken=␣}␣\:␣% this makes \@sptoken a space token.
\def\:{\@xifncat}␣\@xa\gdef\:␣{\futurelet\@let@token\@ifncat}}
```

Note the trick to get a macro with no parameter and requiring a space after it. We do it inside a group not to spoil the general meaning of \: (which we extend later).

The next command provides the real \if test for the next token. *It* should be called \@ifnextchar but that name is assigned for the future \ifx text, as we know. Therefore we call it \@ifnextif.

\@ifnextif
```
\long\def\@ifnextif#1#2#3{%
  \def\reserved@d{#1}%
  \def\reserved@a{#2}%
  \def\reserved@b{#3}%
  \futurelet\@let@token\@ifnif}
```

\@ifnif
```
\def\@ifnif{%
  \ifx\@let@token\@sptoken
    \let\reserved@c\@xifnif
  \else
    \if\reserved@d\@nx\@let@token
      \let\reserved@c\reserved@a
    \else
      \let\reserved@c\reserved@b
    \fi
  \fi
  \reserved@c}
```

```
{\def\:{\let\@sptoken=␣}␣\:␣%␣this␣makes␣|\@sptoken|␣a␣space␣
     token.
\def\:{\@xifnif}␣\@xa\gdef\:␣{\futurelet\@let@token\@ifnif}}
```

But how to peek at the next token to check whether it's an active char? First, we look with `\@ifnextcat` whether there stands a group opener. We do that to avoid taking a whole `{...}` as the argument of the next macro, that doesn't use `\futurelet` but takes the next token as an argument, tests it and puts back intact.

\@ifnextac
```
\long\def\@ifnextac#1#2{%
  \@ifnextcat\bgroup{#2}{\gm@ifnac{#1}{#2}}}
```

\gm@ifnac
```
\long\def\gm@ifnac#1#2#3{%
  \ifcat\@nx~\@nx#3\afterfi{#1#3}\else\afterfi{#2#3}\fi}
```

Yes, it won't work for an active char `\let` to {, but it *will* work for an active char `\let` to a char of catcode $\neq 1$. (Is there anybody on Earth who'd make an active char working as `\bgroup`?)

Now, define a test that checks whether the next token is a genuine space, that is. First define a CS let such a space. The assignment needs a little trick (*The TEXbook* appendix D) since `\let`'s syntax includes one optional space after =.

```
\let\gmu@reserveda\*%
```
*
```
\def\*{%
  \let\*\gmu@reserveda
  \let\gm@letspace=␣}%
\*␣%
```

\@ifnextspace
```
\def\@ifnextspace#1#2{%
  \let\gmu@reserveda\*%
```
*
```
  \def\*{%
    \let\*\gmu@reserveda
    \ifx\@let@token\gm@letspace\afterfi{#1}%
    \else\afterfi{#2}%
    \fi}%
  \futurelet\@let@token\*}
```

First use of this macro is for an active - that expands to --- if followed by a space. Another to make dot checking whether is followed by ~ without gobbling the space if it occurs instead.

`\afterfi` and Pals

It happens from time to time that you have some sequence of macros in an `\if...` and you would like to expand `\fi` before expanding them (e.g., when the macros should take some tokens next to `\fi...` as their arguments. If you know how many macros are there, you may type a couple of `\expandafters` and not to care how terrible it looks. But if you don't know how many tokens will there be, you seem to be in a real trouble. There's the Knuthian trick with `\next`. And here another, revealed to me by my TEX Guru.

I think the situations when the Knuthian (the former) trick is not available are rather seldom, but they are imaginable at least: the `\next` trick involves an assignment so it won't work e.g. in `\edef`. But in general it's only a matter of taste which one to use.

One warning: those macros peel the braces off, i.e.,

```
\if..\afterfi{\@makeother\^^M}\fi
```

causes a leakage of `^^M`$_{12}$. To avoid pollution write

```
\if..\afterfi{\bgroup\@makeother\^^M\egroup}\fi.
```

\afterfi
```
\long\def\afterfi#1#2\fi{\fi#1}
```

And two more of that family:

\afterfifi
```
\long\def\afterfifi#1#2\fi#3\fi{\fi\fi#1}
```
\afteriffifi
```
\long\def\afteriffifi#1#2\if#3\fi#4\fi{\fi#1}
```

Notice the refined elegance of those macros, that cover both 'then' and 'else' cases thanks to `#2` that is discarded.

\afterififfififi
```
\long\def\afterififfififi#1#2\fi#3\fi#4\fi{\fi#1}
```
\afteriffififi
```
\long\def\afteriffififi#1#2\fi#3\fi#4\fi{\fi\fi#1}
```
\afterfififi
```
\long\def\afterfififi#1#2\fi#3\fi#4\fi{\fi\fi\fi#1}
```

Almost an Environment or Redefinition of `\begin`

We'll extend the functionality of `\begin`: the non-starred instances shall act as usual and we'll add the starred version. The difference of the latter will be that it won't check whether the 'environment' has been defined so any name will be allowed.

This is intended to structure the source with named groups that don't have to be especially defined and probably don't take any particular action except the scoping.

(If the `\begin*`'s argument is a (defined) environment's name, `\begin*` will act just like `\begin`.)

Original LaTeX's `\begin`:

```
\def\begin#1{%
  \@ifundefined{#1}%
    {\def\reserved@a{\@latex@error{Environment #1
     undefined}\@eha}}%
    {\def\reserved@a{\def\@currenvir{#1}%
        \edef\@currenvline{\on@line}%
        \csname #1\endcsname}}%
    \@ignorefalse
    \begingroup\@endpefalse\reserved@a}
```

\@begnamedgroup
```
\@ifdefinable\@begnamedgroup{\relax}
```
\@begnamedgroup
```
\def\@begnamedgroup#1{%
  \@ignorefalse% not to ignore blanks after group
  \begingroup\@endpefalse
```
\@currenvir
```
  \def\@currenvir{#1}%
  \edef\@currenvline{\on@line}%
  \csname␣#1\endcsname}%
```
if the argument is a command's name (an environment's e.g.), this command will now be executed. (If the corresponding control sequence hasn't been known to TeX, this line will act as `\relax`.)

For back compatibility with my earlier works

\bnamegroup
```
\let\bnamegroup\@begnamedgroup
```

And for the ending

\enamegroup
```
\def\enamegroup#1{\end{#1}}
```

And we make it the starred version of `\begin`.

\old@begin
```
\let\old@begin\begin
```
\begin
\begin*
\begin
```
\def\begin{\@ifstar{\@begnamedgroup}{\old@begin}}
```

Improvement of \end

It's very clever and useful that \end checks whether its argument is ifx-equivalent @currenvir. However, it works not quite as I would expect: Since the idea of environment is to open a group and launch the cs named in the \begin's argument. That last thing is done with \csname...\endcsname so the char catcodes are equivalent. Thus should be also in the \end's test and therefore we ensure the compared texts are both expanded and made all 'other'.

\@checkend
```
\def\@checkend#1{%
  \edef\reserved@a{\@xa\string\csname#1\endcsname}%
  \edef\exii@currenvir{\@xa\string\csname\@currenvir\endcsname}%
  \ifx\reserved@a\exii@currenvir\else\@badend{#1}\fi}
```

Thanks to it you may write \begin{macrocode*} with $*_{12}$ and end it with \end{% macrocode*} with $*_{11}$ (that was the problem that led me to this solution). The error messages looked really funny:

```
! LaTeX Error: \begin{macrocode*} on input line 1844 ended by \end{macrocode*}.
```

Of course, you might write also \end{macrocode\star} where \star is defined as 'other' star or letter star.

From relsize

As file relsize.sty, v3.1 dated July 4, 2003 states, LaTeX 2ε version of these macros was written by Donald Arseneau asnd@triumf.ca and Matt Swift swift@bu.edu after the LaTeX 2.09 smaller.sty style file written by Bernie Cosell cosell@WILMA.BBN.COM.

I take only the basic, non-math mode commands with the assumption that there are the predefined font sizes.

\relsize
\smaller
\larger
\smallerr
\largerr

You declare the font size with \relsize{⟨n⟩} where ⟨n⟩ gives the number of steps ("mag-step" = factor of 1.2) to change the size by. E.g., $n = 3$ changes from \normalsize to \LARGE size. Negative n selects smaller fonts. \smaller == \relsize{-1}; \larger == \relsize{1}. \smallerr(my addition) == \relsize{-2}; \largerr guess yourself.

(Since \DeclareRobustCommand doesn't issue an error if its argument has been defined and it only informs about redefining, loading relsize remains allowed.)

\relsize
```
\DeclareRobustCommand*\relsize[1]{%
  \ifmmode␣\@nomath\relsize\else
    \begingroup
     \@tempcnta␣% assign number representing current font size
       \ifx\@currsize\normalsize␣4\else␣␣␣% funny order is to have most
            ...
        \ifx\@currsize\small␣3\else␣␣␣␣␣␣␣␣% ...likely sizes checked first
         \ifx\@currsize\footnotesize␣2\else
          \ifx\@currsize\large␣5\else
           \ifx\@currsize\Large␣6\else
            \ifx\@currsize\LARGE␣7\else
             \ifx\@currsize\scriptsize␣1\else
              \ifx\@currsize\tiny␣0\else
               \ifx\@currsize\huge␣8\else
                \ifx\@currsize\Huge␣9\else
                 4\rs@unknown@warning␣% unknown state: \normalsize as
                       starting point
```

```
\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
```

Change the number by the given increment:

```
\advance\@tempcnta#1\relax
```

watch out for size underflow:

```
 \ifnum\@tempcnta<\z@␣\rs@size@warning{small}{\string\tiny}%
      \@tempcnta\z@␣\fi
\@xa\endgroup
\ifcase\@tempcnta␣␣% set new size based on altered number
   \tiny␣\or␣\scriptsize␣\or␣\footnotesize␣\or␣\small␣\or␣%
        \normalsize␣\or
   \large␣\or␣\Large␣\or␣\LARGE␣\or␣\huge␣\or␣\Huge␣\else
    \rs@size@warning{large}{\string\Huge}\Huge
\fi\fi}% end of \relsize.
```

\rs@size@warning
```
\providecommand*\rs@size@warning[2]{\PackageWarning{gmutils␣
     (relsize)}{%
 Size␣requested␣is␣too␣#1.\MessageBreak␣Using␣#2␣instead}}
```

\rs@unknown@warning
```
\providecommand*\rs@unknown@warning{\PackageWarning{gmutils␣
     (relsize)}{Current␣font␣size
 is␣unknown!␣(Why?!?)\MessageBreak␣Assuming␣\string\normalsize}}
```

And a handful of shorthands:

\larger
```
\DeclareRobustCommand*\larger[1][\@ne]{\relsize{+#1}}
```

\smaller
```
\DeclareRobustCommand*\smaller[1][\@ne]{\relsize{-#1}}
```

\textlarger
```
\DeclareRobustCommand*\textlarger[2][\@ne]{{\relsize{+#1}#2}}
```

\textsmaller
```
\DeclareRobustCommand*\textsmaller[2][\@ne]{{\relsize{-#1}#2}}
```

\largerr
```
\DeclareRobustCommand*\largerr{\relsize{+2}}
```

\smallerr
```
\DeclareRobustCommand*\smallerr{\relsize{-2}}
```

\firstofone and the Queer \catcodes

Remember that once a macro's argument has been read, its \catcodes are assigned forever and ever. That's what is \firstofone for. It allows you to change the \catcodes locally for a definition *outside* the changed \catcodes' group. Just see the below usage of this macro 'with TEX's eyes', as my TEX Guru taught me.

```
\long\def\firstofone#1{#1}
```

The next command, \foone, is intended as two-argument for shortening of the \bgroup...\firstofone{\egroup...} hack.

\foone
```
\long\def\foone#1{\bgroup#1\egroupfirstofone}
\long\def\egroupfirstofone#1{\egroup#1}
```

\fooatletter
```
\long\def\fooatletter{\foone\makeatletter}
```

And this one is defined, I know, but it's not \long with the standard definition.

\gobble
```
\long\def\gobble#1{}
```

\gobbletwo
```
\let\gobbletwo\@gobbletwo
```

Some 'other' stuff

Here I define a couple of macros expanding to special chars made 'other'. It's important the cs are expandable and therefore they can occur e.g. inside `\csname...\endcsname` unlike e.g. cs'es `\chardefed`.

```
\foone{\catcode`\_=8␣}%
\subs {\let\subs=_}
\foone{\@makeother\_}%
\xiiunder {\def\xiiunder{_}}
\ifdefined\XeTeXversion
\xiiunder   \def\xiiunder{\char"005F␣}%
  \let\_\xiiunder
\fi
\foone{\catcode`\[=1␣\@makeother\{
  \catcode`\]=2␣\@makeother\}}%
[%
\xiilbrace  \def\xiilbrace[{]%
\xiirbrace  \def\xiirbrace[}]%
]% of \firstofone
```

Note that LaTeX's `\@charlb` and `\@charrb` are of catcode 11 ('letter'), cf. The LaTeX 2_ε Source file k, lines 129–130.

Now, let's define such a smart _ (underscore) which will be usual $\__8$ in the math mode and $\__{12}$ ('other') outside math.

```
\foone{\catcode`\_=\active}
{%
\smartunder   \newcommand*\smartunder{%
    \catcode`\_=\active
    \def_{\ifmmode\subs\else\_\fi}}}% We define it as \_ not just as \xiiunder
          because some font encodings don't have _ at the \char`\_ position.
\foone{\catcode`\!=0
  \@makeother\\}
\xiibackslash {!newcommand*!xiibackslash{\}}
\bslash \let\bslash=\xiibackslash
\foone{\@makeother\%}
\xiipercent {\def\xiipercent{%}}
\foone{\@makeother\&}%
\xiiand {\def\xiiand{&}}
\foone{\@makeother\ }%
\xiispace {\def\xiispace{␣}}
```

We introduce `\visiblespace` from Will Robertson's xltxtra if available. It's not sufficient `\@ifpackageloaded{xltxtra}` since `\xxt@visiblespace` is defined only unless `no-verb` option is set. 2008/08/06 I recognized the difference between `\xiispace` which has to be plain 'other' char (used in `\xiistring`) and something visible to be printed in any font.

```
\AtBeginDocument{%
  \ifdefined\xxt@visiblespace
    \let\visiblespace\xxt@visiblespace
  \else
```

```
    \let\visiblespace\xiispace
  \fi}
```

Metasymbols

I fancy also another Knuthian trick for typesetting ⟨*metasymbols*⟩ in *The TEXbook*. So I repeat it here. The inner `\meta` macro is copied verbatim from doc's v2.1b documentation dated 2004/02/09 because it's so beautifully crafted I couldn't resist. I only don't make it `\long`.

"The new implementation fixes this problem by defining `\meta` in a radically different way: we prevent hypenation by defining a `\language` which has no patterns associated with it and use this to typeset the words within the angle brackets."

`\meta`
```
\DeclareRobustCommand*\meta[1]{%
```

"Since the old implementation of `\meta` could be used in math we better ensure that this is possible with the new one as well. So we use `\ensuremath` around `\langle` and `\rangle`. However this is not enough: if `\meta@font@select` below expands to `\itshape` it will fail if used in math mode. For this reason we hide the whole thing inside an `\nfss@text` box in that case."

```
  \ensuremath\langle
  \ifmmode␣\@xa␣\nfss@text␣\fi
  {%
    \meta@font@select
```

Need to keep track of what we changed just in case the user changes font inside the argument so we store the font explicitly.

```
    #1\/%
  }\ensuremath\rangle
}
```

But I define `\meta@font@select` as the brutal and explicit `\it` instead of the original `\itshape` to make it usable e.g. in the gmdoc's `\cs` macro's argument.

`\meta@font@select`
```
\def\meta@font@select{\it}
```

The below `\meta`'s drag[2] is a version of *The TEXbook*'s one.

`\<...>`
```
\def\<#1>{\meta{#1}}
```

Macros for Printing Macros and Filenames

First let's define three auxiliary macros analogous to `\dywiz` from polski.sty: a shorthands for `\discretionary` that'll stick to the word not spoiling its hyphenability and that'll won't allow a linebreak just before nor just after themselves. The `\discretionary` TEX primitive has three arguments: `#1` 'before break', `#2` 'after break', `#3` 'without break', remember?

`\discre`
```
\def\discre#1#2#3{\kernosp\discretionary{#1}{#2}{#3}%
    \penalty10000\hskiposp\relax}
```

`\discret`
```
\def\discret#1{\kernosp\discretionary{#1}{#1}{#1}\penalty10000%
    \hskiposp\relax}
```

[2] Think of the drags that transform a very nice but rather standard 'auntie' ('Tante' in Deutsch) into a most adorable Queen ;-) .

A tiny little macro that acts like \- outside the math mode and has its original meaning inside math.

```
\def\:{\ifmmode\afterfi{\mskip\medmuskip}\else\afterfi{\discret{%
    }}\fi}
```

\vs
```
\newcommand*{\vs}{\discre{\visiblespace}{}{\visiblespace}}
```

Then we define a macro that makes the spaces visible even if used in an argument (i.e., in a situation where re\catcodeing has no effect).

\printspaces
\gm@pswords
```
\def\printspaces#1{{\let~=\vs␣\let\ =\vs␣\gm@pswords#1␣\@@nil}}
\def\gm@pswords#1␣#2\@@nil{%
  \ifx\relax#1\relax\else#1\fi
  \ifx\relax#2\relax\else\vs\penalty\hyphenpenalty\gm@pswords#2\@@nil%
    \fi}% note that in the recursive call of \gm@pswords the argument string is
        not extended with a guardian space: it has been already by \printspaces.
```

\sfname
```
\DeclareRobustCommand*\sfname[1]{\textsf{\printspaces{#1}}}
```

\gmu@discretionaryslash
```
\def\gmu@discretionaryslash{\discre{/}{\hbox{}}{/}}% the second pseudo-
    argument nonempty to get \hyphenpenalty not \exhyphenpenalty.
```

\file
```
\DeclareRobustCommand*\file[1]{\gmu@printslashes#1/%
    \gmu@printslashes}
```

\gmu@printslashes
```
\def\gmu@printslashes#1/#2\gmu@printslashes{%
  \sfname{#1}%
  \ifx\gmu@printslashes#2\gmu@printslashes
  \else
  \textsf{\gmu@discretionaryslash}%
  \afterfi{\gmu@printslashes#2\gmu@printslashes}\fi}
```

it allows the spaces in the filenames (and prints them as ␣).

The below macro I use to format the packages' names.

\pk
```
\DeclareRobustCommand*{\pk}[1]{\textsf{\textup{#1}}}
```

Some (if not all) of the below macros are copied from doc and/or ltxdoc.

A macro for printing control sequences in arguments of a macro. Robust to avoid writing an explicit \ into a file. It calls \ttfamily not \tt to be usable in headings which are boldface sometimes.

\cs
\-
```
\DeclareRobustCommand*{\cs}[2][\bslash]{{%
      \def\-{\discretionary{{\rmfamily-}}{}{}}%
      \def\{{\char`\{}\def\}{\char`\}}\ttfamily␣#1#2}}
```

\env
```
\DeclareRobustCommand*{\env}[1]{\cs[]{#1}}
```

And for the special sequences like ^^A:

\hathat
```
\foone{\@makeother\^}
  {\DeclareRobustCommand*\hathat[1]{\cs[^^]{#1}}}
```

And one for encouraging linebreaks e.g., before long verbatim words.

\possfil
```
\newcommand*\possfil{\hfil\penalty1000\hfilneg}
```

The five macros below are taken from the ltxdoc.dtx.

"\cmd{\foo} Prints \foo verbatim. It may be used inside moving arguments. \cs{foo} also prints \foo, for those who prefer that syntax. (This second form may even be used when \foo is \outer)."

\cmd
```
\def\cmd#1{\cs{\@xa\cmd@to@cs\string#1}}
```

\cmd@to@cs
```
\def\cmd@to@cs#1#2{\char\number`#2\relax}
```
`\marg{text}` prints {⟨*text*⟩}, 'mandatory argument'.

\marg
```
\def\marg#1{{\ttfamily\char`\{}\meta{#1}{\ttfamily\char`\}}}
```
`\oarg{text}` prints [⟨*text*⟩], 'optional argument'. Also `\oarg[text]` does that.

\oarg
\@oarg
\@oargsq
```
\def\oarg{\@ifnextchar[\@oargsq\@oarg}
\def\@oarg#1{{\ttfamily[}\meta{#1}{\ttfamily]}}
\def\@oargsq[#1]{\@oarg{#1}}
```
`\parg{te,xt}` prints (⟨*te,xt*⟩), 'picture mode argument'.

\parg
\@parg
\@pargp
```
\def\parg{\@ifnextchar(\@pargp\@parg}
\def\@parg#1{{\ttfamily(}\meta{#1}{\ttfamily)}}
\def\@pargp(#1){\@parg{#1}}
```
But we can have all three in one command.

\arg
\arg
```
\AtBeginDocument{%
  \let\math@arg\arg
  \def\arg{\ifmmode\math@arg\else\afterfi{%
      \@ifnextchar[%
      \@oargsq{\@ifnextchar(%
        \@pargp\marg}}\fi}%
}
```

Storing and Restoring the Meanings of CSs

First a Boolean switch af globalness of assignments and its verifier.

\ifgmu@SMglobal
```
\newif\ifgmu@SMglobal
```
\SMglobal
```
\def\SMglobal{\gmu@SMglobaltrue}
```
The subsequent commands are defined in such a way that you can 'prefix' them with `\SMglobal` to get global (re)storing.

A command to store the current meaning of a CS in another macro to temporarily redefine the CS and be able to set its original meanig back (when grouping is not recommended):

\StoreMacro
```
\def\StoreMacro{%
  \bgroup\makeatletter\@ifstar\egStore@MacroSt\egStore@Macro}
```
The unstarred version takes a cs and the starred version a text, which is intended for special control sequences. For storing environments there is a special command in line 316.

\egStore@Macro
\egStore@MacroSt
```
\long\def\egStore@Macro#1{\egroup\Store@Macro{#1}}
\long\def\egStore@MacroSt#1{\egroup\Store@MacroSt{#1}}
```
\Store@Macro
```
\long\def\Store@Macro#1{%
  \escapechar92
  \ifgmu@SMglobal\afterfi\global\fi
  \@xa\let\csname␣/gmu/store\string#1\endcsname#1%
  \global\gmu@SMglobalfalse}
```
\Store@MacroSt
```
\long\def\Store@MacroSt#1{%
  \edef\gmu@smtempa{%
    \ifgmu@SMglobal\global\fi
```

```
      \@nx\let\@xa\@nx\csname/gmu/store\bslash#1\endcsname% we add backslash because to ensure compatibility between \(Re)StoreMacro and \(Re)StoreMacro*, that is. to allow writing e.g. \StoreMacro\kitten and then \RestoreMacro*{kitten} to restore the meaning of \kitten.
      \@xa\@nx\csname#1\endcsname}
    \gmu@smtempa
    \global\gmu@SMglobalfalse}% we wish the globality to be just once.
```

We make the `\StoreMacro` command a three-step to allow usage of the most inner macro also in the next command.

The starred version, `\StoreMacro*` works with csnames (without the backslash). It's first used to store the meanings of robust commands, when you may need to store not only `\foo`, but also `\csname foo \endcsname`.

The next command iterates over a list of CSs and stores each of them. The CS may be separated with commas but they don't have to.

\StoreMacros
```
\long\def\StoreMacros{\bgroup\makeatletter\Store@Macros}
```
\Store@Macros
```
\long\def\Store@Macros#1{\egroup
  \gmu@setsetSMglobal
  \let\gml@StoreCS\Store@Macro
  \gml@storemacros#1.}
```
\gmu@setsetSMglobal
```
\def\gmu@setsetSMglobal{%
  \ifgmu@SMglobal
    \let\gmu@setSMglobal\gmu@SMglobaltrue
  \else
    \let\gmu@setSMglobal\gmu@SMglobalfalse
  \fi}
```

And the inner iterating macro:

\gml@storemacros
\gmu@reserveda
```
\long\def\gml@storemacros#1{%
  \def\gmu@reserveda{\@nx#1}% My TeX Guru's trick to deal with \fi and such, i.e., to hide #1 from TeX when it is processing a test's branch without expanding.
  \if\gmu@reserveda.% a dot finishes storing.
    \global\gmu@SMglobalfalse
  \else
    \if\gmu@reserveda,% The list this macro is put before may contain commas and that's O.K., we just continue the work.
      \afterfifi\gml@storemacros
    \else% what is else this shall be stored.
      \gml@StoreCS{#1}% we use a particular CS to may \let it both to the storing macro as above and to the restoring one as below.
      \afterfifi{\gmu@setSMglobal\gml@storemacros}%
    \fi
  \fi}
```

And for the restoring

\RestoreMacro
```
\def\RestoreMacro{%
  \bgroup\makeatletter\@ifstar\egRestore@MacroSt\egRestore@Macro}
```
\egRestore@Macro
```
\long\def\egRestore@Macro#1{\egroup\Restore@Macro{#1}}
```
\egRestore@MacroSt
```
\long\def\egRestore@MacroSt#1{\egroup\Restore@MacroSt{#1}}
```
\Restore@Macro
```
\long\def\Restore@Macro#1{%
  \escapechar92
```

```
297   \ifgmu@SMglobal\afterfi\global\fi
298   \@xa\let\@xa#1\csname␣/gmu/store\string#1\endcsname
299   \global\gmu@SMglobalfalse}
\Restore@MacroSt 300 \long\def\Restore@MacroSt#1{%
301   \edef\gmu@smtempa{%
302     \ifgmu@SMglobal\global\fi
303     \@nx\let\@xa\@nx\csname#1\endcsname
304     \@xa\@nx\csname/gmu/store\bslash#1\endcsname}% cf. the commentary
          in line 264.
305   \gmu@smtempa
306   \global\gmu@SMglobalfalse}
\RestoreMacros 307 \long\def\RestoreMacros{\bgroup\makeatletter\Restore@Macros}
\Restore@Macros 308 \long\def\Restore@Macros#1{\egroup
309   \gmu@setsetSMglobal
310   \let\gml@StoreCS\Restore@Macro% we direct the core CS towards restoring
        and call the same iterating macro as in line 272.
311   \gml@storemacros#1.}
```

As you see, the `\RestoreMacros` command uses the same iterating macro inside, it only changes the meaning of the core macro.

And to restore *and* use immediately:

```
\StoredMacro 312 \def\StoredMacro{\bgroup\makeatletter\Stored@Macro}
\Stored@Macro 313 \long\def\Stored@Macro#1{\egroup\Restore@Macro#1#1}
```

To be able to call a stored cs without restoring it.

```
\storedcsname 314 \def\storedcsname#1{%
315   \csname␣/gmu/store\bslash#1\endcsname}
```

2008/08/03 we need to store also an environment.

```
\StoreEnvironment 316 \def\StoreEnvironment#1{%
317   \StoreMacro*{#1}\StoreMacro*{end#1}}
\RestoreEnvironment 318 \def\RestoreEnvironment#1{%
319   \RestoreMacro*{#1}\RestoreMacro*{end#1}}
```

It happended (see the definition of `\@docinclude` in gmdoc.sty) that I needed to `\relax` a bunch of macros and restore them after some time. Because the macros were rather numerous and I wanted the code more readable, I wanted to `\do` them. After a proper defining of `\do` of course. So here is this proper definition of `\do`, provided as a macro (a declaration).

```
\StoringAndRelaxingDo 320 \long\def\StoringAndRelaxingDo{%
321   \gmu@SMdo@setscope
322   \long\def\do##1{%
323     \gmu@SMdo@scope
324     \@xa\let\csname␣/gmu/store\string##1\endcsname##1%
325     \gmu@SMdo@scope\let##1\relax}}
\gmu@SMdo@setscope 326 \def\gmu@SMdo@setscope{%
327   \ifgmu@SMglobal\let\gmu@SMdo@scope\global
328   \else\let\gmu@SMdo@scope\relax
329   \fi
330   \global\gmu@SMglobalfalse}
```

And here is the counter-definition for restore.

\RestoringDo
```
\long\def\RestoringDo{%
  \gmu@SMdo@setscope
  \long\def\do##1{%
    \gmu@SMdo@scope
    \@xa\let\@xa##1\csname␣/gmu/store\string##1\endcsname}}
```

Note that both \StoringAndRelaxingDo and \RestoringDo are sensitive to the \SMglobal 'prefix'.

And to store a cs as explicitly named cs, i.e. to \let one csname another (\n@melet not \@namelet becasuse the latter is defined in Till Tantau's beamer class another way) (both arguments should be text):

\n@melet
```
\def\n@melet#1#2{%
  \edef\gmu@nl@reserveda{%
    \let\@xa\@nx\csname#1\endcsname
    \@xa\@nx\csname#2\endcsname}%
  \gmu@nl@reserveda}
```

The \global prefix doesn't work with \n@melet so we define the alternative.

\gn@melet
```
\def\gn@melet#1#2{%
  \edef\gmu@nl@reserveda{%
    \global\let\@xa\@nx\csname#1\endcsname
    \@xa\@nx\csname#2\endcsname}%
  \gmu@nl@reserveda}
```

Not only preamble!

Let's remove some commands from the list to erase at begin document! Primarily that list was intended to save memory not to forbid anything. Nowadays, when memory is cheap, the list of only-preamble commands should be rethought IMO.

\not@onlypreamble
```
\newcommand\not@onlypreamble[1]{{%
  \def\do##1{\ifx#1##1\else\@nx\do\@nx##1\fi}%
  \xdef\@preamblecmds{\@preamblecmds}}}
\not@onlypreamble\@preamblecmds
\not@onlypreamble\@ifpackageloaded
\not@onlypreamble\@ifclassloaded
\not@onlypreamble\@ifl@aded
\not@onlypreamble\@pkgextension
```

And let's make the message of only preamble command's forbidden use informative a bit:

\gm@notprerr
```
\def\gm@notprerr{␣can␣be␣used␣only␣in␣preamble␣(\on@line)}
\AtBeginDocument{%
  \def\do#1{\@nx\do\@nx#1}%
  \edef\@preamblecmds{%
    \def\@nx\do##1{%
      \def##1{\@nx\PackageError{gmutils/LaTeX}%
        {\@nx\string##1␣\@nx\gm@notprerr}\@nx\@eha}}%
    \@preamblecmds}}
```

\@nx \@nx

A subtle error raises: the LaTeX standard \@onlypreamble and what \document does with \@preamblecmds makes any two of 'only preamble' cs's \ifx-identical inside document. And my change makes any two cs's \ifx-different. The first it causes

a problem is \nocite that checks \ifx\@onlypreamble\document. So hoping this is a rare problem, we circumvent in with

\nocite
```
\def\nocite#1{%
  \@bsphack{\setboxo=\hbox{\cite{#1}}}\@esphack}
```

Third Person Pronouns

Is a reader of my documentations 'she' or 'he' and does it make a difference?

Not to favour any gender in the personal pronouns, define commands that'll print alternately masculine and feminine pronoun of third person. By 'any' I mean not only typically masculine and typically feminine but the entire amazingly rich variety of people's genders, *including* those who do not describe themselves as 'man' or 'woman'.

One may say two pronouns is far too little to cover this variety but I could point Ursula's K. LeGuin's *The Left Hand Of Darkness* as another acceptable answer. In that moody and moderate SF novel the androgynous persons are usually referred to as 'mister', 'sir' or 'he': the meaning of reference is extended. Such an extension also my automatic pronouns do suggest. It's *not* political correctness, it's just respect to people's diversity.

gm@PronounGender
```
\newcounter{gm@PronounGender}
```

\gm@atppron
```
\newcommand*\gm@atppron[2]{%
  \stepcounter{gm@PronounGender}% remember \stepcounter is global.
  \ifodd\value{gm@PronounGender}#1\else#2\fi}
```

\heshe
```
\newcommand*\heshe{\gm@atppron{he}{she}}
```

\hisher
```
\newcommand*\hisher{\gm@atppron{his}{her}}
```

\himher
```
\newcommand*\himher{\gm@atppron{him}{her}}
```

\hishers
```
\newcommand*\hishers{\gm@atppron{his}{hers}}
```

\HeShe
```
\newcommand*\HeShe{\gm@atppron{He}{She}}
```

\HisHer
```
\newcommand*\HisHer{\gm@atppron{His}{Her}}
```

\HimHer
```
\newcommand*\HimHer{\gm@atppron{Him}{Her}}
```

\HisHers
```
\newcommand*\HisHers{\gm@atppron{His}{Hers}}
```

To Save Precious Count Registers

It's a contribution to TEX's ecology ;-). You can use as many CSs as you wish and you may use only 256 count registers (although in ε-TEX there are 2^{16} count registers, which makes the following a bit obsolete).

\nummacro
```
\newcommand*\nummacro[1]{\gdef#1{0}}
```

\stepnummacro
```
\newcommand*\stepnummacro[1]{%
  \@tempcnta=#1\relax
  \advance\@tempcnta␣by1\relax
  \xdef#1{\the\@tempcnta}}% Because of some mysterious reasons explicit \counto
      interferred with page numbering when used in \gmd@evpaddonce in gm-
      doc.
```

\addtonummacro
```
\newcommand*\addtonummacro[2]{%
  \counto=#1\relax
  \advance\countoby#2\relax
  \xdef#1{\the\count\z@}}
```

Need an explanation? The \nummacro declaration defines its argument (that should be a CS) as {0} which is analogous to \newcount declaration but doesn't use up any count register.

Then you may use this numeric macro as something between TEX's count CS and LATEX's counter. The macros \stepnummacro and \addtonummacro are analogous to LATEX's \stepcounter and \addtocounter respectively: \stepnummacro advances the number stored in its argument by 1 and \addtonummacro advances it by the second argument. As the LATEX's analogoi, they have the global effect (the effect of global warming ;-)).

So far I've used only \nummacro and \stepnummacro. Notify me if you use them and whether you need sth. more, \multiplynummacro e.g.

Improvements to mwcls Sectioning Commands

That is, 'Expe-ri-mente'[3] mit MW sectioning & \refstepcounter to improve mwcls's cooperation with hyperref. They shouldn't make any harm if another class (non-mwcls) is loaded.

We \refstep sectioning counters even if the sectionings are not numbered, because otherwise

1. pdfTEX cried of multiply defined \labels,
2. e.g. in a table of contents the hyperlink <rozdzia\l\ Kwiaty polskie> linked not to the chapter's heading but to the last-before-it change of \ref.

```
\AtBeginDocument{% because we don't know when exactly hyperref is loaded and
      maybe after this package.
  \@ifpackageloaded{hyperref}{\newcounter{NoNumSecs}%
    \setcounter{NoNumSecs}{617}% to make \refing to an unnumbered section
        visible (and funny?).
    \def\gm@hyperrefstepcounter{\refstepcounter{NoNumSecs}}%
    \DeclareRobustCommand*\gm@targetheading[1]{%
      \hypertarget{#1}{#1}}}% end of then
  {\def\gm@hyperrefstepcounter{}%
    \def\gm@targetheading#1{#1}}% end of else
}% of \AtBeginDocument
```

Auxiliary macros for the kernel sectioning macro:

```
\def\gm@dontnumbersectionsoutofmainmatter{%
  \if@mainmatter\else␣\HeadingNumberedfalse␣\fi}
\def\gm@clearpagesduetoopenright{%
  \if@openright\cleardoublepage\else␣\clearpage\fi}
```

To avoid \defing of \mw@sectionxx if it's undefined, we redefine \def to gobble the definition and restore the original meaning of itself.

Why shouldn't we change the ontological status of \mw@sectionxx (not define if undefined)? Because some macros (in gmdocc e.g.) check it to learn whether they are in an mwcls or not.

But let's make a shorthand for this test since we'll use it three times in this package and maybe also somewhere else.

```
\long\def\@ifnotmw#1#2{\@ifundefined{mw@sectionxx}{#1}{#2}}
\let\gmu@def\def
\@ifnotmw{%
  \StoreMacro\gmu@def␣\def\gmu@def#14#2{\RestoreMacro\gmu@def}}{}
```

I know it may be of bad taste (to write such a way *here*) but I feel so lonely and am in an alien state of mind after 3 hour sleep last night and, worst of all, listening to sir Edward Elgar's flamboyant Symphonies d'Art Nouveau.

[3] A. Berg, *Wozzeck*.

A *decent* person would just wrap the following definition in \@ifundefined's Else. But look, the definition is so long and I feel so lonely etc. So, I define \def (for some people there's nothing sacred) to be a macro with two parameters, first of which is delimited by digit 4 (the last token of \mw@sectionxx's parameter string) and the latter is undelimited which means it'll be the body of the definition. Such defined \def does nothing else but restores its primitive meaning by the way sending its arguments to the Gobbled Tokens' Paradise. Luckily, \RestoreMacro contains \let not \def.

The kernel of MW's sectioning commands:

```
\gmu@def\mw@sectionxx#1#2[#3]#4{%
  \edef\mw@HeadingLevel{\csname␣#1@level\endcsname
        \space}% space delimits level number!
  \ifHeadingNumbered
      \ifnum␣\mw@HeadingLevel>\c@secnumdepth␣%
           \HeadingNumberedfalse␣\fi
```

line below is in ifundefined to make it work in classes other than mwbk

```
      \@ifundefined{if@mainmatter}{}{%
           \gm@dontnumbersectionsoutofmainmatter}
  \fi
%   \ifHeadingNumbered
%     \refstepcounter{#1}%
%     \protected@edef\HeadingNumber{\csname
     the#1\endcsname\relax}%
%   \else
%     \let\HeadingNumber\@empty
%   \fi
```

\HeadingRHeadText
\HeadingTOCText
\HeadingText
\mw@HeadingType

```
  \def\HeadingRHeadText{#2}%
  \def\HeadingTOCText{#3}%
  \def\HeadingText{#4}%
  \def\mw@HeadingType{#1}%
  \if\mw@HeadingBreakBefore
    \if@specialpage\else\thispagestyle{closing}\fi
    \@ifundefined{if@openright}{}{\gm@clearpagesduetoopenright}%
    \if\mw@HeadingBreakAfter
      \thispagestyle{blank}\else
      \thispagestyle{opening}\fi
       \global\@topnum\z@
  \fi% of \if\mw@HeadingBreakBefore
```

placement of \refstep suggested by me (GM)

```
  \ifHeadingNumbered
    \refstepcounter{#1}%
    \protected@edef\HeadingNumber{\csname␣the#1\endcsname\relax}%
  \else
    \let\HeadingNumber\@empty
    \gm@hyperrefstepcounter
  \fi% of \ifHeadingNumbered
```

```
  \if\mw@HeadingRunIn
    \mw@runinheading
  \else
    \if\mw@HeadingWholeWidth
```

```
      \if@twocolumn
        \if\mw@HeadingBreakAfter
        \onecolumn
        \mw@normalheading
        \pagebreak\relax
              \if@twoside
                \null
                \thispagestyle{blank}%
                \newpage
              \fi% of \if@twoside
        \twocolumn
        \else
          \@topnewpage[\mw@normalheading]%
        \fi% of \if\mw@HeadingBreakAfter
      \else
        \mw@normalheading
        \if\mw@HeadingBreakAfter\pagebreak\relax\fi
      \fi% of \if@twocolumn
    \else
      \mw@normalheading
      \if\mw@HeadingBreakAfter\pagebreak\relax\fi
    \fi% of \if\mw@HeadingWholeWidth
  \fi% of \if\mw@HeadingRunIn
  }
```

An improvement of MW's \SetSectionFormatting

A version of MW's \SetSectionFormatting that lets to leave some settings unchanged by leaving the respective argument empty ({} or []).

Notice: If we adjust this command for new version of MWCLS, we should name it \SetSectionFormatting and add issuing errors if the inner macros are undefined.

#1 (optional) the flags, e.g. breakbefore, breakafter;
#2 the sectioning name, e.g. chapter, part;
#3 preskip;
#4 heading type;
#5 postskip

```
\relaxen\SetSectionFormatting
\newcommand*\SetSectionFormatting[5][\empty]{%
  \ifx\empty#1\relax\else% empty (not \empty!) #1 also launches \else.
    \def\mw@HeadingRunIn{10}\def\mw@HeadingBreakBefore{10}%
    \def\mw@HeadingBreakAfter{10}\def\mw@HeadingWholeWidth{10}%
    \@ifempty{#1}{}{\mw@processflags#1,\relax}% If #1 is omitted, the flags
          are left unchanged. If #1 is given, even as [], the flags are first cleared and
          then processed again.
  \fi
  \@ifundefined{#2}{\@namedef{#2}{\mw@section{#2}}}{}%
  \mw@secdef{#2}{@preskip}␣{#3}{2␣oblig.}%
  \mw@secdef{#2}{@head}␣␣␣␣{#4}{3␣oblig.}%
  \mw@secdef{#2}{@postskip}{#5}{4␣oblig.}%
  \ifx\empty#1\relax
    \mw@secundef{#2@flags}{1␣(optional)}%
  \else\mw@setflags{#2}%
```

\SetSectionFormatting
\mw@HeadingRunIn
\mw@HeadingBreakBefore
\mw@HeadingBreakAfter
\mw@HeadingWholeWidth

```
  \fi}
\mw@secdef \def\mw@secdef#1#2#3#4{% #1 the heading name,
             % #2 the command distinctor,
             % #3 the meaning,
             % #4 the number of argument to error message.
  \@ifempty{#3}
    {\mw@secundef{#1#2}{#4}}
    {\@namedef{#1#2}{#3}}}
\mw@secundef \def\mw@secundef#1#2{%
  \@ifundefined{#1}{%
    \ClassError{mwcls/gm}{%
      command␣\bslash#1␣␣undefined␣\MessageBreak
      after␣\bslash␣SetSectionFormatting!!!\MessageBreak}{%
      Provide␣the␣#2␣argument␣of␣\bslash␣
           SetSectionFormatting.}}{}}
```

First argument is a sectioning command (wo. \) and second the stuff to be added at the beginning of the heading declarations.

```
\addtoheading \def\addtoheading#1#2{%
    \n@melet{gmu@reserveda}{#1@head}%
    \toks\z@=\@xa{\gmu@reserveda}%
    \toks\tw@={#2}%
    \edef\gmu@reserveda{\the\toks\tw@\the\toks\z@}%
    \n@melet{#1@head}{gmu@reserveda}%
}
```

Negative \addvspace

When two sectioning commands appear one after another (we may assume that this occurs only when a lower section appears immediately after higher), we prefer to put the *smaller* vertical space not the larger, that is, the preskip of the lower sectioning not the postskip of the higher.

For that purpose we modify the very inner macros of MWCLS to introduce a check whether the previous vertical space equals the postskip of the section one level higher.

```
\@ifnotmw{}{% We proceed only in MWCLS
```

The information that we are just after a heading will be stored in the \gmu@prevsec macro: any heading will define it as the section name and \everypar (any normal text) will clear it.

```
\@afterheading \def\@afterheading{%
  \@nobreaktrue
  \xdef\gmu@prevsec{\mw@HeadingType}% added now
  \everypar{%
    \grelaxen\gmu@prevsec% added now. All the rest is original LaTeX.
    \if@nobreak
    \@nobreakfalse
    \clubpenalty␣\@M
    \if@afterindent␣\else
    {\setbox\z@\lastbox}%
    \fi
    \else
    \clubpenalty␣\@clubpenalty
```

```
    \everypar{}%
    \fi}}
```

If we are (with the current heading) just after another heading (one level lower I suppose), then we add the less of the higher header's post-skip and the lower header pre-skip or, if defined, the two-header-skip. (We put the macro defined below just before `\addvspace` in MWCLS inner macros.)

\gmu@checkaftersec
```
\def\gmu@checkaftersec{%
  \@ifundefined{gmu@prevsec}{}{%
    \ifgmu@postsec% an additional switch that is true by default but may be
        turned into an \ifdim in special cases, see line 534.
    {\@xa\mw@getflags\@xa{\gmu@prevsec}%
      \glet\gmu@reserveda\mw@HeadingBreakAfter}%
```
\gmu@reserveda
```
    \if\mw@HeadingBreakBefore\def\gmu@reserveda{11}\fi% if the current
        heading inserts page break before itself, all the play with vskips is irrelevant.
    \if\gmu@reserveda\else
    \penalty10000\relax
    \skip\z@=\csname\gmu@prevsec␣@postskip\endcsname\relax
    \skip\tw@=\csname\mw@HeadingType␣@preskip\endcsname\relax
    \@ifundefined{\mw@HeadingType␣@twoheadskip}{
      \ifdim\skip\z@>\skip\tw@
      \vskip-\skip\z@% we strip off the post-skip of previous header if it's bigger
          than current pre-skip
      \else
      \vskip-\skip\tw@% we strip off the current pre-skip otherwise
      \fi}{% But if the two-header-skip is defined, we put it
      \penalty10000
      \vskip-\skip\z@
      \penalty10000
      \vskip-\skip\tw@
      \penalty10000
      \vskip\csname\mw@HeadingType␣@twoheadskip\endcsname
      \relax}%
    \penalty10000
    \hrule␣height\z@\relax% to hide the last (un)skip before subsequent \addvspaces.
    \penalty10000
    \fi
    \fi
  }% of \@ifundefined{gmu@prevsec} 'else'
}% of \def\gmu@checkaftersec
```

\ParanoidPostsec
```
\def\ParanoidPostsec{% this version of \ifgmu@postsec is intended for the special case of sections may contain no normal text, as while gmdocing.
```
\ifgmu@postsec
```
  \def\ifgmu@postsec{% note this macro expands to an open \if.
    \skip\z@=\csname\gmu@prevsec␣@postskip\endcsname\relax
    \ifdim\lastskip=\skip\z@\relax% we play with the vskips only if the last
        skip is the previous heading's postskip (a counter-example I met while gmdocing).
  }}
\let\ifgmu@postsec\iftrue
```

\gmu@getaddvs
```
\def\gmu@getaddvs#1\addvspace#2\gmu@getaddvs{%
  \toks\z@={#1}
```

```
  \toks\tw@={#2}}
```

And the modification of the inner macros at last:

\gmu@setheading
```
\def\gmu@setheading#1{%
  \@xa\gmu@getaddvs#1\gmu@getaddvs
  \edef#1{%
    \the\toks\z@\@nx\gmu@checkaftersec
    \@nx\addvspace\the\toks\tw@}}
\gmu@setheading\mw@normalheading
\gmu@setheading\mw@runinheading
```

\SetTwoheadSkip
```
\def\SetTwoheadSkip#1#2{\@namedef{#1@twoheadskip}{#2}}
```

```
}% of \@ifnotmw
```

My heading setup for mwcls

The setup of heading skips was tested in 'real' typesetting, for money that is. The skips are designed for 11/13 pt leading and together with my version of mw11.clo option file for mwcls make the headings (except paragraph and subparagraph) consist of an integer number of lines. The name of the declaration comes from my employer, "Wiedza Powszechna" Editions.

```
\@ifnotmw{}{% We define this declaration only when in mwcls.
```

\WPheadings
```
\def\WPheadings{%
  \SetSectionFormatting[breakbefore,wholewidth]
      {part}{\z@\@plus1fill}{}{\z@\@plus3fill}%
  \@ifundefined{chapter}{}{%
    \SetSectionFormatting[breakbefore,wholewidth]
      {chapter}
      {66\p@}% {67\p@} for Adventor/Schola 0,95.
      {\FormatHangHeading{\LARGE}}
      {27\p@\@pluso,2\p@\@minus1\p@}%
  }%
  \SetTwoheadSkip{section}{27\p@\@pluso,5\p@}%
  \SetSectionFormatting{section}
      {24\p@\@pluso,5\p@\@minus5\p@}%
      {\FormatHangHeading␣{\Large}}
      {10\p@\@pluso,5\p@}% ed. Krajewska of "Wiedza Powszechna", as we understand her, wants the skip between a heading and text to be rigid.
  \SetTwoheadSkip{subsection}{11\p@\@pluso,5\p@\@minus1\p@}%
  \SetSectionFormatting{subsection}
      {19\p@\@pluso,4\p@\@minus6\p@}
      {\FormatHangHeading␣{\large}}% 12/14 pt
      {6\p@\@pluso,3\p@}% after-skip 6 pt due to p.12, not to squeeze the before-skip too much.
  \SetTwoheadSkip{subsubsection}{10\p@\@plus1,75\p@\@minus1\p@}%
  \SetSectionFormatting{subsubsection}
      {10\p@\@pluso,2\p@\@minus1\p@}
      {\FormatHangHeading␣{\normalsize}}
      {3\p@\@pluso,1\p@}% those little skips should be smaller than you calculate out of a geometric progression, because the interline skip enlarges them.
  \SetSectionFormatting[runin]{paragraph}
      {7\p@\@pluso,15\p@\@minus1\p@}
```

```
      {\FormatRunInHeading{\normalsize}}
      {2\p@}%
  \SetSectionFormatting[runin]{subparagraph}
      {4\p@\@plus1\p@\@minuso,5\p@}
      {\FormatRunInHeading{\normalsize}}
      {\z@}%
}% of \WPheadings
}% of \@ifnotmw
```

Compatibilising Standard and mwcls Sectionings

If you use Marcin Woliński's document classes (mwcls), you might have met their little queerness: the sectioning commands take two optional arguments instead of standard one. It's reasonable since one may wish one text to be put into the running head, another to the toc and yet else to the page. But the order of optionalities causes an incompatibility with the standard classes: MW section's first optional argument goes to the running head not to toc and if you've got a source file written with the standard classes in mind and use the first (and only) optional argument, the effect with mwcls would be different if not error.

Therefore I counter-assign the commands and arguments to reverse the order of optional arguments for sectioning commands when mwcls are in use and reverse, to make mwcls-like sectioning optionals usable in the standard classes.

With the following in force, you may both in the standard classes and in mwcls give a sectioning command one or two optional arguments (and mandatory the last, of course). If you give just one optional, it goes to the running head and to toc as in scls (which is unlike in mwcls). If you give two optionals, the first goes to the running head and the other to toc (like in mwcls and unlike in scls).

(In both cases the mandatory last argument goes only to the page.)

What more is unlike in scls, it's that even with them the starred versions of sectioning commands allow optionals (but they still send them to the Gobbled Tokens' Paradise).

(In mwcls, the only difference between starred and non-starred sec commands is (not) numbering the titles, both versions make a contents line and a mark and that's not changed with my redefinitions.)

```
\@ifnotmw{% we are not in mwcls and want to handle mwcls-like sectionings i.e., those written with two optionals.
  \def\gm@secini{gm@la}%
  \def\gm@secxx#1#2[#3]#4{%
    \ifx\gm@secstar\@empty
      \n@melet{gm@true@#1mark}{#1mark}% a little trick to allow a special version of the heading just to the running head.
      \@namedef{#1mark}##1{% we redefine \⟨sec⟩mark to gobble its argument and to launch the stored true marking command on the appropriate argument.
        \csname␣gm@true@#1mark\endcsname{#2}%
        \n@melet{#1mark}{gm@true@#1mark}% after we've done what we wanted we restore original \#1mark.
      }%
      \def\gm@secstar{[#3]}% if \gm@secstar is empty, which means the sectioning command was written starless, we pass the 'true' sectioning command #3 as the optional argument. Otherwise the sectioning command was written with star so the 'true' s.c. takes no optional.
```

\gm@secini \gm@secxx \gm@secstar

```
      \fi
      \@xa\@xa\csname\gm@secini#1\endcsname
      \gm@secstar{#4}}%
}{% we are in mwcls and want to reverse MW's optionals order i.e., if there's just one optional, it should go both to toc and to running head.
\gm@secini  \def\gm@secini{gm@mw}%
    \let\gm@secmarkh\@gobble% in mwcls there's no need to make tricks for special version to running headings.
\gm@secxx   \def\gm@secxx#1#2[#3]#4{%
      \@xa\@xa\csname\gm@secini#1\endcsname
      \gm@secstar[#2][#3]{#4}}%
}
\gm@sec  \def\gm@sec#1{\@dblarg{\gm@secx{#1}}}
\gm@secx  \def\gm@secx#1[#2]{%
    \@ifnextchar[{\gm@secxx{#1}{#2}}{\gm@secxx{#1}{#2}[#2]}}% if there's only one optional, we double it not the mandatory argument.
\gm@straightensec  \def\gm@straightensec#1{% the parameter is for the command's name.
    \@ifundefined{#1}{}{% we don't change the ontological status of the command because someone may test it.
      \n@melet{\gm@secini#1}{#1}%
      \@namedef{#1}{%
\gm@secstar           \@ifstar{\def\gm@secstar{*}\gm@sec{#1}}{%
\gm@secstar             \def\gm@secstar{}\gm@sec{#1}}}%
}%
\let\do\gm@straightensec
\do{part}\do{chapter}\do{section}\do{subsection}\do{subsubsection}
\@ifnotmw{}{\do{paragraph}}% this 'straightening' of \paragraph with the standard article caused the 'TeX capacity exceeded' error. Anyway, who on Earth wants paragraph titles in toc or running head?
```

`enumerate*` and `itemize*`

We wish the starred version of `enumerate` to be just numbered paragraphs. But hyperref redefines `\item` so we should do it a smart way, to set the LaTeX's `list` parameters that is.

(Marcin Woliński in mwcls defines those environments slightly different: his item labels are indented, mine are not; his subsequent paragraphs of an item are not indented, mine are.)

```
enumerate*  \@namedef{enumerate*}{%
    \ifnum\@enumdepth>\thr@@
      \@toodeep
    \else
      \advance\@enumdepth\@ne
      \edef\@enumctr{enum\romannumeral\the\@enumdepth}%
      \@xa\list\csname␣label\@enumctr\endcsname{%
        \partopsep\topsep␣\topsep\z@␣\leftmargin\z@
        \itemindent\@parindent␣% %\advance\itemindent\labelsep
        \labelwidth\@parindent
        \advance\labelwidth-\labelsep
```

```
      \listparindent\@parindent
      \usecounter␣\@enumctr
      \def\makelabel##1{##1\hfil}}%
  \fi}
\@namedef{endenumerate*}{\endlist}
```

itemize*

```
\@namedef{itemize*}{%
  \ifnum\@itemdepth>\thr@@
    \@toodeep
  \else
    \advance\@itemdepth\@ne
    \edef\@itemitem{labelitem\romannumeral\the\@itemdepth}%
    \@xa\list\csname\@itemitem\endcsname{%
      \partopsep\topsep␣\topsep\z@␣\leftmargin\z@
      \itemindent\@parindent
      \labelwidth\@parindent
      \advance\labelwidth-\labelsep
      \listparindent\@parindent
      \def\makelabel##1{##1\hfil␣}}%
  \fi}
\@namedef{enditemize*}{\endlist}
```

The Logos

We'll modify The LaTeX logo now to make it fit better to various fonts.

```
\let\oldLaTeX\LaTeX
\let\oldLaTeXe\LaTeXe
\def\TeX{T\kern-.1667em\lower.5ex\hbox{E}\kern-.125emX\@}
```

\DeclareLogo

```
\newcommand*\DeclareLogo[3][\relax]{%
```

#1 is for non-LaTeX spelling and will be used in the PD1 encoding (to make pdf bookmarks);
#2 is the command, its name will be the PD1 spelling by default,
#3 is the definition for all the font encodings except PD1.

\gmu@reserveda

```
  \ifx\relax#1\def\gmu@reserveda{\@xa\@gobble\string#2}%
  \else
```

\gmu@reserveda

```
    \def\gmu@reserveda{#1}%
  \fi
  \edef\gmu@reserveda{%
```

\@nx

```
    \@nx\DeclareTextCommand\@nx#2{PD1}{\gmu@reserveda}}
  \gmu@reserveda
  \DeclareTextCommandDefault#2{#3}%
```

\DeclareRobustCommand*

```
  \DeclareRobustCommand*#2{#3}}% added for XeTeX
```

\DeclareLogo

```
\DeclareLogo\LaTeX{%
  {%
    L%
    \setbox\z@\hbox{\check@mathfonts
      \fontsize\sf@size\z@
      \math@fontsfalse\selectfont
      A}%
    \kern-.57\wd\z@
```

```
    \sbox\tw@␣T%
    \vbox␣to\ht\tw@{\copy\z@␣\vss}%
    \kern-.2\wd\z@}% originally −, 15 em for T.
  {%
    \ifdim\fontdimen1\font=\z@
    \else
      \count\z@=\fontdimen5\font
      \multiply\count\z@␣by␣64\relax
      \divide\count\z@␣by\p@
      \count\tw@=\fontdimen1\font
      \multiply\count\tw@␣by\count\z@
      \divide\count\tw@␣by␣64\relax
      \divide\count\tw@␣by\tw@
      \kern-\the\count\tw@␣sp\relax
    \fi}%
  \TeX}
\LaTeXe \DeclareLogo\LaTeXe{\mbox{\m@th␣\if
    b\expandafter\@car\f@series\@nil\boldmath\fi
    \LaTeX\kern.15em2$_{\textstyle\varepsilon}$}}
\StoreMacro\LaTeX
\StoreMacro*{LaTeX␣}
```

'(LA)TEX' in my opinion better describes what I work with/in than just 'LATEX'.

```
\LaTeXpar \DeclareLogo[(La)TeX]{\LaTeXpar}{%
  {%
    \setbox\z@\hbox{(}%)
    \copy\z@
    \kern-.2\wd\z@␣L%
    \setbox\z@\hbox{\check@mathfonts
      \fontsize\sf@size\z@
      \math@fontsfalse\selectfont
      A}%
    \kern-.57\wd\z@
    \sbox\tw@␣T%
    \vbox␣to\ht\tw@{\box\z@%
      \vss}%
  }%
  \kern-.07em% originally −, 15 em for T.
  {%(
    \sbox\z@)%
    \kern-.2\wd\z@\copy\z@
    \kern-.2\wd\z@}\TeX
}
```

"Here are a few definitions which can usefully be employed when documenting package files: now we can readily refer to $\mathcal{AMS}$-TEX, BIBTEX and SLITEX, as well as the usual TEX and LATEX. There's even a PLAIN TEX and a WEB."

```
\@ifundefined{AmSTeX}
\AmSTeX   {\def\AmSTeX{\leavevmode\hbox{$\mathcal␣A\kern-.2em%
        \lower.376ex%
          \hbox{$\mathcal␣M$}\kern-.2em\mathcal␣S$-\TeX}}}{}
\BibTeX \DeclareLogo\BibTeX{{\rmfamily␣B\kern-.05em%
```

```
    \textsc{i{\kern-.025em}b}\kern-.08em% the kern is wrapped in braces
        for my \fakescaps' sake.
    \TeX}}
\SliTeX \DeclareLogo\SliTeX{{\rmfamily␣S\kern-.06emL\kern-.18em%
     \raise.32ex\hbox
        {\scshape␣i}\kern␣-.03em\TeX}}
\PlainTeX \DeclareLogo\PlainTeX{\textsc{Plain}\kern2pt\TeX}
  \Web \DeclareLogo\Web{\textsc{Web}}
```

There's also the (LA)TEX logo got with the `\LaTeXpar` macro provided by gmutils. And here *The TEXbook*'s logo:

```
\TeXbook \DeclareLogo[The␣TeX␣book]\TeXbook{\textsl{The␣\TeX␣book}}
\let\TB\TeXbook% TUG Boat uses this.
  \eTeX \DeclareLogo[e-TeX]\eTeX{%
    \ensuremath{\varepsilon}-\kern-.125em\TeX}% definition sent by Karl Berry
        from TUG Boat itself.
\pdfeTeX \DeclareLogo[pdfe-TeX]\pdfeTeX{pdf\eTeX}
 \pdfTeX \DeclareLogo\pdfTeX{pdf\TeX}

\@ifundefined{XeTeX}{%
  \XeTeX \DeclareLogo\XeTeX{X\kern-.125em\relax
      \@ifundefined{reflectbox}{%
        \lower.5ex\hbox{E}\kern-.1667em\relax}{%
        \lower.5ex\hbox{\reflectbox{E}}\kern-.1667em\relax}%
      \TeX}}{}
\@ifundefined{XeLaTeX}{%
\XeLaTeX \DeclareLogo\XeLaTeX{X\kern-.125em\relax
      \@ifundefined{reflectbox}{%
        \lower.5ex\hbox{E}\kern-.1667em\relax}{%
        \lower.5ex\hbox{\reflectbox{E}}\kern-.1667em\relax}%
      \LaTeX}}
```

As you see, if TEX doesn't recognize `\reflectbox` (graphics isn't loaded), the first `E` will not be reversed. This version of the command is intended for non-XETEX usage. With XETEX, you can load the xltxtra package (e.g. with the gmutils `\XeTeXthree` declaration) and then the reversed `E` you get as the Unicode Latin Letter Reversed E.

Expanding turning stuff all into 'other'

While typesetting a unicode file contents with inputenc package I got a trouble with some Unicode sequences that expanded to unexpandable CSs: they could'nt be used within `\csname...\endcsname`. My TEXGuru advised to use `\meanig` to make all the name 'other'. So—here we are.

Don't use them in `\edefs`, they would expand not quite.

The next macro is intended to be put in `\edefs` with a macro argument. The meaning of the macro will be made all 'other' and the words '(long) macro:->' gobbled.

```
\all@other \def\all@other#1{\@xa\gm@gobmacro\meaning#1}
```

The `\gm@gobmacro` macro above is applied to gobble the `\meaning`'s beginnig, `long macro:->` all 'other' that is. Use of it:

```
\edef\gmu@reserveda{%
```

```
\@nx 744   \def\@nx\gm@gobmacro##1\@xa\@gobble\string\macro:->{}}
\gm@gobmacro 745 \gmu@reserveda
```

In the next two macros' names, 'unex' stands both for not expanding the argument(s) and for disastrously partial unexpandability of the macros themselves.

```
\unex@namedef 746 \long\def\unex@namedef#1#2{%
              747   \edef@other\gmu@reserveda{#1}%
              748   \@xa\long\@xa\def\csname\gmu@reserveda\endcsname{#2}}
\unex@nameuse 749 \long\def\unex@nameuse#1{%
              750   \edef@other\gmu@reserveda{#1}%
              751   \csname\gmu@reserveda\endcsname}
```

Brave New World of XƎTEX

```
\@ifXeTeX 752 \newcommand\@ifXeTeX[2]{%
          753   \ifdefined\XeTeXversion
          754   \unless\ifx\XeTeXversion\relax\afterfifi{#1}\else\afterfifi{%
                    #2}\fi
          755   \else\afterfi{#2}\fi}
\XeTeXthree 756 \def\XeTeXthree{%
          757   \@ifXeTeX{%
          758     \@ifpackageloaded{gmverb}{\StoreMacro\verb}{}%
          759     \RequirePackage{xltxtra}% since v 0.4 (2008/07/29) this package redefines \verb and verbatim*, and quite elegantly provides an option to suppress the redefinitions, but unfortunately that option excludes also a nice definition of \xxt@visiblespace which I fancy.
          760     \@ifpackageloaded{gmverb}{\RestoreMacro\verb}{}%
          761     \AtBeginDocument{%
          762       \RestoreMacro\LaTeX\RestoreMacro*{LaTeX␣}}% my version of the LaTeX logo has been stored just after defining, in line 693.
          763 }{}}
```

The `\udigits` declaration causes the digits to be typeset uppercase. I provide it since by default I prefer the lowercase (nautical) digits.

```
          764 \AtBeginDocument{%
          765   \@ifpackageloaded{fontspec}{%
\udigits  766     \DeclareRobustCommand*\udigits{%
          767       \addfontfeature{Numbers=Uppercase}}%
          768   }{%
          769     \emptify\udigits}}
```

Fractions

```
\Xedekfracc 770 \def\Xedekfracc{\@ifstar\gmu@xedekfraccstar\gmu@xedekfraccplain}
```

(plain) The starless version turns the font feature `frac` on. (*) But nor Minion GM neither TEX Gyre Pagella doesn't feature the `frac` font feature properly so, with the starred version of the declaration we use the characters from the font where available (see the `\@namedefs` below) and the `numr` and `dnom` features with the fractional slash otherwise (via `\gmu@dekfracc`). (**) But Latin Modern Sans Serif Quotation doesn't support the numerator and denominator positions so we provide the double star version for it, which takes the char from font if it exist and typesets with lowers and kerns otherwise.

```
\gmu@xedekfraccstar 771 \def\gmu@xedekfraccstar{%
\gmu@xefraccdef 772   \def\gmu@xefraccdef##1##2{%
773       \iffontchar\font␣##2
774         \@namedef{gmu@xefracc##1}{\char##2␣}%
775       \else
776         \n@melet{gmu@xefracc##1}{relax}%
777       \fi}%
\gmu@dekfracc 778     \def\gmu@dekfracc##1/##2{%
779       {\addfontfeature{VerticalPosition=Numerator}##1}%
              \gmu@numeratorkern
780       \char"2044␣\gmu@denominatorkern
781       {\addfontfeature{VerticalPosition=Denominator}##2}}%
```

We define the fractional macros. Since Adobe Minion Pro doesn't contain $\frac{n}{5}$ nor $\frac{n}{6}$, we don't provide them here.

```
782     \gmu@xefraccdef{1/4}{"BC}%
783     \gmu@xefraccdef{1/2}{"BD}%
784     \gmu@xefraccdef{3/4}{"BE}%
785     \gmu@xefraccdef{1/3}{"2153}%
786     \gmu@xefraccdef{2/3}{"2154}%
787     \gmu@xefraccdef{1/8}{"215B}%
788     \gmu@xefraccdef{3/8}{"215C}%
789     \gmu@xefraccdef{5/8}{"215D}%
790     \gmu@xefraccdef{7/8}{"215E}%
\dekfracc 791     \def\dekfracc##1/##2{%
\gm@duppa 792       \def\gm@duppa{##1/##2}%
793       \@ifundefined{gmu@xefracc\all@other\gm@duppa}{%
794         \gmu@dekfracc{##1}/{##2}}{%
795         \csname␣gmu@xefracc\all@other\gm@duppa\endcsname}}%
796     \@ifstar{\let\gmu@dekfracc\gmu@dekfraccsimple}{}%
797   }
\gmu@xedekfraccplain 798 \def\gmu@xedekfraccplain{% 'else' of the main \@ifstar
\dekfracc 799     \def\dekfracc##1/##2{{%
800         \addfontfeature{Fractions=On}%
801         ##1/##2}}%
802     }
\gmu@numeratorkern 803 \def\gmu@numeratorkern{\kern-.05em\relax}
804 \let\gmu@denominatorkern\gmu@numeratorkern
```

What have we just done? We defined two versions of the `\Xefractions` declaration. The starred version is intended to make use only of the built-in fractions such as ½ or ⅞. To achieve that, a handful of macros is defined that expand to the Unicodes of built-in fractions and `\dekfracc` command is defined to use them.

The unstarred version makes use of the Fraction font feature and therefore is much simpler.

Note that in the first argument of `\@ifstar` we wrote 8 (eight) #s to get the correct definition and in the second argument 'only' 4. (The LaTeX 2ε Source claims that that is changed in the 'new implementation' of `\@ifstar` so maybe it's subject to change.)

A simpler version of `\dekfracc` is provided in line 950

`\resizegraphics`

```
805 \@ifXeTeX{%
```

```
\resizegraphics 806  \def\resizegraphics#1#2#3{{%
                807      \setboxo=\hbox{\XeTeXpicfile␣#3␣}%
                808      \ifx!#1\else
                809        \dimeno=#1\relax
                810        \count2=\wdo
                811        \divide\count2␣by1000\relax
                812        \counto=\dimeno\relax
                813        \divide\counto\count2
                814      \fi
                815      \ifx!#2\else
                816        \dimeno=#1\relax
                817        \count6=\hto
                818        \divide\count6␣by1000\relax
                819        \count4=\dimeno\relax
                820        \divide\count4\count6
                821      \fi
                822      \ifx!#1\counto=\count4\fi
                823      \ifx!#2\count4=\counto\fi
                824      \XeTeXpicfile␣#3␣xscaled␣\counto␣yscaled␣\count4
                825    }}}{%
\resizegraphics 826    \def\resizegraphics#1#2#3{%
                827      \resizebox{#1}{#2}{%
                828        \includegraphics{#3}}}}%
```

The [options] in the `\XeTeXpicfile` command use the following keywords:
`width` ⟨*dimen*⟩
`height` ⟨*dimen*⟩
`scaled` ⟨*scalefactor*⟩
`xscaled` ⟨*scalefactor*⟩
`yscaled` ⟨*scalefactor*⟩
`rotated` ⟨*degrees*⟩

```
\GMtextsuperscript 829 \def\GMtextsuperscript{%
                830   \@ifXeTeX{%
\textsuperscript 831     \def\textsuperscript##1{{%
                832         \addfontfeature{VerticalPosition=Numerator}##1}}%
                833   }{\truetextsuperscript}}
\truetextsuperscript 834 \def\truetextsuperscript{%
\textsuperscript 835   \DeclareRobustCommand*\textsuperscript[1]{%
                836     \@textsuperscript{\selectfont##1}}%
\@textsuperscript 837   \def\@textsuperscript##1{%
                838     {\m@th\ensuremath{^{\mbox{\fontsize\sf@size\z@##1}}}}}}
```

Varia

A very neat macro provided by doc. I copy it ~verbatim.

```
\gmu@tilde 839 \def\gmu@tilde{%
           840   \leavevmode\lower.8ex\hbox{$\,\widetilde{\mbox{␣}}\,$}}
```

Originally there was just `\ ` instead of `\mbox{ }` but some commands of ours do redefine `\ `.

```
\*  841 \DeclareRobustCommand*\*{\gmu@tilde}
```

```
\AtBeginDocument{% to bypass redefinition of \~ as a text command with various encodings
  \DeclareRobustCommand*\texttilde{%
    \@ifnextchar/{\gmu@tilde\kern-0,1667em\relax}\gmu@tilde}}
```

\texttilde

We prepare the proper kerning for "~/".

The standard \obeyspaces declaration just changes the space's \catcode to 13 ('active'). Usually it is fairly enough because no one 'normal' redefines the active space. But we are *not* normal and we do *not* do usual things and therefore we want a declaration that not only will \activeate the space but also will (re)define it as the \ primitive. So define \gmobeyspaces that obeys this requirement.

(This definition is repeated in gmverb.)

```
\foone{\catcode`\ \active}%
{\def\gmobeyspaces{\catcode`\ \active\let␣\ }}
```

\gmobeyspaces

While typesetting poetry, I was surprised that sth. didn't work. The reason was that original \obeylines does \let not \def, so I give the latter possibility.

```
\foone{\catcode`\^^M\active}% the comment signs here are crucial.
{\def\defobeylines{\catcode`\^^M=13␣\def^^M{\par}}}
```

\defobeylines

Another thing I dislike in LaTeX yet is doing special things for \...skip's, 'cause I like the Knuthian simplicity. So I sort of restore Knuthian meanings:

```
\def\deksmallskip{\vskip\smallskipamount}
\def\undeksmallskip{\vskip-\smallskipamount}
\def\dekmedskip{\vskip\medskipamount}
\def\dekbigskip{\vskip\bigskipamount}
\def\hfillneg{\hskip␣opt␣plus␣-1fill\relax}
```

\deksmallskip \undeksmallskip \dekmedskip \dekbigskip \hfillneg

In some \if(cat?) test I needed to look only at the first token of a tokens' string (first letter of a word usually) and to drop the rest of it. So I define a macro that expands to the first token (or {⟨*text*⟩}) of its argument.

```
\long\def\@firstofmany#1#2\@@nil{#1}
```

\@firstofmany

A mark for the **TODO!**s:

```
\newcommand*{\TODO}[1][]{{%
    \sffamily\bfseries\huge␣TODO!\if\relax#1\relax\else\space%
        \fi#1}}
```

\TODO

I like twocolumn tables of contents. First I tried to provide them by writing \begin{% multicols}{2} and \end{multicols} outto the .toc file but it worked wrong in some cases. So I redefine the internal LaTeX macro instead.

```
\newcommand*\twocoltoc{%
  \RequirePackage{multicol}%
  \def\@starttoc##1{%
    \begin{multicols}{2}\makeatletter\@input␣{\jobname␣.##1}%
      \if@filesw␣\@xa␣\newwrite␣\csname␣tf@##1\endcsname
        \immediate␣\openout␣\csname␣tf@##1\endcsname␣\jobname␣
            .##1\relax
      \fi
      \@nobreakfalse\end{multicols}}}
\@onlypreamble\twocoltoc
```

\twocoltoc \@starttoc

The macro given below is taken from the multicol package (where its name is \enough@room). I put it in this package since I needed it in two totally different works.

\enoughpage
```
\newcommand\enoughpage[1]{%
  \par
  \dimeno=\pagegoal
  \advance\dimeno␣by-\pagetotal
  \ifdim\dimeno<#1\relax\newpage\fi}
```

Two shorthands for debugging:

\tOnLine
```
\newcommand*\tOnLine{\typeout{\on@line}}
```

\OnAtLine
```
\let\OnAtLine\on@line
```

An equality sign properly spaced:

\equals
```
\newcommand*\equals{${}={}$}
```

And for the LaTeX's pseudo-code statements:

\eequals
```
\newcommand*\eequals{${}=={}$}
```

While typesetting a UTF-8 ls-R result I found a difficulty that follows: UTF-8 encoding is handled by the inputenc package. It's O.K. so far. The UTF-8 sequences are managed using active chars. That's O.K. so far. While writing such sequences to a file, the active chars expand. You feel the blues? When the result of expansion is read again, it sometimes is again an active char, but now it doesn't star a correct UTF-8 sequence.

Because of that I wanted to 'freeze' the active chars so that they would be \writen to a file unexpanded. A very brutal operation is done: we look at all 256 chars' catcodes and if we find an active one, we \let it \relax. As the macro does lots and lots of assignments, it shouldn't be used in \edefs.

\freeze@actives
```
\def\freeze@actives{%
  \count\z@\z@
  \@whilenum\count\z@<\@cclvi\do{%
    \ifnum\catcode\count\z@=\active
      \uccode`\~=\count\z@
      \uppercase{\let~\relax}%
    \fi
    \advance\count\z@\@ne}}
```

A macro that typesets all 256 chars of given font. It makes use of \@whilenum.

\ShowFont
```
\newcommand*\ShowFont[1][6]{%
  \begin{multicols}{#1}[The␣current␣font␣(the␣\f@encoding%
      \ encoding):]
    \parindent\z@
    \count\z@\m@ne
    \@whilenum\count\z@<\@cclv\do{
      \advance\count\z@\@ne
      \ \the\count\z@:~\char\count\z@\par}
  \end{multicols}}
```

A couple of macros for typesetting liturgic texts such as psalmody of Liturgia Horarum. I wrap them into a declaration since they'll be needed not every time.

\liturgiques
```
\newcommand*\liturgiques[1][red]{% Requires the color package.
  \gmu@RPif{color}{color}%
```
\czerwo
```
  \newcommand*\czerwo{\small\color{#1}}% environment
```
\czer
```
  \newcommand{\czer}[1]{\leavevmode{\czerwo##1}}% we leave vmode
      because if we don't, then verse's \everypar would be executed in a group
      and thus its effect lost.
```
*
```
  \def\*{\czer{$*$}}
```

```
\+      \def\+{\czer{$\dag$}}
\nieczer  \newcommand*\nieczer[1]{\textcolor{black}{##1}}}
```

After the next definition you can write `\gmu@RP[⟨options⟩]{⟨package⟩}{⟨csname⟩}` to get the package #2 loaded with options #1 if the csname #3 is undefined.

```
\gmu@RPif \newcommand*\gmu@RPif[3][]{%
            \ifx\relax#1\relax
\gmu@resa   \else␣\def\gmu@resa{[#1]}%
            \fi
            \@xa\RequirePackage\gmu@resa{#2}}
```

Since inside `document` we cannot load a package, we'll redefine `\gmu@RPif` to issue a request before the error issued by undefined CS.

```
            \AtBeginDocument{%
\gmu@RPif     \renewcommand*\gmu@RPif[3][]{%
                \@ifundefined{#3}{%
                  \@ifpackageloaded{#2}{}{%
                    \typeout{^^J!␣Package␣`#2'␣not␣loaded!!!␣(%
                         \on@line)^^J}}}{}}}
```

It's very strange to me but it seems that `c` is not defined in the basic math packages. It is missing at least in the *Symbols* book.

```
\continuum  \providecommand*\continuum{\gmu@RPif{eufrak}{mathfrak}\mathfrak{%
              c}}
```

And this macro I saw in the ltugproc document class nad I liked it.

```
\iteracro   \def\iteracro{%
  \acro       \DeclareRobustCommand*\acro[1]{\gmu@acrospaces##1␣%
                \gmu@acrospaces}%
            }
            \iteracro
```

```
\gmu@acrospaces  \def\gmu@acrospaces#1␣#2\gmu@acrospaces{%
                   \gmu@acroinner#1\gmu@acroinner
                   \ifx\relax#2\relax\else
                     \space
                     \afterfi{\gmu@acrospaces#2\gmu@acrospaces}% when #2 is nonempty, it
                          is ended with a space. Adding one more space in this line resulted in an
                          infinite loop.
                   \fi}
```

```
\gmu@acroinner  \def\gmu@acroinner#1{%
                  \ifx\gmu@acroinner#1\relax\else
                    \ifcat␣a\@nx#1\relax%
                      \ifnum`#1=\uccode`#1%
                        {\acrocore{#1}}%
                      \else{#1}% tu było \smallerr
                      \fi
                    \else#1%
                    \fi
                    \afterfi\gmu@acroinner
                  \fi}
```

We extract the very thing done to the letters to a macro because we need to redefine it in fonts that don't have small caps.

\acrocore
```
\def\acrocore{\scshape\lowercase}
```
Since the fonts I am currently using do not support required font feature, I skip the following definition.

\IMO
\AKA
```
\newcommand*\IMO{\acro{IMO}}
\newcommand*\AKA{\acro{AKA}}
```
\usc
```
\DeclareRobustCommand*\usc[1]{{\addfontfeature{%
     Letters=UppercaseSmallCaps}#1}}
```
\uscacro
```
\def\uscacro{\let\acro\usc}
```
\qxenc
```
\newcommand*\qxenc{\fontencoding{QX}\selectfont}
```
The `\copyright` command is unavailable in T1 and U (unknown) encodings so provide

\qxcopyright
\qxcopyrights
```
\newcommand*\qxcopyright{{\qxenc\copyright}}
\newcommand*\qxcopyrights{%
  \let\gmu@copyright\copyright
  \def\copyright{{\qxenc\gmu@copyright}}}
```
\fixcopyright
```
\newcommand*\fixcopyright{%
  \@ifXeTeX{\def\copyright{\char"00A9␣}}{\qxcopyrights}}
```
Probably the only use of it is loading gmdocc.cls 'as second class'. This command takes first argument optional, options of the class, and second mandatory, the class name. I use it in an article about gmdoc.

\secondclass
\ifSecondClass
```
\def\secondclass{%
  \newif\ifSecondClass
  \SecondClasstrue
  \@fileswithoptions\@clsextension}% [outeroff,gmeometric]{gmdocc}
```
it's loading gmdocc.cls with all the bells and whistles except the error message.

Cf. *The TEXbook*exc. 11.6.
A line from LaTeX:

```
% \check@mathfonts\fontsize\sf@size\z@\math@fontsfalse\selectfont
```

didn't work as I would wish: in a `\footnotesize`'s scope it still was `\scriptsize`, so too large.

\gmu@dekfraccsimple
```
\def\gmu@dekfraccsimple#1/#2{\leavevmode\kern.1em
  \raise.5ex\hbox{\udigits\smaller[3]#1}\gmu@numeratorkern
  \dekfraccslash\gmu@denominatorkern
  {\udigits\smaller[3]#2}}%
```
\dekfraccsimple
```
\def\dekfraccsimple{%
  \let\dekfracc\gmu@dekfraccsimple
}
```
\dekfraccslash
\dekfraccslash
```
\@ifXeTeX{\def\dekfraccslash{\char"2044␣}}{%
  \def\dekfraccslash{/}}␣% You can define it as the fraction slash, \char"2044

\dekfraccsimple
```
A macro that acts like `\,` (thin and unbreakable space) except it allows hyphenation afterwards:

\ikern
```
\newcommand*\ikern{\,\penalty10000\hskip\p@\relax}
```
And a macro to forbid hyphenation of the next word:

```
\nohy   \newcommand*\nohy{\kernosp\relax}
\yeshy  \newcommand*\yeshy{\penalty10000\hskiposp\relax}
```

In both of the above definitionc 'osp' not \z@ to allow their writing to and reading from files where @ is 'other'.

\@ifempty

```
\@ifempty       \long\def\@ifempty#1#2#3{%
\gmu@reserveda    \def\gmu@reserveda{#1}%
                  \ifx\gmu@reserveda\@empty\afterfi{#2}%
                  \else\afterfi{#3}\fi
                }
```

\include not only .tex's

\include modified by me below lets you to include files of any extension provided that extension in the argument.

If you want to \include a non-.tex file and deal with it with \includeonly, give the latter command full file name, with the extension that is.

```
\gmu@getext     \def\gmu@getext#1.#2\@@nil{%
\gmu@filename     \def\gmu@filename{#1}%
\gmu@fileext      \def\gmu@fileext{#2}}

                \def\include#1{\relax
                  \ifnum\@auxout=\@partaux
                  \@latex@error{\string\include␣cannot␣be␣nested}\@eha
                  \else␣\@include#1␣\fi}

\@include       \def\@include#1␣{%
                  \gmu@getext#1.\@@nil
\gmu@fileext      \ifx\gmu@fileext\empty\def\gmu@fileext{tex}\fi
                  \clearpage
                  \if@filesw
                    \immediate\write\@mainaux{\string\@input{\gmu@filename.aux}}%
                  \fi
                  \@tempswatrue
                  \if@partsw
                    \@tempswafalse
                    \edef\reserved@b{#1}%
                    \@for\reserved@a:=\@partlist\do{%
                      \ifx\reserved@a\reserved@b\@tempswatrue\fi}%
                  \fi
                  \if@tempswa
                    \let\@auxout\@partaux
                    \if@filesw
                      \immediate\openout\@partaux␣\gmu@filename.aux
                      \immediate\write\@partaux{\relax}%
                    \fi
                    \@input@{\gmu@filename.\gmu@fileext}%
                    \inclasthook
                    \clearpage
                    \@writeckpt{\gmu@filename}%
                    \if@filesw
                      \immediate\closeout\@partaux
```

```
    \fi
  \else
```

If the file is not included, reset `\@include` `\deadcycles`, so that a long list of non-included files does not generate an 'Output loop' error.

```
    \deadcycles\z@
    \@nameuse{cp@\gmu@filename}%
  \fi
  \let\@auxout\@mainaux}
```

\whenonly \gmu@whonly

```
\newcommand\whenonly[3]{%
  \def\gmu@whonly{#1,}%
  \ifx\gmu@whonly\@partlist\afterfi{#2}\else\afterfi{#3}\fi}
```

I assume one usually includes chapters or so so the last page style should be closing.

\inclasthook

```
\def\inclasthook{\thispagestyle{closing}}
```

Faked small caps

\gmu@scapLetters

```
\def\gmu@scapLetters#1{%
  \ifx#1\relax\relax\else% two \relaxes to cover the case of empty #1.
    \ifcat␣a#1\relax
      \ifnum\the\lccode`#1=`#1\relax
        {\fakescapscore\MakeUppercase{#1}}% not Plain \uppercase because
              that works bad with inputenc.
      \else#1%
      \fi
    \else#1%
    \fi%
    \@xa\gmu@scapLetters
  \fi}%
```

\gmu@scapSpaces

```
\def\gmu@scapSpaces#1␣#2\@@nil{%
  \ifx#1\relax\relax
  \else\gmu@scapLetters#1\relax
  \fi
  \ifx#2\relax\relax
  \else\afterfi{\ \gmu@scapSpaces#2\@@nil}%
  \fi}
```

\gmu@scapss \nobreakspace

```
\def\gmu@scapss#1\@@nil{{\def~{{\nobreakspace}}%
    \gmu@scapSpaces#1␣\@@nil}}% % \def\\{{\newline}}\relax adding re-
          definition of \\ caused stack overflow Note it disallows hyphenation ex-
          cept at \-.
```

\fakescaps

```
\DeclareRobustCommand\fakescaps[1]{{%
    \gmu@scapss#1\@@nil}}
```

```
\let\fakescapscore\gmu@scalematchX
```

Experimente z akcentami patrz no3.tex.

\tinycae

```
\def\tinycae{{\tiny\AE}}% to use in \fakescaps[\tiny]{...}
```

```
\RequirePackage{calc}
```

wg `\zf@calc@scale` pakietu fontspec.

\gmu@scalar \zf@scale

```
\@ifXeTeX{%
  \def\gmu@scalar{1.0}%
  \def\zf@scale{}%
```

```
\gmu@scalematchX 1035  \def\gmu@scalematchX{%
                 1036    \begingroup
      \gmu@scalar 1037      \ifx\zf@scale\empty\def\gmu@scalar{1.0}%
                 1038      \else\let\gmu@scalar\zf@scale\fi
                 1039      \setlength\@tempdima{\fontdimen5\font}% 5—ex height
                 1040      \setlength\@tempdimb{\fontdimen8\font}% 8—XeTeX synthesized uppercase height.
                 1041      \divide\@tempdimb␣by1000\relax
                 1042      \divide\@tempdima␣by\@tempdimb
                 1043      \setlength{\@tempdima}{\@tempdima*\real{\gmu@scalar}}%
                 1044      \@ifundefined{fakesc@extrascale}{}{%
                 1045        \setlength{\@tempdima}{\@tempdima*\real{%
                               \fakesc@extrascale}}}%
                 1046      \@tempcnta=\@tempdima
                 1047      \divide\@tempcnta␣by␣1000\relax
                 1048      \@tempcntb=-1000\relax
                 1049      \multiply\@tempcntb␣by\@tempcnta
                 1050      \advance\@tempcntb␣by\@tempdima
                 1051      \xdef\gmu@scscale{\the\@tempcnta.%
                 1052        \ifnum\@tempcntb<100␣0\fi
                 1053        \ifnum\@tempcntb<10␣0\fi
                 1054        \the\@tempcntb}%
                 1055    \endgroup
                 1056    \addfontfeature{Scale=\gmu@scscale}%
                 1057  }}{\let\gmu@scalematchX\smallerr}
\fakescextrascale 1058 \def\fakescextrascale#1{\def\fakesc@extrascale{#1}}
\fakesc@extrascale
```

See above/see below

To generate a phrase as in the header depending of whether the respective label is before of after.

```
\wyzejnizej 1059 \newcommand*\wyzejnizej[1]{%
            1060   \edef\gmu@tempa{\@ifundefined{r@#1}{\arabic{page}}{%
            1061       \@xa\@xa\@xa\@secondoftwo\csname␣r@#1\endcsname}}%
            1062   \ifnum\gmu@tempa<\arabic{page}\relax␣wy\.zej\fi
            1063   \ifnum\gmu@tempa>\arabic{page}\relax␣ni\.zej\fi
            1064   \ifnum\gmu@tempa=\arabic{page}\relax␣\@xa\ignorespaces\fi
            1065 }
```

`luzniej` and `napapierki`—environments used in page breaking for money

The name of first of them comes from Polish typesetters' phrase "rozbijać [skład] na papierki"—'to broaden [leading] with paper scratches'.

```
\napapierkistretch 1066 \def\napapierkistretch{0,3pt}% It's quite much for 11/13pt typesetting
\napapierkicore 1067 \def\napapierkicore{\advance\baselineskip%
            1068   by␣optplus\napapierkistretch\relax}
   napapierki 1069 \newenvironment*{napapierki}{%
            1070   \par\global\napapierkicore}{%
            1071   \par\dimen\z@=\baselineskip
            1072   \global\baselineskip=\dimen\z@}% so that you can use \endnapapierki in interlacing environments
```

```
\gmu@luzniej 1073 \newcount\gmu@luzniej
\luzniejcore 1074 \newcommand*\luzniejcore[1][1]{%
1075   \advance\gmu@luzniej\@ne% We use this count to check whether we open the
         environment or just set \looseness inside it again.
1076   \ifnum\gmu@luzniej=\@ne␣␣\multiply\tolerance␣by␣2␣\fi
1077   \looseness=#1\relax}
```

After `\begin{luzniej}` we may put the optional argument of `\luzniejcore`

```
luzniej 1078 \newenvironment*{luzniej}{\par\luzniejcore}{\par}
```

The starred version does that `\everypar`, which has its advantages and disadvantages.

```
luzniej* 1079 \newenvironment*{luzniej*}[1][1]{%
1080   \multiply\tolerance␣by␣2\relax
1081   \everypar{\looseness=#1\relax}}{\par}
\nawj 1082 \newcommand*\nawj{\kerno,1em\relax}% to put between parentheses and let-
         ters with lower … such as j or y in certain fonts.
```

The original `\pauza` of polski has the skips rigid (one is even a kern). It begins with `\ifhmode` to be usable also at the beginning of a line as the mark of a dialogue.

```
1083 \ifdefined\XeTeXversion
1084 \AtBeginDocument{% to be independent of moment of loading of polski.
\-  1085   \DeclareRobustCommand*\-{%
1086     \ifhmode
1087       \unskip\penalty10000
1088       \afterfi{%
1089         \@ifnextspace{\hskipo.2em␣pluso.1em\relax
\pauzacore 1090           \pauzacore\hskip.2em␣pluso.1em\relax\ignorespaces}%
1091         {\pauzacore\penalty\hyphenpenalty\hskip\z@}}%
1092       \else
```

According to *Instrukcja technologiczna. Skład ręczny i maszynowy* the dialogue dash should be followed by a rigid hskip of ½ em.

```
1093       \leavevmode\pauzacore\penalty10000\hskipo,5em\ignorespaces
1094     \fi}%
```

The next command's name consists of letters and therefore it eats any spaces following it, so `\@ifnextspace` would always be false.

```
\pauza 1095   \DeclareRobustCommand*\pauza{%
1096     \ifhmode
1097       \unskip\penalty10000
1098       \hskipo.2em␣pluso.1em\relax
1099       \pauzacore\hskip.2em␣pluso.1em\relax\ignorespaces%
1100     \else
```

According to *Instrukcja technologiczna. Skład ręczny i maszynowy* the dialogue dash should be followed by a rigid hskip of ½ em.

```
1101       \leavevmode\pauzacore\penalty10000\hskipo,5em\ignorespaces
1102     \fi}%
```

And a version with no space at the left, to begin a `\noindent` paragraph or a dialogue in quotation marks:

```
\lpauza 1103   \DeclareRobustCommand*\lpauza{%
1104     \pauzacore\hskip.2em␣pluso.1em\ignorespaces}%
```

We define \ppauza as an en dash surrounded with thin stretchable spaces and sticking to the upper line or bare but discretionary depending on the next token being space$_{10}$. Of course you'll never get such a space after a literal CS so an explicit \ppauza will always result with a bare discretionary en dash, but if we \let-\ppauza…

```
\-  \DeclareRobustCommand*\-{%
      \ifvmode␣␣␣␣\PackageError{gmutils}{%
        command␣\bslash␣ppauza␣(en␣dash)␣not␣intended␣for␣vmode.}{%
        Use␣\bslash␣ppauza␣(en␣dash)␣only␣in␣number␣and␣numeral␣
            ranges.}%
      \else
        \afterfi{%
          \@ifnextspace{\unskip\penalty10000\hskipo.2em␣pluso.1em%
              \relax
            -\hskip.2em␣pluso.1em\ignorespaces}{\unskip%
                \discretionary{-}{-}{-}}}%
      \fi}%
\ppauza  \DeclareRobustCommand*\ppauza{%
      \ifvmode␣␣␣␣\PackageError{gmutils}{%
        command␣\bslash␣ppauza␣(en␣dash)␣not␣intended␣for␣vmode.}{%
        Use␣\bslash␣ppauza␣(en␣dash)␣only␣in␣number␣and␣numeral␣
            ranges.}%
      \else
        \unskip\discretionary{-}{-}{-}%
      \fi}%
\emdash  \def\emdash{\char`\—}
}% of at begin document
\longpauza  \def\longpauza{\def\pauzacore{—}}
\pauzacore  \longpauza
\shortpauza  \def\shortpauza{%
\pauzacore    \def\pauzacore{-\kern.23em\relax\llap{-}}}
\fi% of if XeTeX.
```

If you have all the three dashes on your keyboard (as I do), you may want to use them for short instead of \pauza, \ppauza and \dywiz. The shortest dash is defined to be smart in math mode and result with −.

```
\ifdefined\XeTeXversion
\foone{\catcode`—\active␣\catcode`-\active␣\catcode`-\active}{%
\adashes  \def\adashes{\AtBeginDocument\adashes}% because \pauza is defined at
            begin document.
\adashes  \AtBeginDocument{\def\adashes{%
            \catcode`—\active␣\let—\—%
            \catcode`-\active␣\let-\-%
}}}
\else
\relaxen\adashes
\fi
```

The hyphen shouldn't be active IMO because it's used in TEX control such as \hskip-2pt. Therefore we provide the \ahyphen declaration reluctanly, because sometimes we need it and always use it with caution. Note that my active hyphen in vertical and math modes expands to -$_{12}$.

```
\gmu@dywiz  \def\gmu@dywiz{\ifmmode-\else
              \ifvmode-\else\afterfifi\dywiz\fi\fi}%
```

```
\foone{\catcode`-\active}{%
\ahyphen   \def\ahyphen{\let-\gmu@dywiz\catcode`\-\active}}
```

To get current time. Works in ε-TEXs, icluding XETEX.

```
\czas      \newcommand*\czas[1][.]{%
             \the\numexpr(\time-30)/60\relax#1%
             \@tempcnta=\numexpr\time-(\time-30)/60*60\relax
             \ifnum\@tempcnta<10␣0\fi\the\@tempcnta}
```

To push the stuff up to the header and have the after heading skip after the stuff

```
\przeniesvskip \long\def\przeniesvskip#1{%
             \edef\gmu@LastSkip{\the\lastskip}%
             \vskip-\gmu@LastSkip\relax
             \vspace*{osp}%
             #1\vskip\gmu@LastSkip\relax}
\textbullet  \@ifXeTeX{\chardef\textbullet="2022␣}{\def\textbullet{$\bullet$}}
tytulowa     \newenvironment*{tytulowa}{\newpage}{\par\thispagestyle{empty}%
                 \newpage}
```

Nazwisko na stronę redakcyjną

```
\nazwired  \def\nazwired{\quad\textsc}
```

Settings for mathematics in main font

I used this terrible macros while typesetting E. Szarzyński's *Letters* in 2008.

```
\gmath     \def\gmath{%
             \def\do##1{\edef##1{{\@nx\mathit{\@xa\@gobble\string##1}}}}%
             \do\A␣\do\a␣\do\B␣\do\b␣\do\c␣\do\C\do\d␣\do\D␣\do\e␣\do\E\do\f
             \do\F\do\g\do\G␣\do\i\do\I␣\do\j\do\J␣\do\k\do\K␣\do\l␣\do\L␣%
                 \do\m
             \do\M␣\do\n␣\do\N␣\do\P␣\do\p␣\do\q␣\do\Q␣\do\R␣\do\r
             \let\sectionsign\S␣\do\S␣\do\s␣\do\T␣\do\t␣\do\u␣\do\U␣\do\v%
                 \do\V
             \do\w␣\do\W␣\do\x␣\do\X␣\do\Y␣\do\y␣\do\z\do\Z
             \def\do##1{\edef##1{{\@nx\mathrm{\@xa\@gobble\string##1}}}}%
             \do\0\do\1\do\2\do\3\do\4\do\5\do\6\do\7\do\8\do\9%
             \relaxen\do
             \newcommand*\do[4][\mathit]{\def##2{##3{##1{\char"##4}}}}%
             \do\alpha{}{03B1}%
             \do[\mathrm]\Delta{}{0394}%
             \do\varepsilon{}{03B5}%
             \do\vartheta{}{03D1}%
             \do\nu{}{03BD}%
             \do\pi{}{03C0}%
             \do\phi{}{03D5}%
             \do[\mathrm]\Phi{}{0424}%
             \do\sigma{}{03C3}%
             \do\varsigma{}{03DA}%
             \do\psi{}{03C8}%
             \do\omega{}{03C9}%
             \do\infty{}{221E}%
             \do[\mathrm]\neg{\mathbin}{00AC}%
```

```
  \do[\mathrm]\neq{\mathrel}{2260}%
  \do\partial{}{2202}%
  \do[\mathrm]\pm{}{00B1}%
  \do[\mathrm]\pm{\mathbin}{00B1}%
  \do[\mathrm]\sim{\mathrel}{007E}%
  \def\do##1##2##3{\def##1{%
\mathop      \mathop{\mathchoice{\hbox{%
               \rm
               \edef\gma@tempa{\the\fontdimen8\font}%
             \larger[3]%
             \lower\dimexpr(\fontdimen8\font-\gma@tempa)/2␣%
             \hbox{##2}}}{\hbox{%
             \rm
             \edef\gma@tempa{\the\fontdimen8\font}%
             \larger[2]%
             \lower\dimexpr(\fontdimen8\font-\gma@tempa)/2␣%
             \hbox{##2}}}%
           {\mathrm{##2}}{\mathrm{##2}}}##3}}%
  \do\sum{\char"2211}{}%
  \do\forall{\gma@quantifierhook␣\rotatebox[origin=c]{180}{A}%
    \setboxo=\hbox{A}\setbox2=\hbox{\scriptsize␣x}%
    \kern\dimexpr\ht2/3*2␣-\wdo/2\relax}{\nolimits}%
  \do\exists{\rotatebox[origin=c]{180}{\gma@quantifierhook␣E}}%
       \nolimits%
  \def\do##1##2##3{\def##1{##3{%
\mathchoice      \mathchoice{\hbox{\rm##2}}{\hbox{\rm##2}}%
         {\hbox{\rm\scriptsize##2}}{\hbox{\rm\tiny##2}}}}}%
    \do\vee{\rotatebox[origin=c]{90}{<}}\mathbin
    \do\wedge{\rotatebox[origin=c]{-90}{<}}\mathbin
    \do\leftarrow{\char"2190}\mathrel
    \do\rightarrow{\char"2192}\mathrel
    \do\leftrightarrow{\char"2190\kern-0,1em␣\char"2192}\mathrel
   \def\do##1##2##3{%
     \catcode`##1=12\relax
     \scantokens{\mathcode`##1="8000\relax
       \foone{\catcode`##1=\active}{\def##1}{##3{%
\mathchoice          \mathchoice{\hbox{\rm##2}}{\hbox{\rm##2}}%
             {\hbox{\rm\scriptsize##2}}{\hbox{\rm\tiny##2}}}}%
       \ignorespaces}}% to eat the lineend (scantokens acts as \read icluding
                        line end.
   \do..\mathpunct␣␣\do,,\mathpunct␣␣\do……\mathpunct
   \do((\mathopen
   \@ifundefined{resetMathstrut@}{}{% an error occured 'bad mathchar etc.'
        because amsmath.sty doesn't take account of a possibility of ( ) being math-
        active.
\resetMathstrut@     \def\resetMathstrut@{%
       \setbox\z@\hbox{%
%% \mathchardef\@tempa\mathcode`\(\relax%% \def\@tempb##1"##2##3{%
\the\textfont"##3\char"}%%% \expandafter\@tempb\meaning\@tempa \relax
         (}%
       \ht\Mathstrutbox@\ht\z@␣\dp\Mathstrutbox@\dp\z@
     }}%
```

```
    \do))\mathclose
    \do[[\mathopen\do]]\mathclose
    \do-{\char"2212}\mathbin␣␣\do++\mathbin␣␣\do==\mathrel␣␣\do××%
         \mathbin
    \do::\mathbin␣␣\do··\mathbin␣␣\do//\mathbin␣\do<<\mathrel
    \do>>\mathrel
    \def\do##1##2##3{\def##1####1{##2{\hbox{%
            \rm
            \setboxo=\hbox{####1}%
            \edef\gma@tempa{\the\hto}%
            \edef\gma@tempb{\the\dpo}%
            ##3%
            \setboxo=\hbox{####1}%
            \lower\dimexpr(\hto␣+␣\dpo)/2-\dpo␣-((\gma@tempa+%
                 \gma@tempb)/2-\gma@tempb)␣%
            \boxo}}}}%
  \do\bigl\mathopen\larger
  \do\bigr\mathclose\larger
  \do\Bigl\mathopen\largerr
  \do\Bigr\mathclose\largerr
  \do\biggl\mathopen{\larger[3]}%
  \do\biggr\mathclose{\larger[3]}%
  \do\Biggl\mathopen{\larger[4]}%
  \do\Biggr\mathclose{\larger[4]}%
  \def\do##1##2{\def##1{\ifmmode##2{\mathchoice
        {\hbox{\rm\char`##1}}{\hbox{\rm\char`##1}}%
        {\hbox{\rm\scriptsize\char`##1}}{\hbox{\rm\tiny%
             \char`##1}}}%
    \else\char`##1\fi}}%
\StoreMacros{\{\}}%
  \do\{\mathopen
  \do\}\mathclose
  \def\={\mathbin{=}}%
\neqb  \def\neqb{\mathbin{\neq}}%
  \def\do##1{\edef\gma@tempa{%
\@xa       \def\@xa\@nx\csname␣\@xa\gobble\string##1r\endcsname{%
         \@nx\mathrel{\@nx##1}}}%
    \gma@tempa}%
  \do\vee␣\do\wedge␣\do\neg
\fakern  \def\fakern{\mkern-3mu}%
  \thickmuskip=8mu␣plus␣4mu\relax
  \gma@gmathhook
}% of def gmath
\emptify\gma@quantifierhook
\quantifierhook \def\quantifierhook#1{%
\gma@quantifierhook   \def\gma@quantifierhook{#1}}
\emptify\gma@gmathhook
\gmathhook \def\gmathhook#1{\addtomacro\gma@gmathhook{#1}}
\gma@dollar \def\gma@dollar$#1${{\gmath$#1$}}%
\gma@bare \def\gma@bare#1{\gma@dollar$#1$}%
\gma@checkbracket \def\gma@checkbracket{\@ifnextchar\[%
```

```
  \gma@bracket\gma@bare}
\def\gma@bracket\[#1\]{{\gmath\[#1\]}\@ifnextchar\par{}{%
    \noindent}}
\def\gma{\@ifnextchar$%
  \gma@dollar\gma@checkbracket}
\def\garamath{%
  \quantifierhook{\addfontfeature{OpticalSize=800}}%
  \def\gma@arrowdash{{%
      \setboxo=\hbox{\char"2192}\copyo\kern-0,6\wdo
      \bgcolor\rule[-\dpo]{0,6\wdo}{\dimexpr\hto+\dpo}\kern-0,6%
          \wdo}}%
\def\gma@gmathhook{%
  \def\do####1####2####3{\def####1{####3{%
      \mathchoice{\hbox{\rm####2}}{\hbox{\rm####2}}%
      {\hbox{\rm\scriptsize####2}}{\hbox{\rm\tiny####2}}}}}%
  \do\mapsto{\rule[0,4ex]{0,1ex}{0,4ex}\kern-0,05em%
    \gma@arrowdash\kern-0,05em\char"2192}\mathrel
  \do\cup{\scshape␣u}\mathbin
  \do\varnothing{\setboxo=\hbox{\gma@quantifierhook%
      \addfontfeature{Scale=1.272727}0}%
    \setbox2=\hbox{\char"2044}%
    \copyo␣\kern-0,5\wdo␣\kern-0,5\wd2␣\lowero,125\wdo␣\copy2
    \kerno,5\wdo\kern-0,5\wd2}{}%
  \do\leftarrow{\char"2190\kern-0,05em\gma@arrowdash}\mathrel
  \do\rightarrow{\gma@arrowdash\kern-0,05em\char"2192}\mathrel
  \do\in{\gma@quantifierhook\char"0454}\mathbin
}}
```

Typesetting dates in my memoirs

A date in the YYYY-MM-DD format we'll transform into DD mmmm YYYY format or we'll just typeset next two tokens/{...} if the arguments' string begins with --. The latter option is provided to preserve compatibility with already used macros and to avoid a starred version of \thedate and the same time to be able to turn \datef off in some cases (for SevSev04.tex).

```
\newcommand*\polskadata{%
  \def\datef##1-##2-##3##4{%
    \if\relax##2\relax##3##4%
    \else
    \ifnum##3##4=0\relax
    \else
      \ifnum##3=0\relax
      \else##3%
      \fi##4%
    \fi
    \ifcase##2\relax\or\ stycznia\or\ lutego%
      \or\ marca\or\ kwietnia\or\ maja\or\ czerwca\or\ lipca\or%
          \ sierpnia%
      \or\ września\or\ października\or\ listopada\or\ grudnia%
          \else
      {}%
```

```
    \fi
    \if\relax##1\relax\else\ \fi␣##1%
  \fi}%
\datefsl \def\datefsl##1/##2/##3##4{%
  \if\relax##2\relax##3##4%
  \else
    \ifnum##3##4=0\relax
    \else
      \ifnum##3=0\relax
      \else##3%
      \fi##4%
    \fi
    \ifcase##2\relax\or\ stycznia\or\ lutego%
      \or\ marca\or\ kwietnia\or\ maja\or\ czerwca\or\ lipca\or%
          \ sierpnia%
      \or\ września\or\ października\or\ listopada\or\ grudnia%
          \else
      {}%
    \fi
    \if\relax##1\relax\else\ \fi␣##1%
  \fi}%
}% of \polskadata
\polskadata
```

For documentation in English:

```
\englishdate \newcommand*\englishdate{%
  \datef \def\datef##1-##2-##3##4{%
    \if\relax##2\relax##3##4%
    \else
      \ifcase##2\relax\or␣January\or␣February%
        \or␣March\or␣April\or␣May\or␣June\or␣July\or␣August%
        \or␣September\or␣October\or␣November\or␣December\else
        {}%
      \fi
      \ifnum##3##4=0\relax
      \else
        \ %
        \ifnum##3=0\relax
        \else##3%
        \fi##4%
        \ifcase##3##4\relax\or␣st\or␣nd\or␣rd\else␣th\fi
      \fi
      \if\relax##1\relax\else,\ \fi␣##1%
    \fi
  }%
  \datefsl \def\datefsl##1/##2/##3##4{%
    \if\relax##2\relax##3##4%
    \else
      \ifcase##2\relax\or␣January\or␣February%
        \or␣March\or␣April\or␣May\or␣June\or␣July\or␣August%
        \or␣September\or␣October\or␣November\or␣December\else
        {}%
      \fi
```

```
      \ifnum##3##4=0\relax
      \else
        \ %
        \ifnum##3=0\relax
        \else##3%
        \fi##4%
        \ifcase##3##4\relax\or␣st\or␣nd\or␣rd\else␣th\fi
      \fi
      \if\relax##1\relax\else,\ \fi␣##1%
    \fi
  }%
}
```

\ifgmu@dash
```
\newif\ifgmu@dash
```

\gmu@ifnodash
```
\def\gmu@ifnodash#1-#2\@@nil{%
  \def\@tempa{#2}%
  \ifx\@tempa\@empty}
```

\gmu@testdash
```
\def\gmu@testdash#1\ifgmu@dash{%
  \gmu@ifnodash#1-\@@nil
    \gmu@dashfalse
  \else
    \gmu@dashtrue
  \fi
  \ifgmu@dash}
```

A word of explanation to the above pair of macros. \gmu@testdash sets \iftrue the \ifgmu@dash switch if the argument contains an explicit -. To learn it, an auxiliary \gmu@ifdash macro is used that expands to an open (un\fied) \ifx that tests whether the dash put by us is the only one in the argument string. This is done by matching the parameter string that contains a dash: if the investigated sequence contains (another) dash, #2 of \gmu@ifdash becomes the rest of it and the 'guardian' dash put by us so then it's nonempty. Then #2 is took as the definiens of \@tempa so if it was empty, \@tempa becomesx equal \@empty, otherwise it isx not.

Why don't we use just \gmu@ifdash? Because we want to put this test into another \if.... A macro that doesn't *mean* \if... wouldn't match its \else nor its \fi while TEX would skip the falsified branch of the external \if... and that would result in the 'extra \else' or 'extra \fi' error.

Therefore we wrap the very test in a macro that according to its result sets an explicit Boolean switch and write this switch right after the testing macro. (Delimiting \gmu@testdash'es parameter with this switch is intended to bind the two which are not one because of TEXnical reasons only.

Warning: this pair of macros may result in 'extra \else/extra \fi' errors however, if \gmu@testdash was \expandaftered.

Dates for memoirs to be able to typeset them also as diaries.

\ifdate
```
\newif\ifdate
%\newcounter{dateinsection}[section]
```

\data
```
\newcommand*{\data}[1]{%
  \ifdate\gmu@testdash#1\ifgmu@dash\datef#1\else\datefsl#1\fi\fi}
```

\linedate
```
\newcommand*{\linedate}[1]{\par\ifdate\addvspace{\dateskip}%
  \date@line{\footnotesize\itshape␣\date@biway{#1}}%
  \nopagebreak\else%%\ifnum\arabic{dateinsection}>0\dekbigskip\fi
```

```
    \addvspace{\bigskipamount}%
    \fi}% end of \linedate.
\let\dateskip\medskipamount
\date@biway \def\date@biway#1{%
    \gmu@testdash#1\ifgmu@dash\datef#1\else\datefsl#1\fi}
    \rdate \newcommand*\rdate[1]{\let\date@line\rightline␣\linedate{#1}}
    \ldate \newcommand*\ldate[1]{\let\date@line\leftline␣\linedate{#1}}
\runindate \newcommand*\runindate[1]{%
    \paragraph{\footnotesize\itshape␣\datef#1\@@nil}\stepcounter{%
        dateinsection}}
```

I'm not quite positive which side I want the date to be put to so let's `let` for now and we'll be able to change it in the very documents.

```
\let\thedate\ldate
```

```
\zwrobcy \DeclareRobustCommand*\zwrobcy[1]{\emph{#1}}␣% ostinato, allegro con moto,
        garden party etc., także kompliment
```

```
\tytul \DeclareRobustCommand*\tytul[1]{\emph{#1}}
```

Maszynopis w świecie justowanym zrobi delikatną chorągiewkę.

```
maszynopis \newenvironment{maszynopis}[1][]{#1\ttfamily
    \hyphenchar\font=45\relax% to przypisanie jest globalne do fontu.
    \@tempskipa=\glueexpr\rightskip+\leftskip\relax
    \ifdim\gluestretch\@tempskipa=\z@
    \tolerance900
```

sprawdziło się przy tolerancji 900

```
    \advance\rightskip␣by\z@␣pluso,5em\relax\fi
    \fontdimen3\font=\z@% zabraniamy rozciągania odstępów, ale % \fontdimen4%
        \font=\z@ dopuszczamy ich skurczenie
    \hyphenpenalty0␣% żeby nie stresować TEXa: w maszynopisie ten wspaniały al-
        gorytm dzielenia akapitu powinien być wyłączony, a każdy wiersz łamany
        na ostatnim dopuszczalnym miejscu przełamania.
    \StoreMacro\pauzacore
\pauzacore \def\pauzacore{-\rlap{\kern-0,3em-}-}%
}{\par}
```

```
\justified \newcommand*\justified{%
    \leftskip=1\leftskip% to preserve the natural length and discard stretch and
        shrink.
    \rightskip=1\rightskip
    \parfillskip=1\parfillskip
    \advance\parfillskip␣by␣0sp␣plus␣1fil\relax
    \let\\\@normalcr}
```

For dati under poems.

```
\wherncore \newcommand\wherncore[1]{%
    \rightline{%
    \parbox{0,7666\textwidth}{
      \leftskipposp␣plus␣\textwidth
      \parfillskipposp\relax
      \let\\\linebreak
      \footnotesize␣#1}}}
```

```
\whern 1425 \newcommand\whern[1]{%
1426   \vskip\whernskip
1427   \wherncore{#1}}
\whernskip 1428 \newskip\whernskip
1429 \whernskip2\baselineskip␣minus␣2\baselineskip\relax
\whernup 1430 \newcommand\whernup[1]{\par\wherncore{#1}}
```

Minion and Garamond Premier kerning and ligature fixes

„Ws" nie będzie robiło długiego „s", bo źle wygląda przy „W"

```
\Ws 1431 \DeclareRobustCommand*\Ws{W\kern-0,08em\penalty10000\hskiposp%
         \relax
1432   s\penalty10000\hskiposp\relax}
\Wz 1433 \DeclareRobustCommand*\Wz{W\kern-0,05em\penalty10000\hskiposp%
         \relax␣z}
1434 \endinput
```

d. The gmiflink Package[1]

Written by Grzegorz 'Natror' Murzynowski,
natror at o2 dot pl


```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmiflink}
      [2006/08/16␣v0.97␣Conditionally␣hyperlinking␣package␣(GM)]
```

Introduction, usage

This package protects you against an error when a link is dangling and typesets some plain text instead of a hyperlink then. It is intended for use with the hyperref package. Needs *two* LaTeX runs.

I used it for typesetting the names of the objects in a documentation of a computer program. If the object had been defined a `\hyperlink` to its definition was made, otherwise a plain object's name was typeset. I also use this package in authomatic making of hyperlinking indexes.

The package provides the macros `\gmiflink`, `\gmifref` and `\gmhypertarget` for conditional making of hyperlinks in your document.

\gmhypertarget `\gmhypertarget[⟨name⟩]{⟨text⟩}` makes a `\hypertarget{⟨@name⟩}{⟨text⟩}` and a `\label{⟨@name⟩}`.

\gmiflink `\gmiflink[⟨name⟩]{⟨text⟩}` makes a `\hyperlink{⟨@name⟩}{⟨text⟩}` to a proper hypertarget if the corresponding *label* exists, otherwise it typesets ⟨*text*⟩.

\gmifref `\gmifref[⟨name⟩]{⟨text⟩}` makes a (hyper-) `\ref{⟨@name⟩}` to the given label if the label exists, otherwise it typesets ⟨*text*⟩.

The ⟨*@name*⟩ argument is just ⟨*name*⟩ if the ⟨*name*⟩ is given, otherwise it's ⟨*text*⟩ in all three macros.

For the example(s) of use, examine the gmiflink.sty file, lines 45–58.

The remarks about installation and compiling of the documentation are analogous to those in the chapter gmdoc.sty and therefore ommitted.

Contents of the gmiflink.zip archive

The distribution of the gmiflink package consists of the following three files and a TDS-compliant archive.

gmiflink.sty
README

[1] This file has version number v0.97 dated 2006/08/16.

gmiflink.pdf
gmiflink.tds.zip

The Code

```
\@ifpackageloaded{hyperref}{}{\message␣{^^J^^J␣gmiflink␣package:
    There's␣no␣use␣of␣me␣without␣hyperref␣package,␣I␣end␣my␣
        input.^^J}\endinput}
\providecommand\empty{}
```

A new counter, just in case

GMhlabel
```
\newcounter{GMhlabel}
\setcounter{GMhlabel}{0}
```

The macro given below creates both hypertarget and hyperlabel, so that you may reference both ways: via `\hyperlink` and via `\ref`. It's pattern is the `\label` macro, see LaTeX Source2e, file x, line 32.

But we don't want to gobble spaces before and after. First argument will be a name of the hypertarget, by default the same as typeset text, i.e., argument #2.

\gmhypertarget
```
\DeclareRobustCommand*\gmhypertarget{%
  \@ifnextchar{[}{\gm@hypertarget}{\@dblarg{\gm@hypertarget}}}
```

\gm@hypertarget
```
\def\gm@hypertarget[#1]#2{% If argument #1 = \empty, then we'll use #2, i.e.,
      the same as name of hypertarget.
  \refstepcounter{GMhlabel}% we \label{\gmht@firstpar}
  \hypertarget{#1}{#2}%
  \protected@write\@auxout{}{%
    \string\newlabel{#1}{{#2}{\thepage}{\relax}{GMhlabel.%
        \arabic{GMhlabel}}{}}}%
}% end of \gm@hypertartget.
```

We define a macro such that if the target exists, it makes `\ref`, else it typesets ordinary text.

\gmifref
```
\DeclareRobustCommand*\gmifref{\@ifnextchar{[}{\gm@ifref}{%]
    \@dblarg{\gm@ifref}}}
```

\gm@ifref
```
\def\gm@ifref[#1]#2{%
  \expandafter\ifx\csname␣r@#1\endcsname\relax\relax%
  #2\else\ref{#1}\fi%
}% end of \gm@ifref
```

\gmiflink
```
\DeclareRobustCommand*\gmiflink{\@ifnextchar{[}{\gm@iflink}{%
    \@dblarg{\gm@iflink}}}
```

\gm@iflink
```
\def\gm@iflink[#1]#2{%
  \expandafter\ifx\csname␣r@#1\endcsname\relax\relax%
  #2\else\hyperlink{#1}{#2}\fi%
}% end of \gm@iflink
```

It's robust because when just `\newcommand*`ed, use of `\gmiflink` in an indexing macro resulted in errors: `\@ifnextchar` has to be `\noexpanded` in `\edefs`.

```
\endinput
```

The old version — all three were this way primarily.

```
\newcommand*\gmiflink[2][\empty]{{%
  \def\gmht@test{\empty}\def\gmht@firstpar{#1}%
```

```
  \ifx\gmht@test\gmht@firstpar\def\gmht@firstpar{#2}\fi%
  \expandafter\ifx\csname r@\gmht@firstpar\endcsname\relax\relax%
  #2\else\hyperlink{\gmht@firstpar}{#2}\fi%
}}
```

e. The gmverb Package[1]

August 6, 2008

This is (a documentation of) file gmverb.sty, intended to be used with LaTeX 2ε as a package for a slight redefinition of the `\verb` macro and `verbatim` environment and for short verb marking such as `|\mymacro|`.

Written by Natror (Grzegorz Murzynowski),
natror at o2 dot pl

Many thanks to my TeX Guru Marcin Woliński for his TeXnical support.

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmverb}
    [2008/08/06 v0.87 After shortvrb (FM) but my way (GM)]
```

Intro, Usage

This package redefines the `\verb` command and the `verbatim` environment so that the verbatim text can break into lines, with % (or another character chosen to be the comment char) as a 'hyphen'. Moreover, it allows the user to define her own `verbatim`-like environments provided their contents would be not *horribly* long (as long as a macro's argument may be at most).

This package also allows the user to declare a chosen char(s) as a 'short verb' e.g., to write `|\a\verbatim\example|` instead of `\verb|\a\verbatim\example|`.

The gmverb package redefines the `\verb` command and the `verbatim` environment in such a way that , { and \ are breakable, the first with no 'hyphen' and the other two with the comment char as a hyphen. I.e. {⟨*subsequent text*⟩} breaks into {%
⟨*subsequent text*⟩} and ⟨*text*⟩`\mymacro` breaks into ⟨*text*⟩%
`\mymacro`.

`\fixbslash` (If you don't like linebreaking at backslash, there's the `\fixbslash` declaration (observing the common scoping rules, hence OCSR) and an analogous declaration for the `\fixlbrace` left brace: `\fixlbrace`.)

The default 'hyphen' is % since it's the default comment char. If you wish another `\VerbHyphen` char to appear at the linebreak, use the `\VerbHyphen` declaration that takes \⟨*char*⟩ as the only argument. This declaration is always global.

`\verbeolOK` Another difference is the `\verbeolOK` declaration (OCSR). Within its scope, `\verb` allows an end of a line in its argument and typesets it just as a space.

[1] This file has version number v0.87 dated 2008/08/06.

As in the standard version(s), the plain `\verb` typesets the spaces blank and `\verb*` makes them visible.

\MakeShortVerb Moreover, gmverb provides the `\MakeShortVerb` macro that takes a one-char control sequence as the only argument and turns the char used into a short verbatim delimiter, e.g., after `\MakeShortVerb*\|` (as you guess, the declaration has its starred version, which is for visible spaces, and the non-starred for the spaces blank) you may type `|% \mymacro|` to get `\mymacro` instead of typing `\verb+\mymacro+`. Because the char used in this example is my favourite and used just this way by DEK in the *The TEXbook*'s
\dekclubs format, gmverb provides a macro `\dekclubs` as a shorthand for `\MakeShortVerb*\|`.

Be careful because such active chars may interfere with other things, e.g., the `|` with the vertical marker in tables and with the tikz package. If this happens, you can declare
\DeleteShortVerb e.g., `\DeleteShortVerb\|` and the previous meaning of the char used shall be restored.

One more difference between gmverb and shortvrb is that the chars `\activeated` by `\MakeShortVerb` in the math mode behave as if they were 'other', so you may type e.g., `$|$` to get | and + `\activeated` this way is in the math mode typeset properly etc.

\OldMakeShortVerb However, if you don't like such a conditional behaviour, you may use `\OldMakeShortVerb` instead, what I do when I like to display short verbatims in displaymath.

\dekclubs There's one more declaration provided by gmverb: `\dekclubs`, which is a shorthand
\dekclubs* for `\MakeShortVerb\|` and `\dekclubs*` for `\OldMakeShortVerb\|`.

So that, after the latter declaration, you can write

`\[|`⟨*verbatim stuff*⟩`|\]`

instead of

`\[\hbox{|`⟨*the stuff*⟩`|}\]`

to get a displayed shortverb.

Both versions of `\dekclubs` OCSR.

The `verbatim` environment inserts `\topsep` before and after itself, just as in standard version (as if it was a `list`).

As many good packages, this also does not support any options.

The remarks about installation and compiling of the documentation are analogous to those in the chapter gmdoc.sty and therefore ommitted.

Contents of the gmverb.zip Archive

The distribution of the gmverb package consists of the following three files and a TDS-compliant archive.

gmverb.sty
README
gmverb.pdf
gmverb.tds.zip

This package requires another package of mine, gmutils, also available on CTAN.

The Code

Preliminaries

```
4 \RequirePackage{gmutils}[2008/08/06]
```

For `\firstofone`, `\afterfi`, `\gmobeyspaces`, `\@ifnextcat`, `\foone` and `\noexpand`'s and `\expandafter`'s shorthands `\@nx` and `\@xa` resp.

Someone may want to use another char for comment, but we assume here 'orthodoxy'. Other assumptions in gmdoc are made. The 'knowledge' what char is the comment char is used to put proper 'hyphen' when a `verbatim` line is broken.

\verbhyphen
```
\let\verbhyphen\xiipercent
```

Provide a declaration for easy changing it. Its argument should be of \⟨*char*⟩ form (of course, a ⟨*char*⟩$_{12}$is also allowed).

\VerbHyphen
```
\def\VerbHyphen#1{%
  {\escapechar\m@ne
    \@xa\gdef\@xa\verbhyphen\@xa{\string#1}}}
```

As you see, it's always global.

The Breakables

Let's define a `\discretionary` left brace such that if it breaks, it turns {% at the end of line. We'll use it in almost Knuthian `\ttverbatim`—it's part of this 'almost'.

\breaklbrace
```
\def\breaklbrace{%
  \discretionary{\xiilbrace\verbhyphen}{}{\xiilbrace}}
\foone{\catcode`\[=1␣\catcode`\{=\active␣\catcode`\]=2␣}%
[%
```
\dobreaklbrace
```
   \def\dobreaklbrace[\catcode`\{=\active
   \def{%
```
\breaklbrace
```
     [\breaklbrace\gm@lbracehook]]%
]
```

Now we only initialize the hook. Real use of it will be made in gmdoc.

```
\relaxen\gm@lbracehook
```

The `\bslash` macro defined below I use also in more 'normal' TEXing, e.g., to `\typeout` some `\outer` macro's name.

```
\foone{\catcode`\!=0␣\@makeother\\}%
{%
```
\bslash
```
  !def!bslash{\}%
```
\breakbslash
```
  !def!breakbslash{!discretionary{!verbhyphen}{\}{\}}%
}
```

Sometimes linebreaking at a backslash may be unwelcome. The basic case, when the first CS in a verbatim breaks at the lineend leaving there %, is covered by line 183. For the others let's give the user a countercrank:

\fixbslash
`\newcommand*\fixbslash{\let\breakbslash=\bslash}` to use due to the common scoping rules. But for the special case of a backslash opening a verbatim scope, we deal specially in the line 183.

Analogously, let's provide a possibility of 'fixing' the left brace:

\fixlbrace
```
\newcommand*\fixlbrace{\let\breaklbrace=\xiilbrace}
\foone{\catcode`\!=0␣\catcode`\\=\active}%
{%
```
\dobreakbslash
```
  !def!dobreakbslash{!catcode`!\=!active␣!def\{!breakbslash}}%
```
\breakbslash
```
}
```

The macros defined below, `\visiblebreakspaces` and `\xiiclub` we'll use in the almost Knuthian macro making verbatim. This 'almost' makes a difference.

```
\foone{\catcode`\ =12␣}% note this space is 10 and is gobbled by parsing the
      number. \visiblespace is \let in gmutils to \xiispace or \xxt@visiblespace
      of xltxtra if available.
\def\breakablevisspace{\discretionary{\visiblespace}{}{%
      \visiblespace}}
\foone\obeyspaces% it's just re\catcode'ing.
{%
\newcommand*\activespace{␣}%
\newcommand*\dobreakvisiblespace{\def␣{\breakablevisspace}\obeyspaces}%
      % \defing it caused a stack overflow disaster with gmdoc.
\newcommand*\dobreakblankspace{\let␣=\space\obeyspaces}%
}
\bgroup\@makeother\|
\firstofone{\egroup\def\xiiclub{|}}
```

Almost-Knuthian `\ttverbatim`

`\ttverbatim` comes from *The TEXbook* too, but I add into it a LaTeX macro changing the `\catcode`s and make spaces visible and breakable and left braces too.

```
\newcommand*\ttverbatim{%
  \let\do=\do@noligs␣\verbatim@nolig@list
  \let\do=\@makeother␣\dospecials
  \dobreaklbrace\dobreakbslash
  \dobreakspace
  \tt
  \ttverbatim@hook}
```

While typesetting stuff in the QX fontencoding I noticed there were no spaces in verbatims. That was because the QX encoding doesn't have any reasonable char at position 32. So we provide a hook in the very core of the verbatim making macros to set proper fontencoding for instance.

```
\@emptify\ttverbatim@hook
\def\VerbT1{\def\ttverbatim@hook{\fontencoding{T1}\selectfont}}
```

We wish the visible spaces to be the default.

```
\let\dobreakspace=\dobreakvisiblespace
```

The Core: From shortvrb

The below is copied verbatim ;-) from doc.pdf and then is added my slight changes.

```
\def\MakeShortVerb{%
  \@ifstar
  {\def\@shortvrbdef{\verb*}\@MakeShortVerb}%
  {\def\@shortvrbdef{\verb}\@MakeShortVerb}}
\def\@MakeShortVerb#1{%
  \@xa\ifx\csname␣cc\string#1\endcsname\relax
  \@shortvrbinfo{Made␣}{#1}\@shortvrbdef
  \add@special{#1}%
  \AddtoPrivateOthers#1% a macro to be really defined in gmdoc.
  \@xa
  \xdef\csname␣cc\string#1\endcsname{\the\catcode`#1}%
```

```
  \begingroup
  \catcode`\~\active␣\lccode`\~`#1%
  \lowercase{%
    \global\@xa\let
    \csname␣ac\string#1\endcsname~%
    \@xa\gdef\@xa~\@xa{%
      \@xa\ifmmode\@xa\string\@xa~%
      \@xa\else\@xa\afterfi{\@shortvrbdef~}\fi}}% This terrible number
          of \expandafters is to make the shortverb char just other in the math
          mode (my addition).
  \endgroup
  \global\catcode`#1\active
 \else
 \@shortvrbinfo\@empty{#1␣already}{\@empty\verb(*)}%
 \fi}
\DeleteShortVerb \def\DeleteShortVerb#1{%
  \@xa\ifx\csname␣cc\string#1\endcsname\relax
  \@shortvrbinfo\@empty{#1␣not}{\@empty\verb(*)}%
  \else
  \@shortvrbinfo{Deleted␣}{#1␣as}{\@empty\verb(*)}%
  \rem@special{#1}%
  \global\catcode`#1\csname␣cc\string#1\endcsname
  \global␣\@xa\let␣\csname␣cc\string#1\endcsname␣\relax
  \ifnum\catcode`#1=\active
  \begingroup
  \catcode`\~\active␣\lccode`\~`#1%
  \lowercase{%
    \global\@xa\let\@xa~%
    \csname␣ac\string#1\endcsname}%
  \endgroup␣\fi␣\fi}
```

My little addition

```
\@ifpackageloaded{gmdoc}{%
\gmv@packname   \def\gmv@packname{gmdoc}}{%
\gmv@packname   \def\gmv@packname{gmverb}}
\@shortvrbinfo \def\@shortvrbinfo#1#2#3{%
  \PackageInfo{\gmv@packname}{%
   ^^J\@empty␣#1\@xa\@gobble\string#2␣a␣short␣reference
    for␣\@xa\string#3}}
\add@special  \def\add@special#1{%
  \rem@special{#1}%
  \@xa\gdef\@xa\dospecials\@xa
  {\dospecials␣\do␣#1}%
  \@xa\gdef\@xa\@sanitize\@xa
  {\@sanitize␣\@makeother␣#1}}
```

For the commentary on the below macro see the doc package's documentation. Here let's only say it's just amazing: so tricky and wicked use of `\do`. The internal macro `\rem@special` defines `\do` to expand to nothing if the `\do`'s argument is the one to be removed and to unexpandable CSs `\do` and ⟨*`\do`'s argument*⟩ otherwise. With `\do` defined this way the entire list is just globally expanded itself. Analogous hack is done to the `\@sanitize` list.

\rem@special
```
\def\rem@special#1{%
  \def\do##1{%
    \ifnum`#1=`##1␣\else␣\@nx\do\@nx##1\fi}%
  \xdef\dospecials{\dospecials}%
  \begingroup
  \def\@makeother##1{%
    \ifnum`#1=`##1␣\else␣\@nx\@makeother\@nx##1\fi}%
  \xdef\@sanitize{\@sanitize}%
  \endgroup}
```

And now the definition of `verbatim` itself. As you'll see (I hope), the internal macros of it look for the name of the current environment (i.e., `\@currenvir`'s meaning) to set their expectation of the environment's `\end` properly. This is done to allow the user to define his/her own environments with `\verbatim` inside them. I.e., as with the verbatim package, you may write `\verbatim` in the begdef of your environment and then necessarily `\endverbatim` in its enddef. Of course (or *maybe surprisingly*), the commands written in the begdef after `\verbatim` will also be executed at `\begin{`⟨*environment*⟩`}`.

verbatim
\verbatim
```
\def\verbatim{%
  \edef\gmv@hyphenpe{\the\hyphenpenalty}%
  \edef\gmv@exhyphenpe{\the\exhyphenpenalty}%
  \@beginparpenalty␣\predisplaypenalty␣\@verbatim
  \frenchspacing␣\gmobeyspaces␣\@xverbatim
  \hyphenpenalty=\gmv@hyphenpe\relax
  \exhyphenpenalty=\gmv@exhyphenpe
  \hyphenchar\font=\m@ne}% in the LaTeX version there's %\@vobeyspaces instead of %\gmobeyspaces.
```

verbatim*
```
\@namedef{verbatim*}{\@beginparpenalty␣\predisplaypenalty␣%
    \@verbatim
  \@sxverbatim}
```

\endverbatim
```
\def\endverbatim{\@@par
  \ifdim\lastskip␣>\z@
    \@tempskipa\lastskip␣\vskip␣-\lastskip
    \advance\@tempskipa\parskip␣\advance\@tempskipa␣-%
        \@outerparskip
    \vskip\@tempskipa
  \fi
  \addvspace\@topsepadd
  \@endparenv}
```

```
\n@melet{endverbatim*}{endverbatim}
```

```
\begingroup␣\catcode␣`!=0␣%
\catcode␣`[=␣1␣\catcode`]=2␣%
\catcode`\{=\active
\@makeother\}%
\catcode`\\=\active%
```

\@xverbatim
```
!gdef!@xverbatim[%
  !edef!verbatim@edef[%
    !def!noexpand!verbatim@end%
      ####1!noexpand\end!noexpand{!@currenvir}[%
      ####1!noexpand!end[!@currenvir]]]%
  !verbatim@edef
  !verbatim@end]%
!endgroup
```

\@sxverbatim
```
\let\@sxverbatim=\@xverbatim
```
F. Mittelbach says the below is copied almost verbatim from LaTeX source, modulo `\check@percent`.

\@verbatim
```
\def\@verbatim{%
```
Originally here was just `\trivlist \item[]`, but it worked badly in my document(s), so let's take just highlights of if.
```
  \parsep\parskip
```
From `\@trivlist`:
```
  \if@noskipsec␣\leavevmode␣\fi
  \@topsepadd␣\topsep
  \ifvmode
    \advance\@topsepadd␣\partopsep
  \else
    \unskip␣\par
  \fi
  \@topsep␣\@topsepadd
  \advance\@topsep␣\parskip
  \@outerparskip␣\parskip
```
(End of `\trivlistlist` and `\@trivlist` highlights.)
```
  \@@par\addvspace\@topsep
  \if@minipage\else\vskip\parskip\fi
  \leftmargin\parindent% please notify me if it's a bad idea.
  \advance\@totalleftmargin\leftmargin
  \raggedright
  \leftskip\@totalleftmargin% so many assignments to preserve the list
      thinking for possible future changes. However, we may be sure no internal list shall use \@totalleftmargin as far as no inner environments are possible in verbatim(*).
  \@@par% most probably redundant.
  \@tempswafalse
  \def\par{% but I don't want the terribly ugly empty lines when a blank line is met.
      Let's make them gmdoc-like i.e., let a vertical space be added as in between stanzas of poetry. Originally \if@tempswa\hbox{}\fi, in my version will be
    \ifvmode\if@tempswa\addvspace\stanzaskip\@tempswafalse\fi\fi
    \@@par
    \penalty\interlinepenalty␣\check@percent}%
  \everypar{\@tempswatrue\hangindent\verbatimhangindent\hangafter%
      \@ne}% since several chars are breakable, there's a possibility of breaking some lines. We wish them to be hanging indented.
  \obeylines
  \ttverbatim}
```
\stanzaskip
```
\@ifundefined{stanzaskip}{\newlength\stanzaskip}{}
\stanzaskip=\medskipamount
```
\verbatimhangindent
```
\newlength\verbatimhangindent
\verbatimhangindent=3em
```
\check@percent
```
\providecommand*\check@percent{}
```
In the gmdoc package shall it be defined to check if the next line begins with a comment char.

Similarly, the next macro shall in gmdoc be defined to update a list useful to that package. For now let it just gobble its argument.

\AddtoPrivateOthers
```
\providecommand*\AddtoPrivateOthers[1]{}
```

Both of the above are \provided to allow the user to load gmverb after gmdoc (which would be redundant since gmdoc loads this package on its own, but anyway should be harmless).

Let's define the 'short' verbatim command.

\verb*
\verb
```
\def\verb{\relax\ifmmode\hbox\else\leavevmode\null\fi
  \bgroup
  \ttverbatim
  \gm@verb@eol
  \@ifstar{\@sverb@chbsl}{\gmobeyspaces\frenchspacing\@sverb@chbsl}}%
```
in the LaTeX version there's \@vobeyspaces instead of \gmobeyspaces.

\@sverb@chbsl
```
\def\@sverb@chbsl#1{\@sverb#1\check@bslash}
```

\@def@breakbslash
```
\def\@def@breakbslash{\breakbslash}%
```
because \ is \defined as \breakbslash not \let.

For the special case of a backslash opening a (short) verbatim, in which it shouldn't be breakable, we define the checking macro.

\check@bslash
```
\def\check@bslash{\@ifnextchar{\@def@breakbslash}{\bslash%
    \@gobble}{}}
\let\verb@balance@group\@empty
```

\verb@egroup
```
\def\verb@egroup{\global\let\verb@balance@group\@empty\egroup}
```

\gm@verb@eol
```
\let\gm@verb@eol\verb@eol@error
```

The latter is a LaTeX 2_ε kernel macro that \activeates line end and defines it to close the verb group and to issue an error message. We use a separate CS 'cause we are not quite positive to the forbidden line ends idea. (Although the allowed line ends with a forgotten closing shortverb char caused funny disasters at my work a few times.) Another reason is that gmdoc wishes to redefine it for its own queer purpose.

However, let's leave my former 'permissive' definition under the \verb@eol name.

\check@percent
```
\begingroup
\obeylines\obeyspaces%
\gdef\verb@eolOK{\obeylines%
\def^^M{␣\check@percent}%
}%
\endgroup
```

The \check@percent macro here is \provided to be \@empty but in gmdoc employed shall it be.

Let us leave (give?) a user freedom of choice:

\verbeolOK
```
\def\verbeolOK{\let\gm@verb@eol\verb@eolOK}
```

And back to the main matter,

```
\def\@sverb#1{%
  \catcode`#1\active␣\lccode`\~`#1%
  \gdef\verb@balance@group{\verb@egroup
    \@latex@error{Illegal␣use␣of␣\bslash␣verb␣command}\@ehc}%
  \aftergroup\verb@balance@group
  \lowercase{\let~\verb@egroup}}
```

\verbatim@nolig@list
```
\def\verbatim@nolig@list{\do\`\do\<\do\>\do\,\do\'\do\-}
```

\do@noligs
```
\def\do@noligs#1{%
  \catcode`#1\active
  \begingroup
  \lccode`\~=`#1\relax
  \lowercase{\endgroup\def~{\leavevmode\kern\z@\char`#1}}}
```

And finally, what I thought to be so smart and clever, now is just one of many possible uses of a general almost Rainer Schöpf's macro:

\dekclubs
```
\def\dekclubs{\@ifstar{\OldMakeShortVerb\|}{\MakeShortVerb\|}}
```

But even if a shortverb is unconditional, the spaces in the math mode are not printed. So,

\edverbs
```
\newcommand*\edverbs{%
  \let\gmv@dismath\[%
  \let\gmv@edismath\]%
  \def\[{%
    \@ifnextac\gmv@disverb\gmv@dismath}%
  \relaxen\edverbs}%
```

\gmv@disverb
```
\def\gmv@disverb{%
  \gmv@dismath
  \hbox\bgroup\def\]{\egroup\gmv@edismath}}
```

doc- And shortvrb-Compatibility

One of minor errors while TEXing doc.dtx was caused by my understanding of a 'shortverb' char: at my settings, in the math mode an active 'shortverb' char expands to itself's 'other' version thanks to `\string`. doc/shortvrb's concept is different, there a 'shortverb' char should work as usual in the math mode. So let it may be as they wish:

\old@MakeShortVerb
```
\def\old@MakeShortVerb#1{%
  \@xa\ifx\csname␣cc\string#1\endcsname\relax
  \@shortvrbinfo{Made␣}{#1}\@shortvrbdef
  \add@special{#1}%
  \AddtoPrivateOthers#1% a macro to be really defined in gmdoc.
  \@xa
  \xdef\csname␣cc\string#1\endcsname{\the\catcode`#1}%
  \begingroup
  \catcode`\~\active␣\lccode`\~`#1%
  \lowercase{%
    \global\@xa\let\csname␣ac\string#1\endcsname~%
    \@xa\gdef\@xa~\@xa{%
      \@shortvrbdef~}}%
  \endgroup
  \global\catcode`#1\active
 \else
 \@shortvrbinfo\@empty{#1␣already}{\@empty\verb(*)}%
 \fi}
```

\OldMakeShortVerb
```
\def\OldMakeShortVerb{\begingroup
  \let\@MakeShortVerb=\old@MakeShortVerb
  \@ifstar{\eg@MakeShortVerbStar}{\eg@MakeShortVerb}}
```

\eg@MakeShortVerbStar
```
\def\eg@MakeShortVerbStar#1{\MakeShortVerb*#1\endgroup}
```

\eg@MakeShortVerb
```
\def\eg@MakeShortVerb#1{\MakeShortVerb#1\endgroup}
```

```
\endinput% for the Tradition.
```

f. The gmeometric Package[1]

Written by Grzegorz Murzynowski,
natror at o2 dot pl


```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmeometric}
      [2008/08/06␣v0.72␣to␣allow␣the␣`geometry'␣macro␣in␣the␣
           document␣(GM)]
```

Introduction, usage

This package allows you to use the `\geometry` macro, provided by the geometry v3.2 by Hideo Umeki, anywhere in a document: originally it's claused `\@onlypreamble` and the main work of gmeometric is to change that.

Note it's rather queer to change the page layout *inside* a document and it should be considered as drugs or alcohol: it's O.K. only if you *really* know what you're doing.

In order to work properly, the macro should launch the `\clearpage` or the `\cleardoublepage` to 'commit' the changes. So, the unstarred version trigges the first while the starred the latter. If that doesn't work quite as expected, try to precede or succede it with `\onecolumn` or `\twocolumn`.

It's important that `\clear(double)page` launched by `\geometry` not to be a no-op, i.e., `\clear(double)page` immediately preceding `\geometry` (nothing is printed in between) discards the 'commitment'.

You may use gmeometric just like geometry i.e., to specify the layout as the package options: they shall be passed to geometry.

This package also checks if the engine is XeTeX and sets the proper driver if so. Probably it's redundant since decent XeTeX packages provide their geometry.cfg file that does that.

The remarks about installation and compiling of the documentation are analogous to those in the chapter gmdoc.sty and therefore ommitted.

Contents of the gmeometric.zip archive

The distribution of the gmeometric package consists of the following four files.

gmeometric.sty
README
gmeometric.pdf

[1] This file has version number v0.72 dated 2008/08/06.

gmeometric.tds.zip

Usage

The main use of this package is to allow the \geometry command also inside the document (originally it's \@onlypreamble). To make \geometry work properly is quite a different business. It may be advisable to 'commit' the layout changes with \newpage, \clearpage, or \cleardoublepage and maybe \one/twocolumn.

Some layout commands should be put before \one/twocolumn and other after it. An example:

```
\thispagestyle{empty}
\advance\textheight 3.4cm\relax
\onecolumn
\newpage
\advance\footskip-1.7cm
\geometry{hmargin=1.2cm,vmargin=1cm}
\clearpage
```

And another:

```
\newpage
\geometry{bottom=3.6cm}
```

In some cases it doesn't work perfectly anyway. Well, the (LPPL) license warns about it.

The Code

```
\RequirePackage{gmutils}[2007/04/23]% this package defines the storing and
      restoring commands.
```

redefine \@onlypreamble, add storing to BeginDocument.

\gme@tobestored
```
\newcommand*\gme@tobestored{{%
    \Gm@cnth␣\Gm@cntv␣\c@Gm@tempcnt␣\Gm@bindingoffset␣\Gm@wd@mp
    \Gm@odd@mp␣\Gm@even@mp␣\Gm@orgw␣\Gm@orgh␣\Gm@dimlist}}
\@xa\AtBeginDocument\@xa{\@xa\StoreMacros\gme@tobestored}
\StoreMacro\@onlypreamble
\let\@onlypreamble\@gobble
```

To make it work properly in XeTeX:

\pdfoutput
```
\@ifXeTeX{%
  \@ifundefined{pdfoutput}{\newcount\pdfoutput}{}%
  \PassOptionsToPackage{dvipdfm}{geometry}%
}{}
\RequirePackageWithOptions{geometry}
```

Restore \@onlypreamble:

```
\RestoreMacro\@onlypreamble
```

Hypothesis: \ifx...\@undefined fails in the document because something made \csname Gm@lines\endcsname. So we change the test to decent. And i think I've found the guilty: \@ifundefined in \Gm@showparams. So I change it to the more elegant \ifx\@undefined.

\Gm@showparams
```
\def\Gm@showparams{%
  --------------------␣Geometry␣parameters^^J%
  \ifGm@pass
  'pass'␣is␣specified!!␣(disables␣the␣geometry␣layouter)^^J%
  \else
  paper:␣\ifx\Gm@paper\@undefined␣class␣default\else\Gm@paper%
       \fi^^J%
  \Gm@checkbool{landscape}%
  twocolumn:␣\if@twocolumn\Gm@true\else--\fi^^J%
  twoside:␣\if@twoside\Gm@true\else--\fi^^J%
  asymmetric:␣\if@mparswitch␣--\else\if@twoside\Gm@true\else␣--%
       \fi\fi^^J%
  h-parts:␣\Gm@lmargin,␣\Gm@width,␣\Gm@rmargin%
  \ifnum\Gm@cnth=\z@\space(default)\fi^^J%
  v-parts:␣\Gm@tmargin,␣\Gm@height,␣\Gm@bmargin%
  \ifnum\Gm@cntv=\z@\space(default)\fi^^J%
  hmarginratio:␣\ifnum\Gm@cnth<5␣\ifnum\Gm@cnth=3--\else%
    \Gm@hmarginratio\fi\else--\fi^^J%
  vmarginratio:␣\ifnum\Gm@cntv<5␣\ifnum\Gm@cntv=3--\else%
    \Gm@vmarginratio\fi\else--\fi^^J%
  lines:␣\ifx\Gm@lines\@undefined--\else\Gm@lines\fi^^J% here I (na-
       tror) fix the bug: it was \@ifundefined that of course was assigning
       % \relax to \Gm@lines and that resulted in an error when \geometry was
       used inside document.
  \Gm@checkbool{heightrounded}%
  bindingoffset:␣\the\Gm@bindingoffset^^J%
  truedimen:␣\ifx\Gm@truedimen\@empty␣--\else\Gm@true\fi^^J%
  \Gm@checkbool{includehead}%
  \Gm@checkbool{includefoot}%
  \Gm@checkbool{includemp}%
  driver:␣\Gm@driver^^J%
  \fi
  --------------------␣Page␣layout␣dimensions␣and␣switches^^J%
  \string\paperwidth\space\space\the\paperwidth^^J%
  \string\paperheight\space\the\paperheight^^J%
  \string\textwidth\space\space\the\textwidth^^J%
  \string\textheight\space\the\textheight^^J%
  \string\oddsidemargin\space\space\the\oddsidemargin^^J%
  \string\evensidemargin\space\the\evensidemargin^^J%
  \string\topmargin\space\space\the\topmargin^^J%
  \string\headheight\space\the\headheight^^J%
  \string\headsep\@spaces\the\headsep^^J%
  \string\footskip\space\space\space\the\footskip^^J%
  \string\marginparwidth\space\the\marginparwidth^^J%
  \string\marginparsep\space\space\space\the\marginparsep^^J%
  \string\columnsep\space\space\the\columnsep^^J%
  \string\skip\string\footins\space\space\the\skip\footins^^J%
  \string\hoffset\space\the\hoffset^^J%
  \string\voffset\space\the\voffset^^J%
  \string\mag\space\the\mag^^J%
  \if@twocolumn\string\@twocolumntrue\space\fi%
  \if@twoside\string\@twosidetrue\space\fi%
  \if@mparswitch\string\@mparswitchtrue\space\fi%
```

```
  \if@reversemargin\string\@reversemargintrue\space\fi^^J%
  (1in=72.27pt, 1cm=28.45pt)^^J%
  ----------------------}
```

Add restore to BeginDocument:

```
\@xa\AtBeginDocument\@xa{\@xa\RestoreMacros\gme@tobestored}
\endinput
```

g. The gmoldcomm Package[1]

August 6, 2008

This is a package for handling the old comments in LaTeX 2ε Source Files when LaTeXing them with the gmdoc package.

Written by Natror (Grzegorz Murzynowski) 2007/11/10.

It's a part of the gmdoc bundle and as such a subject to the LaTeX Project Public License.

Scan CSs and put them in tt. If at beginning of line, precede them with %. Obey lines in the commentary.

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{gmoldcomm}
          [2007/11/10␣v0.99␣LaTeX␣old␣comments␣handling␣(GM)]
\newenvironment{oldcomments}{%
  \catcode`\\=\active
  \let\do\@makeother
  \do\$% Not only CSs but also special chars happen in the old comments.
  \do\|\do\#\do\{\do\}\do\^\do\_\do\&%
  \gmoc@defbslash
  \obeylines
  \StoreMacro\finish@macroscan
  \def\finish@macroscan{%
    \@xa\gmd@ifinmeaning\macro@pname\of\gmoc@notprinted%
    {}{{\tt\ifvmode\%\fi\bslash\macro@pname}}%
    \gmoc@checkenv
  }%
}{}
{\escapechar\m@ne
\xdef\gmoc@notprinted{\string\begin,\string\end}}
\def\gmoc@maccname{macrocode}
\def\gmoc@ocname{oldcomments}
\foone{%
  \catcode`\[=1␣\catcode`\]=2
  \catcode`\{=12␣\catcode`\}=12␣}
[\def\gmoc@checkenv[%
  \@ifnextchar{%
    [\gmoc@checkenvinn][]]%
\def\gmoc@checkenvinn{#1}[%
  \def\gmoc@resa[#1]%
  \ifx\gmoc@resa\gmoc@maccname
    \def\next[%
      \begingroup
```

oldcomments · \finish@macroscan · \gmoc@maccname · \gmoc@ocname · \gmoc@checkenv · \gmoc@checkenvinn · \gmoc@resa

[1] This file has version number ? dated ?.

```
\@currenvir
        \def\@currenvir[macrocode]%
        \RestoreMacro\finish@macroscan
        \catcode`\\=\z@
        \catcode`\{=1␣\catcode`\}=2
        \macrocode]%
    \else
      \ifx\gmoc@resa\gmoc@ocname
        \def\next[\end[oldcomments]]%
      \else
        \def\next[%
          \{#1\}%
        ]%
      \fi
    \fi
    \next]%
]
\foone{%
  \catcode`\/=\z@
  \catcode`\\=\active}
\gmoc@defbslash
{/def/gmoc@defbslash{%
    /let\/scan@macro}}
\task
\def\task#1#2{}
\endinput
```

Change History

gmdoc v0.96
  General:
    CheckSum 2395, 4
gmdoc v0.98d
  \ChangesStart:
    An entry to show the change history works: watch and admire. Some sixty \changes entries irrelevant for the users-other-than-myself are hidden due to the trick described on p. 78.
gmdoc v0.99a
  General:
    CheckSum 4479, 4
gmdoc v0.99b
  General:
    Thanks to the \edverbs declaration in the class, displayed shortverbs simplified; Emacs mode changed to doctex. Author's true name more exposed, 101
gmdoc v0.99c
  ^^M:
    a bug fix: redefinition of it left solely to \QueerEOL, 41
  General:
    A bug fixed in \DocInput and all \expandafters changed to \@xa and \noexpands to \@nx, 101
    The TEX-related logos now are declared with \DeclareLogo provided in gmutils, 101
  \DocInput:
    added ensuring the code delimiter to be the same at the end as at the beginning, 30
gmdoc v0.99d
  General:
    \@namelet renamed to \n@melet to solve a conflict with the beamer class (in gmutils at first), 101
    \afterfi & pals made two-argument, 101
  \FileInfo:
    added, 90
gmdoc v0.99e
  General:
    a bug fixed in \DocInput and \IndexInput, 101
    CheckSum 4574, 4
gmdoc v0.99g
  General:
    CheckSum 5229, 4
    The bundle goes XETEX. The TEX-related logos now are moved to gmutils. ^^A becomes more comment-like thanks to re\catcode'ing. Automatic detection of definitions implemented, 101
  \gmd@ifinmeaning:
    made more elegant: \if changed to \ifx made four parameters and not expanding to an open \iftrue/false. Also renamed from \@ifismember, 44
  hyperref:
    added bypass of encoding for loading url, 26
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    obsolete redefinition of the macro environment removed, 99
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  General:
    Fixed behaviour of sectioning commands (optional two heading skip check) of mwcls/gmutils and respective macro added in gmdocc. I made a tds archive, 101
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  General:
    A "feature not bug" fix: thanks to \everyeof the \(No)EOF is now not necessary at the end of \DocInput file., 101
    CheckSum 5247, 4
gmdoc v0.99j
  General:
    CheckSum 5266, 4
  quotation:
    Improved behaviour of redefined quotation to be the original if used by another environment., 92
gmdoc v0.99k
  General:

CheckSum 5261, 4
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General:
CheckSum 5225, 4
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`\CodeSpacesGrey`:
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`\scantokens` used instead of `\write` and `\@@input` which simplified the macro, 90
`macrocode`:
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Made a shorthand for `\Docinclude\jobname` instead of repeating 99% of `\DocInclude`'s code, 86
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gmdocc v0.75
General:
CheckSum 130, 102
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General:
CheckSum 257, 102
`\EOFMark`:
The `gmeometric` option made obsolete and the gmeometric package is loaded always, for XeTeX-compatibility. And the class options go xkeyval., 107
gmdocc v0.77
General:
CheckSum 262, 102
`\EOFMark`:
Bug fix of sectioning commands in mwcls and the default font encoding for TeXing old way changed from QX to T1 because of the 'corrupted NTFS tables' error, 107
gmdocc v0.78
General:
CheckSum 267, 102
`\EOFMark`:
Added the `pagella` option not to use Adobe Minion Pro that is not freely licensed, 107
gmdocc v0.79
General:
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General:
CheckSum 40, 167
gmeometric v0.70
General:
Back to the v0.68 settings because `\not@onlypreamble` was far too little. Well, in this version the redefinition of `\geometry` is given up since the 'committing' commands depend on the particular situation so defining only two options doesn't seem advisable, 170
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General:
a TDS-compliant zip archive made, 170
CheckSum 41, 167
gmeometric v0.72
General:
2008/08/06 only the way of documenting changes so I don't increase the version number, 170
CheckSum 239, 167
`\Gm@showparams`:
a bug fix:
`\@ifundefined{Gm@lines}` raised an error when `\geometry` used inside the `document`, I change it to `\ifx\@undefined`, 169
gmutils v0.74
General:
Added macros to make sectioning commands of mwcls and standard classes compatible. Now my sectionings allow two optionals in both worlds and with mwcls if there's only one optional, it's the title to toc and running head not just to the latter, 154
`\begin`:
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General:
A 'fixing' of \dots was rolled back since it came out they were O.K. and that was the QX encoding that prints them very tight, 154
\freeze@actives:
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General:
\afterfi & pals made two-argument as the Marcin Woliński's analogoi are. At this occasion some redundant macros of that family are deleted, 154
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General:
\@namelet renamed to \n@melet to solve a conflict with the beamer class. The package contents regrouped, 154
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\not@onlypreamble:
All the actions are done in a group and therefore \xdef used instead of \edef because this command has to use \do (which is contained in the \@preamblecmds list) and \not@onlypreamble itself should be able to be let to \do, 122
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General:
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File Key: a=gmdoc.sty, b=gmdocc.cls, c=gmutils.sty, d=gmiflink.sty, e=gmverb.sty, f=gmeometric.sty, g=gmoldcomm.sty

File Key: a=gmdoc.sty, b=gmdocc.cls, c=gmutils.sty, d=gmiflink.sty, e=gmverb.sty, f=gmeometric.sty, g=gmoldcomm.sty

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