chappg — a LaTeX package for numbering pages "by chapter"[*]

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May 9, 2006

Support

Some support of this package is available *for unchanged copies of the package* via email to me at the address given in the footnote. Support will remain available at least as long as the address remains valid. I don't guarantee anything, but I will probably look at any bug reports you may submit, and may correct problems reported (either in my code or in yours. . .).

Copyright statement

Program: `chappg.dtx`
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1 User interface — package options

The package provides two options.
`\usepackage[auto]{chappg}` causes the package to set pagenumbering according to its scheme, using the command `\pagenumbering{bychapter}`

`\usepackage[noauto]{chappg}` tells the package not to set pagenumbering; the user is then free to set up pagenumbering according to her own scheme of things.

In the absence of any package option, the package acts as if the user had given the `auto` option; this action is compatible with earlier versions of this package.

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[*]This file has version number v2.1b, last revised 2006/05/09

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2   User interface — commands

The purpose of the package is to provide a page-numbering style "`bychapter`", for use with the `\pagenumbering` command. In simple use, the command

```
\pagenumbering{bychapter}
```

will

- reset the `page` counter to `1`,

- cause page numbers to display as "⟨*chapter*⟩-⟨*page*⟩",

- cause page numbers to be reset to 1 at the start of each chapter.

Of course, none of this is useful (indeed, an error is provoked) if the document is not using the standard `report` or `book` class, or some other class that provides `\chapter`-level divisions.

More complicated use of the package is possible, using the commands described below.

The package modifies the LaTeX kernel command `\pagenumbering` so that it has an optional argument; all the kernel-defined numbering styles ignore the optional argument, but if the numbering style is `bychapter`, the argument may be used to specify a means of numbering pages. Thus, while

```
\pagenumbering{bychapter}
```

gives page numbers in the form "⟨*chapter*⟩-⟨*page*⟩", so pages of chapter 3 will be numbered 3-1, 3-2, etc., and pages of appendix B will be numbered B-1, B-2, etc.

With the optional argument form:

```
\pagenumbering[Index]{bychapter}
```

page numbers will appear in the form "Index-⟨*page*⟩". One of the anticipated uses of this facility is just as indicated — providing by-chapter numbering of the pages of chapters that don't have numbers (as index chapters don't in the standard classes).

The separator between the chapter and page numbers (hyphen above, but I can imagine people wanting it to be an en-dash) is `\chappgsep`, which en-dash-lovers may redefine (after loading the package); for example:

```
\renewcommand{\chappgsep}{--}%
```

Havoc is wreaked with this structure in the LaTeX `\frontmatter` and `\mainmatter` commands (which both explicitly use `\pagenumbering` and therefore destroy the changed definition of `\thepage`).

My design decision, when converting this package for use under LaTeX 2e was to assume that `\frontmatter` is indeed to be in `\pagenumbering{roman}`, and to restore the chapter-numbering in `\mainmatter`. Chapters in the frontmatter can not be numbered 'by' their chapters, since the chapters don't actually have numbers. If the author wishes to have some special treatment of part of the frontmatter, the analogue of the above is

```
\chapter{Preface}
\pagenumbering[Preface]{bychapter}
```

The conception breaks down again in `\backmatter`; again, the `\chapter` commands don't number the chapters, so that the pages will all be numbered as if they were 'within' the last real chapter. Therefore, if by-chapter page numbering is still enabled while in the backmatter, and the user hasn't issued a new `\pagenumbering[prefix]{bychapter}` since the `\backmatter` command, the package rewrites the prefix as `{\bf??}`, and produces a warning at the end of the document.

3   User interface — a caution

The `\appendix` command can confuse `bychapter` page numbering — unless you take some precautions, the last page or two of your last "real" chapter will not be be numbered "by chapter". The solution is to issue a `\clearpage` (if `openany` class option is in effect), or `\cleardoublepage` (if `openright` class option is in effect). By default, `report` class uses the `openany` option, so you would write:

```
... text at end of chapter.
\clearpage
\appendix
\chapter{Title of first appendix}
```

whereas the `book` class uses the `openright` option by default, so you would write:

```
... text at end of chapter.
\cleardoublepage
\appendix
\chapter{Title of first appendix}
```

4   Code: Preliminaries

1 ⟨∗package⟩

This package was largely reimplemented for use as a LaTeX 2_ε package, taking account of `\mainmatter`, etc., and providing various extra capabilities, by Robin Fairbairns, from a LaTeX 2.09 style file by Max Hailperin, who first published the style in `TeXMaG` Vol. 5, No. 3 (part 1).

This release provides typeset documentation of the first LaTeX 2_ε version, for TeX catalogue users' convenience.

`\if@chappg@auto`
`\if@chappg@resetting`   Conditionals for control of page number resetting

```
2 \newif\if@chappg@auto      \@chappg@autofalse
3 \newif\if@chappg@resetting \@chappg@resettingfalse
```

Deal with package options; we set option `auto` by default, for compatibility with the earlier versions of this package

```
4 \DeclareOption{auto}{\@chappg@autotrue}
5 \DeclareOption{noauto}{\@chappg@autofalse}
6 \ExecuteOptions{auto}
7 \ProcessOptions
```

\pagenumbering
\@chappg@prefix

Replace \pagenumbering so as to have the optional argument.

```
8 \renewcommand\pagenumbering[2][\@chappg@thechapter]{%
9   \global\c@page\@ne
10  \protected@xdef\thepage{%
11    \expandafter\noexpand\csname @#2\endcsname
12      \noexpand\c@page
13  }%
14  \gdef\@chappg@prefix{#1}%
```

And now make sure that page numbering resetting is in its right state

```
15  \def\@tempa{#2}%
16  \def\@tempb{bychapter}%
17  \ifx\@tempa\@tempb
18    \@chappg@checkloc
19    \if@chappg@resetting
20    \else
21      \@addtoreset{page}{chapter}%
22      \@chappg@resettingtrue
23    \fi
24  \else
25    \if@chappg@resetting
26      \@removefromreset{page}{chapter}%
27      \@chappg@resettingfalse
28    \fi
29  \fi
30 }
```

\@bychapter

This is the command used by \pagenumbering{⟨bychapter⟩} to actually create the page number

```
31 \newcommand\@bychapter[1]{%
32  \@chappg@prefix\chappgsep\@arabic#1%
33  \ifx\@chappg@prefix\@chappg@surprise
34    \if@chappg@surprised\else
35      \xdef\@chappg@surprise@line{\the\inputlineno}%
36      \global\@chappg@surprisedtrue
37    \fi
38  \fi
39 }
```

\@chappg@thechapter

Output a chapter number if there have been any chapters; otherwise gobble the following thing, which will be \chappgsep

```
40 \def\@chappg@thechapter{%
41  \ifnum\c@chapter=0
42    \expandafter\@gobble
43  \else
44    \thechapter
45  \fi
46 }
```

\chappgsep

Separator in the above

```
47 \providecommand\chappgsep{-}
```

\mainmatter
\@@mainmatter

Hack at \mainmatter so that it restores bychapter numbering if there's been a \frontmatter command and it was there in the first place

4

```
48 \let\@@mainmatter\mainmatter
49 \def\mainmatter{\@@mainmatter
50   \if@chappg@auto\pagenumbering{bychapter}\fi
51 }
```

\backmatter
\@@backmatter
\@chappg@surprise
\if@chappg@surprised

Hack at \backmatter so that it warns the user of possibly surprising results if \pagenumbering[⟨*whatever*⟩]{⟨*bychapter*⟩} hasn't been used

```
52 \let\@@backmatter\backmatter
53 \def\backmatter{\@@backmatter
54   \let\@chappg@prefix\@chappg@surprise
55 }
56 \def\@chappg@surprise{\textbf{??}}
57 \newif\if@chappg@surprised  \@chappg@surprisedfalse
```

Generate a warning at end document if one of those "surprised" things has been executed, or if a \pagenumbering command was given in a bad place.

```
58 \AtEndDocument{%
59   \if@chappg@badloc
60     \PackageWarningNoLine{chappg}{Bad location for
61       \string\pagestyle{bychapter} command
62       \MessageBreak
63       \string\clearpage\space or \string\cleardoublepage\space
64       \MessageBreak
65       recommended before \string\pagestyle\space on line
66       \@chappg@badloc@line
67     }
68   \fi
69   \if@chappg@surprised
70     \PackageWarningNoLine{chappg}{Possibly surprising page numbering in
71       \string\backmatter
72       \MessageBreak
73       Use \string\pagenumbering[prefix]{bychapter}%
74       \MessageBreak
75       to select alternative before line \@chappg@surprise@line
76     }
77   \fi
78 }
```

\@chappg@checkloc
\if@chappg@badloc

Check that the current location is appropriate for a `bychapter` change.

```
79 \newif\if@chappg@badloc
80 \def\@chappg@checkloc{%
81   \ifx\@onlypreamble\@notprerr
82     \ifhmode
83       \@chappg@badloctrue
84       \xdef\@chappg@badloc@line{\the\inputlineno}%
85     \else
86       \ifdim\pagetotal>1sp
87         \@chappg@badloctrue
88         \xdef\@chappg@badloc@line{\the\inputlineno}%
89       \fi
90     \fi
91   \fi % not in preamble
92 }
```

The next magic makes the page counter be reset to one rather than zero

```
93 \renewcommand\@stpelt[1]{%
94    \global\csname c@#1\endcsname
95       \expandafter\ifx \csname c@#1\endcsname \c@page
96          \@ne
97       \else
98          \z@
99       \fi
100 }
```

Finally, we select the bychapter as the default page style if the user so requires. If the `noauto` option was given, the user has opted to execute the command hirself, but otherwise we behave backwards-compatibly. The selection will be hacked by `\frontmatter`, if the author uses it.

```
101 \if@chappg@auto\pagenumbering{bychapter}\fi
```

`\@removefromreset`   fragment included from
CTAN macros/latex/contrib/fragments/removefr.tex
    Date: Sat, 30 Jul 1994 17:58:55 PST
From: Donald Arseneau
    A utility macro:
`\@removefromreset{⟨FOO⟩}{⟨BAR⟩}` : Removes counter FOO from the list of counters `\cl@BAR` to be reset when counter BAR is stepped. The opposite of `\@addtoreset`.

```
102 \def\@removefromreset#1#2{\let\@tempb\@elt
103    \expandafter\let\expandafter\@tempa\csname c@#1\endcsname
104    \def\@elt##1{\expandafter\ifx\csname c@##1\endcsname\@tempa\else
105          \noexpand\@elt{##1}\fi}%
106    \expandafter\edef\csname cl@#2\endcsname{\csname cl@#2\endcsname}%
107    \let\@elt\@tempb}
```

```
108 \endinput
```

```
109 ⟨/package⟩
```