

interfaces

interfaces with keys for other packages

FC

2011/01/17 – version 2.8 – release – pgf v2.1 / pgf v2.0 compatible

Abstract

`interfaces` provides a small number of user friendly macros to access features implemented in frequently used packages. Most of the macros are based on `pgfkeys`, hence the “key=value” syntax.

`interfaces` is mainly based on `pgfkeys`¹ and `scrfile` for its different modules are loaded `\AfterPackage`. ϵ -TeX is required of course... Each interface is actually made as a separate module, which is loaded automatically after its *master package*. Adding `\usepackage{interfaces}` into your document preamble will make all modules active (*ie.* they will be loaded or not, depending on your document preamble). If you prefer not to use all modules, you can load them separately as a package, for example, type: `\usepackage{interfaces-titlesec}` *after* `\usepackage{titlesec}`. A better way is to add `\usepackage{interfaces-base}` to your preamble, and then: `\LoadInterface{titlesec,tocloft}` indifferently before or after `\usepackage{titlesec,tocloft}`. Another possibility to restrict the modules is to give them as options for the main package: `\usepackage[tocloft]{interfaces}`.

`interfaces-base` is a mandatory “module”. It loads `interfaces-scrfile`, `interfaces-etoolbox`² and `interfaces-pgfkeys`: those are the *system-layer* of `interfaces`.

Example

```
\pagesetup[document]{%
  rules=.5pt,
  foot/left/odd=\arabic{page},
  foot/right/even=\arabic{page}/\pageref{LastPage},
  head/font=\color{gray}{.85}\bfseries\small,
  head/left/even=\leftmark,
  head/left=\thefirstmarks{MiniSection},% interfaces-marks
}
\pagesetup[plain]{% for chapters...
  pagestyle=document,% preloaded settings
  head=,
  foot/left/odd = \roman{page},
  norules, head/rule=.4pt
  head/center=This is the title,
}
\sectionformat\section[hang]{
  label=\arabic{section},
  labelsep=,
  font=\bfseries\Large,
  bookmark={bold,color=blue},% interfaces-bookmark
  top=6pt plus3pt minus2pt,
  bottom=3pt plus2pt,
  break=\marksthecs{section}{lastsectiontoc},% interfaces-hybmsec
  mark=\marksthe{section}{#1},% interfaces-marks
}
\sectionformat\subsection[hang]{
  label=, labelsep=,
  font=\bfseries,
  bookmark=italic,
  top*=1.2,% a 120% scaling
  bottom+=0pt plus4pt,% add to previous value
  mark=\markright{#1},
}

\sectionformat\MiniSection{% new sectionning command
  class=straight[\subparagraph],
  shape=block,
  label=,
  top=3pt plus2pt, bottom=1pt,
  font=\bfseries\sffamily,
  bookmark=off,% or false or none
  break=\allowbreak,
  mark=\marksthe{MiniSection}{#1},% see interfaces-marks
}
\bottomtitles=.2\textheight
\tocsetup{
  depth=3, title=Contents, pagenumbers=on,
  pagestyle=plain,% first page style: tocloftpagestyle
  title/top=1.5ex plus.5ex,
  title/bottom=0pt,
  section/indent=1em,
  section/number/width=1.5em,
  section/font+=\larger\bfseries,% append to previous setting
  section/leaders,section/dotsep,
  subsection/indent=2em,
  subsection/number/width=2.5em,
  subsubsection/font=\scriptsize,
  subsubsection/leaders,subsection/dotsep,% default values
  subsubsection/pagenumbers=off,% no page numbers
  subsubsection/dotsep=,% no leader
  columns=2,% same as twocolumns
  columns/sep=.5em,
  columns/rule/width=1pt,columns/rule/color=blue,
  label=toc,% gives a label to the t.o.c.
  bookmark={text=Contents,bold},% interfaces-bookmark
}
\tableofcontents

\mainmatter \pagestyle{document}
```

This documentation is produced with the DocStrip utility.

- To get the package, run: `etex interfaces.dtx`
- To get the documentation run (thrice): `pdflatex interfaces.dtx`
- To get the index, run: `makeindex -s gind.ist interfaces.idx`

The .dtx file is embedded into this pdf file thank to embedfile by H. Oberdiek.

1. `pgfkeys`: CTAN:graphics/pgf/base/generic/pgf/utilities
2. All macros in `interfaces-etoolbox` are defined with `\providecommand` except `\removefromstart` which is used by `\repeatcell`.

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1 Interface L^AT_EX

```
\changeont { encoding | enc = changes \fontencoding
              family | fam = changes \fontfamily
              series | ser = changes \fontseries
              shape | sha = changes \fontshape
              size | size* | size+ | size- = changes the font size (default unit is pt)
baselineskip | baselineskip* + - | skip = changes the \baselineskip for the font
linespread | linespread* + - | spread = changes the line spread (a real value) }
```

Example: adds 5pt to the font size (pt is added if not specified) and scale the linespread by 130%:
`\changeont{ size+ = 5,spread* = 1.3}` (\selectfont is included in the macro).
If a key is not specified, the current value remains.
Finally, \changeont is compatible with hyperref thank to \pdfstringdefDisableCommands.

2 Interface TikZ (🔗pgfmanual)

```
\usetikz { basic=..., loads tikz with libraries calc, arrows, scopes and backgrounds
           all=..., loads tikz with all packages, pgf-modules and TikZ-libraries
           any other key=..., loads tikz and the specified package, module or library
           using \usepackage, \usepgfmodule or \usetikzlibrary }
```

\usetikz is a facility provided to load pgf, tikz, pgf-modules, and tikz-libraries, without the need to know if you must use \usepackage or \usepgfmodule or \usetikzlibrary.
Keys shorten> and shorten< have been set as aliases to shorten > and shorten < (original with space) and keys shorten<> and shorten <> have been set to style shorten > and shorten <.
\usetikz does not parse options. If you are used to load pgf with option (f.ex. version=0.96), please use the syntax:
`\PassOptionsToPackage{version=0.96}{pgf}`

~~~~~ MEMO ~~~~~

| TikZ/pgf package                                              | pgfmodules     | TikZ libraries                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pgf<br>pgfmath<br>pgfcalendar<br>pgfplots<br>pgfpages<br>tikz | matrix<br>plot | arrows<br>chains<br>er<br>scopes<br>snakes<br>shapes<br>shapes.misc<br>shapes.geometric<br>shapes.arrows<br>shapes.multipart<br>shapes.callouts<br>shapes.symbols<br>shapes.gates.logic.US<br>shapes.gates.logic.IEC<br>decorations<br>decorations.pathmorphing | decorations.pathreplacing<br>decorations.shapes<br>decorations.text<br>decorations.markings<br>decorations.fractals<br>decorations.footprints<br>positioning,trees<br>automata<br>patterns<br>fadings<br>shadows<br>through<br>backgrounds<br>petri<br>fit<br>mindmap<br>folding<br>plohandlers<br>plotmarks<br>calc<br>matrix |

sorry for the blank cell, but I didn't get out with colortbl and the \multicolumn entry...

`\papergraduate[options] (coordinate) - (coordinate);`

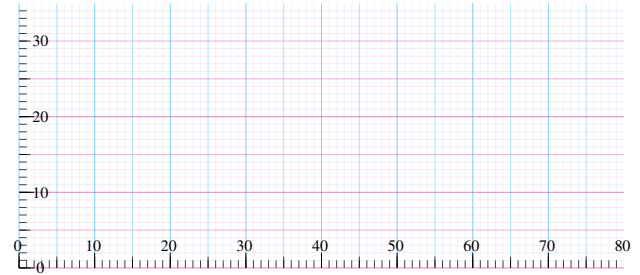
`\papergraduate` is a bit like TikZ grid path and displays a real graduated paper.

Moreover, when used *outside* a `tikzpicture` environment, `\papergraduate` alone draws a graduated paper as a wallpaper on the current page background.

The code is fast because based on T<sub>E</sub>X primitive `\leaders` (faster than `grid`).

Examples:

```
\tikz{
\coordinate (A) at (0,0);
\coordinate (B) at (8cm,3.5cm);
\papergraduate (A) - (B); }
```



As for now (`interfaces` version 2.8), there is no option !

But the optional argument is there for a future release...

### 3 Interface `titlesec`: `\sectionformat`

```
\sectionformat{\section} {   class=..., page|top|straight [\sup-level]
                             shape=..., hang|block|display|runin|leftmargin|rightmargin|
                             drop|wrap|frame|runinifempty
                             font|format=..., label=..., labelsep|sep=...,
                             left=..., right=..., top=..., bottom=...,
                             before=..., after=...,
                             mark=..., break=..., thesection=..., }
```

`\sectionformat` is a pgfkeys-command for replacement of both `\titleformat` and `\titlespacing`. If a key is not given, its value remains the same while with `\titleformat` or `\titlespacing`, you must specify all values in a rigid order... Moreover, `\sectionformat` can be used concurrently with `\titleformat` and `\titlespacing` (although `\sectionformat` is deemed more comfortable, this allows to quickly modify some files written without `interfaces`.)

Keys corresponding to  $\text{\TeX}$  code (`font`, `before` or `after`) are associated with starred keys and `+` keys: they append their content to the previous value. Ex: `font+={\larger}` adds `\larger` to the previous settings.

For dimensions or skips, the `+` key adds, the `-` key subtract and the `*` key scales.

|                                          |                               | MEMO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>class</code>                       | name of the class             | <code>page</code> =like standard <code>\part</code><br><code>top</code> =like standard <code>\chapter</code><br><code>straight</code> =like standard <code>\section</code> etc.<br>example: <code>\sectionformat\subchapter{class=straight[\chapter]}</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <code>shape</code>                       | shape                         | <code>hang</code> =hanging label (like <code>\section</code> )<br><code>block</code> =paragraph without formatting (for centered titles)<br><code>display</code> =like standard <code>\chapter</code><br><code>runin</code> =like standard <code>\paragraph</code><br><code>leftmargin</code> =left margin<br><code>rightmargin</code> =right margin<br><code>drop</code> =wraps the text around the title (the first paragraph should be longer than the title, otherwise, they overlap)<br><code>wrap</code> =like <code>drop</code> but the space reserved for the title is variable<br><code>frame</code> =like <code>display</code> +puts the title in frame<br><code>runinifempty</code> = <code>hang</code> but no label if the title is empty |
| <code>font=</code> <code>format</code>   | format for title              | applied to the label and the title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <code>label</code>                       | title label                   | ex: <code>\arabic{section}</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <code>sep =</code> <code>labelsep</code> | space between label and title |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>left</code>                        | left margin                   | a glue: horizontal space before                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>right</code>                       | right margin                  | a glue: horizontal space after                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <code>top</code>                         | vertical space before         | a glue: vertical space before                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>bottom</code>                      | vertical space after          | a glue: vertical space after                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <code>mark</code>                        | macro with 1 parameter        | ex <code>\sectionmark</code> : redefines <code>\...mark#1...</code> (the argument is the title)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>break</code>                       | parameterless macro           | ex <code>\sectionbreak</code> to be executed just before the section command                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <code>thesection</code>                  | toc and ref labels            | redefines <code>\thesection</code><br><code>\thesection</code> , <code>\thesubsection</code> etc.. are used to print references and the label in the table of contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <code>before</code>                      | code before title body        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>after</code>                       | code after title body         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

If the bookmark package is loaded, with `interfaces-bookmark`, the following keys are defined for each section:

|                              |                       |                                                                                                                   |
|------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------|
| <code>bookmark/bold</code>   | bold bookmark text    | the text of the bookmark for that sectionning command will be <b>bold</b>                                         |
| <code>bookmark/italic</code> | italic bookmark text  | the text of the bookmark for that sectionning command will be in <i>italic</i>                                    |
| <code>bookmark/color</code>  | colored bookmark text | the text of the bookmark for that sectionning command will be <b>colorized</b>                                    |
| <code>bookmark/off</code>    | disable the bookmark  | no bookmark for that sectionning command alternatively you may set <code>bookmark/level</code> to a huge value... |
| <code>bookmark/style</code>  | use a <i>style</i>    | the <i>style</i> must be previously declared with <code>\bookmarkdefinestyle</code>                               |
| <code>bookmark/level</code>  | level of the bookmark | defines <code>\toclevel@{sectionname}</code> , see bookmark documentation                                         |

The syntax: `\sectionformat\subsection{bookmark={bold,italic,color=green,on,view=FitB}}` also works.

→ Key *bookmark* is an example of a key defined with the handler */is multiple choice*.

The starred keys `bold*`, `italic*`, `color*` and `off*` are also provided. For example:

```
\sectionformat\section{
  after=\sectionformat\subsection{bookmark/color*=red}
}
```

makes the bookmarks corresponding to the first subsection in each section to be **red**. If you ascertain that there is no bookmark between the one corresponding to the section and the one corresponding to its first subsection, then this is the same as: “`after=\bookmarksetup{color*=red}`”.

### ~~~~~ EXAMPLE ~~~~~

---

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| <pre>\sectionformat\section[hang]{%   font=\bfseries\scshape,   label=\Roman{chapter}\ \textbullet\ \arabic{section},   labelsep=\widthof{\textbullet},   bottom=1ex plus.4ex minus.2ex,   top+=3pt,   mark=\markright{#1},% =&gt; this defines \def\sectionmark#1{\markright{#1}}   break=\goodbreak,%    =&gt; this defines \def\sectionbreak{\goodbreak}   thesection=\Roman{chapter}.\arabic{section}, % redefines \def\thesection{...}   bookmark={bold,color=blue} }</pre> | <pre>this is the same as:  shape = hang</pre> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|

---

`titlesec` provides *extended settings* for numberless (*ie.* starred) sections with the syntax:

```
\titleformat{name=\section,numberless}{...}
```

One swallow does not a summer make, `interfaces-titlesec` does not provides this feature in a key=value stuff but just type:

```
\sectionformat\section*{ key=value }
```

to give to your `\section*` command a special format. Keys `label` and `labelsep` are not ignored, this means that `\section*` can be defined in a way it produces a numbered section! Albeit, this would be weird because the `\section` counter is not updated for starred sections...

Presently, `\sectionformat` does not implement the *extended settings* of `titlesec` for odd and even pages.

However, it is always possible to use `\sectionformat` concurrently with `\titleformat` and `\titlespacing`. A better way to use different settings for odd and even pages is the use of `\ifthispageodd` from the KOMA-Script classes, or the features provided by `changepage.sty`, which is almost the same: actually `titlesec` test oddity of the **page** counter (*ie.* `\count` register nr 0) while oddity of `\pageref` should be tested... Hence the decision I came not to implement different settings for odd and even pages in `\sectionformat`.

```
\bottomtitles{<glue|percentage of \textheight>}
```

This globally sets the value of `\bottomtitlespace` (see `titlesec` documentation):

```
\bottomtitles{.2}          sets \bottomtitlespace to .2\textheight
\bottomtitles=.2\textheight is the same
```

You can globally set a negativ value: `\bottomtitles = -1` to allow bottom titles.

## 4 Interface `hyperref`

```
\raisedhyperdef[⟨raised dimen⟩]{⟨category⟩}{⟨name⟩}{⟨text⟩}
```

Package `hyperref` provides `\hyperdef` and `\Hy@raisedlink` but no easy way to insert a “raised link” with `\hyperdef` (or `\hypertarget`).

`\raisedhyperdef` can be used exactly like `\hyperdef`, but the pdf-anchor will be raised of the specified dimension.

## 5 Interface `bookmark`

A few new keys appear with `interfaces` for the command `\bookmarksetup`:

```
\bookmarksetup {   bold* = ..., will make the bookmark text bold, but only for the very next bookmark
                  italic* = ..., idem for italic
                  color* = ..., idem for color: the previous color will be restored after the next bookmark
                  disable = ..., will disable the bookmarks (the same as \bookmarksetup{depth=-2})
                  disable* = ..., will disable only the very next bookmark                }
```

Furthermore the following code:

```
\sectionformat\section{bookmark={bold,color=blue}}
\bookmarksetup{color*=red}
\section{A lovely red, bold bookmark here!}
\section{And the following bookmark is blue and bold}
```

will produce a bookmark with attributes: `color=red,bold=true`. In other words, the starred keys of `\bookmarksetup` overwrite the “default” settings of `\sectionformat` for the very next bookmark.

*Note that this code requires `titlesec`, `bookmark`, `interfaces-titlesec` and `interfaces-bookmark`.*

Three new keys are added to the `\bookmark` command:

```
\bookmark{   pageref = the destination of the bookmark is the page referenced
             ref = the destination of the bookmark is the anchor associated to the reference
             atend = the bookmark will be inserted at the end of the document                }
```

I admit those keys will not be used very often... but imagine you want to put a bookmark at the end, which points to the table of contents, then:

```
\bookmark[ref=TableOfContents,atend]{Back To Contents}
```

Provided that the label `TableOfContents` has been defined, for example with `\sim\tocsetup`, if `tocloft` and `interfaces-tocloft` are loaded:

```
\tocsetup{label=TableOfContents}   \tableofcontents
```

The `atend` key requires of course that the package `bookmark` was loaded with the `[atend]` option (otherwise, `bookmark.sty` gives a warning).



## 6 Interface `hypbmsec`

The features provided by `interfaces-hypbmsec` are now independant of `titlesec` and `interfaces-titlesec`.

Package `hypbmsec` provides extended sectionning commands with the syntax:

```
\section(out)[toc]{title}      or      \section[toc](out){title}
      (out)  is used for the bookmark (outline)
```

Where:    `[toc]`    for the table of contents and the marks  
          `{title}`    to typeset the section title in the document

Internally, `hypbmsec` defines `\hbs@bmstring` (the string used for the bookmark entry) and `\hbs@tocstring` (the string used for the table of contents and the marks).

`interfaces` takes advantage of this and defines:

```
\lastsectiontitle      expands to the title of the last \section
\lastsectionbookmark    expands to the text of the bookmark for the last \section
\lastsectiontoc         expands to the entry of the last \section in the table of contents
\lastsectionanchor      expands to the anchor name of the last \section if hyperref is used
```

Macros for each sectionning command are defined:

```
\lastparttitle          \lastchaptertitle
\lastsectiontitle       \lastsubsectiontitle      \lastsubsubsectiontitle
\lastparagraphtitle     \lastsubparagraphtitle
```

with their `...bookmark` and `...toc` counterparts.

Assignment to those macros is automatic. More precisely, `\lastsectiontitle` is defined **after** `\sectionbreak` and **before** `\sectionmark`: this means that in the fields `after` or `mark` of `\sectionformat`, `\lastsectiontitle` has been updated yet. While in the fields `before`, and `break`, `\lastsectiontitle` is not yet updated. (For chapters, this is the same if `titlesec` formats the chapter titles, *ie.* if `\sectionformat\chapter` or `\titleformat\chapter` has been invoked. Otherwise, `\lastchaptertitle`, `\lastchapterbookmark` and `\lastchaptertoc` are set at `\stepcounter{chapter}`).

Values are automatically reset to `\relax` when a section of a superior level is created.

This feature has been implemented essentially to make the use of a `\mark` command at `\sectionbreak` easier. Mark at `\sectionbreak` is important to get the correct behaviour for marks described in `interfaces-marks` (page 12 under `\ifmarksequal`). With this feature, when a new `\section` is created, `\lastsubsection` is reset to `\relax` therefore, `\marksthecs{<subsection>}{<lastsubsection>}` will not mark anything.

Another possibility is shown in this document: the header is clickable and has been defined with:

```
\sectionformat\section{
      mark=\marksthe{section}{#1}
      \marksthecs{sectionanchor}{lastsectionanchor}
}
\pagesetup{
      head/right=\hyperref{}{}{\thefirstmarks{sectionanchor}}
                      {\thefirstmarks{section}}
}
```



## 7 Interface `tocloft` : `\tocsetup`, `\lofsetup`, `\lotsetup` and `\listofsetup`

Setting the keys overwrites the previous value, unless the `+` key (append code/add for dimensions), the `-` key (subtract) or the starred-key\* (scale dimensions) is used. `\tocsetup` settings apply to `\tableofcontents` and also to `\shorttableofcontents` (package `shorttoc`). `\tocsetup` can be invoked more than once in a document...

```
\tocsetup{
    depth=\setcounter{tocdepth} This is a LATEX rather than tocloft's ...
    With interfaces you can change the t.o.c. depth anywhere inside your
    document, just like bookmarks depths (two runs are required)

    title|contentsname=redefines \contentsname
    title/top|title/top+|title/top-|title/top*=vertical space before the title (set|add|subtract|scale)
    title/bottom|title/bottom+ etc.=vertical space after the title
    title/font|title/font+|title/format=the title font (set|append code)
    title/color|title/font/color=the color of the title (may also be defined in the key title/font)
    title/after|title/after+=hook to execute just after the title (\cftaftertocitle...)
    parskip|parskip+|parskip-|parskip*|parsep=modifies (or add to) \cftparskip
    dotsep=modifies \cftdotsep if no dimen is specified, mu is assumed, otherwise, conversion
    to  $\mu \approx 1em/18$  is supplied. Default value is  $4.5\mu$  and blank value is the same as
    \cftnodots
    dot=modifies \cftdot, the dot used for leaders produced by \cftdotfill
    pagestyle=page style for the first page (\tocloftpagestyle)
    mark=the mark command: \cftmarktoc
    example: \chaptermark\contentsname

    before|before*|after|after*=hooks to execute before or after the command \tableofcontents
    twocolumns|columns|multicol=twocolumns=true is the same as columns=2 Makes a multicolumn table
    of contents. Package multicol is required!

    columns/sep|columns/sep+|columnsep etc.=sets (or add) a <dimen> to \columnsep
    columns/rule|columns/rule+|columnseprule etc.=sets (or add) a <dimen> to \columnseprule
    columns/color|columnseprulecolor=modifies \columnseprulecolor
    multicolsep|multicolsep+ etc.=modifies (or add) a <glue> to \multicolsep
    \multicolsep is the space added before and after multicol environ-
    ment. Its default value is 0pt plus 4pt minus 3pt.

    multicol/begin|twocolumns/before=hooks just after \begin{multicols} ...
    multicol/end|twocolumns/after=... and before \end{multicols}

    label=the label for reference to the table of contents
    ref=the reference printed by \ref when referencing the table of contents
    (default is \contentsname. In any case, \nameref prints \contentsname.).

    bookmark/text=the bookmark text for the table of contents (if empty, no bookmark is set)
    bookmark/bold|bookmark/italic|bookmark/color=the bookmark style for the table of contents
    bookmark/level=the bookmark level: either a number or section or chapter
    Default is chapter, or section if the class does not provide chapters.
}
```

`bookmark` key and sub-keys are available only if the package `bookmark` is loaded with `interfaces-bookmark`.

The following keys apply to each section levels. Section level names are : `part` / `chap` or `chapter` / `sec` or `section` / `subsec` or `subsection` / `subsubsec` or `subsubsection` / `para` or `paragraph` / `subpara` or `subparagraph` / `fig` or `figure` / `subfig` or `subfigure` / `tab` or `table` / `subtab` or `subtable`.  
 ¶ may be one of those names (see `tocloft` documentation).

```
\tocsetup{
  ¶/top|¶/top+|¶/skip|¶/beforekip=modifies (or add to) the vertical <glue> before an entry
  ¶/indent|¶/indent+|¶/indent-|¶/indent*=modifies (or add etc.) the indentation of the entry
  ¶/font|¶/font+=the font of the ¶ section title
  ¶/color|¶/font/color=the color of the ¶ section title (overwrites linkcolor if hyper-linked)
  ¶/number/width|number/width+ etc.|numwidth=modifies the space allowed to typeset the title numbers
  ¶/number/before|number/before+|presnum=code before the section number (see pseudo code below)
  ¶/number/after|number/after+|aftersnum=code after the section number (see pseudo code below)
  ¶/title/before|title/before+|aftersnumb=code before the title (ie. after the section number box)
  ¶/leader|¶/leaders=modifies the leader: the default is \cftdotfill{\cftdotsep}
  ¶/dotsep=the space (in mu) between dots in the leader. Default is \cftdotsep and
  blank value is the same as \cftnodots
  ¶/pagefont|¶/page/font|¶/page/number/font=modifies the font used to typeset the page number
  ¶/page/number/color|¶/page/number/font/color=the color of the page numbers for this section (overwrites linkcolor if
  the page number if hyper-linked)
  ¶/page/after|¶/pagenumber/after|afterpnum=macro expanded after the page number is typeset
}
```

~~~~~ MEMO ~~~~~

numbered entries are typeset with this pseudo code:

```
{\cftXfont {\cftXpresnum SNUM\cftXaftersnum\hfil} \cftXaftersnumb TITLE}%
{\cftXleader}{\cftXpagefont PAGE}\cftXafterpnum\par
```

and for not numbered entries:

```
{\cftXfont TITLE}{\cftXleader}{\cftXpagefont PAGE}\cftXafterpnum\par
```

`\lofsetup` and `\lotsetup` behave the same.

`\listofsetup{<list-name>}{<key=value>}`

This command is provided to setup the parameters of user-defined lists created with tocloft's `\newlistof` and printed with `\listofX` (where `X` is the name given to the list). The keys are the same as `\tocsetup`, and the sub-keys correspond to the entries. In fact:

- `\tocsetup` is a shortcut for `\listofsetup{toc}`
- `\lofsetup` is a shortcut for `\listofsetup{lof}` and
- `\lotsetup` is a shortcut for `\listofsetup{lot}`

Example:

```
\newlistof[section]{answer}{ans}{List of Answers}
\newlistentry[answer]{subanswer}{ans}{1}
\listofsetup{ans}{
  depth=2,
  title=List of Answers of the section,% modifies the title
  title/font=\Huge,
  answer/font=\Large\bfseries,
  subanswer/font=\large\itshape,
  answer/dotsep=3mu,
  subanswer/dotsep=,
  subanswer/pagenumbers=off,
}
\addcontentsline{ans}{answer}{\numberline{1}First answer}
\addcontentsline{ans}{subanswer}{\numberline{1.1}First sub-answer}
\listofanswer
```

} preferably in
the preamble

% can be changed inside the document body

% font spec.

% no dot

8 Interface `fancyhdr`: `\pagesetup`

| | | |
|--|--|---|
| <code>\pagesetup[⟨pagestyle-name⟩]{</code> | | |
| <code>norule norules</code> | | set <code>\headrulewidth</code> and <code>\footrulewidth</code> to 0pt |
| <code>rule rule/width[* + -]=...</code> | | set <code>\headrulewidth</code> and <code>\footrulewidth</code> to a given value |
| <code>rule/color=...</code> | <code>rule/font=...</code> | To change the rule font/color |
| <code>headrule=...</code> | <code>footrule=...</code> | redefines <code>\headrule</code> and <code>\footrule</code> (no value restores default) |
| <code>head/rule/width=...</code> | <code>foot/rule/width=...</code> | dimensions |
| <code>head/rule/color=...</code> | <code>foot/rule/color=...</code> | for head and foot rules separately |
| <code>head/rule/font=...</code> | <code>foot/rule/font=...</code> | <i>idem</i> |
| <code>head=...</code> | <code>foot=...</code> | header and footer (<code>\fancyhead</code> / <code>\fancyfoot</code>) |
| <code>left=...</code> | <code>center=...</code> | <code>right=...</code> , by position |
| <code>head/left=...</code> | <code>head/center=...</code> | <code>head/right=...</code> , for one side documents |
| <code>foot/left=...</code> | <code>foot/center=...</code> | <code>foot/right=...</code> , <i>idem</i> |
| <code>head/left/even=...</code> | <code>head/left/odd=...</code> | for two side documents |
| <i>etc.</i> | <i>etc.</i> | <i>etc.</i> |
| <code>foot/right/even=...</code> | <code>foot/right/odd=...</code> | |
| <code>inner=...</code> | <code>head/inner=...</code> | <code>foot/inner=...</code> , <i>inner</i> is an alias for <code>right/even</code> , <code>left/odd</code> |
| <code>outer=...</code> | <code>head/outer=...</code> | <code>foot/outer=...</code> , <i>outer</i> is an alias for <code>left/even</code> , <code>right/odd</code> |
| <code>offset=...</code> | | changes <code>\fancyhfoffset</code> |
| <code>head/offset=...</code> | <code>foot/offset=...</code> | |
| <code>left/offset=...</code> | <code>right/offset=...</code> | |
| <code>head/left/even/offset=...</code> | <code>head/left/odd/offset=...</code> | for two side documents |
| <i>etc.</i> | <i>etc.</i> | <i>etc.</i> |
| <code>foot/right/even/offset=...</code> | <code>foot/right/odd/offset=...</code> | for two side documents |
| <code>inner/offset=...</code> | <code>head/inner/offset=...</code> | <code>foot/inner/offset=...</code> , <i>inner</i> is an alias for <code>right/even</code> , <code>left/odd</code> |
| <code>outer/offset=...</code> | <code>head/outer/offset=...</code> | <code>foot/outer/offset=...</code> , <i>outer</i> is an alias for <code>left/even</code> , <code>right/odd</code> |
| <code>pagestyle=...</code> | | load the settings of another page style |
| <code>\pagesetup* [⟨pagestyle-name⟩]{key = value}</code> | | |

`\pagesetup` resets all headers and footers, rules etc. and modifies the current (active) page style depending on the `key=value` pairs. `\pagesetup[⟨page-style⟩]` defines (or redefines) a page style, starting from default values. When a key is specified with no value, the default is used (f. ex. `head/rule` will be .4pt and `foot/rule` will be 0pt).

`\pagesetup*` does not reset current values: keys that are not specified remains the same.

`\pagesetup* [⟨page-style⟩]` defines or redefines `⟨page-style⟩`; the normal form starts from scratch, while the starred form `\pagesetup*` keeps previous values if they are not overwritten, and if the `⟨page-style⟩` exists, of course.

`foot/left/odd` is the same as `odd/foot/left` etc. but `twoside` option is not checked... Even pages are ignored in `oneside` documents: this is L^AT_EX, not `fancyhdr` nor `interfaces-fancyhdr`.

As usual, for dimensions or glues, `+`, `-` and `*` keys are provided for addition, subtraction and scaling . And for code (font keys) the `+` and `*` keys are provided: both append their content to the previous value.

9 Interface marks

`interfaces-marks` provides a few macros to make easier the use of ε -TeX `\marks` registers. ε -TeX defines 32 768 marks registers, making the use of them far more comfortable than “old” \LaTeX `\markboth`, `\markright`, `\leftmark` and `\rightmark`. Who gets the correct – I mean *expected* – result with such commands ? Not me, I can say !

```
\marksthe{<named-mark>}{<content>}
\marksthecs{<named-mark>}{<cs-name>}
```

`\marksthe{<section>}{<content>}` will mark `<content>` into a mark register referenced by the control sequence `\marks@<section>`. **`<content>` is not expanded** (You can expand before `\marksthe` if you need it).

If the mark `\marks@<section>` is not defined, then a new mark register is allocated (with `etex-\newmarks`).

`\marksthecs{<subsubsection>}{<cs-name>}` will similarly mark the unexpanded content of `\cs-name` by means of the marks register `\marks@<subsubsection>`. `<cs-name>` is really the *name of the control sequence*, not the control sequence itself. If `\cs-name` is undefined or `\relax`, nothing is marked, making `\marksthecs` suitable to use with `\lastsectiontitle` *etc.* at `\sectionbreak` (see [interfaces-hypbmsec](#) p. 8).

```
\thefirstmarks{<named-mark>}EXPANDABLE
\thebotmarks{<named-mark>}EXPANDABLE
\thetopmarks{<named-mark>}EXPANDABLE
```

`\thefirstmarks{<chapter>}` expands to `\firstmarks\marks@<chapter>` (this is expandable in exactly one step of expansion), *ie.* either the content of the first invocation of `\marksthe{<chapter>}` on the current page, if `\marks` was used on the current page, or the last invocation of `\marks` if no marks occurs on the current page.

`\thebotmarks{<chapter>}` expands to `\botmarks\marks@<chapter>` *ie.* the content of the last invocation of `\marksthe{<chapter>}` (the most recent `\marks`).

`\thetopmarks{<chapter>}` expands to `\topmarks\marks@<chapter>` and this is the content of `\botmarks` at the time \TeX shipped out the last page.

If there is no mark or if the mark register does not exist, expansion is null (*ie.* nothing is done).

Those commands can be used in headers and footers, f.ex:

```
\sectionformat\section{
  mark=\marksthe{section}{\arabic{section}\hskip.4em\textendash\hskip.4em#1}}
\pagesetup{head/right=\thefirstmarks{section}}
```

```
\getthemarks\firstmarks|\botmarks|\topmarks{<named-mark>}{\control-sequence}
\getthefirstmarks{<named-mark>}{\control-sequence}
\getthebotmarks{<named-mark>}{\control-sequence}
\getthetopmarks{<named-mark>}{\control-sequence}
```

You may wish to retrieve the values of `\firstmarks`, `\botmarks` or `\topmarks` into a macro. This is the purpose of these commands: `\control-sequence` is defined as a parameterless macro whose replacement text is the content of the specified marks register.

If the marks register `\marks@<named-mark>` does not exist, the meaning of `\control-sequence` is undefined.

```
\ifmarksequal{\firstmarks}{\topmarks}{named-mark}{\true}{\false}
```

Pretty often, we want to compare the botmarks with firstmarks or the topmarks, to adapt the header and/or footer in case those marks are equal or different, *ie.* in case the page contains a new section title or not:

`\ifmarksequal` expands conditionnally code `{\true}` only if the specified marks register to compare are equal, otherwise `{\false}`.

- `\firstmarks=\botmarks` ⇔ there is at most one section title on the current page;
- `\topmarks=\botmarks` ⇔ there is no section title on the current page;
- `\firstmarks=\topmarks` ⇔ the last section title continues on the current page.

Those assertions are true only if you mark the section title at `\sectionmark` and at `\sectionbreak`: this is easy when using `interfaces-hybmsec`: `\sectionformat\subsection{break=\markthecs{subsection}{lastsubsection}{toc}}`.

If the marks register `\marks@<named-mark>` does not exist, the `{\false}` part is expanded.

10 Interface `makecell` : `\repeatcell`

`makecell` provides `\eline`, `\nline`, `\Xrows` to fill a table with empty cells, or repeated rows.

`interfaces` extends the possibility with `\repeatcell`. Although it is of general use, `\repeatcell` should be used softly in order to keep the `.tex` document intelligible (see the examples below).

While repeating cells, `\repeatcell` can also make calculations with:

- `\numexpr`,
- `\pgfmath` (\leadsto `\usetikz{pgfmath}` required in preamble)
- `$$\FPeval$$` (`\usepackage{fp}` required in preamble) \Rightarrow use `round` to display the results!

Inside formulas `\row` expands to the current row, `\column` to the current column number (`\row` and `\column` are 1-based and relative to `\repeatcell`).

```
\countvalues{<comma separated list>}
```

`\countvalues{<comma separated list>}` expands to the number of values in the list. This is also the number of steps a \LaTeX `\@for` loop would do on the list: in other words, **empty values are counted**. `\countvalues` is provided to allow you to adjust automatically the number of columns of a tabular, depending on your data, with the `*` operator: `\begin{tabular}{*\countvalues\list}{c}`.

`\countvalue` is purely expandable in one expansion step. The `<comma separated list>` is expanded once, exactly like in \LaTeX `\@for` (*hint*: you can put `\empty` before, to avoid expansion).

```
\repeatcell[<alignment>]{<columns>}{ ← number of columns or comma separated list of values
    text = the text to be inserted (repeated) in each cell
    font = the font inside the cell
    rows = the number of rows (default is 1 row) or a comma separated list of value:
           {one,two,three,four,etc.} Empty values are not ignored.
    cr|end = the end-of-row sequence (default is \\ but you may want \crrc\hline or
           \tabularnewline...)
           end of row sequence is never inserted after the last row.
    text/row1 | text/row2 | text/row3 etc. = If you want to change the text on the specified rows
    text/col1 | text/col2 | text/col3 etc. = If you want to change the text on the specified columns
    font/row1 | font/row2 | font/row3 etc. = If you want to change the font on the specified rows
    font/col1 | font/col2 | font/col3 etc. = If you want to change the font on the specified columns
    cr/row1 | cr/row2 | cr/row3 etc. = If you want to change the end-of-line sequence on the specified rows
    transpose = Do you wish to invert rows and columns ? Then transpose=true ☺.
    any other key = can be used to make calculations using \numexpr or $\pgfmathparse$
                   or $$\FPeval$$ . Pay attention to put your formula inside curly brackets
                   {$formula$} if it contains a comma , or an equal = sign! }
```

☞ If `[<alignment>]` is specified, then each cell is placed into a `\makecell[<alignment>]` command.

☞ If both `text/row<i>` and `text/col<i>` are specified for the same cell, then `makecell \diaghead` is used to display the values in a diagonally divided cell.

☞ If you want to see (in the `.log` file) the code introduced into the tabular (or array) by `\repeatcell` type `\let\itf@message=\message` before `\repeatcell`.

Formulas: if you say: `x = $sin(10*\column)$` for example, then the formula is evaluated in each cell with `\pgfmath`. The result is stored into the control sequence `\x` and can be used in `text` or in any other following formula. The order in which the computed keys are given determines the order of evaluation... *of course!*

If you specify the number of columns (*resp.* of rows) as an integer, then `\repeatcell` works exactly as if you gave it a list of integers `{1, 2, 3, 4, ..., p}`.

If you specify the rows as a comma separated list of values, the following sequences are also admissible in `text`:

`\R\row` refer to the value of the list for the current row. `\r` is the same (unless you defined a formula named `r`).
`\R{<n>}` to the value of the list for row `{<n>}`

If the number of rows is specified as an integer, then `\R\row`, `\r` and `\row` are equal (to the current row index).

Similarly if you specify the columns as a comma separated list of values, the following sequences are provided:

`\C\column` refer to the value of the list for the current column. `\c` is the same, unless you defined a formula named `c`.
`\C{<m>}` to the value of the list for column `{<m>}`

If the number of columns is specified as an integer, then `\C\row`, `\c` and `\col` are equal (to the current column index).

If the values in the lists are numeric, `\R`, `\C`, `\r` and `\c` can be used in formulas as well, *of course...*

~~~~~ A few examples are better than a 10 pages description ! ~~~~~

### 10.1 † Conversion to scaled points

```
\def\listofunits{ pt , cm , mm , bp , dd , pc , in , cc ,sp }
\begin{tabu}{|>{\bfseries}c|*9{X[mc]}|} \hline
\thead{units}
& \repeatcell[c]\listofunits{ text = \c, font=\bfseries } \\ \hline
\thead{value in\ scaled\ points}
& \repeatcell\listofunits{%
    sp =\number\dimexpr 1\c\relax,
    text=\numprint[sp]\sp} \\ \hline
\end{tabu}
```

| units                  | pt        | cm           | mm         | bp        | dd        | pc         | in           | cc         | sp   |
|------------------------|-----------|--------------|------------|-----------|-----------|------------|--------------|------------|------|
| value in scaled points | 65 536 sp | 1 864 679 sp | 186 467 sp | 65 781 sp | 70 124 sp | 786 432 sp | 4 736 286 sp | 841 489 sp | 1 sp |

### 10.2 † Variable length cell

```
\newcommand\FAMILY[3]{%
\begin{tabu}to .4\linewidth{|*3{X[mc]}|} \hline
Mother & Father & Children \\ \hline
#1 & #2 & \makecell{\repeatcell{#3}{text=\c, transpose}} \\ \hline
\end{tabu}}
\FAMILY{Johanne}{Georg}{Priscilla, John, Tom}
\FAMILY{Nut}{Geb}{Isis, Osiris, Seth, Nephthys}
```

| Mother  | Father | Children                           |
|---------|--------|------------------------------------|
| Johanne | Georg  | Priscilla<br>John<br>Tom           |
| Mother  | Father | Children                           |
| Nout    | Geb    | Isis<br>Osiris<br>Seth<br>Nephthys |



### 10-3 † Empty rows

```
\begin{tabu}{*6{c}} \hline
\repeatcell 6{ text/col1=row , rows=4, end=\\ \hline } \\ \hline
\end{tabu}
```

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |

```
\begin{tabu}{*4{c}} \hline
\repeatcell 6{ text/col1=row , rows=4, end=\\ \hline , transpose} \\ \hline
\end{tabu}
```

|   |   |   |   |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|   |   |   |   |
|   |   |   |   |
|   |   |   |   |
|   |   |   |   |

### 10-4 † color palette

```
\begin{tabular}{*{4}c}
\repeatcell {8}{\transpose=true, rows=4,
red = {\$round(\c/8*255,0)}$,
greeni = \red, bluei = \red,
greenii = {\$round(255-\red,0)}$, blueii = \red,
greeniii = \red, blueiii = {\$round(255-\red,0)}$,
greeniv = \greenii, blueiv = \blueiii,
text/row1={\cellcolor[RGB]{\red,\greeni,\bluei}(\red,\greeni,\bluei)},
text/row2={\cellcolor[RGB]{\red,\greenii,\blueii}(\red,\greenii,\blueii)},
text/row3={\cellcolor[RGB]{\red,\greeniii,\blueiii}(\red,\greeniii,\blueiii)},
text/row4={\cellcolor[RGB]{\red,\greeniv,\blueiv}(\red,\greeniv,\blueiv)}}
\end{tabular}
```

|               |               |               |               |
|---------------|---------------|---------------|---------------|
| (32,32,32)    | (32,223,32)   | (32,32,223)   | (32,223,223)  |
| (64,64,64)    | (64,191,64)   | (64,64,191)   | (64,191,191)  |
| (96,96,96)    | (96,159,96)   | (96,96,159)   | (96,159,159)  |
| (128,128,128) | (128,127,128) | (128,128,127) | (128,127,127) |
| (159,159,159) | (159,96,159)  | (159,159,96)  | (159,96,96)   |
| (191,191,191) | (191,64,191)  | (191,191,64)  | (191,64,64)   |
| (223,223,223) | (223,32,223)  | (223,223,32)  | (223,32,32)   |
| (255,255,255) | (255,0,255)   | (255,255,0)   | (255,0,0)     |

**Note:** `makecell` interact very badly with `colortbl`. Therefore, with `\cellcolor` or `\rowcolor`, the optional [*alignment*] parameter of `\repeatcell` does not give good results... `colortbl` remain a rather rough package, and deserve a finer implementation... in future.

### 10-5 † `tabularcalc`-like tables (with `dcolumn` package) and `pgfmath`

```
\def\listofx{ -4 , -2 , 0 , 2.25 , 7 }
\begin{tabu}{c<{\bottopstrut}*{5}{|D..{5.5}}|} \hline
\rowfont{\large\color{blue}}
x & \repeatcell\listofx{ text=\C\column } & \hline\hline
f(x)=2x-3 & \repeatcell\listofx{ fx = $2*\c-3$, text=\fx } & \hline
x^2 & \repeatcell\listofx{ xsquare = $\C\column^2$, text = \xsquare } & \hline
h(x) = \sqrt{x^2+1} & \repeatcell\listofx{ x=\C\column, hx = {\$sqrt(pow(\x,2)+1)}$, text = \hx } & \hline
\end{tabu}
```

| $x$                     | -4      | -2      | 0       | 2.25    | 7       |
|-------------------------|---------|---------|---------|---------|---------|
| $f(x) = 2x - 3$         | -11.0   | -7.0    | -3.0    | 1.5     | 11.0    |
| $x^2$                   | - 16.0  | -4.0    | 0.0     | 5.0625  | 49.0    |
| $h(x) = \sqrt{x^2 + 1}$ | 4.12310 | 2.23606 | 1.00000 | 2.46221 | 7.07106 |

$\pgfmath$  computations

| $x$                     | -4        | -2       | 0        | 2.25    | 7        |
|-------------------------|-----------|----------|----------|---------|----------|
| $f(x) = 2x - 3$         | -11.00000 | -7.00000 | -3.00000 | 1.50000 | 11.00000 |
| $x^2$                   | 16.00000  | 4.00000  | 0.00000  | 5.06250 | 49.00000 |
| $h(x) = \sqrt{x^2 + 1}$ | 4.12311   | 2.23607  | 1.00000  | 2.46221 | 7.07107  |

And the same with  $\FPEval$  (`fp` package)



## 10.6 † Double entry array: the Body Mass Index

```

\def\weightlist{weight in kg, 30, 45, 50, 55, 60, 65, 70, 80, 90, 95, 100, 110, 120}
\def\heightlist{height in cm, 190, 180, 170, 160, 150, 140, 130}
\colorlet{denutrition}{Crimson} \colorlet{skinniness}{yellow} \colorlet{normal}{LawnGreen}
\colorlet{obesity}{Moccasin} \colorlet{serious obesity}{DarkOrange} \colorlet{morbid obesity}{Fuchsia}
\newcommand*\mycolor[1]{\cellcolor{#1}}
\ifdim#1pt<17pt denutrition\else \ifdim#1pt<19pt skinniness\else \ifdim#1pt<26pt normal\else
\ifdim#1pt<30pt obesity\else \ifdim#1pt<35pt serious obesity\else morbid obesity\fi\fi\fi\fi\fi}}

\begin{tabu}{*{\countvalues\heightlist}{|c|}} \hline
\repeatcell \heightlist {%
  rows = \weightlist,
  height = \ifnum\column>1 \c\else 1\fi,
  weight = \ifnum\row>1 \r\else 1\fi,
  BMI = {\$round(\weight/((\height/100)^2),1)\$},
  text = \mycolor{\BMI}\BMI,
  text/row1 = \c, font/row1 = \color{NavyBlue}, cr/row1 = \\ \hline,
  text/col1 = \r, font/col1 = \color{DarkViolet},
} \\ \hline
\end{tabu}\quad
\begin{tabu}{|c|}
\repeatcell{denutrition,skinniness,normal,obesity,serious obesity,morbid obesity}{%
  text=\cellcolor{\c}{\c},\transpose,font=\large\bfseries\bottomstrut}
\end{tabu}

```

| height in cm \ weight in kg | 190  | 180  | 170  | 160  | 150  | 140  | 130  |
|-----------------------------|------|------|------|------|------|------|------|
| 30                          | 8.3  | 9.3  | 10.4 | 11.7 | 13.3 | 15.3 | 17.8 |
| 45                          | 12.5 | 13.9 | 15.6 | 17.6 | 20.0 | 23.0 | 26.6 |
| 50                          | 13.9 | 15.4 | 17.3 | 19.5 | 22.2 | 25.5 | 29.6 |
| 55                          | 15.2 | 17.0 | 19.0 | 21.5 | 24.4 | 28.1 | 32.5 |
| 60                          | 16.6 | 18.5 | 20.8 | 23.4 | 26.7 | 30.6 | 35.5 |
| 65                          | 18.0 | 20.1 | 22.5 | 25.4 | 28.9 | 33.2 | 38.5 |
| 70                          | 19.4 | 21.6 | 24.2 | 27.3 | 31.1 | 35.7 | 41.4 |
| 80                          | 22.2 | 24.7 | 27.7 | 31.3 | 35.6 | 40.8 | 47.3 |
| 90                          | 24.9 | 27.8 | 31.1 | 35.2 | 40.0 | 45.9 | 53.3 |
| 95                          | 26.3 | 29.3 | 32.9 | 37.1 | 42.2 | 48.5 | 56.2 |
| 100                         | 27.7 | 30.9 | 34.6 | 39.1 | 44.4 | 51.0 | 59.2 |
| 110                         | 30.5 | 34.0 | 38.1 | 43.0 | 48.9 | 56.1 | 65.1 |
| 120                         | 33.2 | 37.0 | 41.5 | 46.9 | 53.3 | 61.2 | 71.0 |

|                 |
|-----------------|
| denutrition     |
| skinniness      |
| normal          |
| obesity         |
| serious obesity |
| morbid obesity  |

| weight in kg \ height in cm | 30   | 45   | 50   | 55   | 60   | 65   | 70   | 80   | 90   | 95   | 100  | 110  | 120  |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 190                         | 8.3  | 12.5 | 13.9 | 15.2 | 16.6 | 18.0 | 19.4 | 22.2 | 24.9 | 26.3 | 27.7 | 30.5 | 33.2 |
| 180                         | 9.3  | 13.9 | 15.4 | 17.0 | 18.5 | 20.1 | 21.6 | 24.7 | 27.8 | 29.3 | 30.9 | 34.0 | 37.0 |
| 170                         | 10.4 | 15.6 | 17.3 | 19.0 | 20.8 | 22.5 | 24.2 | 27.7 | 31.1 | 32.9 | 34.6 | 38.1 | 41.5 |
| 160                         | 11.7 | 17.6 | 19.5 | 21.5 | 23.4 | 25.4 | 27.3 | 31.3 | 35.2 | 37.1 | 39.1 | 43.0 | 46.9 |
| 150                         | 13.3 | 20.0 | 22.2 | 24.4 | 26.7 | 28.9 | 31.1 | 35.6 | 40.0 | 42.2 | 44.4 | 48.9 | 53.3 |
| 140                         | 15.3 | 23.0 | 25.5 | 28.1 | 30.6 | 33.2 | 35.7 | 40.8 | 45.9 | 48.5 | 51.0 | 56.1 | 61.2 |
| 130                         | 17.8 | 26.6 | 29.6 | 32.5 | 35.5 | 38.5 | 41.4 | 47.3 | 53.3 | 56.2 | 59.2 | 65.1 | 71.0 |

The same with `\transpose`

*Note that `\fp` computation can be time consuming...* depending on the formula and the number of cells to fill in. While preparing first such a table, give to the computed keys a constant value, and plug the formulas only when you are satisfied with the displayed tabular...

## 11 Interface `enumitem` : `\setlist`

```
\setlist [environment,level,environment,level,etc.]{
    label= the label to be used
    font= the label font
-----
    topsep= vertical space before the list
    partopsep= vertical space
    parsep= value of \parskip inside the list
    itemsep= vertical space between two items
-----
    leftmargin= the list left margin
    rightmargin= the list right margin
    listparindent= the value of \parindent inside the list
    labelwidth= the width of the label box
    labelsep= horizontal space between label and following text
    itemindent= the indentation of the items
}
\setlist* [{environment,level,environment,level,etc.}]{key=value}
```

Enumerated lists, description lists or itemize lists can be defined by `enumitem` with the command `\newlist`.

For example: `\newlist{mylegal}{enumerate}{10}`

The list can be customized with `\setlist`, for example:

```
\setlist[mylegal,1]{label*=\arabic*.}
\setlist[mylegal,2]{label*=\arabic*.}
\setlist[mylegal,3]{label*=\roman*)}
```

With `interfaces-enumitem` you may specify more than one level at a time in `\setlist`, (and even more than one environment at a time):

```
\setlist[mylegal,1,2]{label*=\arabic*.}
\setlist[mylegal,3]{label*=\roman*)}
```

A list can also be **modified** with `\setlist*`: keys that are not specified remain the same.

```
\setlist*[mylegal,1,2,3]{align=left,leftmargin=*}
```

or

```
\setlist*[mylegal]{align=left,leftmargin=*}
```

### `\interitem`

Just like  $\mathcal{MS}$  `\intertext` in math formulæ, `\interitem` allows to put some non intended text inside a list environment. Example:

```
\begin{enumerate}[label=\roman*)\,,parsep=0pt]
\item First item in the enumerate env
\interitem or (intertext)
\item Second item
\end{enumerate}
```

The example give in real world:

i) First item in the enumerate env  
or: (intertext)  
ii) Second item

And the following follows...

## 12 Interface truncate

The package `truncate` by Donal Arseneau provides the command:

```
\truncate[⟨TruncateMarker⟩]{⟨width⟩}{⟨text⟩}
```

to trunc the given  $\langle text \rangle$  to the specified  $\langle width \rangle$ , by means of  $\langle TruncateMarker \rangle$  if the the truncation occurs.

```
\truncatext[⟨TruncateMarker⟩]{⟨width⟩}{⟨text⟩}
```

`\truncatext` is the same as `\truncate` but it leaves  $\{text\}$  to its natural width if it has not to be truncated (*ie.* if  $\langle width \rangle \leq \text{width of } \langle text \rangle$ ). Example:

|                          |                                                 |                                                                                               |
|--------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <code>truncate:</code>   | <code>\truncate{⟨5cm⟩}{⟨Hello world!⟩}</code>   | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Hello word!</div>  |
| <code>truncatext:</code> | <code>\truncatext{⟨5cm⟩}{⟨Hello world!⟩}</code> | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Hello world!</div> |

This corresponds to the `[fit]` option of the `truncate` package.

```
\htruncadjust{⟨total width⟩}[⟨x1,x2,...,xn⟩]{⟨text1,text2,...,textn⟩}
```

This macro will measure the width of  $text_1, text_2, \dots, text_n$  and adjust them for truncation:

| text     | width | adusted width                                                                            | $\gamma$ (truncated?)                                                                    | Returned width                                                              |
|----------|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| $text_1$ | $w_1$ | $w'_i = \min\left(w_1, \frac{x_1}{\sum x_i} \times \langle total \ width \rangle\right)$ | $\gamma_1 = \begin{cases} 1 & \text{if } w'_1 < w_1 \\ 0 & \text{otherwise} \end{cases}$ | $\omega_1 = w'_1 + \gamma_1 \cdot \Phi \cdot \frac{x_1}{\sum \gamma_i x_i}$ |
| $text_2$ | $w_2$ | $w'_i = \min\left(w_2, \frac{x_2}{\sum x_i} \times \langle total \ width \rangle\right)$ | $\gamma_2 = \begin{cases} 1 & \text{if } w'_2 < w_2 \\ 0 & \text{otherwise} \end{cases}$ | $\omega_2 = w'_2 + \gamma_2 \cdot \Phi \cdot \frac{x_2}{\sum \gamma_i x_i}$ |
| $text_3$ | $w_3$ | $w'_i = \min\left(w_3, \frac{x_3}{\sum x_i} \times \langle total \ width \rangle\right)$ | $\gamma_3 = \begin{cases} 1 & \text{if } w'_3 < w_3 \\ 0 & \text{otherwise} \end{cases}$ | $\omega_3 = w'_3 + \gamma_3 \cdot \Phi \cdot \frac{x_3}{\sum \gamma_i x_i}$ |
| $text_4$ | $w_4$ | $w'_i = \min\left(w_4, \frac{x_4}{\sum x_i} \times \langle total \ width \rangle\right)$ | $\gamma_4 = \begin{cases} 1 & \text{if } w'_4 < w_4 \\ 0 & \text{otherwise} \end{cases}$ | $\omega_4 = w'_4 + \gamma_4 \cdot \Phi \cdot \frac{x_4}{\sum \gamma_i x_i}$ |
|          |       | $\Phi = \text{freespace} = \langle total \ width \rangle - \sum w'_i$                    |                                                                                          | $\sum \omega_i \leq \langle total \ width \rangle$                          |

Another example of a tabular made with `\repeatcell`

The widths can be accessed with `\htruncwidth{⟨i⟩}` and then:

```
\truncatext[⟨TruncateMarker⟩]{\htruncwidth{⟨i⟩}}{⟨texti⟩}.
```

$x_i$  can be any real number provided that  $\sum_i x_i \leq 16383 = \text{maxdimen}$  in points.

Measuring the widths occur inside a `\hbox`, thus  $text_1, \dots, text_n$  can contain macros, non expandable material *etc.*. For example:

`\htruncadjust{4cm}[2,1]{Hello,world}` will prepare the widths so that their sum does not exceed 4 centimeters, and  $w_1 = 2 \times w_2$ .

`\htruncadjust{4cm}[2,1,2]{The,World,Is flat}` will prepare the widths so that their sum does not exceed 4 centimeters, and  $w_1 = w_3 = 2 \times w_2$ .

If the optional parameters  $x_i$  are not given, then they are equal to the natural width of  $\{text_1, \dots, text_n\}$ . In other words,  $text_1, \dots, text_n$  are truncated to a width proportional to their natural widths. (And the sum of their widths will not exceed  $\langle total \ width \rangle$ ).

This macro has been designed to cleverly truncate the text of headers, when they contain titles on both sides... Usually then, there are only two pieces of text whose width have to be adjusted for truncation...

```
\htruncadjust{3cm}{first quite long,second short,third} % natural widths
\truncatext{\htruncwidth{1}}{first quite long}
\truncatext{\htruncwidth{2}}{second short}
\truncatext{\htruncwidth{3}}{third}
```

→ first quite...second...t... (39.05698pt, 33.65436pt, 12.64691pt, total=85.35825pt).

```
\htruncadjust{3cm}[3,2,2]{first quite long,second short,third} % first is 3/2 of the two others
```

→ first quite...secon...third (41.01503pt, 27.34372pt, 17.00078pt, total=85.35953pt).

## 13 Interface `appendix` and the appendices environment

`appendix` provides a way to write appendices inside an environment. This feature is suitable for short appendices like the one included in this document. `interfaces-appendix` gives an easier control on some parameter for the appendix with standard (optional) key names.

---

```
\begin{appendices}[%
  section = section | chapter,      alternatively, the key chapter is provided
  title = the appendix title,       if left blank, title is removed: [page] option of appendix
  intoc = true | false,             put an entry in t.o.c. ?
  intoc/title = the entry in t.o.c.] if blank, no title in t.o.c., if no value: the appendix title
  appendix content ...
\end{appendices}
```

---

## 14 Interface `embedfile` : `\embedthisfile`

`\embedthisfile`  
`\embedthisfile*`

`\embedthisfile` will embed into the final `.pdf` file, the current `.tex` file and all `.tex` files that are included (with `\include`) in it. If `\includeonly` is used, the only files embedded (*ie.* attached) to the `.pdf` file are the ones specified by `\includeonly`.

`\embedthisfile*` embeds only the main file.

This macro could disappear from `interfaces-embedfile` if it is added to the main package... Depending on Mr Oberdiek moods 😊.

## 15 Interface `environ`

`environ` defines `\Renewenvirom` but I found out it was usefull to have `\ReNewEnvirom` (note the case!)

Therefore: `\let\ReNewEnvirom\RenewEnvirom` is made by `interfaces` (`\AfterPackage{environ}`).

## 16 Interface `umrand`

`umrand` defines the macro `\ifnotempty` which is already defined with a different meaning in `etextools`. `interfaces` provides a turn around to avoid redefinition.

For this turn around, `interfaces` must be loaded before `umrand` (because we use `\BeforePackage{umrand}`). This is – really – the only exception!

## 17 Interface `pgfkeys` (📖 `pgfmanual`)

`pgfkeys`'s the base of all... wonderful and inimitable! ☺

The following handlers allows to build fairly quickly a `key=value` interface for commands in almost any case:

### ~~~~~ SUMMARY ~~~~~

|                                                                                    |                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>/.blank</code>                                                               | Replaces blank value by another value.                                                                                                                                                                                  |
| <code>/.is private</code>                                                          | Throws an error if the key is used in an assignment                                                                                                                                                                     |
| <code>/.store in cs</code> <code>/.estore in cs</code>                             | Like <code>/.store in</code> but with <code>\csname...\endcsname</code>                                                                                                                                                 |
| <code>/.true</code> <code>/.false</code><br><code>/.on</code> <code>/.off</code>   | <code>/.is choice</code> shortcut for boolean keys                                                                                                                                                                      |
| <code>/.is multiple choice</code>                                                  | Like <code>/.is choice</code> but more than one choice can be selected at a time                                                                                                                                        |
| <code>/.is enum</code>                                                             | <code>/.is choice</code> shortcut for enumerated keys<br>also provides the <code>/key/.number</code> key to get the numeric index of the selected choice.                                                               |
| <code>/.store as code</code><br><code>/.estore as code</code>                      | Stores the given value in the key itself. <code>+</code> and <code>*</code> keys both append code.<br>The same but stores the <i>expanded value</i> .                                                                   |
| <code>/.store as code in cs</code><br><code>/.estore as code in cs</code>          | Stores the given value in a cs-name rather than in the key. <code>+</code> and <code>*</code> keys both append code.<br>The same but stores the <i>expanded value</i> .                                                 |
| <code>/.store as color</code><br><code>/.store as color command</code>             | Stores the color in the key itself.<br>The same but stores the color <i>command</i> .                                                                                                                                   |
| <code>/.store as color in cs</code><br><code>/.store as color command in cs</code> | Stores the color in a cs-name rather than in the key.<br>The same but stores the color <i>command</i> .                                                                                                                 |
| <code>/.store as number</code><br><code>/.estore as number</code>                  | Stores an integer in the key ( <code>-</code> <code>+</code> and <code>*</code> keys are provided to add, subtract and multiply).                                                                                       |
| <code>/.store as number in cs</code><br><code>/.estore as number in cs</code>      | The same, but stores into a cs-name rather than in the key.                                                                                                                                                             |
| <code>/.store in counter cs</code>                                                 | The same, but stores into a $\TeX$ counter.                                                                                                                                                                             |
| <code>/.store as glue</code><br><code>/.estore as glue</code>                      | Stores a glue expression in the key ( <code>+</code> <code>-</code> and <code>*</code> keys are provided to add, subtract or scale).<br>The same, but stores the <i>computed value</i> of the glue, not its expression. |
| <code>/.store as glue in cs</code><br><code>/.estore as glue in cs</code>          | The same, but stores in a given cs-name rather than in the key itself.                                                                                                                                                  |
| <code>/.store in skip cs</code>                                                    | The same, but stores the glue inside a $\TeX$ <code>\skip</code> register.                                                                                                                                              |
| <code>/.store as dimen</code><br><code>/.estore as dimen</code>                    | Store a dimen expression in the key (with <code>+</code> <code>-</code> and <code>*</code> keys to add, subtract or scale).<br>The same, but stores the <i>computed value</i> of the dimen, not its expression.         |
| <code>/.store as dimen in cs</code><br><code>/.estore as dimen in cs</code>        | The same, but stores in a given cs-name rather than in the key itself.                                                                                                                                                  |
| <code>/.store in dimen cs</code>                                                   | Stores the dimension into a $\TeX$ <code>\dimen</code> register rather than in a macro.                                                                                                                                 |
| <code>/.alias</code>                                                               | Creates an alias for the key.                                                                                                                                                                                           |
| <code>/.alias*</code>                                                              | The same, but also creates the alias for the <code>+</code> , <code>-</code> and <code>*</code> keys if they exist.                                                                                                     |

The command `\pgfkeysmeaning` is provided (with `\providecommand`): it expands to the meaning of the given `pgfkey`.

### 17.1 † Handler definition: `/.blank`

A new handler `/.blank` is defined to allow automatic replacement of empty or blank values by the “default” value specified:

```
\pgfkeys{/base/path/my key/.code=The key #1,%
         /base/path/my key/.default=has its default value!,%
         /base/path/my key/.blank=was left blank!}
\pgfkeys{/base/path/my key,           produces The key has its default value!
         /base/path/my key=}         produces The key was left blank!
```

The following make blank value behave the same as default :

```
\pgfkeys{/base/path/my key/.blank=\pgfkeysnovalue}
```

And If you wish to forbid blank values you can add:

```
\pgfkeys{/base/path/my key/.value required}
```

With `interfaces-pgfkeys` it is also possible to give a `/.default` or/and a `/.blank` value to a handler, or on the other hand to say that a handler must have (`/.value required`) or does not suffer (`/.value forbidden`) a value. (this feature was not implemented in `pgfkeys.code.tex`).

## 17.2 † Handler definition: `/.is private`

This handler is mainly addressed to package writers. A private key does not suffer any assignment: this is a package constant:

```
\pgfkeys{/base/path/@my key/.is private=mypackage}
```

Then any assignment to `@my key` will throw an error, explaining that `@my key` is private to the package `mypackage`.

Similarly, there is a `/.is private to class` handler (for `\ClassError` instead of `\PackageError`).

## 17.3 † Handler definition: `/.store in cs` and `/.estore in cs`

A new handler `/.store in cs` is defined to store the value of a key in a named control sequence:

```
\pgfkeys{%
  /base/path/my key/.store in cs=some word,% will define : \ "some word"
}
```

## 17.4 † Handlers definition: `/.true`, `/.false`, `/.on` and `/.off`

A key of type `/.true` or `/.false` can take the only values `true` or `false` and its default value is `true` (unless `/.default=false` is explicitly given to `\pgfkeys`).

Similarly, a key of type `/.on` or `/.off` can take the only values `on` or `off` and its default value is `on` (unless `/.default=off` is explicitly given to `\pgfkeys`).

These are shortcuts and a special case of `/.is choice` keys:

```
\pgfkeys{
  my key/.true = code if the value is true,
  my key/.false = code if the value is false,
  my key2/.on = code if the value is on,
  my key2/.off = code if the value is off      }
}
```

## 17.5 † Handler definition: `/.is multiple choice`

A key defined with `/.is multiple choice` behaves like a `/.is choice` key but more than one choice can be selected at a time:

```
\pgfkeys{/path/.cd,
  format/.is multiple choice,
  format/bold/.code= ...,
  format/italic/.code= ...,
  format/color/.code= ...      }
```

Possible values for key `format` are restricted to subkeys: `bold`, `italic` and `color`. But unlike simple `/.is choice` keys, it is possible to use:

```
\pgfkeys{/path/format={bold,italic,color=...}}
this is the same as:
\pgfkeys{/path/format=bold,/path/format=italic,path/format={color=...}}
```

The bookmark key of `\sectionformat` (in `interfaces-titlesec`) is a good example.

## 17.6 † Handler definition: `/.is enum`

A key defined with `/.is enum` behaves like a `/.is choice` key: its possible values are limited to sub-keys. The name of the selected sub-key is stored into the key.

```
\pgfkeys{/path/.cd,
  enumKey/.is enum={one,two,three}
}
```

`enumKey` can be one or two or three and nothing else.

```
\pgfkeys{ enumKey=two }
```

assigns `two` to the value of the key: `\pgfkeysvalueof{enumKey}` is `two`.

`\pgfkeysvalueof{enumKey/.number}` is 1 (zero based index)

### 17.7 † Handlers definition: `/.store as code`, `/.estore as code`

This handler stores the value given to the key in the key itself. Furthermore, a starred key `*` and a `+` keys are defined such that they append their value to the stored key.

```
\pgfkeys{/test/.store as code,
          /test=some code,
          /test+= the following follows...      }
```

Defines the key `/test` so that `\pgfkeysvalueof{/test}` expands to `some code`. `/test+` appends “the following follows” to the previous value of the key. (`/test*` does the same).

If you prefer not to have star keys `*`, or `+` keys, or only one of these, just say, for example:

```
\pgfkeys{/test/.store as code=+}
```

*This feature is very important for `interfaces`: almost any `font` keys are defined with the handler `/.store as code`.*

*A note for programmers:* `/.store as code` defines three keys: `test`, `test+` and `test*`. (The two former are the same). The “append code” keys (`+` and `*`) call the *main key* `test`. This is handy because if you append code to the *main key* (with `pgfkeys /.add code` or `/.append code`) then this code will be expanded also in case the `+` or `*` keys are called.

There is also a `/.estore as code` handler which expands the given code before storing it in the key.

### 17.8 † Handlers definition: `/.store as code in cs=<cs-name>`, `/.estore as code in cs=<cs-name>`

This handler works like `/.store as code`: the content is stored in the `cs-name` given as value for the handler, but not inside the key itself (useful for `key=value` interfaces to other packages).

The `+` and `*` keys are provided: both append their value to the content of the given control sequence.

Typically, `/font` keys are defined this way for interface with other packages.

There is also a `/.estore as code in cs` handler which expands the given code before storing it in the `<cs-name>`.

### 17.9 † Handler definition: `/.store as color`

When specifying a color, did you say:

```
color=\color{yellow}      color=\normalcolor
color=blue                 color=[rgb]{1,0,0}
```

In any case, `/.store as color` will transform the value as follow:

```
color=yellow              color=default defined by interfaces if not already
color=blue                 color=[rgb]{1,0,0} defined \AtBeginDocument
```

In any case, `/.store as color command` will transform the value as follow:

```
color=\normalcolor        color=\color{yellow}
color=\color{blue}         color=\color[rgb]{1,0,0}
```

Please! Dont write: `\def\myBlue{blue} color=\myBlue`.

Use `\colorlet{myBlue}{blue}` instead, or `\definecolor`.

As for code, the color is stored inside the key.

### 17.10 † Handler definition: `/.store as color in cs=<cs-name>`

The same as `/.store as color`, but the color is stored in the given control sequence, rather than in the key itself.

There is also a `/.store as color command in cs` handler. It is used to set the value to `\columnseprulecolor` by the key `columns/rule/color` of `\tocsetup`.



**17.11 † Handlers definition: `/.store as number,/.estore as number`****17.12 † Handlers definition: `/.store as number in cs,/.estore as number in cs`****17.13 † Handler definition: `/.store as glue`**

This is quite the same as `/.store as code`, but the given code is surrounded by `\glueexpr...\relax...` and is stored inside the key.

Furthermore:

the `+` key adds to the length: `\glueexpr old value + < argument > \relax`.  
 the `-` key subtracts: `\glueexpr old value - < argument > \relax`  
 the `*` key scales: `\glueexpr old value * < argument > \relax`

The `<argument>` is **not expanded** but the content of the key is ready to be used in place of a length. Scaling of two forms are allowed: *fractionnal* and *real*. *Real* scaling is converted to a fraction of 65536:

```
\pgfkeys{/test/.store as glue,
          /test=12pt plus5pt,
          /test*=.5,
          /test+=\parskip,
          /test*=4/6
        }
\pgfkeysmeaning{/test}
```

→ macro:->`\glueexpr \glueexpr \glueexpr \glueexpr 12pt plus5pt\relax *32768/65536\relax +\glueexpr \parskip \relax \relax *4/6\relax`

The value of `\parskip` is not expanded at `\pgfkeys` time, but only when the value of the key is used (for an assignment...)

There is also a handler called `/.estore as glue` if you really want the value to be expanded (with `\the`) at the time of `\pgfkeys` setting.

**17.14 † New handler: `/.store as dimen`**

Just like `/.store as glue` but with `\dimexpr` instead of `\glueexpr`.

There is also a `/.estore as dimen` handler, for immediate expansion.

**17.15 † New handler: `/.store as glue in cs=<cs-name>`**

This is like `/.store as glue` but the value is assigned to a macro whose name is given, rather than in the key itself. Expansion *does not* occur `\pgfkeys` time: the macro contains the glue definition in `\glueexpr...\relax` expressions.

`+` (to add) `-` (to subtract) and `*` (to scale) keys are provided.

There is also a `/.estore as glue in cs` handler, and expansion occurs when the key is set.

**17.16 † New handler: `/.store as dimen in cs=<cs-name>`**

Just like `/.store as glue in cs` but with `\dimexpr` instead of `\glueexpr`.

**17.17 † New handler: `/.estore as dimen in cs=<cs-name>`**

This handler as a particularity: if the value is given without dimension, `pt` is assumed (that is... points).

This is the way the key `size` is defined for the command `\change font` (in `interfaces-LaTeX`). `size` defines `\f@size`, the macro used by `LATEX` to store the font size (and `size+` adds, `size-` subtracts, `size*` scales). But `\f@size` is stored in points, without the mention of the dimension: `pt`.

With its default units in `pt`, `/.estore as dimen in cs` is the handler of the situation:

## 18 Interface etoolbox - etoolbox-like commands

May be they will be added to etoolbox.sty one day or another... and disappear from `interfaces` ☹.

### 18.1 New macros provided with `\providecommand`

|                                                     |                                                          |
|-----------------------------------------------------|----------------------------------------------------------|
| <code>\removefrom &lt;hook&gt;{&lt;code&gt;}</code> | <code>\removefromstart&lt;hook&gt;{&lt;code&gt;}</code>  |
| <code>\gremovefrom&lt;hook&gt;{&lt;code&gt;}</code> | <code>\gremovefromstart&lt;hook&gt;{&lt;code&gt;}</code> |
| <code>\eremovefrom&lt;hook&gt;{&lt;code&gt;}</code> | <code>\eremovefromstart&lt;hook&gt;{&lt;code&gt;}</code> |
| <code>\xremovefrom&lt;hook&gt;{&lt;code&gt;}</code> | <code>\xremovefromstart&lt;hook&gt;{&lt;code&gt;}</code> |

**`\removefrom`** removes the first occurrence of `{<code>}` from a `<hook>`. The command is robust.

`{<code>}` **should not contain groups**: `{...}` but parameter characters are allowed, which need not to be doubled. The match for `{<code>}` inside the replacement text of `<hook>` is category-code sensitiv.

If the first occurrence of `{<code>}` into `<hook>` has been removed


then `\ifin@` is set to `\iftrue`


otherwise `\ifin@` is set to `\iffalse` (`<hook>` does not contain `{<code>}`).


this allows loops of the form:

`\in@true`

`\@whilesw\ifin@\fi{\removefrom<hook>{<code>}}`

 `\eremovefrom` and `\xremovefrom` expand `{<code>}` before trying to remove it from `<hook>`. Only `{<code>}` is expanded, the current replacement text of `<hook>` is not.

 **g** and **x** versions make the assignment to `<hook>` global.

 `\removefromstart` remove `{<code>}` only if it appears at the very beginning of `<hook>`.

## 19 Interface scrfile

### 19.1 Star forms for `\BeforeFile` and `\AfterFile`

`scrfile` provides `\BeforeFile` and `\AfterFile` in order to execute some code when a file is loaded. The hooks are automatically reset to `\relax` after the file has been loaded, in other words, they are expanded at most one only time. This can be avoided by using `\BeforeFile*` and `\AfterFile*`, for example:

```
\BeforeFile*{\jobname.toc}{\begin{multicols}{2}}
\AfterFile*{\jobname.toc}{\end{multicols}}
```

The hooks *before* and *after* will be executed **every time** `\jobname.toc` is loaded.

This feature is used in `\tocsetup{twocolumns}`.

### 19.2 Allowing `\BeforeFile` and `\AfterFile` when `\@input` is invoked

The hooks `\BeforeFile` and `\AfterFile` are executed only when the file is loaded with `\InputIfFileExists`: indeed this macro is redefined by `scrfile`.

`interfaces` redefine `\@input` in order to execute those hooks also in case `\@input` is used: this is useful because `.toc` files are input with `\@input` rather than with `\InputIfFileExists`.

## 20 List of corrected or patched commands

Here is the complete list of patched commands in other packages.

The modification occurs only if the given module of `interfaces` is loaded. For example, `\addcontentsline` is modified only if packages `titlesec` and `bookmark` are loaded, **and if** `interfaces-titlesec` and `interfaces-bookmark` are loaded.

20.1 † `LaTeX`

|   | Patched command                                                                                                              | Type | Importance                          | Module                           | ref. page |
|---|------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------|----------------------------------|-----------|
| ❶ | <code>\@pkgextension</code><br><code>\@clsextension</code><br><code>\@ifpackageloaded</code><br><code>\@ifclassloaded</code> |      | minor<br>optimisation or correction | <a href="#">interfaces-LaTeX</a> | 80        |

Those commands are replaced by their equivalent in the package `ltxcmds`:

```
\ltx@pkgextension \ltx@clsextension \ltx@ifpackageloaded \ltx@ifclassloaded
```

This is because `LaTeX` defines those commands `\@onlypreamble`, while the equivalent macros in `ltxcmds` can be used inside `document` as well.

|   | Patched command               | Type           | Importance                      | Module                                                                     | ref. page |
|---|-------------------------------|----------------|---------------------------------|----------------------------------------------------------------------------|-----------|
| ❷ | <code>\addcontentsline</code> | <i>prepend</i> | important<br>but no side effect | <a href="#">interfaces-titlesec</a><br><a href="#">interfaces-bookmark</a> | 42        |

`\addcontentsline` does a lot a thing and in particular it expands the `\bookmark` command (if the `bookmark` package is loaded, otherwise it's `hyperref`). As long as `\sectionformat` can drive the attributes of the bookmark for each section, it is necessary to expand `\bookmarksetup` with the right options before the section-bookmark is written.

This is achived by `\itf@ttl@BKM`, placed at the beginning of `\addcontentsline`.

|   | Patched command      | Type | Importance                      | Module                             | ref. page |
|---|----------------------|------|---------------------------------|------------------------------------|-----------|
| ❸ | <code>\@input</code> |      | important<br>but no side effect | <a href="#">interfaces-scrfile</a> | 81        |

The `\input` primitive (same as `LaTeX` control sequence `\@@input`) is surrounded by `\scr@load@hook{before}... \scr@load@hook{after}`:

Original:

```
\def\@input#1{\IfFileExists{#1}
{\@input\@filef@und}
{\typeout{No file #1.}}}%
}%
```

Modified:

```
\renewcommand*\@input[1]{\IfFileExists{#1}
{\scr@load@hook{before}{#1}%
\@input\@filef@und
\scr@load@hook{after}{#1}}
{\typeout{No file #1.}}}%
}%
```

20.2 † `bookmark \bookmark`

|   | Patched command        | Type         | Importance | Module                              | ref. page |
|---|------------------------|--------------|------------|-------------------------------------|-----------|
| ❹ | <code>\bookmark</code> | <i>modif</i> | important  | <a href="#">interfaces-bookmark</a> | 43        |

The `*` keys for `\bookmarksetup` (*italic\**, *color\**, *bold\**, and *disable\**) are local to the group, but govern only the very next bookmark.

After the bookmark has been written, previous values must be restored at the end of each group until the same group level as the one in which the `*` option has been set is reached (if this group is the main group, level 0, then a global assignment is made).

Well... this is done at `\write`: `\immediate\write{the bookmark entry}` is replaced by `\itf@BKM@write{the bookmark entry}` to check first:

- 1) is the bookmark disable ?
- 2) is it necessary to restore previous values after write (*ie.* `\aftergroup`) ?

20.3 † `tocloft \newlistof`

|   | Patched command         | Type | Importance                      | Module                             | ref. page |
|---|-------------------------|------|---------------------------------|------------------------------------|-----------|
| ❺ | <code>\newlistof</code> |      | important<br>but no side effect | <a href="#">interfaces-tocloft</a> |           |

20.4 † `colortbl`

|   | Patched command        | Type         | Importance                      | Module                              | ref. page |
|---|------------------------|--------------|---------------------------------|-------------------------------------|-----------|
| ❻ | <code>\CT@cellc</code> | <i>corr.</i> | important<br>but no side effect | <a href="#">interfaces-makecell</a> | 76        |

`colortbl` modifies the preamble of tabulars: it put each cell in a box, sets the color and then displays the box. The example shown page 15 does not work without a minor modification: the color specification must be expanded short before their usage.

Original:

```
\def\CT@cellc#1[#2]#3{%
\expandafter\gdef\expandafter\CT@cell@color\expandafter{%
\expandafter\CT@color#1{[#2]}{#3}%
\global\let\CT@cell@color\relax
}}
```

Modified:

```
\def\CT@cellc#1[#2]#3{% #1 is either \@firstofone or \@gobble, [#2]#3 = color spec
\edef\CT@cell@color{\noexpand\CT@color#1{[#2]}{#3}%
\global\let\noexpand\CT@cell@color\relax}%
}
```

Remember `arydshn` must be loaded after `colortbl` (this is not due to `interfaces`, but to the fact that both redefine `\@classz` from the array package).

20.5 ↗ `hypbmsec`

|   | Patched command                                   | Type         | Importance                      | Module                                                                     | ref. page |
|---|---------------------------------------------------|--------------|---------------------------------|----------------------------------------------------------------------------|-----------|
| ⑦ | <code>\hbs@do</code><br><code>\hbs@process</code> | <i>redef</i> | important<br>but no side effect | <a href="#">interfaces-hypbmsec</a><br><a href="#">interfaces-titlesec</a> | 46        |

In order to get `\lastsectiontitle`, `\lastsectionbookmark` and `\lastsectiontoc` updated at the right place (*ie. after* `\sectionbreak` and *before* `\sectionmark`), some `interfaces`-macros have to be executed:

- at the beginning of `\hbs@do` → to get the word section or subsection *etc.*.
- at the beginning of `\hbs@process` → to store the next section title, bookmark and toc

20.6 ↗ `enumitem`

|   | Patched command       | Type         | Importance                          | Module                              | ref. page |
|---|-----------------------|--------------|-------------------------------------|-------------------------------------|-----------|
| ⑧ | <code>\setlist</code> | <i>redef</i> | minor<br>optimisation or correction | <a href="#">interfaces-enumitem</a> | 76        |

`\setlist` is redefined by `interfaces-enumitem` in order to extend the syntax.

20.7 ↗ `pgfkeys.code.tex`

|   | Patched command                                                  | Type         | Importance | Module                             | ref. page |
|---|------------------------------------------------------------------|--------------|------------|------------------------------------|-----------|
| ⑨ | <code>\pgfkeys@unpack</code><br><code>\pgfkeys@case@three</code> | <i>redef</i> | important  | <a href="#">interfaces-pgfkeys</a> | 82        |

`\pgfkeys@unpack` is modified to handle the case of the `/.blank` handler: this is here that the value is conditionnally compared against `/.default`, `/.blank` or `/.value required`.

`\pgfkeys@case@three` is modified to allow handlers to have `/.default`, `/.blank` or `/.value required` values.

`\pgfkeys@exp@call`: missed a pair of braces around the value in `\pgfkeysalso`. Thus the code could break if the value contains an equal sign or a comma. Fixed.

## 21 Implementation

### 21.1 † Interfaces

The package namespace is `itf@`.

```
1 <*package>
2 \NeedsTeXFormat{LaTeX2e}[2005/12/01]
3 \ProvidesPackage{interfaces}
4   [2011/01/17 v2.8 - pgfkeys interfaces - pgf 2.0 et 2.1 (FC)]
```

#### 21.1.1 Requirements

```
5 \RequirePackage{interfaces-base}
```

#### 21.1.2 The package options / list of interfaces

```
6 \DeclareOption{LaTeX}{\AtEndOfPackage{\LoadInterface{LaTeX}}}
7 \DeclareOption{marks}{\AtEndOfPackage{\LoadInterface{marks}}}
8 \def\itf@tp#1{%
9   \DeclareOption{#1}{\AtEndOfPackage{\LoadInterface{#1}}}%
10}% \itf@tp
11 \itf@tp{titlesec}
12 \itf@tp{hyperref}
13 \itf@tp{bookmark}
14 \itf@tp{fancyhdr}
15 \itf@tp{tocloft}
16 \itf@tp{makecell}
17 \itf@tp{enumitem}
18 \itf@tp{hypbmsec}
19 \itf@tp{environ}
20 \itf@tp{truncate}
21 \itf@tp{appendix}
22 \itf@tp{embedfile}
23 \if\relax\@ptionlist{interfaces.sty}\relax % no option given
24   \ExecuteOptions\@declaredoptions      % all interfaces are active
25 \fi
26 \ProcessOptions
27 </package>
```

### 21.2 † Interfaces-base

```
28 <*base>
29 \ProvidesPackage{interfaces-base}
30   [2011/01/17 v2.8 Interfaces core system layer (FC)]
31 \RequirePackage{etex,ltxcmds,etoolbox,pgfkeys,scrfile,infwarerr}
32 \AtEndOfPackage{%
33   \RequirePackage{interfaces-etoolbox}%
34   \RequirePackage{interfaces-scrfile}%
35   \RequirePackage{interfaces-pgfkeys}
36   \RequirePackage{interfaces-tikz}%
37   \RequirePackage{interfaces-umrand}% There is a \BeforePackage here !
38}% \AtEndOfPackage
```

`\LoadInterface` Mechanic of `interfaces`: each module is loaded `\AfterPackage`.

```
39 \newrobustcmd*\LoadInterface[1]{%
40   \@for\itf@tp:=#1\do{%
41     \expandafter\ifx\csname\ifcsname\itf@tp\endcsname
42       \itf@tp\else relax\fi\endcsname\marks
43       \RequirePackage{interfaces-marks}%
44     \else\expandafter\ifx\csname\ifcsname\itf@tp\endcsname
45       \itf@tp\else relax\fi\endcsname\LaTeX
46       \RequirePackage{interfaces-LaTeX}%
47     \else
```

```

48      \expandafter\itf@LoadInterface\expandafter{\itf@tp}%
49      \fi\fi}%
50}% \LoadInterface
51 \@onlypreamble\LoadInterface
52 \newrobustcmd*\itf@LoadInterface[1]{\ltx@ifpackageloaded{interfaces-#1}
53   {}
54   {\AfterPackage*{#1}{\RequirePackage{interfaces-#1}}}%
55}% \itf@LoadInterface

56 \newrobustcmd*\itf@Check@Package[1]{\itf@pgfkeys\ltx@ifpackageloaded{#1}
57   {}
58   {\PackageError{interfaces-#1}
59     {The package ‘#1’ must be loaded before ‘interfaces-#1’
60     \MessageBreak Please refer to ‘interfaces.pdf’ document
61     \MessageBreak for correct usage of the ‘interfaces’ package}\@ehd
62   }%
63}% \itf@Check@Package

```

`\itf@AfterPackage` This is `\AfterPackage*` but it works inside document. `ltxcmds` provides `\ltx@ifpackageloaded` to check if a package is loaded and – unlike L<sup>A</sup>T<sub>E</sub>X’s `\ifpackageloaded` – this macros is not restricted to the document preamble.

```

64 \newrobustcmd*\itf@AfterPackage[1]{%
65   \csname\ltx@ifpackageloaded{#1}\ltx@secondoftwo\endcsname{@AfterPackage}\endcsname{#1}%
66}% \itf@AfterPackage

```

### 21.2.1 Interfaces patches

First a warning for loading `arydshln` after `colortbl`. Those packages does not interact properly.

```

67 \AfterPackage{colortbl}{%
68   {\ltx@ifpackageloaded{arydshln}
69     {\@PackageWarningNoLine{interfaces-base}
70       {The package arydshln should be loaded after colortbl
71       \MessageBreak because both redefine \string\@classz}}%
72     {}}%
73}% \AfterPackage colortbl

```

`\itf@preapptocmd` The need for this macro has risen to make `\itf@patch` simpler.

This is also more secure to do `\pretocmd` and `\apptocmd` in the same time, for the result (success or failure) is always the same for both.

```

74 \newrobustcmd*\itf@preapptocmd[5]{%
75   \pretocmd#1{#2}%
76   {\apptocmd#1{#3}%
77     {#4}%
78     {#5}}%
79   {#5}%
80}% \itf@preapptocmd

```

`\itf@patch` `\itf@patch` is used as a prefix to `\pretocmd`, `\apptocmd` and `\patchcmd`.

It’s main purpose is to keep the information (`\PackageInfo`) in the case `\usepackage{interfaces}` has been put in a `\dump` format.

`\PackageInfo` is then deferred `\AtBeginDocument` time...

```

81 \def\itf@patch{\@makeother\#\futurelet\itf@tp\itf@patch@}
82 \def\itf@patch@{\csname itf@patch@%
83   \ifx\itf@tp\patchcmd inside\else
84   \ifx\itf@tp\itf@preapptocmd inside\else
85     boundary\fi\fi
86   \endcsname
87}% \itf@patch@
88 \def\itf@patch@boundary#1#2#3#4#5{%
89   \catcode'\#=#6%
90   \let\itf@tp#2%

```

```

91  #1\itf@tp{#3}%
92  {\let#2\itf@tp
93   \AtBeginDocument{#4}% in order to keep this info even after \dump
94  }
95  {#5}%
96}% \itf@patch@boundary (for \pretocmd and \apptocmd)
97\def\itf@patch@inside#1#2#3#4#5#6{%
98  \catcode'\#6%
99  \let\itf@tp#2%
100  #1\itf@tp{#3}{#4}%
101  {\ifx#1\patchcmd \itf@patch@inside@{#1}{#3}{#4}\fi
102   \let#2\itf@tp
103   \AtBeginDocument{#5}%
104  }
105  {#6}%
106}% \itf@patch@inside (for \patchcmd)
107\def\itf@patch@inside@#1#2#3{%
108  \loop
109    \let\@tempa \itf@tp
110    #1\itf@tp{#2}{#3}{}}}%
111    \unless\ifx \@tempa\itf@tp
112  \repeat
113}% \itf@patch@inside@

```

### 21.2.2 Helper macros

```

114 \newskip\itf@sk
115 \newmuskip\itf@musk
116 \newtoks\itf@tk
117 \newcount\itf@cnt

```

`\itf@strip@at` `\itf@strip@at` removes all until `@` while `\itf@strip@dot` removes the fractional part.

```

118%%  H E L P E R   M A C R O S
119 \begingroup\makeatother
120  \csgdef\itf@strip@at{#1@{}}
121 \endgroup
122 \def\itf@strip@dot#1.#2\@nil{#1}

```

`\itf@expandonceifcs` This macro is used to expand or not a comma separated list.

USAGE: `\itf@expandonceifcs\macrotest`

`\macrotest` is expanded once and its first token  $\tau$  is placed into a temporary macro `\itf@tp`.

If `\macrotest` equals `\itf@tp`: `\macrotest` is composed of that only token  $\tau$ , otherwise we leave and do nothing.

Then we test `\noexpandr` against `\relax` with `\ifcat`. If false  $\tau$  cannot be a macro then we leave.

Then we test if  $\tau$  is expandable: `\ifx\tau=\expandonce\tau`,  $\tau$  is not expandable and we leave. (may be `\def\tau{\tau}` but it's not *expandable*!).

Otherwise,  $\tau$  is expandable and `\macrotest` contains a single expandable token. Thus `\macrotest` shall be expanded once: `\let\macrotest=\tau`.

```

123 \def\itf@expandonceifcs#1{\expandafter\itf@exp@ndonceifcs\expandafter#1\Q\@nnil}
124 \def\itf@exp@ndonceifcs#1#2#3\@nnil{%
125   \def\itf@tp{#2}%
126   \ifx\itf@tp#1%
127     \ifcat\relax\noexpand#2%
128       \expandafter\expandafter\expandafter\remove@to\@nnil
129       \expandafter\ifx\expandafter#2#2\@nnil\else\@nnil\let#1#2\fi
130   \fi\fi
131}% \itf@exp@ndonceifcs

```



### 21.2.3 Numbers

`\itf@number` `\itf@number` tries to get a number from its argument, and stores the result into the TeX count register given as first argument. Same syntax as `LATEX\@defaultunits`.

A number is an integer that can be assigned to a count register, may be followed by one or more `\relax`.

```

132%%   G E T   A   N U M B E R (if possible)
133%%   USAGE: \itf@number\count<text>\relax\@nnil (like \@defaultunits)
134\def\itf@number#1#2\relax\@nnil{% \relax is to mimick the syntax of \@defaultunits
135   \afterassignment\itf@number@#1\number0#2\relax\itf@number@
136 }
137\def\itf@number@#1\relax#2\itf@number@{%
138   \ifblank{#1}
139     {\itf@number@@{}}#2\itf@number@@\@nnil
140     \csname ltx@\ifx\@let@token\itf@number@@
141       first\else second\fi oftwo\endcsname}
142   \ltx@secondoftwo
143}% \itf@number@
144\def\itf@number@@#1{\futurelet\@let@token\itf@number@@@}
145\def\itf@number@@@{%
146   \csname \ifx\@let@token\relax itf@number@@@
147   \else remove@to@nnil%
148   \fi \endcsname
149}% \itf@number@@@

```

### 21.2.4 Units and math units

`\itf@setlength` To be able to write: `\pgfkeys{key=\widthof{some text}}` (package `calc`), `interfaces-base` defines `\itf@setlength`:

```

150\protected\def\itf@setlength#1#2{#1\glueexpr#2\relax}

```

`\itf@units@scale` For multiplication of units: `\glueexpr...\relax*\itf@units@scale<scaling factor>!`

The scaling factor can be a fraction or a real number. Real numbers are approximated by a fraction of 65536.

```

151%% glue * 1.5 = glue * 98302 / 65536
152%% glue * 3/2 = glue * 3/2
153\def\itf@units@scale#1!{\itf@units@scale@normalize#1/\@nnil/\@nil}
154\def\itf@units@scale@normalize#1/#2/#3\@nil{%
155   \ifx#2\@nnil \number\dimexpr#1pt\relax/65536
156   \else#1/#2
157   \fi
158}% \itf@units@scale@normalize
159\def\itf@units@scaleNoCalc#1!{\itf@units@scale@normalizeNoCalc#1/\@nnil/\@nil}
160\let\itf@units@scale@normalizeNoCalc \itf@units@scale@normalize

```

`\itf@setlength@calc` The version for the `calc` package. `calc` removes stretch and shrink components of glues when a scaling operation is done using `\real` or `\ratio`. This limitation is lifted for `key=value` assignments.

`\itf@units@scale@normalize@calc` The version of `\itf@units@scale@normalize` when using the `calc` package.

`\ratio` is used.

```

161\protected\def\itf@setlength@calc#1#2{\begingroup
162   \let\calc@multiply@by@real \itf@calc@multiply@by@real
163   \let\calc@Adimen \itf@calc@Askip \let\calc@Bdimen \itf@calc@Bskip
164   \setlength{#1}{#2}%
165   \expandafter\endgroup\expandafter#1\the#1\relax
166}% \itf@setlength@calc
167\def\itf@units@scale@normalize@calc#1/#2/#3\@nil{%
168   \ifx#2\@nnil 1*\ratio{\dimexpr#1pt\relax}\p@
169   \else
170     1*\ratio{\dimexpr#1pt\relax}/{\dimexpr#2pt\relax}%
171   \fi
172}% \itf@units@scale@normalize@calc
173\def\itf@calc@multiply@by@real#1{%
174   \calc@Bdimen\glueexpr\calc@B*\number\dimexpr#1pt\relax/65536\relax

```

```

174 \calc@B\calc@Bdimen
175}% \itf@calc@multiply@by@real
176\AfterPackage*{calc}{%
177 \newskip\itf@calc@Askip \newskip\itf@calc@Bskip
178 \let\itf@setlength \itf@setlength@calc
179 \let\itf@units@scale@normalize \itf@units@scale@normalize@calc
180}% AfterPackage calc

```

`\itf@strip@mu` This is the equivalent of L<sup>A</sup>T<sub>E</sub>X's `\strip@pt` but for math units:

```

181%% U N I T S F O R D I M E N S
182\def\itf@strip@mu{\expandafter\itf@rem@mu\the}
183}%
184\@makeother\M\@makeother\U
185\lowercase{%
186 \gdef\itf@rem@mu#1.#2MU{#1\ifnum#2>\z@.#2\fi}%
187}}%

```

`\itf@units@pttomu`  $1mu$  is exactly  $1em/18$  where the *em* is taken from `\textfont2`.

`\itf@units@mutopt` Thus the scaling: `\fontdimen6\textfont2 * 100/1800`.

```

188%% \skip = \itf@units@mutopt \muskip
189\def\itf@units@pttomu#1{\gluetomu\glueexpr
190 \glueexpr#1\relax*1800/%
191 \expandafter\itf@strip@dot\the\dimexpr
192 \fontdimen6\textfont2*100\relax.\@nil
193 \relax
194}% \itf@units@pttomu
195\def\itf@units@mutopt#1{\glueexpr
196 \mutogluemueexpr#1\relax*
197 \expandafter\itf@strip@dot\the\dimexpr
198 \fontdimen6\textfont2*100\relax.\@nil/1800
199 \relax
200}% \itf@units@mutopt

```

`\itf@units@mu` Forces a dimension to be expressed in terms of math units (*mu*), convert if needed. `\cftdotsep` in `tocloft` is expressed in math units.

```

201%% \muskip = \itf@units@mu{ \skip or \muskip or number}
202}%
203\@makeother\P\@makeother\T\@makeother\S\@makeother\B
204\@makeother\C\@makeother\M\@makeother\D\@makeother\I\@makeother\N
205\lowercase{%
206\gdef\itf@units@mu#1#2{\begingroup
207 \edef\itf@tp{#2}%
208 \@tfor\x:={PT}{pt}{PC}{pc}{IN}{in}{BP}{bp}%
209 {CM}{cm}{MM}{mm}{DD}{dd}{CC}{cc}{SP}{sp}\do{%
210 \@expandtwoargs\in@\x\itf@tp\ifin@\@break@tfor\fi
211 }%
212 \expandafter\endgroup
213 \ifin@
214 #1=\itf@units@pttomu{#2}%
215 \else
216 \@defaultunits#1 #2mu\relax\@nnil
217 \fi
218}% \itf@units@mu
219}}

```

`\itf@units@pt` Conversely, forces a unit to be expressed in terms of points. Convert (from *mu*) if needed.

```

220%% \skip = \itf@units@pt( \muskip or \skip or number )
221}%
222\@makeother\M\@makeother\U
223\lowercase{%
224\gdef\itf@units@pt#1#2{\begingroup
225 \@expandtwoargs\in@{MU}{#2}%
226 \ifin@\else\@expandtwoargs\in@{mu}{#2}\fi

```

```

227 \expandafter\endgroup
228 \ifin@
229 #1=\itf@units@mutopt{#2}%
230 \else
231 \@defaultunits#1 #2pt\relax\@nnil
232 \fi
233 }}}}% \itf@units@pt

```

### 21.2.5 Default color

A trick about `\normalcolor`, which refers to `\default@color`:

`\default@color` is not expressed in terms of a color model. Therefore, it is not possible to convert it into a universally correct parameter for the `\color` command. That’s why, for example, `\bookmark` ignore blank parameter for `color`: because it can do nothing with `\normalcolor` !

Solution: if a color named “default” has been defined in the preamble, then it is used as the default color. Otherwise, we define, `\AtBeginDocument` a color named “default”

If `xcolor` is loaded, an assignment: `\colorlet{default}{.}` is made `\AtBeginDocument`. If only `color` is loaded, then `\color{default}` means `\color{\default@color}` (this syntax is not admissible with `xcolor`, but it works with `color`).

```

234 \AtBeginDocument{%
235   \ltx@ifpackageloaded{xcolor}
236     {\@ifundefinedcolor{default}
237       {\colorlet{default}{.}}
238       {}}%
239   {\ltx@ifpackageloaded{color}
240     {\@ifundefined{\string\color @default}
241       {\expandafter\def\csname\string\color @default\endcsname{\default@color}}
242       {}}%
243   {}}%
244 }

245 </base>

```

## 21.3 † Interface L<sup>A</sup>T<sub>E</sub>X

```

246 <*LaTeX>
247 \ProvidesPackage{interfaces-LaTeX}
248 [2011/01/17 v2.8 pgfkeys macros for LaTeX (FC)]
249 \RequirePackage{interfaces-base}
250 \itf@pgfkeys

```

### 21.3.1 `\change font`

`\change font` First use of `\pgfkeys` handlers `/.store as glue in cs`, `/.estore as dimen in cs`... The handlers create the `+` `-` and `*` keys automatically. As far as the `+` `-` and `*` keys invoke the main key, it is possible to `/.append code` to the main key, without taking care of the `+` `-` and `*` keys.

The `/.alias*` handler creates the aliases for the main key and the `+` `-` and `*` keys in one shot.

```

251 \newrobustcmd*\change font[1]{\itf@pgfkeys
252   \pgfqkeys{/itf/LaTeX/change font}{#1}\selectfont
253 }% \change font
254 \AfterPackage{*hyperref}
255   {\pdfstringdefDisableCommands{\let\change font\@gobble}}

256 \pgfqkeys{/itf/LaTeX/change font}{%
257   encoding/.code=\fontencoding{#1},encoding/.value required,%
258   enc/.alias=encoding,%
259   family/.code=\fontfamily{#1},family/.value required,%
260   fam/.alias=family,%
261   series/.code=\fontseries{#1},series/.value required,%
262   ser/.alias=series,%

```

```

263   shape/.code=\fontshape{#1},shape/.value required,%
264   sha/.alias=shape,%
265   size/.estore as dimen in cs=f@size,%
266   size/.append code=\set@fontsize\f@linespread\f@size\f@baselineskip,%
267   siz/.alias*=size,%
268   baselineskip/.estore as glue in cs=f@baselineskip,%
269   baselineskip/.append code=\set@fontsize\f@linespread\f@size\f@baselineskip,%
270   skip/.alias*=baselineskip,%
271   @linespread/.estore as dimen,%
272   @linespread/.append code=
273     \pgfkeysgetvalue{/itf/LaTeX/changefont/@linespread}\pgfkeys@temp
274     \ifx\pgfkeys@temp\empty \let\pgfkeys@temp \p@ \fi
275     \edef\f@linespread{\expandafter\rem@pt\pgfkeys@temp}%
276     \set@fontsize\f@linespread\f@size\f@baselineskip,%
277   @linespread/.initial=\p@,%
278   linespread/.code=@defaultunits\itf@sk #1pt\relax\@nnil
279     \pgfkeysalso{/itf/LaTeX/changefont/@linespread=\itf@sk},%
280   linespread+/.code=@defaultunits\itf@sk #1pt\relax\@nnil
281     \pgfkeysalso{/itf/LaTeX/changefont/@linespread+=\itf@sk},%
282   linespread-/.code=@defaultunits\itf@sk #1pt\relax\@nnil
283     \pgfkeysalso{/itf/LaTeX/changefont/@linespread-=\itf@sk},%
284   linespread*/.alias=@linespread*,%
285   spread/.alias*=linespread,%
286}% \pgfkeys definitions for \changefont
287\itf@AfterPackage{color}{%
288  \pgfkeysifdefined{/itf/LaTeX/changefont/color/.@cmd}{%
289    {\pgfkeys{/itf/LaTeX/changefont/color/.code=\color{#1}}}%
290}% AfterPackage color
291\itf@AfterPackage{xcolor}{%
292  \pgfkeysifdefined{/itf/LaTeX/changefont/color/.@cmd}{%
293    {\pgfkeys{/itf/LaTeX/changefont/color/.code=\color{#1}}}%
294}% AfterPackage xcolor
295</LaTeX>

```

## 21.4 Interface TikZ ()

```

296<*tikz>
297\ProvidesPackage{interfaces-tikz}
298  [2011/01/17 v2.8 load tikz libraries easily (FC)]
299\RequirePackage{interfaces-base}
300\itf@pgfkeys

```

### 21.4.1 Catcode verifications

Some languages (french) changes the catcode of punctuations symbols: `:` and `!` are active, and this is bad for `tikz` calculations.

`\tikzset{every picture/.style=\@makeother...}` solves the problem.

```

301%% Some catcode checking
302\AfterPackage*{tikz}{%
303  \AtEndPreamble{%
304    \tikzset{every picture/.add style={%
305      /utils/exec={\@makeother\!\@makeother\:\}}}%
306  }%
307}%

```

### 21.4.2 List of pgf/TikZ packages and libraries

`\alltikzpackages` Record “modules” that must be loaded with `\usepackage`:

```

308\newcommand*\alltikzpackages{%
309  tikz,pgf,pgfcore,pgfcalendar,pgffor,pgfkeys,pgfpages,pgfrcs,xxcolor,%
310  pgfplots,pgfsys,

```

```

311 pgfpict2e,fp%%,%          + fp required for fixedpointarithmetic
312%% tikzexternal,%% needs special setup
313%% pgfmath,% pgfmath should not be loaded twice (\pgfmathdeclarefunction)
314}% \alltikzpackages

```

`\allpgfmodules` Record modules that must be loaded with `\usepgfmodule`:

```

315 \newcommand*\allpgfmodules{datavisualization,%
316 decorations,%
317 matrix,%
318 oo,%
319 parser,%
320 plot,%
321 shapes,%
322 snakes%
323 %%sorting% bug in pgfmodulesorting.code.tex
324}% \allpgfmodules

```

`\alltikzlibraries` Record modules that must be loaded with `\usetikzlibrary`.

If a module is not found in any of the three lists `\alltikzpackage`, `\allpgfmodules`, and `\alltikzlibraries` then `\usetikzlibrary` is used by default.

```

325 \newcommand*\alltikzlibraries{3d,%
326 arrows,%
327 automata,%
328 backgrounds,%
329 calc,%
330 calendar,%
331 chains,%
332 circuits,%
333 circuits.ee,%
334 circuits.ee.IEC,%
335 circuits.logic,%
336 circuits.logic.CDH,%
337 circuits.logic.IEC,%
338 circuits.logic.US,%
339 datavisualization,%
340 datavisualization.3d,%
341 datavisualization.barcharts,%
342 datavisualization.formats.functions,%
343 datavisualization.polar,%
344 datavisualization.sparklines,%
345 decorations,%
346 decorations.footprints,%
347 decorations.fractals,%
348 decorations.markings,%
349 decorations.pathmorphing,%
350 decorations.pathreplacing,%
351 decorations.shapes,%
352 decorations.text,%
353 er,%
354 %%external,% needs special setup
355 fadings,%
356 fit,%
357 fixedpointarithmetic,%
358 folding,%
359 fpu,%
360 graphs,%
361 graphs.basic,%
362 intersections,%
363 lindenmayersystems,%
364 matrix,%
365 mindmap,%
366 patterns,%
367 petri,%
368 plohandlers,%

```

```

369 plotmarks,%
370 positioning,%
371 scopes,%
372 shadings,%
373 shadows,%
374 shapes,%
375 shapes.arrows,%
376 shapes.callouts,%
377 shapes.gates.logic.IEC,%
378 shapes.gates.logic.US,%
379 shapes.geometric,%
380 shapes.misc,%
381 shapes.multipart,%
382 shapes.symbols,%
383 snakes,%
384 spy,%
385 svg.path,%
386 through,%
387 topaths,%
388 trees,%
389 turtle%
390}% \alltikzlibraries

```

### 21.4.3 pgfkeys definitions for `\usetikz`

```

391 \pgfkeys{/itf/tikz}{%
392   basic/.code={%
393     \usetikzlibrary{calc,%           for coordinate calculations
394                     arrows,%        for arrows
395                     backgrounds,%   for framed
396                     scopes,%       for scopes and shortcut : { [scope] ... }
397                     shapes,%       for ellipse shapes of nodes
398   },%
399 },%
400 basic/.value forbidden,% \alltikzpackages
401 base/.alias=basic,%
402 all/.code={%
403   \expandafter\RequirePackage\expandafter{\alltikzpackages}%
404   \expandafter\usepgfmodule\expandafter{\allpgfmodules}% see pgfcorescopes.code.tex
405   \expandafter\usetikzlibrary\expandafter{\alltikzlibraries}% from: tikz.code.tex
406 },%
407 .unknown/.code=\itf@usetikzcode\pgfkeyscurrentname
408}% \pgfkeys for \usetikz

```

`\usetikz`

```

409 \newrobustcmd*\usetikz[1]{%
410   \RequirePackage{tikz}%
411   \ifblank{#1}
412     {\pgfkeys{/itf/tikz}{all}}
413     {\pgfkeys{/itf/tikz}{#1}}%
414   \itf@pgfkeys% overwritten by \input primitive otherwise
415   \itf@usetikzsetup
416}% \usetikz

```

`\itf@usetikzsetup`

```

417 \def\itf@usetikzsetup{%
418   \pgfkeysifdefined{/tikz/shorten>}{}{}%
419   \pgfkeys{/tikz/shorten>/.alias=tikz/shorten >}%
420   \pgfkeysifdefined{/tikz/shorten<}{}{}%
421   \pgfkeys{/tikz/shorten</.alias=tikz/shorten <}%
422   \pgfkeysifdefined{/tikz/shorten <>}{}{}%
423   \pgfkeys{/tikz/shorten <>/.style={/tikz/shorten >={##1},/tikz/shorten <={##1}}}%
424   \pgfkeysifdefined{/tikz/shorten<>}{}{}%

```



```

425 \pgfkeys{/tikz/shorten<>/}.alias=tikz/shorten <>}}%
426 }%

```

`\itf@usetikzcode` For unknown keys: when a library is referenced.

```

427 \newrobustcmd*\itf@usetikzcode[1]{\begingroup
428   \edef\x{%
429     \noexpand\in@{, #1,}{, \alltikzpackages,}%
430     \noexpand\ifin@ \noexpand\usepackage{#1}%
431     \noexpand\else
432       \noexpand\in@{, #1,}{, \allpgfmodules,}%
433       \noexpand\ifin@ \noexpand\usepgfmodule{#1}%
434       \noexpand\else \noexpand\usetikzlibrary{#1}% \usetikzlibrary by default
435       \noexpand\fi
436     \noexpand\fi
437   }\expandafter\endgroup\x
438 }% \itf@usetikzcode

```

### 21.4.4 `\papergraduate`

`\papergraduate`

```

439 \newrobustcmd*\papergraduate[1][ ]{%
440   \ifpgfpicture \expandafter \itf@papergraduate
441   \else \expandafter \itf@wallpapergraduate
442   \fi{#1}%
443 }% \papergraduate
444 \def\itf@graduation@vert[#1]#2#3#4#5{%
445   \node at (0,0) [{inner sep=0pt,outer sep=0pt,anchor=south west,#1}] {%
446     \rlap{\hbox to#2{\leaders\hbox to#4{\kern-\dimexpr#5/2\relax\vrule height#3 depth\z@ wi
447 \def\itf@graduation@horiz[#1]#2#3#4#5{
448   \node at (0,0) [{inner sep=0pt,outer sep=0pt,anchor=north west,yscale=-1,#1}] {%
449     \rlap{\vbox to#3{\leaders\vbox to#4{\kern-\dimexpr#5/2\relax\hrule width#2 depth0pt hei
450 \def\itf@wallpapergraduate #1{%
451   \tikz[remember picture,overlay]{
452     \itf@papergraduate {#1} (current page.south west) - (current page.north east);}
453 }% \itf@wallpapergraduate
454 \def\itf@papergraduate #1#2-#3;%
455   \path let \p1 = ($#2-#3$)
456     in node {\global\@tempdima\x1 \global\@tempdimb\y1};
457   \@tempdima \ifdim\@tempdima<\z@-\fi\dimexpr\@tempdima*2540/7227\relax
458   \@tempdimb \ifdim\@tempdimb<\z@-\fi\dimexpr\@tempdimb*2540/7227\relax
459   \begin{scope}[shift={#2}]
460     \expandtwoargs\itf@paper@graduate{\strip@pt\@tempdima}{\strip@pt\@tempdimb}%
461     \end{scope}
462 }% \paper@graduate
463 \def\itf@paper@graduate#1#2{{\hfuzz\maxdimen\vfuzz\hfuzz\hbadness\@M\vbadness\hbadness
464   \itf@graduation@horiz [magenta,very nearly transparent] {#1mm}{#2mm}{1mm}{.1pt};
465   \itf@graduation@horiz [magenta,nearly transparent] {#1mm}{#2mm}{5mm}{.1pt};
466   \itf@graduation@horiz [magenta,nearly transparent] {#1mm}{#2mm}{10mm}{.2pt};
467   \itf@graduation@horiz [black,nearly opaque] {1mm}{#2mm}{1mm}{.1pt};
468   \itf@graduation@horiz [black,nearly opaque] {1.5mm}{#2mm}{5mm}{.1pt};
469   \itf@graduation@horiz [black,opaque] {2mm}{#2mm}{10mm}{.1pt};
470   \foreach \y in {0,10,...,#2}
471     \node [inner sep=0pt,outer sep=0pt,font=\tiny,yshift=\y mm,xshift=3mm] at (0,0) {\y};
472   \itf@graduation@vert [cyan,very nearly transparent] {#1mm}{#2mm}{1mm}{.1pt};
473   \itf@graduation@vert [cyan,nearly transparent] {#1mm}{#2mm}{5mm}{.1pt};
474   \itf@graduation@vert [cyan,nearly transparent] {#1mm}{#2mm}{10mm}{.2pt};
475   \itf@graduation@vert [black,nearly opaque] {#1mm}{1mm}{1mm}{.1pt};
476   \itf@graduation@vert [black,nearly opaque] {#1mm}{1.5mm}{5mm}{.1pt};
477   \itf@graduation@vert [black,opaque] {#1mm}{2mm}{10mm}{.1pt};
478   \foreach \x in {0,10,...,#1}
479     \node [inner sep=0pt,outer sep=0pt,font=\tiny,xshift=\x mm,yshift=3mm] at (0,0) {\x};
480 }}% \itf@paper@graduate

```



```
481 </tikz>
```

## 21.5 † Interface `titlesec`: `\sectionformat`

```
482 (*titlesec)
483 \ProvidesPackage{interfaces-titlesec}
484 [2011/01/17 v2.8 pgfkeys macros for titlesec (FC)]
485 \RequirePackage{interfaces-base}
486 \RequirePackage{auxhook}% <fix for \ttl@append (odd/even pages)>
487 \RequirePackage{getttitlestring}
488 \itf@Check@Package{titlesec}
```

### 21.5.1 `titlesec` modifications

```
489%%  t i t l e s e c  "p a t c h e s"
490\robustify\titleclass \robustify\titleformat \robustify\titlespacing
491\AddLineBeginMainAux{%
492  \string\providecommand\string\ttl@append[2]{}%
493 }
494\BeforeFile*{ttlkeys.def}{%
495  \expandafter\edef\csname itf@ttlkeys.def\endcsname{%
496    \catcode32 \the\catcode32\relax
497    \catcode37 \the\catcode37\relax
498    \endlinechar\the\endlinechar\relax}%
499  \catcode37 14\relax % percent=comment (inside .dtx files...)
500  \catcode32 9\relax % ignore spaces
501  \endlinechar\m@ne % and line feeds
502 }
503\AfterFile*{ttlkeys.def}{\csname itf@ttlkeys.def\endcsname}%
```

`\ttl@runinifempty` A “new” shape which behaves like **hang** but no paragraph break is inserted if the title is empty. Hence the name: **runinifempty**.

```
504%%-----
505%% runinifempty => like hang but no paragraph break (like runin) if title is empty
506\def\ttl@runinifempty{%
507  \csname ttlh@ifx\ttl@savetitle@empty runin\else hang\fi\endcsname
508}% \ttl@runinifempty
```

### 21.5.2 `\sectionformat`

```
\sectionformat \sectionformat\subsection* [<shape>]{<key=value>}

509\newrobustcmd*\sectionformat[1]{\@ifstar
510  {\itf@sectionformat{#1}{/*}}
511  {\itf@sectionformat{#1}{}}}%
512}% \sectionformat
513\def\itf@sectionformat#1#2{\@testopt
514  {\expandafter\expandafter\expandafter%
515    \itf@sectionf@rmat\expandafter@gobble\string#1\@nil{#2}}}%
516}% \sectionformat
517\def\itf@sectionf@rmat#1\@nil#2[#3]#4{\itf@pgfkeys\ifblank{#3}
518  {\pgfkeys{/itf/titlesec/#1#2}
519  {/itf/titlesec/@setup={#1}{#2},#4,/itf/titlesec/@update={#1}{#2}}}
520  {\pgfkeys{/itf/titlesec/#1#2}
521  {/itf/titlesec/@setup={#1}{#2},#4,shape={#3},/itf/titlesec/@update={#1}{#2}}}%
522}% \itf@ttl@sectionformat
```

`\itf@ttl@setup` Macros used to retrieve the values set by `\titleformat` and/or `\titlespacing`. This allows to use `\sectionformat` concurrently with `\titleformat` and `\titlespacing` provided by `titlesec`.

```
\itf@ttl@getformat \sectionformat concurrently with \titleformat and \titlespacing provided by titlesec.
\itf@ttl@getspacing

523%% private keys @setup and @update
524\pgfkeys{/itf/titlesec}{%
525  @setup/.code 2 args=\itf@ttl@setup{#1}{#2},%
526  @update/.code 2 args=\expandafter\itf@ttl@update
527    \csname#1\endcsname{/itf/titlesec/#1}{#2}%
```

```

528 }
529 \newrobustcmd*\itf@ttl@setup[2]{%
530   \pgfkeysifdefined{/itf/titlesec/#1#2/shape}{}
531   {\itf@ttl@newsection{#1}{#2}}%
532   \ifcsundef{ttls@#1#2}{}% no previous spacing settings
533   {\expandafter\expandafter\expandafter%
534     \itf@ttl@getspacing\csname ttls@#1#2\endcsname{/itf/titlesec/#1#2}}%
535   \ifcsundef{ttl@#1#2}{}% no previous format settings
536   {\ifttl@explicit
537     \expandafter\expandafter\expandafter%
538     \itf@ttl@getformat\csname ttl@#1#2\endcsname{/itf/titlesec/#1#2}%
539     \else
540     \expandafter\expandafter\expandafter%
541     \itf@ttl@getformat\csname ttl@#1#2\endcsname{/itf/titlesec/#1#2}%
542     \fi}%
543 }% \itf@ttl@setup
544 \def\itf@ttl@setkey#1#2{\begingroup
545   \def\x{\pgfkeysvalueof{#1}}\def\y{#2}%
546   \expandafter\endgroup\ifx\x\y\else
547     \pgfkeyssetvalue{#1}{#2}\fi
548 }% \itf@ttl@setkey
549 \def\itf@ttl@getspacing#1#2#3#4#5#6{%
550   \itf@ttl@setkey{#6/left}{#1}%
551   \itf@ttl@setkey{#6/right}{#2}%
552   \itf@ttl@setkey{#6/top}{#3}%
553   \itf@ttl@setkey{#6/bottom}{#4}%
554   \itf@ttl@setkey{#6/indent first}{#5}%
555 }% \itf@ttl@getspacing
556 \def\itf@ttl@getformat#1#2{%
557   \csname ltx@\ifx\pgfkeysvalueof#1first\else second\fi oftwo\endcsname
558   {\itf@ttl@get@format{}}
559   {\itf@ttl@get@format{#1}{#2}}%
560 }% \itf@ttl@getformat
561 \def\itf@ttl@get@format#1#2#3#4#5#6#7{%
562   \if\relax\detokenize{#1}\relax\else
563     \pgfkeysEsetvalue{#7/shape}{\expandafter\itf@strip@at\string#1}%
564     \fi
565     \itf@ttl@setkey{#7/font}{#2}%
566     \itf@ttl@setkey{#7/label}{#3}%
567     \itf@ttl@setkey{#7/sep}{#4}%
568     \itf@ttl@setkey{#7/before}{#5}%
569     \itf@ttl@setkey{#7/after}{#6}%
570 }% \itf@ttl@get@format

```

`\itf@ttl@update` This macros plugs the values set before with `\pgfkeys` into the special macros `\ttl@<section>` (for format) and `\ttls@<section>` (for spacing).

```

571 \newrobustcmd*\itf@ttl@update[3]{%
572   \ifblank{#3}
573     {\ttl@getkeys{#1}{titlesec}}
574     {\ttl@getkeys{name=#1,numberless}{titlesec}}%
575   \pgfkeysgetvalue{#2#3/shape}\itf@tp
576   \ifcsundef{ttl@h@\itf@tp}
577     {\begingroup \makeatletter
578       \InputIfFileExists{\itf@tp.tss}{}{}%
579       \PackageError{titlesec}{Unknown shape}%
580       {Shapes are defined in files with extension tss\MessageBreak
581        Either you have misspelled the shape\MessageBreak
582        or there is no a \itf@tp.tss file}}%
583     \endgroup}
584   {}%
585   \ifttl@explicit \begingroup
586     \pgfkeysgetvalue{#2#3/before}\pgfkeys@temp
587     \toks@\expandafter{\pgfkeys@temp}%
588     \edef\x{\endgroup\def\noexpand\itf@tp###1{\the\toks@}}%

```

```

589 \x \pgfkeyslet{#2#3/before@cmd}\itf@tp
590 \@temptokena{\csdef{ttl@ttl@a}{#1}}%
591 \the\@temptokena{%
592 \pgfkeysvalueof{#2#3/shape@cs}%
593 {\pgfkeysvalueof{#2#3/font}}%
594 {\pgfkeysvalueof{#2#3/label}}%
595 {\pgfkeysvalueof{#2#3/sep}}%
596 {\pgfkeysvalueof{#2#3/before@cmd}{#1}}%
597 {\pgfkeysvalueof{#2#3/after}}}%
598 \else\@temptokena{\csdef{ttl@ttl@a}}%
599 \the\@temptokena{%
600 \pgfkeysvalueof{#2#3/shape@cs}%
601 {\pgfkeysvalueof{#2#3/font}}%
602 {\pgfkeysvalueof{#2#3/label}}%
603 {\pgfkeysvalueof{#2#3/sep}}%
604 {\pgfkeysvalueof{#2#3/before}}%
605 {\pgfkeysvalueof{#2#3/after}}}%
606 \fi
607 \csname ttl@compat\ttl@a\endcsname
608 \ttl@spacing@ii
609 {\pgfkeysvalueof{#2#3/indent first}}%
610 {\pgfkeysvalueof{#2#3/left}}%
611 {\pgfkeysvalueof{#2#3/top}}%
612 {\pgfkeysvalueof{#2#3/bottom}}%
613 {\pgfkeysvalueof{#2#3/right}}%
614 }% \itf@ttl@update

```

`\itf@ttl@titleclass` This macro calls `\titleclass` to either:

- change the class of an existing sectionning command;

or:

- create a new sectionning command.

```

615 %-----
616 % t i t l e c l a s s
617 \newrobustcmd*{\itf@ttl@titleclass{\@ifstar
618 {\itf@ttl@titleclass@i*}
619 {\itf@ttl@titleclass@i}}}%
620 }% \itf@ttl@titleclass
621 \def\itf@ttl@titleclass@i#1#2#3[#4]#5\@nil{\ifblank{#4}
622 {%
623 \expandafter\titleclass\csname#2\endcsname{#3}%
624 }
625 {%
626 \expandafter\titleclass\csname#2\endcsname{#3}[#4]}% #4 = sup-level
627 \if\relax#1\relax % not starred
628 \expandafter\expandafter\expandafter%
629 \itf@ttl@titleclass@ii\expandafter\@gobble\string#4\relax{#2}% \@addtoreset...
630 \fi
631 }%
632 \expandafter\providecommand\csname l@#2\endcsname[2]{}% no entry in toc
633 }% \itf@ttl@titleclass@i
634 \def\itf@ttl@titleclass@ii#1\relax#2{%
635 \ifcsundef{c@#2}
636 {\newcounter{#2}[#1]}% creates counter for #1
637 {\@addtoreset{#2}{#1}}%
638 \csxdef{the#2}{%
639 \expandafter\noexpand\csname the#1\endcsname
640 .\noexpand\@arabic\expandafter\noexpand\csname c@#2\endcsname
641 }% \the#2
642 \ifcsundef{l@#1}{%
643 \expandafter\providecommand\csname l@#2\endcsname[2]{%
644 \csname l@#1\endcsname{##1}{##2}%
645 }% \l@#2 = \l@newsection is (by default) the same as \l@sup-level
646 }%
647 }% \itf@ttl@titleclass@ii

```

`\itf@ttl@createsection` If `\sectionformat` is invoked with an unknown sectioning command (*ie.* an undefined macro as first argument) then `\itf@ttl@createsection` is expanded in order to:

- 1) create the new sectioning command with `\titleclass`,
- 2) create the `pgfkeys` keys for this section,
- 3) do some additional setup if `interfaces-hypbmsec` and/or `interfaces-tocloft` are loaded.

```

648%%-----
649%%   C r e a t i n g   n e w   s e c t i o n s
650\def\itf@ttl@createsection#1{% sectioning command undefined: temporarily defined
651  \expandafter\titleclass\csname#1\endcsname{straight}[*]%      in straight class
652  \itf@AfterPackage{hypbmsec}{%
653    \AfterPreamble{%
654      \csletcs{hbs@#1}{#1}%
655      \csxdef{#1}{\noexpand\hbs@do\expandafter\noexpand\csname hbs@#1\endcsname}%
656    }%
657  }%
658  \itf@AfterPackage{interfaces-tocloft}{%
659    \itf@cft@newsection{toc}{#1}%
660  }%
661  \itf@AfterPackage{interfaces-hypbmsec}{%
662    \expandafter\let\csname last#1title\endcsname\relax
663    \expandafter\let\csname last#1bookmark\endcsname\relax
664    \expandafter\let\csname last#1toc\endcsname\relax
665  }%
666}% \itf@ttl@createsection

```

### 21.5.3 Keys for `\sectionformat`

`\itf@ttl@newsection` This macro creates the `pgfkeys` keys for each sectioning command.

The `pgfkeys` keys are not created at once, but only when `\sectionformat` is invoked first.

```

667%%-----
668%%   D e f i n i n g   k e y s   f o r   e a c h   s e c t i o n
669\def\itf@ttl@newsection#1#2{% #1=section, #2=/* or empty
670  \ifcsundef{#1}% sectioning command undefined: temporarily defined in straight class
671    {\itf@ttl@createsection{#1}}
672    {}%
673  \ifblank{#2}{%
674    \pgfqkeys{/itf/titlesec/#1}{% these keys do not exist for starred sections
675      class/.code=\itf@ttl@titleclass{#1}##1[]\@nil,% with \@addtoreset
676      class/.value required,%                          if sup-level is given
677      class*/.code=\itf@ttl@titleclass*{#1}##1[]\@nil,% without \@addtoreset
678      class*/.value required,%                          even if sup-level is given
679      shape/.initial=,% initial shapes set by titlesec.sty for not numbered sections.
680      the#1/.store in cs=the#1,%
681      the#1/.default=\pgfkeysvalueof{/itf/titlesec/#1/label},%
682    }%
683    {% starred section: unless titlesec, we do not put the default shape to hang,
684    \pgfkeysifdefined{/itf/titlesec/#1/shape}%but to the shape of the not starred
685      {\pgfkeysgetvalue{/itf/titlesec/#1/shape}\itf@tp}% sectioning command
686      {\def\itf@tp{hang}}%
687    \pgfkeyslet{/itf/titlesec/#1#2/shape}\itf@tp%
688    }%
689  \pgfqkeys{/itf/titlesec/#1#2}{%
690    shape/.value required,%
691    shape@cs/.initial=
692      \csname ttlh@\pgfkeysvalueof{/itf/titlesec/#1#2/shape}\endcsname,% constant
693    shape@cs/.is private=interfaces-titlesec,% constant
694    font/.store as code,%
695    format/.alias*=font,%
696    label/.store as code,%
697    sep/.estore as glue,%

```

```

698     labelsep/.alias*=sep,%
699     before/.store as code,%
700     before@cmd/.is private=interfaces-titlesec,%
701     after/.store as code,%
702     indent first/.true=\pgfkeyssetvalue{/itf/titlesec/#1#2/indent first}{\@ne},%
703     indent first/.false=\pgfkeyssetvalue{/itf/titlesec/#1#2/indent first}{\z@},%
704     identfirst/.alias=indent first,%
705     indent first=true,%
706     left/.estore as glue,%
707     top/.estore as glue,%
708     bottom/.estore as glue,%
709     right/.estore as glue,%
710     break/.code=\ifblank{##1}
711         {\cslet{#1break}\@empty}
712         {\protected\csdef{#1break}{##1}},%
713     break*/.code=\protected\csappto{#1break}{##1},%
714     break+/.alias=break*,%
715     mark/.code=\ifblank{##1}
716         {\cslet{#1mark}\@gobble}
717         {\protected\long\csdef{#1mark}####1{##1}},%
718     mark/.default=,%
719 }% \pgfkeys
720 \ifblank{#2}{% no default marks for starred (numberless) \section*
721 \itf@AfterPackage{interfaces-marks}{% requires interfaces-marks
722     \pgfkeys{/itf/titlesec/#1/mark/.default=\markthe{#1}{##1}}}%
723 }% AfterPackage interfaces-mark
724 \itf@AfterPackage{interfaces-bookmark}{% requires interfaces-bookmark
725 \pgfkeys{/itf/titlesec/#1}{% does not exist for starred sections
726     bookmark/.is multiple choice,%
727     bookmark/level/.estore in cs=toclevel@#1,% depth of the bookmark
728     bookmark/level/.default=\ifcsvoid{tlll@#1}{99}{\csuse{tlll@#1}},%
729     bookmark/level/.blank=\ifcsvoid{toclevel@#1}
730         {\ifcsvoid{tlll@#1}{99}{\csuse{tlll@#1}}}{\csuse{toclevel@#1}},%
731     bookmark/toclevel/.alias=bookmark/level,%
732     bookmark/bold/.code=\ifblank{##1}
733         {\pgfkeyslet{/itf/titlesec/#1/bookmark/bold}\@empty}
734         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/bold}{bold=##1}},%
735     bookmark/bold/.default=true,%
736     bookmark/bold*/.code=\ifblank{##1}
737         {\pgfkeyslet{/itf/titlesec/#1/bookmark/bold*}\@empty}
738         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/bold*}{bold*=##1}},%
739     bookmark/bold*/.default=true,%
740     bookmark/italic/.code=\ifblank{##1}
741         {\pgfkeyslet{/itf/titlesec/#1/bookmark/italic}\@empty}
742         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/italic}{italic=##1}},%
743     bookmark/italic/.default=true,%
744     bookmark/italic*/.code=\ifblank{##1}
745         {\pgfkeyslet{/itf/titlesec/#1/bookmark/italic*}\@empty}
746         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/italic*}{italic*=##1}},%
747     bookmark/italic*/.default=true,%
748     bookmark/color/.code=\ifblank{##1}
749         {\pgfkeyslet{/itf/titlesec/#1/bookmark/color}\@empty}
750         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/color}{color=##1}},%
751     bookmark/color/.default=,%
752     bookmark/color*/.code=\ifblank{##1}
753         {\pgfkeyslet{/itf/titlesec/#1/bookmark/color*}\@empty}
754         {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/color*}{color*=##1}},%
755     bookmark/color*/.default=,%
756     bookmark/on/.code=\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/on}{disable=false},%
757     bookmark/on/.value forbidden,%
758     bookmark/off/.code=\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/on}{disable=true},%
759     bookmark/off/.value forbidden,%
760     bookmark/none/.alias=bookmark/off,%
761     bookmark/on*/.code=\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/on*}{disable*=false},%
762     bookmark/off*/.code=\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/on*}{disable*=true},%

```



```

763         bookmark/none*/.alias=bookmark/off*,%
764         bookmark/disable*/.alias=bookmark/off*,%
765         bookmark/style/.code=\ifblank{##1}
766             {\pgfkeyslet{/itf/titlesec/#1/bookmark/style}\@empty}
767             {\pgfkeyssetvalue{/itf/titlesec/#1/bookmark/style}{style=##1}},%
768         bookmark/style/.default=,%
769         bookmark/.unknown/.code=\pgfkeysEsetvalue{/itf/titlesec/#1/bookmark/other}
770                                     {\pgfkeyscurrentname={##1}},%
771         bookmark/bold/.initial=,%
772         bookmark/bold*/.initial=,%
773         bookmark/italic/.initial=,%
774         bookmark/italic*/.initial=,%
775         bookmark/color/.initial=,%
776         bookmark/color*/.initial=,%
777         bookmark/on/.initial=,%
778         bookmark/on*/.initial=,%
779         bookmark/style/.initial=,%
780     }% \AfterPackage*{interfaces-bookmark}
781     }% not starred (numberless) \section
782     {}% starred/numberless \section*: do not create the keys
783 }% \itf@ttl@newsection

```

`\addcontentsline` (patch) This modification of `\addcontentsline` occurs only if both `interfaces-bookmark` and `interfaces-titlesec` are loaded. Implementation of the `bookmark` key and sub-keys of `\sectionformat` for each sectioning command.

```

784 %% bookmarks styles for sectionning commands:
785 \@makeother\#
786 \itf@AfterPackage{interfaces-bookmark}{%
787     \itf@patch\itf@preapptocmd\addcontentsline           % #2=section name in
788         {\begingroup\itf@ttl@BKM{/itf/titlesec/#2/bookmark}}% \addcontentsline
789         {\endgroup}
790         {\@PackageInfoNoLine{interfaces-titlesec}
791             {Command \string\addcontentsline\space successfully patched!}}
792         {\@PackageWarningNoLine{interfaces-titlesec}
793             {Patch of \string\addcontentsline\space failed
794             \MessageBreak bookmark-style specs for sections
795             \MessageBreak will be unavailable}}}%
796 }% AfterPackage interfaces-bookmark
797 \catcode'\#=6
798 \def\itf@ttl@BKM#1{%
799     \pgfkeysifdefined{#1/.@cmd}
800     {%
801         \edef\itf@tp{% do nothing if the keys are not set (shortcut)
802             \pgfkeysvalueof{#1/bold}%
803             \pgfkeysvalueof{#1/bold*}%
804             \pgfkeysvalueof{#1/italic}%
805             \pgfkeysvalueof{#1/italic*}%
806             \pgfkeysvalueof{#1/color}%
807             \pgfkeysvalueof{#1/color*}%
808             \pgfkeysvalueof{#1/on}%
809             \pgfkeysvalueof{#1/on*}%
810             \pgfkeysvalueof{#1/style}}%
811         \ifx\itf@tp\@empty
812         \else
813             \global\pgfkeyslet{#1/bold*}\@empty
814             \global\pgfkeyslet{#1/italic*}\@empty
815             \global\pgfkeyslet{#1/color*}\@empty
816             \global\pgfkeyslet{#1/on*}\@empty
817             \expandafter\bookmarksetup\expandafter{\itf@tp}%
818             \pgfkeysifdefined{/itf/bookmark/*}%
819                 {% \bookmarksetup{color*=} overwrites \sectionformat...{bookmark/color*=}
820                 \pgfkeysgetvalue{/itf/bookmark/*}\itf@tp
821                 \expandafter\bookmarksetup\expandafter{\itf@tp}%
822                 }

```

```

823          {}%
824      \fi}
825      {}%
826 }% \itf@ttl@BKM

```

### 21.5.4 `\bottomtitles`

`\bottomtitles` This is a “skip command”: it can be assigned a number or a skip.

```

827 %%-----
828 %%   b o t t o m t i t l e s
829 \newrobustcmd*\bottomtitles{\@ifnextchar\bgroup
830   \itf@setbottomtitlespace
831   {\afterassignment\itf@set@bottomtitle@space\itf@sk}%
832 }% \bottomtitles
833 \def\itf@setbottomtitlespace#1{%
834   \@defaultunits\itf@sk#1\textheight\relax\@nnil
835   \itf@set@bottomtitle@space
836 }% \itf@setbottomtitlespace
837 \def\itf@set@bottomtitle@space{\xdef\bottomtitlespace{\the\dimexpr\itf@sk}}
838 </titlesec>

```

## 21.6 Interface `hyperref`

```

839 <*\hyperref>
840 \ProvidesPackage{interfaces-hyperref}
841   [2011/01/17 v2.8 provides raised hyperdef (FC)]
842 \RequirePackage{interfaces-base}
843 \itf@Check@Package{hyperref}

```

`\raisedhyperdef` The anchor is made with `\Hy@raisedlink`. The raised amount is used in `\HyperRaiseLinkHook`:

```

844 \newrobustcmd\raisedhyperdef[4][\begingroup
845   \ifblank{#1}
846   {}
847   {%
848     \expandafter\def\expandafter\HyperRaiseLinkHook\expandafter{%
849       \expandafter\def\expandafter\HyperRaiseLinkHook
850         \expandafter{\HyperRaiseLinkHook}% restore current definition
851       \HyperRaiseLinkHook
852       \advance\noexpand\HyperRaiseLinkLength by\dimexpr#1\relax\relax}%
853   }%
854   \ifx \\\#2\\\def \Hy@AnchorName {#3}\else
855     \def \Hy@AnchorName {#2.#3}%
856   \fi
857   \ltx@leavevmode
858   \Hy@raisedlink{\hyper@anchorstart{\Hy@AnchorName}\hyper@anchorend}%
859   \endgroup
860   #4%
861 }% \raisedhyperdef
862 </hyperref>

```

## 21.7 Interface `bookmark`

```

863 <*\bookmark>
864 \ProvidesPackage{interfaces-bookmark}
865   [2011/01/17 v2.8 more control on bookmarks (FC)]
866 \RequirePackage{interfaces-base}
867 \RequirePackage{interfaces-hyperref}
868 \RequirePackage{refcount}
869 \itf@Check@Package{bookmark}

```

`\bookmark` (patch) Implementation of `disable`, and starred keys `*` (previous values must be restored after `\write`):



```

870 \expandafter\itf@patch\expandafter\patchcmd\curname\string\bookmark\endcurname
871 {\immediate\write\@mainaux}{\itf@BKM@write}
872 {\@PackageInfoNoLine{interfaces-bookmark}
873   {Command \expandafter\string\curname\string\bookmark\endcurname\space
874     successfully patched!}}
875 {\@PackageWarningNoLine{interfaces-bookmark}
876   {Command \expandafter\string\curname\string\bookmark\endcurname\space
877     could not be patched\MessageBreak
878     Loading of interfaces-bookmark is canceled}%
879   \endinput}

```

### 21.7.1 star keys\* definitions

```

880 \global\let\itf@BKM@enable\@ne % 0 = disable*, 1=enable, \@M = disable
881 \pgfqkeys{/itf/bookmark}{%
882   disable/.true=\global\let\itf@BKM@enable\@M,%
883   disable/.false=\global\let\itf@BKM@enable\@ne,%
884   disable*/.true=\global\let\itf@BKM@enable\z@,%
885   disable*/.false=\global\let\itf@BKM@enable\@ne,%
886   atend/.true=\ifnum\itf@BKM@enable>0\edef\itf@BKM@enable{\number-\itf@BKM@enable}\fi,%
887   atend/.false=\ifnum\itf@BKM@enable<0\edef\itf@BKM@enable{\number-\itf@BKM@enable}\fi,%
888   bold*/.true=\pgfqkeys{/itf/bookmark}{@save={bold=true}},%
889   bold*/.false=\pgfqkeys{/itf/bookmark}{@save={bold=false}},%
890   bold*/@blank/.code=\pgfqkeys{/itf/bookmark/@restore}{bold},%
891   bold*/.blank=@blank,%
892   italic*/.true=\pgfqkeys{/itf/bookmark}{@save={italic=true}},%
893   italic*/.false=\pgfqkeys{/itf/bookmark}{@save={italic=false}},%
894   italic*/@blank/.code=\pgfqkeys{/itf/bookmark/@restore}{italic},%
895   italic*/.blank=@blank,%
896   color*/.code={\ifblank{#1}
897     {\pgfqkeys{/itf/bookmark/@restore}{color}}
898     {\pgfqkeys{/itf/bookmark}{@save={color={#1}}}}}%
899 },%
900 @save/.code={%
901   \pgfkeysifdefined{/itf/bookmark/@save/color}{%
902     {\pgfkeyslet{/itf/bookmark/@save/color}\BKM@color}%
903   \pgfkeysifdefined{/itf/bookmark/@save/FontStyle}{%
904     {\pgfkeyslet{/itf/bookmark/@save/FontStyle}\BS@BKM@FontStyle}%
905   \pgfkeysifdefined{/itf/bookmark/@save/grouplevel}{%
906     {\pgfkeysEsetvalue{/itf/bookmark/@save/grouplevel}{\the\currentgrouplevel}}}%
907   \pgfkeysaddvalue{/itf/bookmark/*}{\{, #1}%
908   \bookmarksetup{#1}%
909 },%
910 @restore/color/.code=%
911   \pgfkeysifdefined{/itf/bookmark/@save/color}
912     {\pgfkeysgetvalue{/itf/bookmark/@save/color}\BKM@color}
913     {\},%
914 @restore/FontStyle/.code=%
915   \pgfkeysifdefined{/itf/bookmark/@save/FontStyle}
916     {\pgfkeysgetvalue{/itf/bookmark/@save/FontStyle}\BS@BKM@FontStyle}
917     {\},%
918 @restore/.code={%
919   \pgfkeysifdefined{/itf/bookmark/@save/color}
920     {\pgfkeysgetvalue{/itf/bookmark/@save/color}\BKM@color}
921     {\}%
922   \pgfkeysifdefined{/itf/bookmark/@save/FontStyle}
923     {\pgfkeysgetvalue{/itf/bookmark/@save/FontStyle}\BS@BKM@FontStyle}
924     {\}%
925   \pgfkeysifdefined{/itf/bookmark/@save/grouplevel}
926     {% shortcut: \bookmarksetup{bold*} called inside main group (level 0)
927     \ifnum\pgfkeysvalueof{/itf/bookmark/@save/grouplevel}=\z@
928       \global\pgfkeyslet{/itf/bookmark/@save/FontStyle}\@undefined
929       \global\pgfkeyslet{/itf/bookmark/@save/color}\@undefined
930       \global\pgfkeyslet{/itf/bookmark/@save/grouplevel}\@undefined

```

```

931         \global\pgfkeyslet{/itf/bookmark/*}\@undefined
932         \global\let\BKM@color\BKM@color
933         \global\let\BS@BKM@FontStyle\BS@BKM@FontStyle
934     \else % restore after each group as needed
935         \pgfkeyslet{/itf/bookmark/@save/FontStyle}\@undefined
936         \pgfkeyslet{/itf/bookmark/@save/color}\@undefined
937         \pgfkeyslet{/itf/bookmark/*}\@undefined
938         \ifnum\currentgrouplevel>\z@
939             \aftergroup\itf@BKM@restore
940         \else
941             \pgfkeyslet{/itf/bookmark/@save/grouplevel}\@undefined
942         \fi\fi
943     }
944     {}%
945 },%
946 @restore/bold/.code={% bold is "hidden" in \BS@BKM@FontStyle
947     \begingroup
948         \edef\itf@tp{\bookmarkget{bold}}%
949         \pgfqkeys{/itf/bookmark/@restore}{FontStyle}%
950         \count@=\bookmarkget{bold}%
951         \edef\itf@tp{\endgroup
952             \ifnum\itf@tp=\count@
953                 \else \noexpand\bookmarksetup{%
954                     bold\ifcase\count@ =false\fi}\fi
955             }\itf@tp},%
956 @restore/italic/.code={% italic is "hidden" in \BS@BKM@FontStyle
957     \begingroup
958         \edef\itf@tp{\bookmarkget{italic}}%
959         \pgfqkeys{/itf/bookmark/@restore}{FontStyle}%
960         \count@=\bookmarkget{italic}%
961         \edef\itf@tp{\endgroup
962             \ifnum\itf@tp=\count@
963                 \else \noexpand\bookmarksetup{%
964                     italic\ifcase\count@ =false\fi}\fi
965             }\itf@tp},%
966 }
967 \def\itf@BKM@restore{%
968     \pgfkeysifdefined{/itf/bookmark/@save/grouplevel}
969     {\pgfkeysalso{/itf/bookmark/@restore}}
970     {}%
971 }% \itf@BKM@restore
972 %% Plug the BKM keys in the interfaces pgfkeys (not efficient but quickly written...)
973 \define@key{BKM}{disable}[true]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/disable={#1}}}
974 \define@key{BKM}{disable*}[true]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/disable*={#1}}}
975 \define@key{BKM}{bold*}[true]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/bold*={#1}}}
976 \define@key{BKM}{italic*}[true]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/italic*={#1}}}
977 \define@key{BKM}{color*}[]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/color*={#1}}}
978 \define@key{BKM}{atend}[true]{\itf@pgfkeys\pgfkeysalso{/itf/bookmark/atend={#1}}}%

```

`\itf@BKM@write`

- 1) check if the bookmark is disable
- 2) restore previous values in case starred\* keys have been set.

```

979 \def\itf@BKM@write#1{%
980     \aftergroup\itf@BKM@restore
981     \ifcase\itf@BKM@enable
982         \global\let\itf@BKM@enable\@ne
983     \or
984         \immediate\write\@mainaux{#1}%
985     \else
986         \ifcase -\itf@BKM@enable % (case -0 = 0 tested before)
987         \or % (case -1 = enable but At End)
988             \let\itf@BKM@enable\@ne
989             \edef\itf@tp{\immediate\write\@mainaux{#1}}%
990             \expandafter\BookmarkAtEnd\expandafter{\itf@tp}%
991         \fi

```

```

992   \fi
993 }% \itf@BKM@write

```

### 21.7.2 `ref` and `pageref` keys

`\itf@BKM@pageref`

```

994%% pageref= key for \bookmark (using refcount : \getpagerefnnumber)
995 \def\itf@BKM@pageref[#1]{%
996   \expandafter\itf@BKM@@pageref
997     \csname r@#1\endcsname{#1}%
998 }% \itf@BKM@pageref
999 \def\itf@BKM@@pageref#1#2{%
1000   \ifx#1\relax
1001     \protect\G@refundefinedtrue
1002     \@latex@warning{%
1003       Hyper reference ‘#2’ on page \thepage \space undefined
1004       \MessageBreak for bookmark destination page
1005     }%
1006   \fi
1007   \edef\BKM@page{\getrefbykeydefault{#2}{page}{1}}%
1008 }% \itf@BKM@@pageref
1009 \define@key{BKM}{pageref}{%
1010   \Hy@babelnormalise\itf@BKM@pageref[{#1}]}

```

`\itf@BKM@ref`

```

1011%% ref= key for \bookmark
1012 \def\itf@BKM@ref[#1]{%
1013   \expandafter\itf@BKM@@ref
1014     \csname r@#1\endcsname{#1}%
1015 }% \itf@BKM@ref
1016 \def\itf@BKM@@ref#1#2{%
1017   \ifx#1\relax
1018     \protect\G@refundefinedtrue
1019     \@latex@warning{%
1020       Hyper reference ‘#2’ on page \thepage \space undefined
1021       \MessageBreak for bookmark destination
1022     }%
1023     \def\BKM@dest{??}%
1024   \else
1025     \edef\BKM@dest{\expandafter\@fourthoffive#1\@empty\@empty}%
1026   \fi
1027 }% \BKM@@ref
1028 \define@key{BKM}{ref}{%
1029   \Hy@babelnormalise\itf@BKM@ref[{#1}]}
1030 \</bookmark>

```

## 21.8 † Interface `hypbmsec`

### 21.8.1 `interfaces-hypbmsec`

```

1031 \<*hypbmsec>
1032 \ProvidesPackage{interfaces-hypbmsec}
1033   [2011/01/17 v2.8 lastsection,title,anchor, etc. (FC)]
1034 \RequirePackage{interfaces-base}
1035 \RequirePackage{getttitlestring}
1036 \itf@Check@Package{hypbmsec}

```

`\hbs@do` (patch)

```

1037 \def\itf@hbs@do#1{%
1038   \xdef\itf@hbs@currentname{\expandafter\itf@strip@at\string#1}%
1039   \let\hbs@tocstring\relax % <for starred sections>
1040   \let\hbs@bmstring\relax % <for starred sections>

```

```

1041 \ifstar
1042   {\itf@hbs@ssect#1}%
1043   {\let\hbs@seccmd=#1\hbs@checkarg}%
1044 }% \itf@hbs@do
1045 \let\hbs@do\itf@hbs@do

\hbs@process (patch)

1046 \itf@patch\pretocmd\hbs@process{%
1047   \itf@hbs@process{#1}%
1048   }%
1049   {\@PackageInfoNoLine{interfaces-hypbmsec}
1050     {Command \string\hbs@process\space successfully patched}}
1051   {\@PackageWarningNoLine{interfaces-hypbmsec}
1052     {Command \string\hbs@process\space could not be patched
1053       \MessageBreak loading of ‘interfaces-hypbmsec’ aborted
1054       \MessageBreak \string\lastsection\space will not work}%
1055     \endinput}%

\itf@hbs@ssect For starred sections:

1056 \long\def\itf@hbs@ssect#1#2{% starred section
1057   \itf@Not@titlesec#1
1058   {\expandafter\itf@hbs@last@starred\expandafter{\itf@hbs@currentname}{#2}}
1059   {\let\itf@hbs@last\itf@hbs@last@starred@ttl}% <expanded at \ttl@finmarks>
1060   #1*{#2}%
1061 }% \itf@hbs@ssect

\itf@hbs@process For non-starred sections:

1062 \long\def\itf@hbs@process#1{% not starred
1063   \itf@Not@titlesec \hbs@seccmd
1064   {%
1065     \ifdefined\hyper@anchor
1066       \expandafter\itf@hbs@last@nostar@nottl@Hy\expandafter{\itf@hbs@currentname}{#1}%
1067     \else
1068       \expandafter\itf@hbs@last@nostar@nottl\expandafter{\itf@hbs@currentname}{#1}%
1069     \fi
1070   }%
1071   {\let\itf@hbs@last \itf@hbs@last@nostar@ttl}% <expanded at \ttl@finmarks>
1072 }% \itf@hbs@process

\itf@hbs@last@starred Update the values of \lastsectiontitle etc. for starred sections:

1073 \long\def\itf@hbs@last@starred#1#2{% <expanded immediately>
1074   \GetTitleString{#2}\let\itf@hbs@currenttitle\GetTitleStringResult
1075   \begingroup
1076     \let\@elt \itf@resetlastsections
1077     \globaldefs \@ne
1078     \expandafter\let\csname last#1title\endcsname\itf@hbs@currenttitle
1079     \expandafter\let\csname last#1toc\endcsname\@empty
1080     \expandafter\let\csname last#1bookmark\endcsname\@empty
1081     \expandafter\let\csname last#1anchor\endcsname\relax
1082     \let\lastsectionname \itf@hbs@currentname
1083     \csname cl@#1\endcsname
1084   \endgroup
1085 }% \itf@hbs@last@starred
1086 \def\itf@hbs@last@starred@ttl{% <expanded at \ttl@finmarks>
1087   \global\let\itf@hbs@last \@empty
1088   \expandafter\itf@hbs@last@starred
1089   \expandafter\itf@hbs@currentname \expandafter{\ttl@savetitle}%
1090 }% \itf@hbs@last@starred@ttl

\itf@hbs@last@nostar Update de values of \lastsectiontitle etc. for non-starred sections:

1091 \long\def\itf@hbs@last@nostar#1#2{%
1092   \let\itf@hbs@last@nostar@nottl\GetTitleString{#2}\let\itf@hbs@currenttitle\GetTitleStringResult
1093   \itf@hbs@last@nostar@nottl@Hy\begingroup
1094     \let\@elt \itf@resetlastsections

```

```

1095 \globaldefs \@ne
1096 \expandafter\let\csname last#1title\endcsname\itf@hbs@currenttitle
1097 \expandafter\let\csname last#1toc\endcsname\expandafter\endcsname
1098 \csname \ifx\hbs@tocstring\relax
1099 \itf@hbs@currenttitle\else hbs@tocstring\fi \endcsname
1100 \expandafter\let\csname last#1bookmark\endcsname\expandafter\endcsname
1101 \csname \ifx\hbs@bmstring\relax
1102 \last#1toc\else hbs@bmstring\fi \endcsname
1103 \expandafter\let\csname last#1anchor\endcsname\HyperLocalCurrentHref
1104 \let\lastsectionname \itf@hbs@currentname
1105 \csname cl@#1\endcsname
1106 \endgroup
1107}% \itf@hbs@last@starred
1108\def\itf@hbs@last@nostar@ttl{% <expanded at \ttl@finmarks>
1109 \global\let\itf@hbs@last \@empty
1110 \expandafter\itf@hbs@last@nostar
1111 \expandafter\itf@hbs@currentname \expandafter{\ttl@savetitle}%
1112}% \itf@hbs@last@nostar@ttl
1113\long\def\itf@hbs@last@nostar@nottl#1#2{% <expanded at \cl@section>
1114 \expandafter\let\expandafter\itf@hbs@cl@ORI\csname cl@#1\endcsname
1115 \expandafter\def\csname cl@#1\endcsname{%
1116 \expandafter\let\csname cl@#1\endcsname\itf@hbs@cl@ORI
1117 \itf@hbs@cl@ORI
1118 \itf@hbs@last@nostar {#1}{#2}}%
1119}% \itf@hbs@last@nostar@nottl
1120\long\def\itf@hbs@last@nostar@nottl@Hy#1#2{% <expanded at \hyper@anchorend>
1121 \begingroup
1122 \toks@{\expandafter}%
1123 \expandafter\def\expandafter\hyper@anchorend
1124 \expandafter{\hyper@anchorend}%
1125 \itf@hbs@last@nostar{#1}{#2}}%
1126 \edef\x{\endgroup
1127 \def\noexpand\hyper@anchorend{\the\toks@}%
1128 }\x
1129}% \itf@hbs@last@nostar@nottl@Hy

```

`\itf@Not@titlesec` Expands to `\@firstoftwo` if the section is not formatted by a class of `titlesec` package. Otherwise (`titlesec` formats the given section): expands to `\@secondoftwo`.

```

1130\def\itf@Not@titlesec#1{\@firstoftwo}
1131\AfterPackage*{titlesec}{%
1132\def\itf@Not@titlesec#1{\begingroup
1133 \@onelevel@sanitize#1%
1134 \edef\@tempa{\noexpand\in@
1135 {\noexpand\@nil \string\ttl@}
1136 {\noexpand\@nil #1}%
1137 }\@tempa
1138 \expandafter\endgroup
1139 \ifin@ \expandafter\@secondoftwo
1140 \else \expandafter\@firstoftwo
1141 \fi
1142}% \itf@Not@titlesec
1143}% AfterPackage titlesec

```

`\ttl@finmarks` When `titlesec` is used, assignments to `\lastsectiontitle`, `\lastsubsection toc` *etc.* are done at this point.

```

1144\AfterPackage*{titlesec}{%
1145\expandafter\def\expandafter\ttl@finmarks\expandafter{%
1146 \expandafter\itf@hbs@last \ttl@finmarks}%
1147\let\itf@hbs@last \@empty
1148}% AfterPackage

```

`\itf@resetlastsections` Assignments are global (`\globaldefs=1`).

```

1149\def\itf@resetlastsections#1{%
1150 \expandafter\let\csname last#1title\endcsname\relax

```

```

1151 \expandafter\let\csname last#1toc\endcsname\relax
1152 \expandafter\let\csname last#1bookmark\endcsname\relax
1153 \expandafter\let\csname last#1anchor\endcsname\relax
1154 \csname cl@#1\endcsname
1155 }% \itf@resetlastsections

1156 \let\lastsectionname\relax
1157 \@for\itf@tp:=part,section,subsection,subsubsection,paragraph,subparagraph%
1158 \do{\expandafter\let\csname last\itf@tp title\endcsname\relax
1159 \expandafter\let\csname last\itf@tp toc\endcsname\relax
1160 \expandafter\let\csname last\itf@tp bookmark\endcsname\relax
1161 \expandafter\let\csname last\itf@tp anchor\endcsname\relax
1162 }%
1163 \AtBeginDocument{\ifundef\chapter{}
1164 {\let\lastchaptertitle\relax
1165 \let\lastchaptertoc\relax
1166 \let\lastchapterbookmark\relax
1167 \let\lastchapteranchor\relax}%
1168 }%

1169 </hypbmsec>

```

## 21.9 Interface `fancyhdr` : `\pagesetup`

```

1170 < *fancyhdr>
1171 \ProvidesPackage{interfaces-fancyhdr}
1172 [2011/01/17 v2.8 pgfkeys macros for fancyhdr (FC)]
1173 \RequirePackage{interfaces-base}
1174 \itf@Check@Package{fancyhdr}
1175 \robustify\fancyhf
1176 \robustify\fancyhfoffset

```

### 21.9.1 `\pagesetup`

`\pagesetup`

```

1177 \newrobustcmd*\pagesetup{%
1178 \let\fancy@gb1\relax % Just in case...
1179 \@ifstar
1180 {\itf@pagesetup{}}
1181 {\itf@pagesetup{reset,}}%
1182 }% \pagesetup
1183 \def\itf@pagesetup#1{\@testopt
1184 {\itf@pagesetup{#1}}}%
1185 }% \itf@pagesetup
1186 \def\itf@pagesetup#1[#2]#3{\ifblank{#2}
1187 {% modifies the current page style
1188 \itf@pgfkeys\pgfqkeys{/itf/fancyhdr}{#1#3}\relax\ps@@fancy}%
1189 {% defines or modifies a given page style
1190 \ifblank{#1}
1191 \csappto% star form: keep existing value (if not overwritten)
1192 \csdef% no star form: overwrite (+ reset at \pagestyle time)
1193 {ps@#2}{\itf@pgfkeys\pgfqkeys{/itf/fancyhdr}{#1#3}\relax\ps@@fancy}%
1194 }%
1195 }% \itf@pagesetup
1196 \pgfqkeys{/itf/pagesetup}%
1197 @current/.is private=interfaces-fancyhdr,%
1198 @style/.is private=interfaces-fancyhdr,%
1199 }

```

`\pagestyle`

```

1200 \renewrobustcmd*\pagestyle[1]{\ifcsundef{ps@#1}
1201 {\itf@undefinedpagestyle{#1}}
1202 {\csname ps@#1\endcsname}%
1203 }% \pagestyle

```



`\thispagestyle`

```

1204 \renewrobustcmd*\thispagestyle[1]{\ifcsundef{ps@#1}
1205   {\itf@undefinedpagestyle{#1}}}
1206   {\global\@specialpagetrue\gdef\@specialstyle{#1}}}%
1207}% \thispagestyle
1208 \newcommand*\itf@undefinedpagestyle[1]{%
1209   \@latex@error{Undefined page style: #1
1210   \MessageBreak your command will be ignored}\@eha
1211}% \itf@undefinedpagestyle

```

### 21.9.2 Keys for `\pagesetup`

```

1212 \pgfkeys{%
1213   /handlers/.fancy@hf/.code=%
1214     \edef\itf@tp{\pgfkeyscurrentpath}%
1215     \pgfkeysalso{\pgfkeyscurrentpath/.store as code}%
1216     \pgfkeysalso{\pgfkeyscurrentpath/.append code/.expanded=%
1217       \csdef{f@ncy#1}{%
1218         \noexpand\pgfkeysvalueof{\itf@tp/font}
1219         \noexpand\pgfkeysvalueof{\itf@tp}\noexpand\strut}}},%
1220}% handler for fancyhdr interface
1221 \pgfqkeys{/itf/fancyhdr}{% keys for \pagesetup
1222   code/.code={#1},% execution at expansion of \ps@... => \pgfqkeys{...,code={...},...}
1223   pagestyle/.style={code=\pagestyle{#1}},%
1224   page style/.alias=pagestyle,%
1225   load style/.alias=pagestyle,%
1226   head/rule/.store as dimen in cs=headrulewidth,%
1227   head/rule/.default=.4pt,%
1228   head/rule/.blank=\z@,%
1229   head/rulewidth/.alias*=head/rule,%
1230   headrulewidth/.alias*=head/rule,%
1231   head/rule/width/.alias*=head/rule,%
1232   head/rule/font/.store as code,%
1233   head/rule/color/.style={head/rule/font+=\color{#1}},%
1234   headruler/.code=%
1235     \let\headrule\pgfkeyscurrentvalue
1236     \ifx\headrule\@empty\else
1237       \preto\headrule{\bgroup\pgfkeysvalueof{/itf/fancyhdr/head/rule/font}}%
1238       \appto\headrule{\egroup}%
1239     \fi,%
1240   headruler/.default=%
1241     \if@fancyplain\let\headrulewidth\plainheadrulewidth\fi
1242     \hrule\@height\headrulewidth \@width\headwidth
1243     \vskip-\headrulewidth\relax,%
1244   headrule/.alias=headruler,%
1245   headrule,% sets default
1246   foot/rule/.store as dimen in cs=footrulewidth,%
1247   foot/rule/.default=.4pt,%
1248   foot/rule/.blank=\z@,%
1249   foot/rulewidth/.alias*=foot/rule,%
1250   footrulewidth/.alias*=foot/rule,%
1251   foot/rule/width/.alias*=foot/rule,%
1252   foot/rule/font/.store as code,%
1253   foot/rule/color/.style={foot/rule/font+=\color{#1}},%
1254   footruler/.code=%
1255     \let\footrule\pgfkeyscurrentvalue
1256     \ifx\footrule\@empty\else
1257       \preto\footrule{\bgroup\pgfkeysvalueof{/itf/fancyhdr/head/rule/font}}%
1258       \appto\footrule{\egroup}%
1259     \fi,%
1260   footruler/.default=%
1261     \if@fancyplain\let\footrulewidth\plainfootrulewidth\fi
1262     \vskip-2\footrulewidth

```

```

1263 \hrule\@height\footrulewidth \@width\headwidth\vskip\footrulewidth,%
1264 footrule/.alias=footruler,%
1265 footrule,% sets default
1266 rule/.style={head/rule={#1},foot/rule={#1}},%
1267 rule+/.style={head/rule+={#1},foot/rule+={#1}},%
1268 rule-/.style={head/rule-={#1},foot/rule-={#1}},%
1269 rule*/.style={head/rule*={#1},foot/rule*={#1}},%
1270 rules/.alias*=rule,rulewidth/.alias*=rule,%
1271 rule/width/.alias*=rule,rules/width/.alias*=rule,%
1272 norule/.style={rule=\z@},%
1273 norule/.value forbidden,%
1274 norules/.alias=norule,%
1275 rule/font/.style={head/rule/font={#1},foot/rule/font={#1}},%
1276 rule/font+/.style={head/rule/font+={#1},foot/rule/font+={#1}},%
1277 rule/font*/.alias=rule/font+,%
1278 rules/font/.alias=rule/font,%
1279 rules/font+/.alias=rule/font+,%
1280 rules/font*/.alias=rule/font+,%
1281 rule/color/.style={head/rule/color={#1},foot/rule/color={#1}},%
1282 rules/color/.alias=rule/color,%
1283 foot/rule/skip/.estore as glue in cs=footruleskip,%
1284 foot/rule/skip/.default=.3\normalbaselineskip,%
1285 foot/rule/skip/.blank=\z@,%
1286 foot/ruleskip/.alias*=foot/rule/skip,%
1287 footruleskip/.alias*=foot/rule/skip,%
1288 font/.style={head/font={#1},foot/font={#1}},%
1289 font+/.style={head/font+={#1},foot/font+={#1}},%
1290 font*/.alias=font+,%
1291 color/.style={head/color={#1},foot/color={#1}},%
1292 head/rule/color={#1},foot/rule/color={#1}},%
1293 head/.style={head/left={#1},head/center={#1},head/right={#1}},%
1294 head+/.style={head/left+={#1},head/center+={#1},head/right+={#1}},%
1295 head*/.alias=head+,%
1296 head/font/.style={head/left/font={#1},head/center/font={#1},head/right/font={#1}},%
1297 head/font+/.style={head/left/font+={#1},head/center/font+={#1},head/right/font+={#1}},%
1298 head/font*/.alias=head/font+,%
1299 head/color/.style={head/left/color={#1},head/center/color={#1},head/right/color={#1}},%
1300 head/rule/color={#1}},%
1301 nohead/.style={head=,head/font=,head/rule=,head/rule/font=},
1302 foot/.style={foot/left={#1},foot/center={#1},foot/right={#1}},%
1303 foot+/.style={foot/left+={#1},foot/center+={#1},foot/right+={#1}},%
1304 foot*/.alias=foot+,%
1305 foot/font/.style={foot/left/font={#1},foot/center/font={#1},foot/right/font={#1}},%
1306 foot/font+/.style={foot/left/font+={#1},foot/center/font+={#1},foot/right/font+={#1}},%
1307 foot/font*/.alias=foot/font+,%
1308 foot/color/.style={foot/left/color={#1},foot/center/color={#1},foot/right/color={#1}},%
1309 foot/rule/color={#1}},%
1310 nofoot/.style={foot=,foot/font=,foot/rule=,foot/rule/font=},
1311 left/.style={head/left={#1},foot/left={#1}},%
1312 left+/.style={head/left+={#1},foot/left+={#1}},%
1313 left*/.alias=left+,%
1314 left/font/.style={head/left/font={#1},foot/left/font={#1}},%
1315 left/font+/.style={head/left/font+={#1},foot/left/font+={#1}},%
1316 left/font*/.alias=left/font+,%
1317 left/color/.style={head/left/color={#1},foot/left/color={#1}},%
1318 center/.style={head/center={#1},foot/center={#1}},%
1319 center+/.style={head/center+={#1},foot/center+={#1}},%
1320 center*/.alias=center+,%
1321 center/font/.style={head/center/font={#1},foot/center/font={#1}},%
1322 center/font+/.style={head/center/font+={#1},foot/center/font+={#1}},%
1323 center/font*/.alias=center/font+,%
1324 center/color/.style={head/center/color={#1},foot/center/color={#1}},%
1325 right/.style={head/right={#1},foot/right={#1}},%
1326 right+/.style={head/right+={#1},foot/right+={#1}},%
1327 right*/.alias=right+,%

```

```

1328     right/font/.style={head/right/font={#1},foot/right/font={#1}},%
1329     right/font+/.style={head/right/font+={#1},foot/right/font+={#1}},%
1330     right/font*/.alias=right/font+,%
1331     right/color/.style={head/right/color={#1},foot/right/color={#1}},%
1332     head/left/.style={head/left/even={#1},head/left/odd={#1}},%
1333     head/left+/.style={head/left/even+={#1},head/left/odd+={#1}},%
1334     head/left*/.alias=head/left+,%
1335     head/left/font/.style={head/left/even/font={#1},head/left/odd/font={#1}},%
1336     head/left/font+/.style={head/left/even/font+={#1},head/left/odd/font+={#1}},%
1337     head/left/font*/.alias=head/left/font+,%
1338     head/left/color/.style={head/left/even/color={#1},head/left/odd/color={#1}},%
1339     left/head/.alias*=head/left,%
1340     left/head/font/.alias*=head/left/font,%
1341     left/head/color/.alias=head/left/color,%
1342     head/center/.style={head/center/even={#1},head/center/odd={#1}},%
1343     head/center+/.style={head/center/even+={#1},head/center/odd+={#1}},%
1344     head/center*/.alias=head/center+,%
1345     head/center/font/.style={head/center/even/font={#1},head/center/odd/font={#1}},%
1346     head/center/font+/.style={head/center/even/font+={#1},head/center/odd/font+={#1}},%
1347     head/center/font*/.alias=head/center/font+,%
1348     head/center/color/.style={head/center/even/color={#1},head/center/odd/color={#1}},%
1349     center/head/.alias*=head/center,%
1350     center/head/font/.alias*=head/center/font,%
1351     center/head/color/.alias=head/center/color,%
1352     head/right/.style={head/right/even={#1},head/right/odd={#1}},%
1353     head/right+/.style={head/right/even+={#1},head/right/odd+={#1}},%
1354     head/right*/.alias=head/right+,%
1355     head/right/font/.style={head/right/even/font={#1},head/right/odd/font={#1}},%
1356     head/right/font+/.style={head/right/even/font+={#1},head/right/odd/font+={#1}},%
1357     head/right/font*/.alias=head/right/font+,%
1358     head/right/color/.style={head/right/even/color={#1},head/right/odd/color={#1}},%
1359     right/head/.alias*=head/right,%
1360     right/head/font/.alias*=head/right/font,%
1361     right/head/color/.alias=head/right/color,%
1362     foot/left/.style={foot/left/even={#1},foot/left/odd={#1}},%
1363     foot/left+/.style={foot/left/even+={#1},foot/left/odd+={#1}},%
1364     foot/left*/.alias=foot/left+,%
1365     foot/left/font/.style={foot/left/even/font={#1},foot/left/odd/font={#1}},%
1366     foot/left/font+/.style={foot/left/even/font+={#1},foot/left/odd/font+={#1}},%
1367     foot/left/font*/.alias=foot/left/font+,%
1368     foot/left/color/.style={foot/left/even/color={#1},foot/left/odd/color={#1}},%
1369     left/foot/.alias*=foot/left,%
1370     left/foot/font/.alias*=foot/left/font,%
1371     left/foot/color/.alias=foot/left/color,%
1372     foot/center/.style={foot/center/even={#1},foot/center/odd={#1}},%
1373     foot/center+/.style={foot/center/even+={#1},foot/center/odd+={#1}},%
1374     foot/center*/.alias=foot/center,%
1375     foot/center/font/.style={foot/center/even/font={#1},foot/center/odd/font={#1}},%
1376     foot/center/font+/.style={foot/center/even/font+={#1},foot/center/odd/font+={#1}},%
1377     foot/center/font*/.alias=foot/center/font+,%
1378     foot/center/color/.style={foot/center/even/color={#1},foot/center/odd/color={#1}},%
1379     center/foot/.alias*=foot/center,%
1380     center/foot/font/.alias*=foot/center/font,%
1381     center/foot/color/.alias=foot/center/color,%
1382     foot/right/.style={foot/right/even={#1},foot/right/odd={#1}},%
1383     foot/right+/.style={foot/right/even+={#1},foot/right/odd+={#1}},%
1384     foot/right*/.alias=foot/right+,%
1385     foot/right/font/.style={foot/right/even/font={#1},foot/right/odd/font={#1}},%
1386     foot/right/font+/.style={foot/right/even/font+={#1},foot/right/odd/font+={#1}},%
1387     foot/right/font*/.alias=foot/right/font+,%
1388     foot/right/color/.style={foot/right/even/color={#1},foot/right/odd/color={#1}},%
1389     right/foot/.alias*=foot/right,%
1390     right/foot/font/.alias*=foot/right/font,%
1391     right/foot/color/.alias=foot/right/color,%
1392     head/left/odd/.fancy@hf=olh,%

```

```

1393 head/left/odd/font/.store as code,%
1394 head/left/odd/color/.style={head/left/odd/font+=\color{#1}},%
1395 head/odd/left/.alias*=head/left/odd,%
1396 odd/head/left/.alias*=head/left/odd,%
1397 odd/left/head/.alias*=head/left/odd,%
1398 left/odd/head/.alias*=head/left/odd,%
1399 left/head/odd/.alias*=head/left/odd,%
1400 head/odd/left/font/.alias*=head/left/odd/font,%
1401 odd/head/left/font/.alias*=head/left/odd/font,%
1402 odd/left/head/font/.alias*=head/left/odd/font,%
1403 left/odd/head/font/.alias*=head/left/odd/font,%
1404 left/head/odd/font/.alias*=head/left/odd/font,%
1405 head/odd/left/color/.alias*=head/left/odd/color,%
1406 odd/head/left/color/.alias*=head/left/odd/color,%
1407 odd/left/head/color/.alias*=head/left/odd/color,%
1408 left/odd/head/color/.alias*=head/left/odd/color,%
1409 left/head/odd/color/.alias*=head/left/odd/color,%
1410 head/center/odd/.fancy@hf=och,%
1411 head/center/odd/font/.store as code,%
1412 head/center/odd/color/.style={head/center/odd/font+=\color{#1}},%
1413 head/odd/center/.alias*=head/center/odd,%
1414 odd/head/center/.alias*=head/center/odd,%
1415 odd/center/head/.alias*=head/center/odd,%
1416 center/odd/head/.alias*=head/center/odd,%
1417 center/head/odd/.alias*=head/center/odd,%
1418 head/odd/center/font/.alias*=head/center/odd/font,%
1419 odd/head/center/font/.alias*=head/center/odd/font,%
1420 odd/center/head/font/.alias*=head/center/odd/font,%
1421 center/odd/head/font/.alias*=head/center/odd/font,%
1422 center/head/odd/font/.alias*=head/center/odd/font,%
1423 head/odd/center/color/.alias*=head/center/odd/color,%
1424 odd/head/center/color/.alias*=head/center/odd/color,%
1425 odd/center/head/color/.alias*=head/center/odd/color,%
1426 center/odd/head/color/.alias*=head/center/odd/color,%
1427 center/head/odd/color/.alias*=head/center/odd/color,%
1428 head/right/odd/.fancy@hf=orh,%
1429 head/right/odd/font/.store as code,%
1430 head/right/odd/color/.style={head/right/odd/font+=\color{#1}},%
1431 head/odd/right/.alias*=head/right/odd,%
1432 odd/head/right/.alias*=head/right/odd,%
1433 odd/right/head/.alias*=head/right/odd,%
1434 right/odd/head/.alias*=head/right/odd,%
1435 right/head/odd/.alias*=head/right/odd,%
1436 head/odd/right/font/.alias*=head/right/odd/font,%
1437 odd/head/right/font/.alias*=head/right/odd/font,%
1438 odd/right/head/font/.alias*=head/right/odd/font,%
1439 right/odd/head/font/.alias*=head/right/odd/font,%
1440 right/head/odd/font/.alias*=head/right/odd/font,%
1441 head/odd/right/color/.alias*=head/right/odd/color,%
1442 odd/head/right/color/.alias*=head/right/odd/color,%
1443 odd/right/head/color/.alias*=head/right/odd/color,%
1444 right/odd/head/color/.alias*=head/right/odd/color,%
1445 right/head/odd/color/.alias*=head/right/odd/color,%
1446 head/left/even/.fancy@hf=elh,%
1447 head/left/even/font/.store as code,%
1448 head/left/even/color/.style={head/left/even/font+=\color{#1}},%
1449 head/even/left/.alias*=head/left/even,%
1450 even/head/left/.alias*=head/left/even,%
1451 even/left/head/.alias*=head/left/even,%
1452 left/even/head/.alias*=head/left/even,%
1453 left/head/even/.alias*=head/left/even,%
1454 head/even/left/font/.alias*=head/left/even/font,%
1455 even/head/left/font/.alias*=head/left/even/font,%
1456 even/left/head/font/.alias*=head/left/even/font,%
1457 left/even/head/font/.alias*=head/left/even/font,%

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1458         left/head/even/font/.alias*=head/left/even/font,%
1459         head/even/left/color/.alias=head/left/even/color,%
1460         even/head/left/color/.alias=head/left/even/color,%
1461         even/left/head/color/.alias=head/left/even/color,%
1462         left/even/head/color/.alias=head/left/even/color,%
1463         left/head/even/color/.alias=head/left/even/color,%
1464     head/center/even/.fancy@hf=ech,%
1465     head/center/even/font/.store as code,%
1466     head/center/even/color/.style={head/center/even/font+=\color{#1}},%
1467         head/even/center/.alias*=head/center/even,%
1468         even/head/center/.alias*=head/center/even,%
1469         even/center/head/.alias*=head/center/even,%
1470         center/even/head/.alias*=head/center/even,%
1471         center/head/even/.alias*=head/center/even,%
1472         head/even/center/font/.alias*=head/center/even/font,%
1473         even/head/center/font/.alias*=head/center/even/font,%
1474         even/center/head/font/.alias*=head/center/even/font,%
1475         center/even/head/font/.alias*=head/center/even/font,%
1476         center/head/even/font/.alias*=head/center/even/font,%
1477         head/even/center/color/.alias=head/center/even/color,%
1478         even/head/center/color/.alias=head/center/even/color,%
1479         even/center/head/color/.alias=head/center/even/color,%
1480         center/even/head/color/.alias=head/center/even/color,%
1481         center/head/even/color/.alias=head/center/even/color,%
1482     head/right/even/.fancy@hf=erh,%
1483     head/right/even/font/.store as code,%
1484     head/right/even/color/.style={head/right/even/font+=\color{#1}},%
1485         head/even/right/.alias*=head/right/even,%
1486         even/head/right/.alias*=head/right/even,%
1487         even/right/head/.alias*=head/right/even,%
1488         right/even/head/.alias*=head/right/even,%
1489         right/head/even/.alias*=head/right/even,%
1490         head/even/right/font/.alias*=head/right/even/font,%
1491         even/head/right/font/.alias*=head/right/even/font,%
1492         even/right/head/font/.alias*=head/right/even/font,%
1493         right/even/head/font/.alias*=head/right/even/font,%
1494         right/head/even/font/.alias*=head/right/even/font,%
1495         head/even/right/color/.alias=head/right/even/color,%
1496         even/head/right/color/.alias=head/right/even/color,%
1497         even/right/head/color/.alias=head/right/even/color,%
1498         right/even/head/color/.alias=head/right/even/color,%
1499         right/head/even/color/.alias=head/right/even/color,%
1500     foot/left/odd/.fancy@hf=olf,%
1501     foot/left/odd/font/.store as code,%
1502     foot/left/odd/color/.style={foot/left/odd/font+=\color{#1}},%
1503         foot/odd/left/.alias*=foot/left/odd,%
1504         odd/foot/left/.alias*=foot/left/odd,%
1505         odd/left/foot/.alias*=foot/left/odd,%
1506         left/odd/foot/.alias*=foot/left/odd,%
1507         left/foot/odd/.alias*=foot/left/odd,%
1508         foot/odd/left/font/.alias*=foot/left/odd/font,%
1509         odd/foot/left/font/.alias*=foot/left/odd/font,%
1510         odd/left/foot/font/.alias*=foot/left/odd/font,%
1511         left/odd/foot/font/.alias*=foot/left/odd/font,%
1512         left/foot/odd/font/.alias*=foot/left/odd/font,%
1513         foot/odd/left/color/.alias=foot/left/odd/color,%
1514         odd/foot/left/color/.alias=foot/left/odd/color,%
1515         odd/left/foot/color/.alias=foot/left/odd/color,%
1516         left/odd/foot/color/.alias=foot/left/odd/color,%
1517         left/foot/odd/color/.alias=foot/left/odd/color,%
1518     foot/center/odd/.fancy@hf=ocf,%
1519     foot/center/odd/font/.store as code,%
1520     foot/center/odd/color/.style={foot/center/odd/font+=\color{#1}},%
1521         foot/odd/center/.alias*=foot/center/odd,%
1522         odd/foot/center/.alias*=foot/center/odd,%

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1523         odd/center/foot/.alias*=foot/center/odd,%
1524         center/odd/foot/.alias*=foot/center/odd,%
1525         center/foot/odd/.alias*=foot/center/odd,%
1526         foot/odd/center/font/.alias*=foot/center/odd/font,%
1527         odd/foot/center/font/.alias*=foot/center/odd/font,%
1528         odd/center/foot/font/.alias*=foot/center/odd/font,%
1529         center/odd/foot/font/.alias*=foot/center/odd/font,%
1530         center/foot/odd/font/.alias*=foot/center/odd/font,%
1531         foot/odd/center/color/.alias*=foot/center/odd/color,%
1532         odd/foot/center/color/.alias*=foot/center/odd/color,%
1533         odd/center/foot/color/.alias*=foot/center/odd/color,%
1534         center/odd/foot/color/.alias*=foot/center/odd/color,%
1535         center/foot/odd/color/.alias*=foot/center/odd/color,%
1536         foot/right/odd/.fancy@hf=orf,%
1537         foot/right/odd/font/.store as code,%
1538         foot/right/odd/color/.style={foot/right/odd/font+=\color{#1}},%
1539         foot/odd/right/.alias*=foot/right/odd,%
1540         odd/foot/right/.alias*=foot/right/odd,%
1541         odd/right/foot/.alias*=foot/right/odd,%
1542         right/odd/foot/.alias*=foot/right/odd,%
1543         right/foot/odd/.alias*=foot/right/odd,%
1544         foot/odd/right/font/.alias*=foot/right/odd/font,%
1545         odd/foot/right/font/.alias*=foot/right/odd/font,%
1546         odd/right/foot/font/.alias*=foot/right/odd/font,%
1547         right/odd/foot/font/.alias*=foot/right/odd/font,%
1548         right/foot/odd/font/.alias*=foot/right/odd/font,%
1549         foot/odd/right/color/.alias*=foot/right/odd/color,%
1550         odd/foot/right/color/.alias*=foot/right/odd/color,%
1551         odd/right/foot/color/.alias*=foot/right/odd/color,%
1552         right/odd/foot/color/.alias*=foot/right/odd/color,%
1553         right/foot/odd/color/.alias*=foot/right/odd/color,%
1554         foot/left/even/.fancy@hf=elf,%
1555         foot/left/even/font/.store as code,%
1556         foot/left/even/color/.style={foot/left/even/font+=\color{#1}},%
1557         foot/even/left/.alias*=foot/left/even,%
1558         even/foot/left/.alias*=foot/left/even,%
1559         even/left/foot/.alias*=foot/left/even,%
1560         left/even/foot/.alias*=foot/left/even,%
1561         left/foot/even/.alias*=foot/left/even,%
1562         foot/even/left/font/.alias*=foot/left/even/font,%
1563         even/foot/left/font/.alias*=foot/left/even/font,%
1564         even/left/foot/font/.alias*=foot/left/even/font,%
1565         left/even/foot/font/.alias*=foot/left/even/font,%
1566         left/foot/even/font/.alias*=foot/left/even/font,%
1567         foot/even/left/color/.alias*=foot/left/even/color,%
1568         even/foot/left/color/.alias*=foot/left/even/color,%
1569         even/left/foot/color/.alias*=foot/left/even/color,%
1570         left/even/foot/color/.alias*=foot/left/even/color,%
1571         left/foot/even/color/.alias*=foot/left/even/color,%
1572         foot/center/even/.fancy@hf=ecf,%
1573         foot/center/even/font/.store as code,%
1574         foot/center/even/color/.style={foot/center/even/font+=\color{#1}},%
1575         foot/even/center/.alias*=foot/center/even,%
1576         even/foot/center/.alias*=foot/center/even,%
1577         even/center/foot/.alias*=foot/center/even,%
1578         center/even/foot/.alias*=foot/center/even,%
1579         center/foot/even/.alias*=foot/center/even,%
1580         foot/even/center/font/.alias*=foot/center/even/font,%
1581         even/foot/center/font/.alias*=foot/center/even/font,%
1582         even/center/foot/font/.alias*=foot/center/even/font,%
1583         center/even/foot/font/.alias*=foot/center/even/font,%
1584         center/foot/even/font/.alias*=foot/center/even/font,%
1585         foot/even/center/color/.alias*=foot/center/even/color,%
1586         even/foot/center/color/.alias*=foot/center/even/color,%
1587         even/center/foot/color/.alias*=foot/center/even/color,%

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1588         center/even/foot/color/.alias=foot/center/even/color,%
1589         center/foot/even/color/.alias=foot/center/even/color,%
1590     foot/right/even/.fancy@hf=erf,%
1591     foot/right/even/font/.store as code,%
1592     foot/right/even/color/.style={foot/right/even/font+=\color{#1}},%
1593         foot/even/right/.alias*=foot/right/even,%
1594         even/foot/right/.alias*=foot/right/even,%
1595         even/right/foot/.alias*=foot/right/even,%
1596         right/even/foot/.alias*=foot/right/even,%
1597         right/foot/even/.alias*=foot/right/even,%
1598         foot/even/right/font/.alias*=foot/right/even/font,%
1599         even/foot/right/font/.alias*=foot/right/even/font,%
1600         even/right/foot/font/.alias*=foot/right/even/font,%
1601         right/even/foot/font/.alias*=foot/right/even/font,%
1602         right/foot/even/font/.alias*=foot/right/even/font,%
1603         foot/even/right/color/.alias=foot/right/even/color,%
1604         even/foot/right/color/.alias=foot/right/even/color,%
1605         even/right/foot/color/.alias=foot/right/even/color,%
1606         right/even/foot/color/.alias=foot/right/even/color,%
1607         right/foot/even/color/.alias=foot/right/even/color,%
1608     foot/inner/.style={foot/right/even={#1},foot/left/odd={#1}},%
1609     foot/inner+/.style={foot/right/even+={#1},foot/left/odd+={#1}},%
1610     foot/inner*/.alias=foot/inner+,%
1611     foot/inner/font/.style={foot/right/even/font={#1},foot/left/odd/font={#1}},%
1612     foot/inner/color/.style={foot/right/even/color={#1},foot/left/odd/color={#1}},%
1613     foot/inner/font+/.style={foot/right/even/font+={#1},foot/left/odd/font+={#1}},%
1614     foot/inner/font*/.alias=foot/inner/font+,%
1615         inner/foot/.alias*=foot/inner,%
1616         inner/foot/font/.alias*=foot/inner/font,%
1617         inner/foot/color/.alias=foot/inner/color,%
1618     foot/outer/.style={foot/left/even={#1},foot/right/odd={#1}},%
1619     foot/outer+/.style={foot/left/even+={#1},foot/right/odd+={#1}},%
1620     foot/outer*/.alias=foot/outer+,%
1621     foot/outer/font/.style={foot/left/even/font={#1},foot/right/odd/font={#1}},%
1622     foot/outer/color/.style={foot/left/even/color={#1},foot/right/odd/color={#1}},%
1623     foot/outer/font+/.style={foot/left/even/font+={#1},foot/right/odd/font+={#1}},%
1624     foot/outer/font*/.alias=foot/outer/font+,%
1625         outer/foot/.alias*=foot/outer,%
1626         outer/foot/font/.alias*=foot/outer/font,%
1627         outer/foot/color/.alias=foot/outer/color,%
1628     head/inner/.style={head/right/even={#1},head/left/odd={#1}},%
1629     head/inner+/.style={head/right/even+={#1},head/left/odd+={#1}},%
1630     head/inner*/.alias=head/inner+,%
1631     head/inner/font/.style={head/right/even/font={#1},head/left/odd/font={#1}},%
1632     head/inner/color/.style={head/right/even/color={#1},head/left/odd/color={#1}},%
1633     head/inner/font+/.style={head/right/even/font+={#1},head/left/odd/font+={#1}},%
1634     head/inner/font*/.alias=head/inner/font+,%
1635         inner/head/.alias*=head/inner,%
1636         inner/head/font/.alias*=head/inner/font,%
1637         inner/head/color/.alias=head/inner/color,%
1638     head/outer/.style={head/left/even={#1},head/right/odd={#1}},%
1639     head/outer+/.style={head/left/even+={#1},head/right/odd+={#1}},%
1640     head/outer*/.alias=head/outer+,%
1641     head/outer/font/.style={head/left/even/font={#1},head/right/odd/font={#1}},%
1642     head/outer/color/.style={head/left/even/color={#1},head/right/odd/color={#1}},%
1643     head/outer/font+/.style={head/left/even/font+={#1},head/right/odd/font+={#1}},%
1644     head/outer/font*/.alias=head/outer/font+,%
1645         outer/head/.alias*=head/outer,%
1646         outer/head/font/.alias*=head/outer/font,%
1647         outer/head/color/.alias=head/outer/color,%
1648     inner/.style={foot/inner={#1},head/inner={#1}},%
1649     inner+/.style={foot/inner+={#1},head/inner+={#1}},%
1650     inner*/.alias=inner+,%
1651     inner/font/.style={foot/inner/font={#1},head/inner/font={#1}},%
1652     inner/font+/.style={foot/inner/font+={#1},head/inner/font+={#1}},%

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1653 inner/font*/.alias=inner/font+,%
1654 inner/color/.style={foot/inner/color={#1},head/inner/color={#1}},%
1655 outer/.style={foot/outer={#1},head/outer={#1}},%
1656 outer+/.style={foot/outer+={#1},head/outer+={#1}},%
1657 outer*/.alias=outer+,%
1658 outer/font/.style={foot/outer/font={#1},head/outer/font={#1}},%
1659 outer/font+/.style={foot/outer/font+={#1},head/outer/font+={#1}},%
1660 outer/font*/.alias=outer/font+,%
1661 outer/color/.style={foot/outer/color={#1},head/outer/color={#1}},%
1662 offset/.style={head/offset={#1},foot/offset={#1}},%
1663 offset+/.style={head/offset+={#1},foot/offset+={#1}},%
1664 offset-/.style={head/offset-={#1},foot/offset-={#1}},%
1665 offset*/.style={head/offset*={#1},foot/offset*={#1}},%
1666 head/offset/.style={head/left/offset={#1},head/right/offset={#1}},%
1667 head/offset+/.style={head/left/offset+={#1},head/right/offset+={#1}},%
1668 head/offset-/.style={head/left/offset-={#1},head/right/offset-={#1}},%
1669 head/offset*/.style={head/left/offset*={#1},head/right/offset*={#1}},%
1670 offset/head/.alias*=head/offset,%
1671 foot/offset/.style={foot/left/offset={#1},foot/right/offset={#1}},%
1672 foot/offset+/.style={foot/left/offset+={#1},foot/right/offset+={#1}},%
1673 foot/offset-/.style={foot/left/offset-={#1},foot/right/offset-={#1}},%
1674 foot/offset*/.style={foot/left/offset*={#1},foot/right/offset*={#1}},%
1675 offset/foot/.alias*=foot/offset,%
1676 odd/offset/.style={left/odd/offset={#1},right/odd/offset={#1}},%
1677 odd/offset+/.style={left/odd/offset+={#1},right/odd/offset+={#1}},%
1678 odd/offset-/.style={left/odd/offset-={#1},right/odd/offset-={#1}},%
1679 offset/odd/.alias*=odd/offset,%
1680 even/offset/.style={left/even/offset={#1},right/even/offset={#1}},%
1681 even/offset+/.style={left/even/offset+={#1},right/even/offset+={#1}},%
1682 even/offset-/.style={left/even/offset-={#1},right/even/offset-={#1}},%
1683 offset/even/.alias*=even/offset,%
1684 left/offset/.style={foot/left/offset={#1},head/left/offset={#1}},%
1685 left/offset+/.style={foot/left/offset+={#1},head/left/offset+={#1}},%
1686 left/offset-/.style={foot/left/offset-={#1},head/left/offset-={#1}},%
1687 left/offset*/.style={foot/left/offset*={#1},head/left/offset*={#1}},%
1688 offset/left/.alias*=left/offset,%
1689 left/even/offset/.style={foot/left/even/offset={#1},head/left/even/offset={#1}},%
1690 left/even/offset+/.style={foot/left/even/offset+={#1},head/left/even/offset+={#1}},%
1691 left/even/offset-/.style={foot/left/even/offset-={#1},head/left/even/offset-={#1}},%
1692 left/even/offset*/.style={foot/left/even/offset*={#1},head/left/even/offset*={#1}},%
1693 left/offset/even/.alias*=left/even/offset,%
1694 even/left/offset/.alias*=left/even/offset,%
1695 even/offset/left/.alias*=left/even/offset,%
1696 offset/even/left/.alias*=left/even/offset,%
1697 offset/left/even/.alias*=left/even/offset,%
1698 left/odd/offset/.style={foot/left/odd/offset={#1},head/left/odd/offset={#1}},%
1699 left/odd/offset+/.style={foot/left/odd/offset+={#1},head/left/odd/offset+={#1}},%
1700 left/odd/offset-/.style={foot/left/odd/offset-={#1},head/left/odd/offset-={#1}},%
1701 left/odd/offset*/.style={foot/left/odd/offset*={#1},head/left/odd/offset*={#1}},%
1702 left/offset/odd/.alias*=left/odd/offset,%
1703 odd/left/offset/.alias*=left/odd/offset,%
1704 odd/offset/left/.alias*=left/odd/offset,%
1705 offset/odd/left/.alias*=left/odd/offset,%
1706 offset/left/odd/.alias*=left/odd/offset,%
1707 right/offset/.style={foot/right/offset={#1},head/right/offset={#1}},%
1708 right/offset+/.style={foot/right/offset+={#1},head/right/offset+={#1}},%
1709 right/offset-/.style={foot/right/offset-={#1},head/right/offset-={#1}},%
1710 right/offset*/.style={foot/right/offset*={#1},head/right/offset*={#1}},%
1711 offset/right/.alias*=right/offset,%
1712 right/even/offset/.style={foot/right/even/offset={#1},head/right/even/offset={#1}},%
1713 right/even/offset+/.style={foot/right/even/offset+={#1},head/right/even/offset+={#1}},%
1714 right/even/offset-/.style={foot/right/even/offset-={#1},head/right/even/offset-={#1}},%
1715 right/even/offset*/.style={foot/right/even/offset*={#1},head/right/even/offset*={#1}},%
1716 right/offset/even/.alias*=right/even/offset,%
1717 even/right/offset/.alias*=right/even/offset,%

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1718         even/offset/right/.alias*=right/even/offset,%
1719         offset/even/right/.alias*=right/even/offset,%
1720         offset/right/even/.alias*=right/even/offset,%
1721     right/odd/offset/.style={foot/right/odd/offset={#1},head/right/odd/offset={#1}},%
1722     right/odd/offset+/.style={foot/right/odd/offset+={#1},head/right/odd/offset+={#1}},%
1723     right/odd/offset-/.style={foot/right/odd/offset-={#1},head/right/odd/offset-={#1}},%
1724     right/odd/offset*/.style={foot/right/odd/offset*={#1},head/right/odd/offset*={#1}},%
1725     right/offset/odd/.alias*=right/odd/offset,%
1726     odd/right/offset/.alias*=right/odd/offset,%
1727     odd/offset/right/.alias*=right/odd/offset,%
1728     offset/odd/right/.alias*=right/odd/offset,%
1729     offset/right/odd/.alias*=right/odd/offset,%
1730     head/left/offset/.style={head/left/even/offset={#1},head/left/odd/offset={#1}},%
1731     head/left/offset+/.style={head/left/even/offset+={#1},head/left/odd/offset+={#1}},%
1732     head/left/offset-/.style={head/left/even/offset-={#1},head/left/odd/offset-={#1}},%
1733     head/left/offset*/.style={head/left/even/offset*={#1},head/left/odd/offset*={#1}},%
1734     head/offset/left/.alias*=head/left/offset,%
1735     left/head/offset/.alias*=head/left/offset,%
1736     left/offset/head/.alias*=head/left/offset,%
1737     offset/head/left/.alias*=head/left/offset,%
1738     offset/left/head/.alias*=head/left/offset,%
1739     head/right/offset/.style={head/right/even/offset={#1},head/right/odd/offset={#1}},%
1740     head/right/offset+/.style={head/right/even/offset+={#1},head/right/odd/offset+={#1}},%
1741     head/right/offset-/.style={head/right/even/offset-={#1},head/right/odd/offset-={#1}},%
1742     head/right/offset*/.style={head/right/even/offset*={#1},head/right/odd/offset*={#1}},%
1743     head/offset/right/.alias*=head/right/offset,%
1744     right/head/offset/.alias*=head/right/offset,%
1745     right/offset/head/.alias*=head/right/offset,%
1746     offset/head/right/.alias*=head/right/offset,%
1747     offset/right/head/.alias*=head/right/offset,%
1748     foot/left/offset/.style={foot/left/even/offset={#1},foot/left/odd/offset={#1}},%
1749     foot/left/offset+/.style={foot/left/even/offset+={#1},foot/left/odd/offset+={#1}},%
1750     foot/left/offset-/.style={foot/left/even/offset-={#1},foot/left/odd/offset-={#1}},%
1751     foot/left/offset*/.style={foot/left/even/offset*={#1},foot/left/odd/offset*={#1}},%
1752     foot/offset/left/.alias*=foot/left/offset,%
1753     left/foot/offset/.alias*=foot/left/offset,%
1754     left/offset/foot/.alias*=foot/left/offset,%
1755     offset/foot/left/.alias*=foot/left/offset,%
1756     offset/left/foot/.alias*=foot/left/offset,%
1757     foot/right/offset/.style={foot/right/even/offset={#1},foot/right/odd/offset={#1}},%
1758     foot/right/offset+/.style={foot/right/even/offset+={#1},foot/right/odd/offset+={#1}},%
1759     foot/right/offset-/.style={foot/right/even/offset-={#1},foot/right/odd/offset-={#1}},%
1760     foot/right/offset*/.style={foot/right/even/offset*={#1},foot/right/odd/offset*={#1}},%
1761     foot/offset/right/.alias*=foot/right/offset,%
1762     right/foot/offset/.alias*=foot/right/offset,%
1763     right/offset/foot/.alias*=foot/right/offset,%
1764     offset/foot/right/.alias*=foot/right/offset,%
1765     offset/right/foot/.alias*=foot/right/offset,%
1766     head/left/even/offset/.store in skip cs=fancy0@elh,%
1767     head/left/even/offset/.append code=\fancy@setoffs,%
1768     head/even/offset/left/.alias*=head/left/even/offset,%
1769     head/even/left/offset/.alias*=head/left/even/offset,%
1770     head/offset/even/left/.alias*=head/left/even/offset,%
1771     head/offset/left/even/.alias*=head/left/even/offset,%
1772     head/left/offset/even/.alias*=head/left/even/offset,%
1773     left/head/offset/even/.alias*=head/left/even/offset,%
1774     left/head/even/offset/.alias*=head/left/even/offset,%
1775     left/offset/head/even/.alias*=head/left/even/offset,%
1776     left/offset/even/head/.alias*=head/left/even/offset,%
1777     left/even/offset/head/.alias*=head/left/even/offset,%
1778     left/even/head/offset/.alias*=head/left/even/offset,%
1779     even/head/offset/left/.alias*=head/left/even/offset,%
1780     even/head/left/offset/.alias*=head/left/even/offset,%
1781     even/offset/head/left/.alias*=head/left/even/offset,%
1782     even/offset/left/head/.alias*=head/left/even/offset,%

```

```

1783         even/left/offset/head/.alias*=head/left/even/offset,%
1784         even/left/head/offset/.alias*=head/left/even/offset,%
1785         offset/head/left/even/.alias*=head/left/even/offset,%
1786         offset/head/even/left/.alias*=head/left/even/offset,%
1787         offset/left/head/even/.alias*=head/left/even/offset,%
1788         offset/left/even/head/.alias*=head/left/even/offset,%
1789         offset/even/left/head/.alias*=head/left/even/offset,%
1790         offset/even/head/left/.alias*=head/left/even/offset,%
1791     head/left/odd/offset/.store in skip cs=f@ncy0@olh,%
1792         head/left/odd/offset/.append code=\fancy@setoffs,%
1793         head/odd/offset/left/.alias*=head/left/odd/offset,%
1794         head/odd/left/offset/.alias*=head/left/odd/offset,%
1795         head/offset/odd/left/.alias*=head/left/odd/offset,%
1796         head/offset/left/odd/.alias*=head/left/odd/offset,%
1797         head/left/offset/odd/.alias*=head/left/odd/offset,%
1798         left/head/offset/odd/.alias*=head/left/odd/offset,%
1799         left/head/odd/offset/.alias*=head/left/odd/offset,%
1800         left/offset/head/odd/.alias*=head/left/odd/offset,%
1801         left/offset/odd/head/.alias*=head/left/odd/offset,%
1802         left/odd/offset/head/.alias*=head/left/odd/offset,%
1803         left/odd/head/offset/.alias*=head/left/odd/offset,%
1804         odd/head/offset/left/.alias*=head/left/odd/offset,%
1805         odd/head/left/offset/.alias*=head/left/odd/offset,%
1806         odd/offset/head/left/.alias*=head/left/odd/offset,%
1807         odd/offset/left/head/.alias*=head/left/odd/offset,%
1808         odd/left/offset/head/.alias*=head/left/odd/offset,%
1809         odd/left/head/offset/.alias*=head/left/odd/offset,%
1810         offset/head/left/odd/.alias*=head/left/odd/offset,%
1811         offset/head/odd/left/.alias*=head/left/odd/offset,%
1812         offset/left/head/odd/.alias*=head/left/odd/offset,%
1813         offset/left/odd/head/.alias*=head/left/odd/offset,%
1814         offset/odd/left/head/.alias*=head/left/odd/offset,%
1815         offset/odd/head/left/.alias*=head/left/odd/offset,%
1816     head/right/even/offset/.store in skip cs=f@ncy0@erh,%
1817         head/right/even/offset/.append code=\fancy@setoffs,%
1818         head/even/offset/right/.alias*=head/right/even/offset,%
1819         head/even/right/offset/.alias*=head/right/even/offset,%
1820         head/offset/even/right/.alias*=head/right/even/offset,%
1821         head/offset/right/even/.alias*=head/right/even/offset,%
1822         head/right/offset/even/.alias*=head/right/even/offset,%
1823         right/head/offset/even/.alias*=head/right/even/offset,%
1824         right/head/even/offset/.alias*=head/right/even/offset,%
1825         right/offset/head/even/.alias*=head/right/even/offset,%
1826         right/offset/even/head/.alias*=head/right/even/offset,%
1827         right/even/offset/head/.alias*=head/right/even/offset,%
1828         right/even/head/offset/.alias*=head/right/even/offset,%
1829         even/head/offset/right/.alias*=head/right/even/offset,%
1830         even/head/right/offset/.alias*=head/right/even/offset,%
1831         even/offset/head/right/.alias*=head/right/even/offset,%
1832         even/offset/right/head/.alias*=head/right/even/offset,%
1833         even/right/offset/head/.alias*=head/right/even/offset,%
1834         even/right/head/offset/.alias*=head/right/even/offset,%
1835         offset/head/right/even/.alias*=head/right/even/offset,%
1836         offset/head/even/right/.alias*=head/right/even/offset,%
1837         offset/right/head/even/.alias*=head/right/even/offset,%
1838         offset/right/even/head/.alias*=head/right/even/offset,%
1839         offset/even/right/head/.alias*=head/right/even/offset,%
1840         offset/even/head/right/.alias*=head/right/even/offset,%
1841     head/right/odd/offset/.store in skip cs=f@ncy0@orh,%
1842         head/right/odd/offset/.append code=\fancy@setoffs,%
1843         head/odd/offset/right/.alias*=head/right/odd/offset,%
1844         head/odd/right/offset/.alias*=head/right/odd/offset,%
1845         head/offset/odd/right/.alias*=head/right/odd/offset,%
1846         head/offset/right/odd/.alias*=head/right/odd/offset,%
1847         head/right/offset/odd/.alias*=head/right/odd/offset,%

```



```

1848         right/head/offset/odd/.alias*=head/right/odd/offset,%
1849         right/head/odd/offset/.alias*=head/right/odd/offset,%
1850         right/offset/head/odd/.alias*=head/right/odd/offset,%
1851         right/offset/odd/head/.alias*=head/right/odd/offset,%
1852         right/odd/offset/head/.alias*=head/right/odd/offset,%
1853         right/odd/head/offset/.alias*=head/right/odd/offset,%
1854         odd/head/offset/right/.alias*=head/right/odd/offset,%
1855         odd/head/right/offset/.alias*=head/right/odd/offset,%
1856         odd/offset/head/right/.alias*=head/right/odd/offset,%
1857         odd/offset/right/head/.alias*=head/right/odd/offset,%
1858         odd/right/offset/head/.alias*=head/right/odd/offset,%
1859         odd/right/head/offset/.alias*=head/right/odd/offset,%
1860         offset/head/right/odd/.alias*=head/right/odd/offset,%
1861         offset/head/odd/right/.alias*=head/right/odd/offset,%
1862         offset/right/head/odd/.alias*=head/right/odd/offset,%
1863         offset/right/odd/head/.alias*=head/right/odd/offset,%
1864         offset/odd/right/head/.alias*=head/right/odd/offset,%
1865         offset/odd/head/right/.alias*=head/right/odd/offset,%
1866     foot/left/even/offset/.store in skip cs=f@ncy0@elf,%
1867     foot/left/even/offset/.append code=\fancy@setoffs,%
1868     foot/even/offset/left/.alias*=foot/left/even/offset,%
1869     foot/even/left/offset/.alias*=foot/left/even/offset,%
1870     foot/offset/even/left/.alias*=foot/left/even/offset,%
1871     foot/offset/left/even/.alias*=foot/left/even/offset,%
1872     foot/left/offset/even/.alias*=foot/left/even/offset,%
1873     left/foot/offset/even/.alias*=foot/left/even/offset,%
1874     left/foot/even/offset/.alias*=foot/left/even/offset,%
1875     left/offset/foot/even/.alias*=foot/left/even/offset,%
1876     left/offset/even/foot/.alias*=foot/left/even/offset,%
1877     left/even/offset/foot/.alias*=foot/left/even/offset,%
1878     left/even/foot/offset/.alias*=foot/left/even/offset,%
1879     even/foot/offset/left/.alias*=foot/left/even/offset,%
1880     even/foot/left/offset/.alias*=foot/left/even/offset,%
1881     even/offset/foot/left/.alias*=foot/left/even/offset,%
1882     even/offset/left/foot/.alias*=foot/left/even/offset,%
1883     even/left/offset/foot/.alias*=foot/left/even/offset,%
1884     even/left/foot/offset/.alias*=foot/left/even/offset,%
1885     offset/foot/left/even/.alias*=foot/left/even/offset,%
1886     offset/foot/even/left/.alias*=foot/left/even/offset,%
1887     offset/left/foot/even/.alias*=foot/left/even/offset,%
1888     offset/left/even/foot/.alias*=foot/left/even/offset,%
1889     offset/even/left/foot/.alias*=foot/left/even/offset,%
1890     offset/even/foot/left/.alias*=foot/left/even/offset,%
1891     foot/left/odd/offset/.store in skip cs=f@ncy0@olf,%
1892     foot/left/odd/offset/.append code=\fancy@setoffs,%
1893     foot/odd/offset/left/.alias*=foot/left/odd/offset,%
1894     foot/odd/left/offset/.alias*=foot/left/odd/offset,%
1895     foot/offset/odd/left/.alias*=foot/left/odd/offset,%
1896     foot/offset/left/odd/.alias*=foot/left/odd/offset,%
1897     foot/left/offset/odd/.alias*=foot/left/odd/offset,%
1898     left/foot/offset/odd/.alias*=foot/left/odd/offset,%
1899     left/foot/odd/offset/.alias*=foot/left/odd/offset,%
1900     left/offset/foot/odd/.alias*=foot/left/odd/offset,%
1901     left/offset/odd/foot/.alias*=foot/left/odd/offset,%
1902     left/odd/offset/foot/.alias*=foot/left/odd/offset,%
1903     left/odd/foot/offset/.alias*=foot/left/odd/offset,%
1904     odd/foot/offset/left/.alias*=foot/left/odd/offset,%
1905     odd/foot/left/offset/.alias*=foot/left/odd/offset,%
1906     odd/offset/foot/left/.alias*=foot/left/odd/offset,%
1907     odd/offset/left/foot/.alias*=foot/left/odd/offset,%
1908     odd/left/offset/foot/.alias*=foot/left/odd/offset,%
1909     odd/left/foot/offset/.alias*=foot/left/odd/offset,%
1910     offset/foot/left/odd/.alias*=foot/left/odd/offset,%
1911     offset/foot/odd/left/.alias*=foot/left/odd/offset,%
1912     offset/left/foot/odd/.alias*=foot/left/odd/offset,%

```

```

1913         offset/left/odd/foot/.alias*=foot/left/odd/offset,%
1914         offset/odd/left/foot/.alias*=foot/left/odd/offset,%
1915         offset/odd/foot/left/.alias*=foot/left/odd/offset,%
1916     foot/right/even/offset/.store in skip cs=fancy0@erf,%
1917         foot/right/even/offset/.append code=\fancy@setoffs,%
1918         foot/even/offset/right/.alias*=foot/right/even/offset,%
1919         foot/even/right/offset/.alias*=foot/right/even/offset,%
1920         foot/offset/even/right/.alias*=foot/right/even/offset,%
1921         foot/offset/right/even/.alias*=foot/right/even/offset,%
1922         foot/right/offset/even/.alias*=foot/right/even/offset,%
1923         right/foot/offset/even/.alias*=foot/right/even/offset,%
1924         right/foot/even/offset/.alias*=foot/right/even/offset,%
1925         right/offset/foot/even/.alias*=foot/right/even/offset,%
1926         right/offset/even/foot/.alias*=foot/right/even/offset,%
1927         right/even/offset/foot/.alias*=foot/right/even/offset,%
1928         right/even/foot/offset/.alias*=foot/right/even/offset,%
1929         even/foot/offset/right/.alias*=foot/right/even/offset,%
1930         even/foot/right/offset/.alias*=foot/right/even/offset,%
1931         even/offset/foot/right/.alias*=foot/right/even/offset,%
1932         even/offset/right/foot/.alias*=foot/right/even/offset,%
1933         even/right/offset/foot/.alias*=foot/right/even/offset,%
1934         even/right/foot/offset/.alias*=foot/right/even/offset,%
1935         offset/foot/right/even/.alias*=foot/right/even/offset,%
1936         offset/foot/even/right/.alias*=foot/right/even/offset,%
1937         offset/right/foot/even/.alias*=foot/right/even/offset,%
1938         offset/right/even/foot/.alias*=foot/right/even/offset,%
1939         offset/even/right/foot/.alias*=foot/right/even/offset,%
1940         offset/even/foot/right/.alias*=foot/right/even/offset,%
1941     foot/right/odd/offset/.store in skip cs=fancy0@orf,%
1942         foot/right/odd/offset/.append code=\fancy@setoffs,%
1943         foot/odd/offset/right/.alias*=foot/right/odd/offset,%
1944         foot/odd/right/offset/.alias*=foot/right/odd/offset,%
1945         foot/offset/odd/right/.alias*=foot/right/odd/offset,%
1946         foot/offset/right/odd/.alias*=foot/right/odd/offset,%
1947         foot/right/offset/odd/.alias*=foot/right/odd/offset,%
1948         right/foot/offset/odd/.alias*=foot/right/odd/offset,%
1949         right/foot/odd/offset/.alias*=foot/right/odd/offset,%
1950         right/offset/foot/odd/.alias*=foot/right/odd/offset,%
1951         right/offset/odd/foot/.alias*=foot/right/odd/offset,%
1952         right/odd/offset/foot/.alias*=foot/right/odd/offset,%
1953         right/odd/foot/offset/.alias*=foot/right/odd/offset,%
1954         odd/foot/offset/right/.alias*=foot/right/odd/offset,%
1955         odd/foot/right/offset/.alias*=foot/right/odd/offset,%
1956         odd/offset/foot/right/.alias*=foot/right/odd/offset,%
1957         odd/offset/right/foot/.alias*=foot/right/odd/offset,%
1958         odd/right/offset/foot/.alias*=foot/right/odd/offset,%
1959         odd/right/foot/offset/.alias*=foot/right/odd/offset,%
1960         offset/foot/right/odd/.alias*=foot/right/odd/offset,%
1961         offset/foot/odd/right/.alias*=foot/right/odd/offset,%
1962         offset/right/foot/odd/.alias*=foot/right/odd/offset,%
1963         offset/right/odd/foot/.alias*=foot/right/odd/offset,%
1964         offset/odd/right/foot/.alias*=foot/right/odd/offset,%
1965         offset/odd/foot/right/.alias*=foot/right/odd/offset,%
1966     head/inner/offset/.style={head/right/even/offset={#1},head/left/odd/offset={#1}},%
1967     head/inner/offset+/.style={head/right/even/offset+={#1},head/left/odd/offset+={#1}},%
1968     head/inner/offset-/.style={head/right/even/offset-={#1},head/left/odd/offset-={#1}},%
1969     head/inner/offset*/.style={head/right/even/offset*={#1},head/left/odd/offset*={#1}},%
1970         head/offset/inner/.alias*=head/inner/offset,%
1971         offset/head/inner/.alias*=head/inner/offset,%
1972         offset/inner/head/.alias*=head/inner/offset,%
1973         inner/head/offset/.alias*=head/inner/offset,%
1974         inner/offset/head/.alias*=head/inner/offset,%
1975     head/outer/offset/.style={head/left/even/offset={#1},head/right/odd/offset={#1}},%
1976     head/outer/offset+/.style={head/left/even/offset+={#1},head/right/odd/offset+={#1}},%
1977     head/outer/offset-/.style={head/left/even/offset-={#1},head/right/odd/offset-={#1}},%

```



```

1978 head/outer/offset*/.style={head/left/even/offset*={#1},head/right/odd/offset*={#1}},%
1979 head/offset/outer/.alias*=head/outer/offset,%
1980 offset/head/outer/.alias*=head/outer/offset,%
1981 offset/outer/head/.alias*=head/outer/offset,%
1982 outer/head/offset/.alias*=head/outer/offset,%
1983 outer/offset/head/.alias*=head/outer/offset,%
1984 foot/inner/offset/.style={foot/right/even/offset={#1},foot/left/odd/offset={#1}},%
1985 foot/inner/offset+/.style={foot/right/even/offset+={#1},foot/left/odd/offset+={#1}},%
1986 foot/inner/offset-/.style={foot/right/even/offset-={#1},foot/left/odd/offset-={#1}},%
1987 foot/inner/offset*/.style={foot/right/even/offset*={#1},foot/left/odd/offset*={#1}},%
1988 foot/offset/inner/.alias*=foot/inner/offset,%
1989 offset/foot/inner/.alias*=foot/inner/offset,%
1990 offset/inner/foot/.alias*=foot/inner/offset,%
1991 inner/foot/offset/.alias*=foot/inner/offset,%
1992 inner/offset/foot/.alias*=foot/inner/offset,%
1993 foot/outer/offset/.style={foot/left/even/offset={#1},foot/right/odd/offset={#1}},%
1994 foot/outer/offset+/.style={foot/left/even/offset+={#1},foot/right/odd/offset+={#1}},%
1995 foot/outer/offset-/.style={foot/left/even/offset-={#1},foot/right/odd/offset-={#1}},%
1996 foot/outer/offset*/.style={foot/left/even/offset*={#1},foot/right/odd/offset*={#1}},%
1997 foot/offset/outer/.alias*=foot/outer/offset,%
1998 offset/foot/outer/.alias*=foot/outer/offset,%
1999 offset/outer/foot/.alias*=foot/outer/offset,%
2000 outer/foot/offset/.alias*=foot/outer/offset,%
2001 outer/offset/foot/.alias*=foot/outer/offset,%
2002 inner/offset/.style={foot/inner/offset={#1},head/inner/offset={#1}},%
2003 inner/offset+/.style={foot/inner/offset+={#1},head/inner/offset+={#1}},%
2004 inner/offset-/.style={foot/inner/offset-={#1},head/inner/offset-={#1}},%
2005 inner/offset*/.style={foot/inner/offset*={#1},head/inner/offset*={#1}},%
2006 offset/inner/.alias*=inner/offset,%
2007 outer/offset/.style={foot/outer/offset={#1},head/outer/offset={#1}},%
2008 outer/offset+/.style={foot/outer/offset+={#1},head/outer/offset+={#1}},%
2009 outer/offset-/.style={foot/outer/offset-={#1},head/outer/offset-={#1}},%
2010 outer/offset*/.style={foot/outer/offset*={#1},head/outer/offset*={#1}},%
2011 offset/outer/.alias*=outer/offset,%
2012 reset/.style={norule,head=,foot=,offset=\z@,foot/rule/skip,rule/font=,font=},%
2013 reset/.value forbidden,%
2014}% keys for \pagesetup (stored into token \itf@tk)
2015\AtBeginDocument{%
2016\ifdim\headwidth<\z@
2017%% This catches the case that \headwidth hasn't been initialized and the
2018%% case that the user added something to \headwidth in the expectation that
2019%% it was initialized to \textwidth. We compensate this now. This loses if
2020%% the user intended to multiply it by a factor. But that case is more
2021%% likely done by saying something like \headwidth=1.2\textwidth.
2022%% The doc says you have to change \headwidth after the first call to
2023%% \pagestyle{fancy}. This code is just to catch the most common cases were
2024%% that requirement is violated.
2025\global\advance\headwidth123456789sp\global\advance\headwidth\textwidth
2026\fi}
2027</fancyhdr>

```

## 21.10 marks

```

2028(*marks)
2029\ProvidesPackage{interfaces-marks}
2030 [2011/01/17 v2.8 easier use of e-TeX marks (FC)]
2031\RequirePackage{interfaces-base}

```

\marksthe

```

2032\newrobustcmd\marksthe[2]{%
2033 \ifcsname marks@#1\endcsname \else \itf@marks@new{#1}\fi
2034 {\toks@{#2}}\expandafter\marks\csname marks@#1\endcsname{\the\toks@}%
2035}% \marksthe

```

`\marksthecs`

```

2036 \newrobustcmd*\marksthecs[2]{%
2037   \ifcsname marks@#1\endcsname \else \itf@marks@new{#1}\fi
2038   \ifcsundef{#2}
2039   {}
2040   {{\toks@ \expandafter \expandafter \expandafter {%
2041         \csname #2\endcsname}%
2042     \expandafter \marks \csname marks@#1\endcsname {\the \toks@}}}%
2043 }% \marksthecs

```

`\itf@marks@new`

```

2044 \def\itf@marks@new#1{%
2045   \expandafter \newmarks \csname marks@#1\endcsname
2046   \PackageInfo{interfaces-marks}{marks ‘#1’ defined}%
2047 }% \itf@marks@new

```

`\thefirstmarks` Purely expandable in exactly one step of expansion.`\thebotmarks``\thetopmarks`

```

2048 \newcommand*\thefirstmarks[1]{\romannumeral
2049   \ifcsname marks@#1\endcsname \expandafter \z@
2050   \firstmarks \csname marks@#1\expandafter \endcsname
2051   \else \expandafter \z@
2052   \fi
2053 }% \thefirstmarks
2054 \newcommand*\thebotmarks[1]{\romannumeral
2055   \ifcsname marks@#1\endcsname \expandafter \z@
2056   \botmarks \csname marks@#1\expandafter \endcsname
2057   \else \expandafter \z@
2058   \fi
2059 }% \thebotmarks
2060 \newcommand*\thetopmarks[1]{\romannumeral
2061   \ifcsname marks@#1\endcsname \expandafter \z@
2062   \topmarks \csname marks@#1\expandafter \endcsname
2063   \else \expandafter \z@
2064   \fi
2065 }% \thetopmarks

```

`\getthemarks` `\getthemarks\firstmarks{<named-mark>}\result`

```

2066 %% \getthemarks\firstmarks{section}\macro
2067 \newrobustcmd*\getthemarks[3]{%
2068   \ifcsname marks@#2\endcsname
2069   \edef#3{\unexpanded \expandafter {#1 \csname marks@#2\endcsname}}%
2070   \else \let#3 \@undefined
2071   \fi
2072 }% \getthemarks

```

`\getthefirstmarks` `\getthefirstmarks{<named-mark>}\result`: shortcut for `\getthemarks\firstmarks``\getthebotmarks``\getthetopmarks`

```

2073 \newrobustcmd*\getthefirstmarks{\getthemarks\firstmarks}
2074 \newrobustcmd*\getthebotmarks{\getthemarks\botmarks}
2075 \newrobustcmd*\getthetopmarks{\getthemarks\topmarks}

```

`\ifmarksequal`

```

2076 %% \ifmarksequal\firstmarks\botmarks{subsection}{ true }{ false }
2077 \newrobustcmd*\ifmarksequal[3]{%
2078   \begingroup
2079     \getthemarks{#1}{#3}\x
2080     \getthemarks{#2}{#3}\y
2081     \expandafter \endgroup
2082     \csname ltx@\ifdefined\x\ifdefined\y
2083       \ifx\x\y first\else
2084       second\fi\else second\fi\else second\fi
2085     oftwo\endcsname

```

```
2086 }% \ifmarksequal
```

```
2087 </marks>
```

## 21.11 † Interface `tocloft`: `\tocsetup`, `\lofsetup`, `\lotsetup` and `\listofsetup`

```
2088 <*tocloft>
```

```
2089 \ProvidesPackage{interfaces-tocloft}
```

```
2090 [2011/01/17 v2.8 pgfkeys macros for tocloft (FC)]
```

```
2091 \RequirePackage{interfaces-base}
```

```
2092 \itf@Check@Package{tocloft}
```

```
\tocsetup The user commands.
\lofsetup
\lotsetup
\listofsetup
2093 \newrobustcmd\tocsetup[1]{%
2094   \AfterPreamble{\itf@pgfkeys\pgfqkeys{/itf/tocloft/toc}{#1}}%
2095 }% \tocsetup
2096 \newrobustcmd\lofsetup[1]{%
2097   \AfterPreamble{\itf@pgfkeys\pgfqkeys{/itf/tocloft/lof}{#1}}%
2098 }% \lofsetup
2099 \newrobustcmd\lotsetup[1]{%
2100   \AfterPreamble{\itf@pgfkeys\pgfqkeys{/itf/tocloft/lot}{#1}}%
2101 }% \lotsetup
2102 \newrobustcmd\listofsetup[2]{%
2103   \AfterPreamble{\itf@pgfkeys\pgfqkeys{/itf/tocloft/#1}{#2}}%
2104 }% \listofsetup
```

`\itf@cft@newlistof` This macro creates the keys for toc, lof and lot, and is able to create the keys for each new list created with `tocloft`'s `\newlistof`.

```
2105 \def\itf@cft@newlistof#1#2#3{% #1=toc/lof (ext.), #2=entry (\newlistof only), #3=title (\newl
2106   \pgfqkeys{/itf/tocloft/#1}{%
2107     depth/.store in counter cs=c@#1depth,%
2108     depth/.append code=\expandafter\global\csname c@#1depth\endcsname
2109                               \csname c@#1depth\endcsname
2110                               \addtocontents{#1}{\csname c@#1depth\endcsname
2111                               \the\csname c@#1depth\endcsname\relax},%
2112     #1depth/.alias*=depth,%
2113     pagestyle/.code=\tocloftpagestyle{##1},%
2114     parskip/.store in skip cs=cftparskip,%
2115     parsep/.alias=parskip,%
2116     mark/.store in cs=cftmark#1,%
2117     marks/.alias=mark,%
2118     mark=,%
2119     label/.store as code,%
2120     ref/.store as code,%
2121     ref/.initial=\csname cft#1title\endcsname,% overwritten (toc,lof,lot)
2122     ref/.default=\csname cft#1title\endcsname,% overwritten (toc,lof,lot)
2123     ref/.blank=\pgfkeysnovalue,%
2124     title/.store as code in cs=cft#1title,% overwritten below for toc, lof and lot
2125     title/top/.store in skip cs=cftbefore#1titleskip,%
2126     beforetitleskip/.alias*=title/top,%
2127     title/bottom/.store in skip cs=cftafter#1titleskip,%
2128     aftertitleskip/.alias*=title/bottom,%
2129     title/font/.store as code in cs=cft#1titlefont,%
2130     title/format/.alias*=title/font,%
2131     title/color/.store as color,%
2132     title/color/.append code=\pgfkeysalso{/itf/tocloft/#1/title/font+={%
2133       \color{\pgfkeysvalueof{/itf/tocloft/#1/title/color}}},%
2134     title/font/color/.alias=title/color,%
2135     title/format/color/.alias=title/color,%
2136     title/after/.store as code in cs=cftafter#1title,%
2137     title/command/.code=\csdef{@cftmake#1title}####1{##1},%
2138     dotsep/.code=\itf@units@mu\itf@muskip{##1}% converts to mu
2139       \edef\cftdotsep{\itf@strip@mu\itf@muskip},%
2140     dotsep/.default=4.5mu,%
```

```

2141         dotsep/.blank=\cftnodots,%
2142     dot/.store in=\cftdot,%
2143     before/.store as code,%
2144     after/.store as code,%
2145     columns/before@hook/.is private=interfaces-tocloft,%
2146     columns/after@hook/.is private=interfaces-tocloft,%
2147     columns/before@hook/.initial=,%
2148     columns/after@hook/.initial=,%
2149     columns/.code={\ltx@ifpackageloaded{multicol}{%
2150         \pgfkeysEsetvalue\pgfkeyscurrentkey{\number##1}%
2151         \ifnum\number##1>\@ne
2152             \pgfkeysgetvalue{/itf/tocloft/#1/columns/before@hook}\itf@tp
2153             \ifx\itf@tp\@empty
2154                 \pgfkeyssetvalue{/itf/tocloft/#1/columns/before@hook}{%
2155                     \begingroup
2156                     \multicolsep\pgfkeysvalueof{/itf/tocloft/#1/multicolsep}\relax
2157                     \columnsep\pgfkeysvalueof{/itf/tocloft/#1/columns/sep}\relax
2158                     \columnseprule\pgfkeysvalueof{/itf/tocloft/#1/columns/rule}\relax
2159                     \begin{multicols}{\pgfkeysvalueof{/itf/tocloft/#1/columns}}%
2160                     \pgfkeysgetvalue{/itf/tocloft/#1/columns/rule/color}\columnseprulecolor
2161                     \pgfkeysvalueof{/itf/tocloft/#1/multicols/begin}%
2162                 }%
2163                 \pgfkeyssetvalue{/itf/tocloft/#1/columns/after@hook}{%
2164                     \pgfkeysvalueof{/itf/tocloft/#1/multicols/end}%
2165                     \end{multicols}
2166                     \endgroup
2167                 }%
2168             \fi
2169         \else
2170             \pgfkeyslet\pgfkeyscurrentkey\@ne
2171             \pgfkeyslet{/itf/tocloft/#1/columns/before@hook}\@empty
2172             \pgfkeyslet{/itf/tocloft/#1/columns/after@hook}\@empty
2173         \fi}
2174     {\PackageError{interfaces-tocloft}
2175      {Key ‘columns’: package multicol is required}\@eha}%
2176 },%
2177 columns/.default=2,columns/.blank=1,%
2178     multicol/.alias=columns,%
2179     multicols/.alias=columns,%
2180     twocolumns/.true=\pgfkeysalso{columns=2},%
2181     twocolumns/.false=\pgfkeysalso{columns=1},%
2182     columns/rule/.estore as dimen,%
2183     columns/rule/.default=\columnseprule,%
2184     columns/rule,% assign default
2185         columnseprule/.alias*=columns/rule,%
2186         columns/rule/width/.alias*=columns/rule,%
2187     columns/sep/.estore as dimen,%
2188     columns/sep/.default=\columnsep,%
2189     columns/sep/.blank=10\p@,%
2190     columns/sep,% assign default
2191         columnsep/.alias*=columns/sep,%
2192     columns/rule/color/.store as color command,%
2193     columns/rule/color,% assign default (\normalcolor)
2194         columnseprulecolor/.alias*=columns/rule/color,%
2195         columns/rulecolor/.alias*=columns/rule/color,%
2196         columns/color/.alias*=columns/rule/color,%
2197     multicolsep/.estore as glue,%
2198     multicolsep/.default=0pt plus4pt minus3pt,%
2199     multicolsep,% sets default
2200     multicols/begin/.initial=,multicols/begin/.default=,%
2201     multicols/before/.alias=multicols/begin,%
2202     multicols/end/.initial=,multicols/end/.default=,%
2203     multicols/after/.alias=multicols/end,%
2204 }% \pgfkeys
2205 \itf@AfterPackage{interfaces-bookmark}{%

```

```

2206 \pgfqkeys{/itf/tocloft/#1}{%
2207   bookmark/.is multiple choice,%
2208   bookmark/bold/.true=\pgfkeysaddvalue{/itf/tocloft/#1/bookmark}{},{bold=true},%
2209   bookmark/bold/.false=\pgfkeysaddvalue{/itf/tocloft/#1/bookmark}{},{bold=false},%
2210   bookmark/italic/.true=\pgfkeysaddvalue{/itf/tocloft/#1/bookmark}{},{italic=true},%
2211   bookmark/italic/.false=\pgfkeysaddvalue{/itf/tocloft/#1/bookmark}{},{italic=false},%
2212   bookmark/color/.code=\pgfkeysaddvalue{/itf/tocloft/#1/bookmark}{},{color={##1}},%
2213   bookmark/level/.code=\pgfkeysEaddvalue{/itf/tocloft/#1/bookmark}{},{level={%
2214     \ifcsname toclevel@##1\endcsname
2215     \csname toclevel@##1\endcsname
2216     \else##1\fi}},%
2217   bookmark/text/.store as code,%
2218   bookmark/text/.default=\contentsname,%
2219   bookmark/.unknown/.code=\pgfkeysEaddvalue{/itf/tocloft/#1/bookmark}
2220     {}{\pgfkeyscurrentname={##1}},%
2221   bookmark/.initial=,%
2222 }% \pgfkeys
2223 }% AfterPackage interfaces-bookmark
2224 %% while making a format \jobname is expanded to the name of the format...
2225 %% Therefore, the following commands must be expanded \AtEndPreamble
2226 \AfterPreamble{%
2227   \BeforeFile{\jobname.#1}{%
2228     \pgfkeysvalueof{/itf/tocloft/#1/before}%
2229     \pgfkeysvalueof{/itf/tocloft/#1/columns/before@hook}%
2230   }%
2231   \AfterFile{\jobname.#1}{%
2232     \pgfkeysvalueof{/itf/tocloft/#1/columns/after@hook}%
2233     \pgfkeysvalueof{/itf/tocloft/#1/after}%
2234   }%
2235 }%
2236 \ifcsname #1setup\endcsname\else
2237   \pgfqkeys{/itf/tocloft/#1}{%
2238     title={#3},%
2239     pagenumbers/.true=\@cftpnumon{#2},%
2240     pagenumbers/.false=\@cftpnumoff{#2},%
2241     pagenumbers/on/.alias=pagenumbers/true,%
2242     pagenumbers/off/.alias=pagenumbers/false,%
2243     pagenumber/.alias=pagenumbers,%
2244   }%
2245   \expandafter\pretocmd\csname @cftmake#1title\expandafter\endcsname
2246     \expandafter{\expandafter\itf@tocloft\csname cft#1title\endcsname{#1}{listof#2}}
2247   {\@PackageInfoNoLine{interfaces-tocloft}
2248     {Command \expandafter\string\csname @cftmake#1title\endcsname\space
2249       successfully augmented}}
2250   {\@PackageWarningNoLine{interfaces-tocloft}
2251     {Command \expandafter\string\csname @cftmake#1title\endcsname\space
2252       \space could not be patched
2253       \MessageBreak Keys label and bookmark won't work for \string\listofsetup}}%
2254   \fi
2255 }% \itf@cft@newlistof

```

Then create the keys for toc, lof, and lot:

```

2256 \itf@cft@newlistof{toc}{}{}
2257 \itf@cft@newlistof{lof}{}{}
2258 \itf@cft@newlistof{lot}{}{}

2259 %% Specific to toc only -----
2260 \pgfqkeys{/itf/tocloft/toc}{%
2261   title/.store as code in cs=contentsname,%
2262   contentsname/.alias=title,%
2263   ref/.initial=\contentsname,%
2264   ref/.default=\contentsname,%
2265   pagenumbers/.style={% boolean key
2266     part/pagenumbers={#1},chapter/pagenumbers={#1},section/pagenumbers={#1},%

```



```

2267     subsubsection/pagenumbers={#1},subsubsection/pagenumbers={#1},%
2268     paragraph/pagenumbers={#1},subparagraph/pagenumbers={#1}},%
2269     pagenumber/.alias=pagenumbers,%
2270 }%
2271 %% Specific to lof and lot -----
2272 \pgfqkeys{/itf/tocloft/lof}{%
2273     title/.store as code in cs=listfigurename,%
2274     listfigurename/.alias=title,%
2275     ref/.initial=\listfigurename,%
2276     ref/.default=\listfigurename,%
2277 }%
2278 \pgfqkeys{/itf/tocloft/lot}{%
2279     title/.store as code in cs=listtablename,%
2280     listtablename/.alias=title,%
2281     ref/.initial=\listtablename,%
2282     ref/.default=\listtablename,%
2283 }%
2284 \if@cftsubfigopt
2285 \pgfqkeys{/itf/tocloft}{%
2286     lof/pagenumbers/.style={figure/pagenumbers={#1},subfigure/pagenumbers={#1}},%
2287     lof/pagenumber/.alias=lof/pagenumbers,%
2288     lot/pagenumbers/.style={figure/pagenumbers={#1},subfigure/pagenumbers={#1}},%
2289     lot/pagenumber/.alias=lot/pagenumbers,%
2290 }%
2291 \else
2292 \pgfqkeys{/itf/tocloft}{%
2293     lof/pagenumbers/.style={figure/pagenumbers={#1}},%
2294     lof/pagenumber/.alias=lof/pagenumbers,%
2295     lot/pagenumbers/.style={figure/pagenumbers={#1}},%
2296     lot/pagenumber/.alias=lot/pagenumbers,%
2297 }%
2298 \fi

```

`\itf@cft@sectionname` This macro converts subsection into subsec.. because of tocloft command names:  
`\cftbeforesubsecskip`, `\cftsubsecindent` etc..

And the keys are either **subsec** or **subsection**.

```

2299 \def\itf@cft@name#1.#2.#3\@nil{cft#1\itf@cft@secname{#2}#3}
2300 \def\itf@cft@secname#1{%
2301     \expandafter\itf@cft@sec@name\csname#1\endcsname{#1}%
2302 }% \itf@cft@secname
2303 \def\itf@cft@sec@name#1#2{%
2304     \ifx#1\relax #2\else
2305     \ifx#1\section sec\else
2306     \ifx#1\subsection subsec\else
2307     \ifx#1\subsubsection subsubsec\else
2308     \ifx#1\paragraph para\else
2309     \ifx#1\subparagraph subpara\else
2310     \ifx#1\figure fig\else
2311     \ifx#1\subsubfigure subfig\else
2312     \ifx#1\table tab\else
2313     \ifx#1\subtable subtab\else
2314     \ifx#1\chapter chap\else
2315     #2\fi
2316     \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
2317 }% \itf@cft@section@name

2318 %% tocloft setup for tables sections :
2319 \pgfkeys{%
2320 /handlers/.cft@def/.style={%
2321     \pgfkeyscurrentpath/.store in cs=\itf@cft@name #1\@nil},%
2322 /handlers/.cft@code/.style={%
2323     \pgfkeyscurrentpath/.store as code in cs=\itf@cft@name #1\@nil},%
2324 /handlers/.cft@length/.style={%
2325     \pgfkeyscurrentpath/.store in skip cs=\itf@cft@name #1\@nil},%

```



2326 }

`\itf@cft@newsection` This macro creates the keys for each sectionning command.

```

2327 \def\itf@cft@newsection{\itf@cft@new@section{\itf/tocloft}}
2328 \def\itf@cft@new@section#1#2#3{% #2 = toc | lof | lot, #3=part / chap / sec / subsec etc.
2329   \pgfqkeys{#1/#2/#3}{%
2330     skip/.cft@length=before.#3.skip,%
2331     beforeskip/.alias*=skip,%
2332     top/.alias*=skip,%
2333     indent/.cft@length=.#3.indent,%
2334     font/.cft@code=.#3.font,%
2335     font/.append code=\pgfqkeysalso{\itf/tocloft/#2/#3/pagenummer/font={##1}},%
2336     format/.alias*=font,%
2337     color/.store as color,%
2338     color/.append code=\pgfqkeysalso{\itf/tocloft/#2/#3/font+={%
2339       \color{\pgfqkeysvalueof{\itf/tocloft/#2/#3/color}}}%
2340       \ifdefined\hypersetup \hypersetup{%
2341         linkcolor=\pgfqkeysvalueof{\itf/tocloft/#2/#3/color}}}%
2342       \fi}},%
2343     font/color/.alias=color,%
2344     format/color/.alias=color,%
2345     number/width/.cft@length=.#3.numwidth,%
2346     numwidth/.alias*=number/width,%
2347     presnum/.cft@code=.#3.presnum,%
2348     number/before/.alias*=presnum,%
2349     aftersnum/.cft@code=.#3.aftersnum,%
2350     number/after/.alias*=aftersnum,%
2351     aftersnumb/.cft@code=.#3.aftersnumb,%
2352     title/before/.alias*=aftersnumb,%
2353     leader/.cft@def=.#3.leader,%
2354     leader/.default=\cftdotfill{\csname\itf@cft@name.#3.dotsep\@nil\endcsname},%
2355     leaders/.alias=leader,%
2356     dotsep/.code={\ifx\pgfqkeyscurrentvalue\pgfqkeysnovalue@text
2357       \csdef{\itf@cft@name.#3.dotsep\@nil}{\cftdotsep}%
2358       \else
2359         \itf@units@mu\itf@musk{##1}%
2360         \csdef{\itf@cft@name.#3.dotsep\@nil}{\itf@strip@mu\itf@musk}%
2361       \fi},%
2362     dotsep/.blank=\cftnodots,%
2363     nodots/.code=\csdef{\itf@cft@name.#3.dotsep\@nil}{\cftnodots},%
2364     nodots/.value forbidden,%
2365     pagefont/.cft@code=.#3.pagefont,%
2366     page/font/.alias*=pagefont,%
2367     pagenummer/font/.alias*=pagefont,%
2368     pagenumbers/font/.alias*=pagefont,%
2369     page/color/.store as color,%
2370     page/color/.append code=\pgfqkeysalso{\itf/tocloft/#2/#3/pagefont+={%
2371       \color{\pgfqkeysvalueof{\itf/tocloft/#2/#3/page/color}}}%
2372       \ifdefined\hypersetup \hypersetup{%
2373         linkcolor=\pgfqkeysvalueof{\itf/tocloft/#2/#3/page/color}}}%
2374       \fi}},%
2375     pagenummer/color/.alias=page/color,%
2376     pagenumbers/color/.alias=page/color,%
2377     page/font/color/.alias=page/color,%
2378     pagenummer/font/color/.alias=page/color,%
2379     pagenumbers/font/color/.alias=page/color,%
2380     afterpnum/.cft@code=.#3.afterpnum,%
2381     page/after/.alias*=afterpnum,%
2382     pagenummer/after/.alias*=afterpnum,%
2383     pagenumbers/.on=\@cftpnumon{\itf@cft@secname{#3}},%
2384     pagenumbers/.off=\@cftpnumoff{\itf@cft@secname{#3}},%
2385     pagenummer/.alias=pagenumbers,%
2386   }% \pgfqkeys
2387 }% \itf@cft@new@section

```

```

2388 \@for\itf@tp:=part,chap,chapter,sec,section,subsec,subsection,%
2389             subsubsec,subsubsection,para,paragraph,subpara,subparagraph%
2390   \do{\edef\itf@tp{\noexpand\itf@cft@newsection{toc}{\itf@tp}}\itf@tp}%
2391 \if@cftsubfigopt
2392   \@for\itf@tp:=fig,figure,subfig,subfigure%
2393     \do{\edef\itf@tp{\noexpand\itf@cft@newsection{lof}{\itf@tp}}\itf@tp}%
2394   \@for\itf@tp:=tab,table,subtab,subtable%
2395     \do{\edef\itf@tp{\noexpand\itf@cft@newsection{lot}{\itf@tp}}\itf@tp}%
2396 \else
2397   \@for\itf@tp:=fig,figure%
2398     \do{\edef\itf@tp{\noexpand\itf@cft@newsection{lof}{\itf@tp}}\itf@tp}%
2399   \@for\itf@tp:=tab,table%
2400     \do{\edef\itf@tp{\noexpand\itf@cft@newsection{lot}{\itf@tp}}\itf@tp}%
2401 \fi

\@cftmaketoc title (patch)
\@cftmakeloft title (patch)
\@cftmakelott title (patch)
\@newlistof (patch)
2402 \itf@patch\pretocmd\@cftmaketoc title
2403   {\itf@tocloft\contentsname{toc}{tableofcontents}}
2404   {\@PackageInfoNoLine{interfaces-tocloft}
2405     {Command \string\@cftmaketoc title\space successfully augmented}}
2406   {\@PackageWarningNoLine{interfaces-tocloft}
2407     {Command \string\@cftmaketoc title\space could not be patched
2408       \MessageBreak label and bookmark keys for \string\tocsetup\space won't work}}%
2409 \itf@patch\pretocmd\@cftmakeloft title
2410   {\itf@tocloft\listfigurename{lof}{listoffigures}}
2411   {\@PackageInfoNoLine{interfaces-tocloft}
2412     {Command \string\@cftmakeloft title\space successfully augmented}}
2413   {\@PackageWarningNoLine{interfaces-tocloft}
2414     {Command \string\@cftmakeloft title\space could not be patched
2415       \MessageBreak label and bookmark keys for \string\lofsetup\space won't work}}%
2416 \itf@patch\pretocmd\@cftmakelott title
2417   {\itf@tocloft\listtablename{lot}{listoftables}}
2418   {\@PackageInfoNoLine{interfaces-tocloft}
2419     {Command \string\@cftmakelott title\space successfully augmented}}
2420   {\@PackageWarningNoLine{interfaces-tocloft}
2421     {Command \string\@cftmakelott title\space could not be patched
2422       \MessageBreak label and bookmark keys for \string\lotsetup\space won't work}}%
2423 \expandafter\itf@patch\expandafter\patchcmd\csname\string\newlistof\endcsname
2424   {#4}{\csname cft#3title\endcsname}
2425   {\@PackageInfoNoLine{interfaces-tocloft}
2426     {Command \string\newlistof\space successfully patched}}
2427   {\@PackageWarningNoLine{interfaces-tocloft}
2428     {Command \string\newlistof\space could not be patched
2429       \MessageBreak \string\listofsetup\space will not work}}%
2430 \expandafter\itf@patch\expandafter\apptocmd\csname\string\newlistof\endcsname
2431   {\itf@cft@newlistof{#3}{#2}{#4}}
2432   {\@PackageInfoNoLine{interfaces-tocloft}
2433     {Command \string\newlistof\space successfully augmented}}
2434   {\@PackageWarningNoLine{interfaces-tocloft}
2435     {Command \string\newlistof\space could not be patched
2436       \MessageBreak \string\listofsetup\space will not work}}%
2437 \expandafter\itf@patch\expandafter\apptocmd\csname\string\newlistentry\endcsname
2438   {\itf@cft@newsection{#3}{#2}}
2439   {\@PackageInfoNoLine{interfaces-tocloft}
2440     {Command \string\newlistentry\space successfully augmented}}
2441   {\@PackageWarningNoLine{interfaces-tocloft}
2442     {Command \string\newlistentry\space could not be patched
2443       \MessageBreak \string\listofsetup\space will not work}}

```

`\itf@cft@label`      `\itf@cft@label` insert the anchor for the table of contents and makes the label (if the key label of `\tocsetup`, `\lofsetup` etc. has been set to a non empty value.

```

2444 \def\itf@tocloft#1#2#3{%
2445   \expandafter\def\expandafter#1\expandafter{%
2446     \expandafter\itf@cft@label

```

```

2447 \expandafter#1\expandafter{#1}{#2}{#3}}%
2448}% \itf@tocloft
2449\long\def\itf@cft@label#1#2#3#4{%
2450 \def#1{#2}% restore original
2451 \begingroup
2452 \pgfkeysifdefined{/itf/tocloft/#3/bookmark}
2453 {%
2454 \raisedhyperdef{interfaces}{#4}{#2}%
2455 \pgfkeysgetvalue{/itf/tocloft/#3/bookmark/text}\itf@tp
2456 \ifx\itf@tp\@empty\else
2457 \pgfkeysgetvalue{/itf/tocloft/#3/bookmark}\@tempa
2458 \expandafter\bookmark\expandafter[%
2459 \expandafter{\@tempa,dest=interfaces.#4}]]%
2460 {\pgfkeysvalueof{/itf/tocloft/#3/bookmark/text}}}%
2461 \global\BKM@startatroottrue
2462 \fi}
2463 {#2}%
2464 \pgfkeysgetvalue{/itf/tocloft/#3/label}\itf@tp
2465 \ifx\itf@tp\@empty\else
2466 \def\@currentHref{interfaces.#4}%
2467 \pgfkeysgetvalue{/itf/tocloft/#3/ref}\@currentlabel
2468 \def\@currentlabelname{#2}%
2469 \label{\pgfkeysvalueof{/itf/tocloft/#3/label}}}%
2470 \fi
2471 \endgroup
2472 \gdef\itf@tp{\def#1{#2}\let\itf@tp\@undefined}% restore original
2473 \aftergroup\itf@tp % simple group introduced by tocloft to print \contentsname
2474}% \itf@cft@label

2475</tocloft>

```

## 21.12 Interface `makecell` : `\repeatcell`

```

2476<*makecell>
2477\ProvidesPackage{interfaces-makecell}
2478 [2011/01/17 v2.8 repeatcell to fill in tabulars (FC)]
2479\RequirePackage{interfaces-base}
2480\itf@Check@Package{makecell}
2481\edef\itf@AtEnd{\catcode126 \the\catcode126}% 126 = ~
2482\AtEndOfPackage{\itf@AtEnd}
2483\catcode126 \active % 126 = ~

```

### 21.12.1 countvalues

`\countvalues`

```

2484\def\countvalues#1{\number\numexpr
2485 \expandafter\itf@countvalues\expandafter0#1,\countvalues\@nnil
2486}% \countvalues
2487\def\itf@countvalues#1#2,#3{%
2488 \ifx\countvalues#3%
2489 +#1\expandafter\remove@to@nnil
2490 \else
2491 +1\expandafter\itf@countvalues
2492 \fi1#3%
2493}% \itf@countvalues

```

`\itf@getvalue`

```

2494\def\itf@getvalue #1{\romannumeral -'\q
2495 \expandafter\itf@getvalue \expandafter0#1,\itf@getvalue}
2496\def\itf@getvalue#1#2\itf@getvalue #3{\itf@getvalue@{#1}{#3-1}#2\itf@getvalue\@nnil}
2497\def\itf@getvalue@{#1}{#2}{#3}{#4}%
2498 \ifnum \numexpr#1=\numexpr#2\relax
2499 #3\expandafter\remove@to@nnil
2500 \else\ifx\itf@getvalue#4\@empty

```

```

2501      \expandafter\expandafter
2502      \expandafter\remove@to@nnil
2503  \else \expandafter\expandafter
2504      \expandafter\itf@getv@lu@
2505  \fi\fi{#1+1}{#2}#4%
2506}% \itf@getv@lu@

```

## 21.12.2 `\repeatcell`

`\repeatcell`

```

2507 \newif\ifitf@celltranspose
2508 \newrobustcmd*\repeatcell{\begingroup \iffalse{\fi \ifnum0='}\fi \itf@repeatcell}
2509 \newrobustcmd*\itf@repeatcell[3][]{%
2510   \ifblank{#1}% alignment option ?
2511   {\let\itf@makecell\@firstofone}
2512   {\def\itf@makecell##1{\noexpand\makecell[##1][##1]}}%
2513   \countdef\itf@col=100% local
2514   \countdef\itf@row=101% local
2515   \countdef\itf@cnt=102% local
2516   \toksdef\itf@cell=1% local
2517   \itf@pgfkeys
2518   \pgfqkeys{/itf/makecell/repeatcell}{@reset={#2},#3}%
2519   \toks@{\ifnum0='}\fi \endgroup}% local
2520   \ifnum\itf@row>\z@ % number
2521     \edef\itf@rowloop{\noexpand\@whilenum\itf@row<\the\itf@row}%
2522     \def\itf@cell@init{\def\r{\row}\let\R@empty}%
2523   \else % list
2524     \def\itf@rowloop{\@for\r:=\itf@rows}%
2525     \expandafter\def\expandafter\itf@cell@init\expandafter{%
2526       \expandafter\def\expandafter\R\expandafter{%
2527         \expandafter\itf@getvalue\expandafter{\expandafter\empty\itf@rows}}}%
2528   \fi
2529   \ifnum\itf@col>\z@ % number
2530     \edef\itf@colloop{\noexpand\@whilenum\itf@col<\the\itf@col}%
2531     \expandafter\def\expandafter\itf@cell@init\expandafter{%
2532       \itf@cell@init\def\c{\column}\let\C@empty}%
2533   \else % list
2534     \def\itf@colloop{\@for\c:=\itf@cols}%
2535     \expandafter\expandafter\expandafter\def
2536       \expandafter\expandafter\expandafter\itf@cell@init
2537       \expandafter\expandafter\expandafter{%
2538         \expandafter\itf@cell@init
2539         \expandafter\def\expandafter\C\expandafter{%
2540           \expandafter\itf@getvalue\expandafter{\expandafter\empty\itf@cols}}}%
2541   \fi
2542   \itf@cell@init % in case they are used in formulas
2543   \ifitf@celltranspose
2544     \itf@col\z@
2545     \itf@colloop\do{%
2546       \ifnum\itf@col>\z@
2547         \pgfkeysifdefined{/itf/makecell/repeatcell/cr/row\the\itf@col}%
2548         {\pgfkeysgetvalue{/itf/makecell/repeatcell/cr/row\the\itf@col}\itf@thecr}
2549         {\pgfkeysgetvalue{/itf/makecell/repeatcell/cr}\itf@thecr}%
2550       \toks@\expandafter{\the\expandafter\toks@ \itf@thecr}%
2551     \fi
2552     \advance\itf@col\@ne
2553     \itf@row\z@
2554     \itf@rowloop\do{%
2555       \advance\itf@row\@ne
2556       \ifnum\itf@row>\@ne
2557         \toks@\expandafter{\the\toks@&}%
2558       \fi
2559       \toks@\expandafter{\the\expandafter\toks@ \itf@cell@init}%

```

```

2560         \itf@cell@insert}% rows loop
2561     }% cols loop
2562 \else
2563 \itf@row\z@
2564 \itf@rowloop\do{%
2565     \ifnum\itf@row>\z@
2566         \pgfkeysifdefined{/itf/makecell/repeatcell/cr/row\the\itf@row}%
2567         {\pgfkeysgetvalue{/itf/makecell/repeatcell/cr/row\the\itf@row}\itf@thecr}%
2568         {\pgfkeysgetvalue{/itf/makecell/repeatcell/cr}\itf@thecr}%
2569         \toks@\expandafter{\the\expandafter\toks@ \itf@thecr}%
2570     \fi
2571     \advance\itf@row\@ne
2572     \itf@col\z@
2573     \itf@colloop\do{%
2574         \advance\itf@col\@ne
2575         \ifnum\itf@col>\@ne
2576             \toks@\expandafter{\the\toks@&}%
2577         \fi
2578         \toks@\expandafter{\the\expandafter\toks@ \itf@cell@init}%
2579     \itf@cell@insert}% cols loop
2580 }% rows loop
2581 \fi
2582 \itf@message{Code introduced by repeatcell in the \@currentenv:^^}
2583         \the\toks@}% (to see the code...)
2584 \the\toks@ \ignorespaces
2585}% \itf@repeatcell

```

\itf@message

```
2586 \let\itf@message \@gobble
```

Now the keys for `\repeatcell`:

```

2587 \def\itf@cell@rowcolkey{%
2588     \removefromstart\pgfkeyscurrentname{row}%
2589     \ifin@\else
2590         \removefromstart\pgfkeyscurrentname{col}%
2591     \fi
2592     \ifin@
2593         \itf@number\itf@cnt\pgfkeyscurrentname\relax\@nnil
2594         {\pgfkeyslet\pgfkeyscurrentkey\pgfkeyscurrentvalue}
2595         \in@false
2596     \fi
2597     \ifin@\else
2598         \pgfkeysvalueof{/errors/unknown key/.@cmd}\pgfkeyscurrentkey
2599                                     \pgfkeyscurrentvalue
2600                                     \pgfeov
2601     \fi
2602}% \itf@cell@rowcolkey
2603 \pgfkeys{/itf/makecell/repeatcell}{%
2604     font/.store in=\itf@cellfont,%
2605     font/.unknown/.code=\itf@cell@rowcolkey,%
2606     text/.store in=\itf@celltext,%
2607     text/.default=\ifdefined\C\C\column\fi,%
2608     text/.unknown/.code=\itf@cell@rowcolkey,%
2609     cr/.initial=\\,%
2610     cr/.default=\crcr,cr/.blank=\\,%
2611     end/.alias=cr,%
2612     cr/.unknown/.code=\itf@cell@rowcolkey,%
2613     rows/.code=\itf@number\itf@row#1\relax\@nnil
2614         {\ifnum\itf@row<\z@\itf@row\@ne\fi}
2615         {\itf@row\z@}
2616         \def\itf@rows{#1}\itf@expandonceifcs\itf@rows},%
2617     rows/.default=1,rows/.blank=1,%
2618     @cols/.is private=interfaces-makecell,%
2619     column/.is private=interfaces-makecell,%

```



```

2620 row/.is private=interfaces-makecell,%
2621 transpose/.is if=itf@celltranspose,%
2622 .unknown/.code=%
2623   \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text \itf@cell@formulaerror{}\z@ \fi
2624   \ifx\pgfkeyscurrentvalue\empty \itf@cell@formulaerror{}\one \fi
2625   \pgfkeysifdefined{\pgfkeyscurrentkey/@calc}%
2626     {\itf@cell@formulaerror{}\tw@}
2627     {\pgfkeyslet{\pgfkeyscurrentkey/@calc}\relax}%
2628   \itf@cell@getformula{#1}%
2629   \pgfkeysEaddvalue{/itf/makecell/repeatcell/@calc}{%
2630     {\the\toks@ \expandafter \noexpand \csname \pgfkeyscurrentname \endcsname}%
2631     \expandafter \let \csname \pgfkeyscurrentname \endcsname \@undefined,%
2632   @reset/.code=% #1 are the columns
2633     \itf@celltransposefalse
2634     \let\itf@celltext\empty
2635     \let\itf@cellfont\empty
2636     \pgfkeyssetvalue{/itf/makecell/repeatcell/cr}{\}%
2637     \itf@row\one
2638     \pgfkeyssetvalue{/itf/makecell/repeatcell/@calc}{%
2639       \itf@cell@numcalc\itf@col\column
2640       \itf@cell@numcalc\itf@row\row}%
2641     \itf@number\itf@col#1\relax\@nnil
2642     {\ifnum\itf@col<\z@\itf@col\one\fi}
2643     {\itf@col\z@}
2644     \def\itf@cols{#1}\itf@expandonceifcs\itf@cols},%
2645 %} keys for \repeatcell

```

`\itf@cell@getformula` Determines whether the formula should be evaluated with `\numexpr`, with `\pgfmath` or `\FPeval`:

```

2646 \def\itf@cell@getformula#1{%
2647   \itf@cell@getformula #1$$$ \itf@cell@getformula $\relax\@nnil
2648   \expandafter \ifx \expandafter \toks@ \the \toks@
2649     \itf@cell@formulaerror{#1}\thr@@
2650   \fi
2651 %} \itf@cell@getformula
2652 \def\itf@cell@getformula #1$#2$#3$#4$#5$#6{%
2653   \toks@{\toks@}%
2654   \ifx\itf@cell@getformula #4%
2655     \toks@{\itf@cell@numcalc{#1}}%
2656   \else\ifx $#4%
2657     \ifx\itf@cell@getformula #6%
2658       \ifdefined\pgfmathparse\else\itf@cell@formulaerror{#2}4\fi
2659       \toks@{\itf@cell@pgfcalc{#2}}%
2660     \else\ifx $#6%
2661       \ifdefined\FPeval\else\itf@cell@formulaerror{#3}5\fi
2662       \toks@{\itf@cell@FPcalc{#3}}%
2663     \fi\fi
2664   \fi\fi\remove@to\@nnil
2665 %} \itf@cell@getformula
2666 \def\itf@cell@formulaerror#1#2{%
2667   \def\itf@tp{#1}\@onelevel@sanitize\itf@tp
2668   \ifcase#2% 0
2669     \PackageError{interfaces-makecell}
2670       {Missing formula for key \pgfkeyscurrentname!}\@ehd
2671   \or %1
2672     \PackageError{interfaces-makecell}
2673       {Computed key \pgfkeyscurrentname\space was left blank!}\@ehd
2674   \or %2
2675     \PackageError{interfaces-makecell}
2676       {Duplicate definition for computed key \pgfkeyscurrentname
2677       \MessageBreak\string\repeatcell\space will redefine the key}\@eha
2678   \or %3
2679     \PackageError{interfaces-makecell}
2680       {Incorrect formula in \string\repeatcell
2681     \MessageBreak Check: \itf@tp

```



```

2682     \MessageBreak Take care of commas and equal signs...}\@ehd
2683     \or %4
2684     \PackageError{interfaces-makecell}
2685         {Formula: \itf@tp
2686         \MessageBreak requires \string\pgfmathparse:\space\string\usetikz{pgfmath}}\@ehd
2687     \or %5
2688     \PackageError{interfaces-makecell}
2689         {Formula: \itf@tp
2690         \MessageBreak requires \string\FPeval:\space\string\usepackage{fp}}\@ehd
2691     \else
2692     \PackageError{interfaces-makecell}
2693         {Impossible value!}\@ehd
2694     \fi
2695 }% \itf@cell@formulaerror

```

```

\itf@cell@calc
\itf@cell@numcalc 2696 \protected\def\itf@cell@calc#1#2{%
\itf@cell@pgfcalc 2697   \edef#1{\def\noexpand#1{#2}}%
\itf@cell@FPcalc 2698   \toks@ \expandafter{\the\expandafter\toks@ #1}%
2699   #1%
2700}% \itf@cell@calc
2701 \protected\def\itf@cell@numcalc#1#2{%
2702   \itf@cell@calc#2{\number\numexpr#1}%
2703}% \itf@cell@numcalc
2704 \protected\def\itf@cell@pgfcalc#1#2{%
2705   \pgfmathparse{#1}%
2706   \itf@cell@calc#2\pgfmathresult
2707}% \itf@cell@pgfcalc
2708 \protected\def\itf@cell@FPcalc#1#2{%
2709   \begingroup
2710   \hfuzz\maxdimen \vfuzz\hfuzz \hbadness\@M \vbadness\hbadness
2711   \everypar{}\tracinglostchars\z@
2712   \setbox\z@\vbox{\FPeval introduces some weird code, hence the calculation in a \vbox
2713     \FPeval\FPresult{#1}%
2714     \expandafter}\expandafter\endgroup
2715     \expandafter\itf@cell@calc\expandafter#2\expandafter{\FPresult}%
2716}% \itf@cell@FPcalc

\itf@cell@insert Insert a cell (into the temporary \toks@ token register):
2717 \def\itf@cell@getifdefined#1#2{%
2718   \pgfkeysifdefined{/itf/makecell/repeatcell/#1}
2719     {\pgfkeysgetvalue{/itf/makecell/repeatcell/#1}#2}
2720     {\let#2\@empty}%
2721}%
2722 \def\itf@cell@insert{%
2723   \pgfkeysvalueof{/itf/makecell/repeatcell/@calc}%
2724   \ifx\R\@empty\else
2725     \toks@ \expandafter{\the\expandafter\toks@
2726       \expandafter\def\expandafter\r\expandafter{\r}}%
2727   \fi
2728   \ifx\C\@empty\else
2729     \toks@ \expandafter{\the\expandafter\toks@
2730       \expandafter\def\expandafter\c\expandafter{\c}}%
2731   \fi
2732   \itf@cell@getifdefined{font/row\the\itf@row}\itf@cellfontrow
2733   \itf@cell@getifdefined{font/col\the\itf@col}\itf@cellfontcol
2734   \itf@cell@getifdefined{text/row\the\itf@row}\itf@cellrow
2735   \itf@cell@getifdefined{text/col\the\itf@col}\itf@cellcol
2736   \toks@ \expandafter{\the\expandafter\toks@ \itf@cellfont}%
2737   \ifx\itf@cellrow\@empty
2738     \ifx\itf@cellcol\@empty
2739       \itf@cell\expandafter\expandafter\expandafter{%
2740         \expandafter\itf@cellfontcol \itf@cellfontrow}%
2741       \let\itf@tp\itf@celltext
2742     \else
2743       \itf@cell\expandafter{\itf@cellfontcol}%
2744       \let\itf@tp\itf@cellcol
2745     \fi
2746   \else
2747     \ifx\itf@cellcol\@empty
2748       \itf@cell\expandafter{\itf@cellfontrow}%
2749       \let\itf@tp\itf@cellrow
2750     \else
2751       \itf@cell{}%
2752       \ifitf@celltranspose
2753         \edef\itf@tp{\noexpand\itf@diaghead(-2,1)%
2754           {\expandonce\itf@cellfontrow\expandonce\itf@cellrow}
2755           {\expandonce\itf@cellfontcol\expandonce\itf@cellcol}}%

```

```

2756         \else
2757         \edef\itf@tp{\noexpand\itf@diaghead(-2,1)%
2758             {\expandonce\itf@cellfontcol\expandonce\itf@cellcol}
2759             {\expandonce\itf@cellfontrow\expandonce\itf@cellrow}}}%
2760         \fi
2761     \fi
2762 \fi
2763 \itf@cell\expandafter{\the\expandafter\itf@cell \itf@tp}%
2764 \edef\itf@tp{\itf@makecell{\the\itf@cell}}%
2765 \toks@\expandafter{\the\expandafter\toks@ \itf@tp}%
2766 }% \itf@cell@insert

```

`\itf@diaghead` A helper macro to makecell's `\diaghead`

```

2767 \def\itf@diaghead(#1)#2#3{%
2768     \begingroup
2769     \edef\itf@tp{\endgroup
2770         \noexpand\diaghead({#1}){\unexpanded{#2 #3}}}%
2771         {\unexpanded{#2}}
2772         {\unexpanded{#3}}}%
2773     }\itf@tp
2774 }% \itf@diaghead

```

### 21.12.3 `colortbl`: patch for `\CT@cellc`

`\CT@cellc`

```

2775 \AfterPackage*{colortbl}{%
2776 \def\CT@cellc#1[#2]#3{% #1 is either \@firstofone or \@gobble, [#2]#3 = color spec
2777     \xdef\CT@cell@color{\noexpand\CT@color#1[#{#2}]}{#3}%
2778     \global\let\noexpand\CT@cell@color\relax}%
2779 }}
2780 \end{makecell}

```

## 21.13 † Interface `enumitem` : `\setlist`

```

2781 (*enumitem)
2782 \ProvidesPackage{interfaces-enumitem}
2783 [2011/01/17 v2.8 more control on lists (FC)]
2784 \RequirePackage{interfaces-base}
2785 \itf@Check@Package{enumitem}

```

`\interitem` Like `amstext` `\intertext`, `\interitem` allows to add some non indented text inside a list environment:

```

2786 \providerobustcmd*\interitem{%
2787     \item[]\hskip-\leftmargin
2788 }% \interitem

```

`\setlist` (extension, star form)

```

2789 \renewrobustcmd*\setlist{\begingroup \@ifstar
2790     {\let\do\csgappto \itf@setlist}
2791     {\let\do\csgdef \itf@setlist}%
2792 }% \setlist
2793 \newrobustcmd*\itf@setlist[2][0]{%
2794     \let\enit@a\@empty
2795     \let\enit@b\@empty
2796     \@for\x:=#1\do{%
2797         \ifx\x\@empty\else
2798             \itf@number\count@\x\relax\@nnil
2799             {\edef\enit@b{\enit@b,\the\count@}}
2800             {\edef\enit@a{\enit@a,\x}}%
2801         \fi}%
2802     \ifx\enit@a\@empty\def\enit@a{list}\fi
2803     \ifx\enit@b\@empty\def\enit@b{0}\fi
2804     \@for\@:=\enit@a\do{%

```

```

2805      \ifx\@empty\else
2806      \@for\b:=\enit@b\do{%
2807        \ifx\b\@empty\else
2808        \ifcsundef{end@a}
2809          {\expandafter\itf@setlist@error\expandafter{\a}}
2810          {\do{enit@@\a\romannumeral\b}{, #2}}}%
2811      \fi}%
2812    \fi}
2813  \endgroup
2814}% \itf@setlist
2815\def\itf@setlist@error#1{%
2816  \PackageError{interfaces-enumitem}
2817    {Environment ‘#1’ is undefined
2818    \MessageBreak Use \string\newlist\space before \string\setlist
2819    \MessageBreak Your command will be ignored}\@eha
2820}% \itf@setlist@error
2821</enumitem>

```

## 21.14 † Interface `truncate`

```

2822<*truncate>
2823\ProvidesPackage{interfaces-truncate}

```

`\truncetext` `\truncetext` is like `\truncate` but leaves the text to its natural width if possible.

```

2824\newrobustcmd\truncetext[3][\TruncateMarker]{% do nothing if width of #3 is less than #2
2825  \begingroup
2826    \hbadness\maxdimen\hfuzz\vsize
2827    \setbox\z@=\hbox to\dimexpr#2\relax\bgroup\color@begingroup
2828                                  \ignorespaces#3\unskip
2829                                  \color@endgroup\egroup
2830    \ifnum\badness>\@M \truncate[{#1}]{#2}{#3}%
2831  %%      \def\next{\truncate[{#1}]{#2}{#3}}%
2832    \else #3%\def\next{#3}%
2833    \fi
2834  \endgroup
2835}% \truncetext

```

`\htruncadjust`

```

2836\newrobustcmd\htruncadjust[1]{\@testopt
2837  {\itf@htruncadjust{#1}}}%
2838}% \htruncadjust
2839\long\def\itf@htruncadjust#1[#2]#3{%#1=total width, #2=[x_1..x_n], #3=text_1..text_n
2840  \begingroup
2841    \let\itf@trunc@width\@empty
2842    \let\itf@istruncated\@gobble % to remove the first comma
2843    \let\the@dimen\relax
2844    \count@ \z@ \dimen@ \z@
2845    \ifblank{#2}% no optional [x_1,...,x_n] parameters
2846      {%
2847        \@for\x:=#3\do{%
2848          \advance \count@ \@ne
2849          \setbox\z@\hbox\bgroup\color@begingroup
2850                                \ignorespaces\x\unskip
2851                                \color@endgroup\egroup
2852          \dimen\count@ = \wd\z@
2853          \toks\count@\expandafter{\the\dimen\count@}%
2854          \advance\dimen@ \dimen\count@}%
2855      }
2856      {%
2857        \@for\x:=#2\do{%
2858          \advance \count@ \@ne
2859          \toks\count@\expandafter{x\p@}%
2860          \advance\dimen@ \x\p@
2861          \dimen\count@ -\@ne\p@}%

```

```

2862 }%
2863 \advance\count@\@ne \dimendef\itf@freespace=\count@
2864 \advance\count@\@ne \dimendef\itf@tempdim=\count@
2865 \advance\count@\@ne \dimendef\itf@sum=\count@
2866 \count@\z@
2867 \itf@freespace\z@ % free space left when  $w_i < x_i/\text{sum}(x_i) * \text{total}$ 
2868 \@for\x:=#3\do{%
2869 \advance \count@ \@ne
2870 \ifdim\dimen@=\z@ \else
2871 \ifdim \dimen\count@<\z@ % not measured before
2872 \setbox\z@\hbox\bgroup\color@begingroup
2873 \ignorespaces\x\unskip
2874 \color@endgroup\egroup
2875 \dimen\count@ = \wd\z@
2876 \fi
2877 \itf@tempdim = \itf@scaledimen{#1}*\the\toks\count@/\dimen@relax
2878 \ifdim \dimen\count@ > \itf@tempdim
2879 \dimen\count@ = \itf@tempdim
2880 \edef\itf@istruncated{\itf@istruncated,\the\count@}%
2881 \advance\itf@sum by\the\toks\count@
2882 \else
2883 \advance\itf@freespace \itf@tempdim
2884 \advance\itf@freespace -\dimen\count@
2885 \fi
2886 \fi
2887 \edef\itf@trunc@width{\itf@trunc@width\the\count@\the\dimen\the\count@}}%
2888 }%
2889 %% Free space=\the\itf@freespace\par
2890 \ifdim\itf@freespace > \z@ % reinsert free space proportionally
2891 \ifx\itf@istruncated@gobble\else
2892 \@for\x:=\itf@istruncated\do{%
2893 \advance\dimen\x by\itf@scaledimen\itf@freespace*\the\toks\x/\itf@sumrelax
2894 }%
2895 \fi\fi
2896 \def\the@dimen{\the\dimen}%
2897 \edef\itf@trunc@width{\itf@trunc@width}%
2898 \expandafter\endgroup
2899 \expandafter\def
2900 \expandafter\itf@trunc@width
2901 \expandafter{\itf@trunc@width}%
2902 %% total=\the\dimexpr#1relax
2903 }% \itf@htruncadjust
2904 \def\itf@scalefactor#1#2{\strip@pt\dimexpr#1*65536/#2relax}
2905 \def\itf@scaledimen#1*#2/#3relax{%
2906 \dimexpr\itf@scalefactor{#2}{#3}\dimexpr#1relaxrelax
2907 }% \itf@scaledimen

```

\htruncwidth

```

2908 \newcommand*\htruncwidth[1]{% purely expandable
2909 \expandafter\itf@htruncwidth\itf@trunc@widthrelaxrelax\nil{#1}%
2910 }% \htruncwidth
2911 \def\itf@htruncwidth#1#2#3\nil#4{%
2912 \ifx\relax#1\itf@trunc@nosuchwidth{#4}%
2913 \else\ifnum#1=#4
2914 #2%
2915 \else
2916 \itf@htruncwidth#3\nil{#4}%
2917 \fi\fi
2918 }% \itf@htruncwidth
2919 \def\itf@trunc@nosuchwidth#1{%
2920 \PackageError{interfaces-truncate}
2921 {You requested the width for text nr#1
2922 \MessageBreak but there is no such text
2923 \MessageBreak Therefore no such width!}\@ehd

```

```
2924 }% \itf@trunc@nosuchwidth
```

```
2925 </truncate>
```

## 21.15 Interface `appendix` and the appendices environment

```
2926 <*appendix>
```

```
2927 \ProvidesPackage{interfaces-appendix}
```

```
2928 [2011/01/17 v2.8 easy control of appendices environment (FC)]
```

```
2929 \RequirePackage{interfaces-base}
```

```
2930 \itf@Check@Package{appendix}
```

`\appendices`

```
2931 \let\itf@appendices@pp\appendices
```

```
2932 \let\itf@endappendices@pp\endappendices
```

```
2933 \let\itf@appendices@pp\appendices
```

```
2934 \let\itf@endappendices@pp\endappendices
```

```
2935 \renewenvironment{appendices}[1][{}]{%
```

```
2936   \pgfqkeys{/itf/appendix/appendices}{#1}%
```

```
2937   \itf@appendices@pp
```

```
2938   }
```

```
2939   {\itf@endappendices@pp}%
```

```
2940 \pgfqkeys{/itf/appendix/appendices}{%
```

```
2941   title/.store as code in cs=appendixpagename,%
```

```
2942   title/.append code=\ifx\appendixpagename\@empty \@dopage@ppfalse
```

```
2943   \else \@dopage@pptrue\fi,%
```

```
2944   title/.value required,%
```

```
2945   intoc/.is if=@dotoc@pp,%
```

```
2946   intoc/title/.store as code in cs=appendixtocname,%
```

```
2947   intoc/title/.append code=\ifx\appendixtocname\@empty \@dotoc@ppfalse
```

```
2948   \else \@dotoc@pptrue\fi,%
```

```
2949   intoc/title/.default=\pgfkeysvalueof{/itf/appendix/appendices/title},%
```

```
2950   section/.is enum={section,chapter},%
```

```
2951   section/.append code={\@chapter@ppfalse
```

```
2952     \ifnum\pgfkeysvalueof{/itf/appendix/appendices/section/.number}=\z@
```

```
2953     \else \ifundef\chapter
```

```
2954       {\PackageWarning{interfaces-appendix}
```

```
2955         {You asked chapter-style appendices but your
```

```
2956         \MessageBreak current class does not provide chapters!}}
```

```
2957         \@chapter@pptrue
```

```
2958       \fi},%
```

```
2959   chapter/.style={section=chapter},%
```

```
2960   chapter/.value forbidden,%
```

```
2961 }% keys for appendices environment
```

```
2962 </appendix>
```

## 21.16 Interface `embedfile` : `\embedthisfile`

```
2963 <*embedfile>
```

```
2964 \ProvidesPackage{interfaces-embedfile}
```

```
2965 [2011/01/17 v2.8 easy macros to embed files into pdf (FC)]
```

```
2966 \RequirePackage{interfaces-base}
```

```
2967 \itf@Check@Package{embedfile}
```

```
2968 \newrobustcmd*\embedthisfile{\@ifstar
```

```
2969   \embedthisfile@main
```

```
2970   \embedthisfile@all
```

```
2971 }% \embedthisfile
```

```
2972 \@onlypreamble\embedthisfile
```

```
2973 \def\embedthisfile@main{\embedfile{\jobname.tex}}
```

```
2974 \def\embedthisfile@all{%
```

```
2975   \embedthisfile@main
```

```
2976   \AfterPreamble{%
```

```
2977     \ltx@ifundefined{@listfiles}
```



```

2978      {\let\@listfiles\@empty}% to avoid: \global\let\@filelist\relax in \document
2979      {}}%
2980  }%
2981  \gpreto\@enddocumenthook{%
2982    \let\do\itf@EmbedOne
2983    \expandafter\docsvlist\expandafter{\@filelist}%
2984  }%
2985 }% \embedthisfile@all
2986 \def\itf@EmbedOne#1{\itf@Embed@ne#1.tex\@nil}
2987 \def\itf@Embed@ne#1.tex#2\@nil{%
2988   \ltx@ifundefined{cp@#1}
2989   {}
2990   {\ifblank{#2}
2991    {}
2992    {\embedfile{#1.tex}}}%
2993 }% \itf@Embed@ne
2994 </embedfile>

```

### 21.17 Interface `environ`

```

2995 <*environ>
2996 \ProvidesPackage{interfaces-environ}
2997   [2011/01/17 v2.8 ReNewEnviron = RenewEnviron (FC)]
2998 \RequirePackage{interfaces-base}
2999 \AfterPackage{environ}{
3000   \ifundef\ReNewEnviron
3001     {\let\ReNewEnviron\RenewEnviron}
3002   }%
3003 }%
3004 </environ>

```

### 21.18 Interface `umrand`

```

3005 <*umrand>
3006 \ProvidesPackage{interfaces-umrand}
3007   [2011/01/17 v2.8 patch for umrand.sty ifnotempty (FC)]
3008 \RequirePackage{interfaces-base}
3009 \BeforePackage{umrand}{%
3010   \let\itf@newif\newif
3011   \def\itf@tp{\ifnotempty}%
3012   \def\newif#1{\def\x{#1}\ifx\x\itf@tp \expandafter\@gobble
3013     \else\expandafter\ltx@newif\fi{#1}}%
3014 }
3015 \AfterPackage{umrand}{%
3016   \let\newif\itf@newif
3017   \let\itf@newif\@undefined
3018 }
3019 </umrand>

```

### 21.19 Interface `scrfile`

```

3020 <*scrfile>
3021 \ProvidesPackage{interfaces-scrfile}
3022   [2011/01/17 v2.8 scrfile hooks improved (FC)]
3023 \RequirePackage{interfaces-base}

```

`\@pkgextension` In L<sup>A</sup>T<sub>E</sub>X they are defined `\@onlypreamble`. So we use the `ltxcmds` equivalents:

```

\@clsextension
3024 \AfterEndPreamble{%
3025   \let\@pkgextension\ltx@pkgextension
3026   \let\@clsextension\ltx@clsextension
3027   \let\@ifpackageloaded\ltx@ifpackageloaded
3028   \let\@ifclassloaded\ltx@ifclassloaded
3029 }

```

`\scrload@hook`

```

3030 \renewrobustcmd*\scr@load@hook[2]{%
3031   \csuse{#2-@#1}%
3032   \ifcsname#2-@#1-\string\keep\endcsname\else\global\csundef{#2-@#1}\fi
3033 }% \scr@load@hook

\scr@set@load@hook (optimisation)

3034 \renewrobustcmd*\scr@set@load@hook[2]{\csgappto{#2-@#1}}

\BeforeFile Addition of star forms *: the hooks are not canceled after input (in case a file is input more than once...)
\AfterFile
3035 \renewrobustcmd*\BeforeFile{\@ifstar
3036   {\itf@s@LoadFile{before}}
3037   {\itf@LoadFile{before}}}%
3038 }% \BeforeFile
3039 \renewrobustcmd*\AfterFile{\@ifstar
3040   {\itf@s@LoadFile{after}}
3041   {\itf@LoadFile{after}}}%
3042 }% \AfterFile

3043 \def\itf@s@LoadFile#1#2{%
3044   \global\cslet{#2-@#1-\string\keep}\@empty
3045   \scr@set@load@hook{#1}{#2}%
3046 }% \itf@s@LoadFile
3047 \def\itf@LoadFile#1#2{%
3048   \global\csundef{#2-@#1-\string\keep}%
3049   \scr@set@load@hook{#1}{#2}%
3050 }% \itf@LoadFile

\@input (patch) This modification allows \@input to behaves like \InputIfFileExists as far as hooks are concerned.

3051 \renewcommand*\@input[1]{\IfFileExists{#1}
3052   {\scr@load@hook{before}{#1}%
3053    \@input\@filef@und
3054    \scr@load@hook{after}{#1}}%
3055   {\typeout{No file #1.}}%
3056 }% \@input

3057 </scrfile>

```

## 21.20 † Interface `pgfkeys` (📖 [pgfmanual](#))

```

3058 <*pgfkeys>
3059 \ProvidesPackage{interfaces-pgfkeys}
3060   [2011/01/17 v2.8 pgfkeys handlers definitions (FC)]
3061 \RequirePackage{interfaces-base}
3062 \ifdefined\pgfkeys@ifexecutehandler % pgf version 2.1
3063 \def\itf@pgfkeys{%
3064   \global\let\pgfkeys@unpack \itf@pgfkeys@unpack
3065   \global\let\pgfkeys@case@three \itf@pgfkeys@case@three
3066   \global\let\pgfkeys@case@three@handleall\itf@pgfkeys@case@three@handleall
3067 }% \itf@pgfkeys
3068 \else
3069 \def\itf@pgfkeys{%
3070   \global\let\pgfkeys@unpack \itf@pgfkeys@unpack
3071   \global\let\pgfkeys@case@three \itf@pgfkeys@case@three
3072   \global\let\pgfkeys@addvalue \itf@pgfkeys@addvalue
3073   \global\let\pgfkeys@exp@call \itf@pgfkeys@exp@call
3074 }% \itf@pgfkeys
3075 \fi
3076 \AtBeginDocument{\itf@pgfkeys \let\itf@pgfkeys \relax}

```

### Some new `pgfkeys` macros

`\pgfkeysmeaning`

```

3077 \providecommand*\pgfkeysmeaning[1]{\pgfkeysifdefined{#1}
3078   {\expandafter\meaning\csname pgfk@#1\endcsname}
3079   {\meaning\@undefined}%

```

```

3080}% \pgfkeysmeaning
\pgfkeysvalueof@unexpanded
3081 \def\pgfkeysvalueof@unexpanded#1{%
3082   \unexpanded\expandafter\expandafter\expandafter{%
3083     \csname pgfk@#1\endcsname}%
3084}% \pgfkeysvalueof@unexpanded

```

### Some `pgfkeys` macros redefinition/corrections

```

\pgfkeysaddvalue (bug correction) Bug in \pgfkeysaddvalue for pgf v2.0, fixed in v2.1
3085 \ifdefined\pgfkeys@ifexecutehandler \else % pgf v2.1: bug fixed
3086 \def\itf@pgfkeysaddvalue#1#2#3{% (pgf v2.0: bug in pgfkeys.code.tex)
3087   \edef\pgfkeys@global@temp{%
3088     \unexpanded{#2}%
3089     \ifcsname pgfk@#1\endcsname
3090       \unexpanded\expandafter\expandafter\expandafter{%
3091         \csname pgfk@#1\endcsname}%
3092     \fi
3093     \unexpanded{#3}}%
3094   \pgfkeyslet{#1}\pgfkeys@global@temp
3095}% \itf@pgfkeysaddvalue
3096 \fi

```

```

\pgfkeysEsetvalue
\pgfkeysEaddvalue
3097 \ifdefined\pgfkeys@ifexecutehandler \long \fi % pgf version 2.1
3098 \def\pgfkeysEsetvalue#1#2{%
3099   \expandafter\edef\csname pgfk@#1\endcsname{#2}%
3100}% \pgfkeysEsetvalue
3101 \ifdefined\pgfkeys@ifexecutehandler \long \fi % pgf v2.1
3102 \def\pgfkeysEaddvalue#1#2#3{% \csepreappto{pgfk@#1}{#2}{#3}
3103   \edef\pgfkeys@global@temp{%
3104     #2%
3105     \ifcsname pgfk@#1\endcsname
3106       \unexpanded\expandafter\expandafter\expandafter{%
3107         \csname pgfk@#1\endcsname}%
3108     \fi
3109     #3}%
3110   \pgfkeyslet{#1}\pgfkeys@global@temp
3111}% \pgfkeysEaddvalue

```

`\pgfkeys@exp@call` Missed the braces around the argument (in case the argument contains a comma or an = sign...):

```

3112%% missed a pair of braces around the argument in pgfkeys.code.tex (pgf v2.0)
3113%% ( the code could break if it contains = or , )
3114 \ifdefined\pgfkeys@ifexecutehandler\else % (bug corrected in pgf v2.1)
3115   \def\itf@pgfkeys@exp@call#1{\pgfkeysalso{\pgfkeyscurrentpath={#1}}}%
3116 \fi

```

### Handlers `/.blank`

```

3117%% The value is now checked by \itf@pgfkeys@default@blank@required:
3118 \ifdefined\pgfkeys@ifexecutehandler \long \fi % pgf v2.1
3119 \def\itf@pgfkeys@unpack#1=#2=#3\pgfkeys@stop{%
3120   \pgfkeys@spdef\pgfkeyscurrentkey{#1}%
3121   \edef\pgfkeyscurrentkey{\pgfkeyscurrentkey}%
3122   \ifx\pgfkeyscurrentkey\pgfkeys@empty
3123     % Skip
3124   \else%
3125     \pgfkeys@add@path@as@needed
3126     \pgfkeys@spdef\pgfkeyscurrentvalue{#2}%
3127     \itf@pgfkeys@default@blank@required % <FC>
3128     \pgfkeyscurrentkey % <FC>

```

```

3129                                \pgfkeys@case@one % <FC>
3130    \fi
3131}% \itf@pgfkeys@unpack

\itf@pgfkeys@default@blank@required                                Handle the case: /.@def → /.@blank → /.@def ...

3132 \def\itf@pgfkeys@default@blank@required#1#2{%
3133     \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text% Hmm... no value
3134         \pgfkeysifdefined{#1/.@def}%
3135             {\pgfkeysgetvalue{#1/.@def}\pgfkeyscurrentvalue}
3136             {}% no default, so leave it
3137     \fi
3138     \ifx\pgfkeyscurrentvalue\@empty
3139         \pgfkeysifdefined{#1/.@blank}%
3140             {\pgfkeysgetvalue{#1/.@blank}\pgfkeyscurrentvalue}
3141             {}% no /.blank specified
3142     \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text% in case /.blank -> \pgfkeysnovalue
3143         \pgfkeysifdefined{#1/.@def}%
3144             {\pgfkeysgetvalue{#1/.@def}\pgfkeyscurrentvalue}
3145             {}% no default, so leave it
3146     \fi\fi
3147     \ifx\pgfkeyscurrentvalue\pgfkeysvaluerequired
3148         \pgfkeysvalueof{/errors/value required/.@cmd}\pgfkeyscurrentkey
3149                                     \pgfkeyscurrentvalue
3150                                     \pgfeov
3151     \else
3152         #2%
3153     \fi
3154}% \itf@pgfkeys@default@blank@required

```

### Allowing `/.default` values (and `/.blank` values) for handlers:

```

3155%% To handle the cases of: /handler/.default= /handler/.blank= /handler/.value required,
3156%% it is necessary to redefine \pgfkeys@case@three
3157 \def\itf@pgfkeys@case@three{%
3158     \pgfkeys@split@path
3159     \pgfkeysifdefined{/handlers/\pgfkeyscurrentname/.@cmd}%
3160         {%
3161             \itf@pgfkeys@default@blank@required{/handlers/\pgfkeyscurrentname}%
3162             {\pgfkeysgetvalue{/handlers/\pgfkeyscurrentname/.@cmd}\pgfkeys@code
3163             \expandafter\pgfkeys@code\pgfkeyscurrentvalue\pgfeov}%
3164         }
3165     \pgfkeys@unknown % no handler, thus the key is unknown
3166}% \itf@pgfkeys@case@three
3167 \ifdefined\pgfkeys@ifexecutehandler
3168     \let\itf@pgfkeys@case@three@handleall \itf@pgfkeys@case@three
3169 \fi

```

### Loading interfaces modifications for `pgfkeys`

```

3170 \itf@pgfkeys

```

### Handler definition: `/.alias`, `/.blank`

```

3171 \pgfkeys{%
3172     /handlers/.alias/.code=\itf@pgfkeys@ifaliasexists{#1}{%
3173         \pgfkeysedef\pgfkeyscurrentpath{%
3174             \noexpand\pgfkeysalso{\pgfkeysdefaultpath#1={##1}}},%
3175         /handlers/.alias/.value required,%
3176     /handlers/.blank/.code=\pgfkeyssetvalue{\pgfkeyscurrentpath/.@blank}{#1},%
3177     /handlers/.blank/.default=\pgfkeysnovalue,%
3178}% /.alias and /.blank
3179 \def\itf@pgfkeys@ifaliasexists#1#2{%

```

```

3180 \pgfkeysifdefined{\pgfkeysdefaultpath#1/.@cmd}{#2}
3181 { \pgfkeysifdefined{\pgfkeysdefaultpath#1}
3182 {#2}
3183 {\itf@pgfkeys@aliaserror{#1}}}%
3184}% \itf@pgfkeys@ifaliasexists
3185\def\itf@pgfkeys@aliaserror#1{%
3186 \PackageError{interfaces-pgfkeys}
3187 {You want the key \pgfkeyscurrentpath\space
3188 \MessageBreak to be an alias for \pgfkeysdefaultpath#1
3189 \MessageBreak but the key \pgfkeysdefaultpath#1
3190 \MessageBreak is not defined!}\@eha\@gobble
3191}% \itf@pgfkeys@aliaserror

```

**Handler definition: `/.alias*`** For use with handlers `/.store as glue` or `/.store as glue in cs` etc.. when a handler defines key with `*` version and/or `+` version and/or `-` versions.

Then, the `/.alias*` handler is a facility to create aliases for starred `*`, `+`, `-` keys in a batch (as long as the alias exists, of course).

```

3192 \pgfkeys{
3193 /handlers/.alias*/.code=\itf@pgfkeys@ifaliasexists{#1}{%
3194 \pgfkeysedef\pgfkeyscurrentpath{\noexpand\pgfkeysalso{\pgfkeysdefaultpath#1={##1}}}%
3195 \@tfor\x:=+-%do{%
3196 \pgfkeysifdefined{\pgfkeysdefaultpath#1\x/.@cmd}
3197 {\pgfkeysedef{\pgfkeyscurrentpath\x}{%
3198 \noexpand\pgfkeysalso{\pgfkeysdefaultpath#1\x={##1}}}%
3199 {}}%
3200 }},%
3201 /handlers/.alias*/.value required,%
3202}% /.alias*

```

**Handler definition: `/.is private`**

```

3203 \pgfkeys{%
3204 /handlers/.is private/.code=\pgfkeysdef\pgfkeyscurrentpath{%
3205 \PackageError{#1}{Key \pgfkeyscurrentkey\space is private
3206 \MessageBreak and should not be modified}\@ehd},%
3207 /handlers/.is private to class/.code=\pgfkeysdef\pgfkeyscurrentpath{%
3208 \ClassError{#1}{Key \pgfkeyscurrentkey\space is private
3209 \MessageBreak and should not be modified}\@ehd}%
3210}% /.is private

```

**Handlers definition: `/.true` `/.false` `/.on` `/.off`**

```

3211 \def\itf@pgfkeys@choice[#1]#2#3{%
3212 \pgfkeys{\pgfkeyscurrentpath/.cd,%
3213 .is choice,%
3214 #2/.code={#3},%
3215 .default/.expanded=\@firstoftwo#1}%
3216}% \itf@pgfkeys@choice
3217 \pgfkeys{%
3218 /handlers/.true/.code=\itf@pgfkeys@choice[true]{false}[true]{#1},%
3219 /handlers/.false/.code=\itf@pgfkeys@choice[true]{false}[false]{#1},%
3220 /handlers/.on/.code=\itf@pgfkeys@choice[on]{off}[on]{#1},%
3221 /handlers/.off/.code=\itf@pgfkeys@choice[on]{off}[off]{#1},%
3222}% /.true /.false

```

**Handlers definition: `/.store in cs/.estore in cs` etc.**

```

3223 \pgfkeys{%
3224   /handlers/.store in cs/.code=\pgfkeysdef\pgfkeyscurrentpath{\csdef{#1}{##1}},%
3225   /handlers/.estore in cs/.code=\pgfkeysdef\pgfkeyscurrentpath{\csedef{#1}{##1}},%
3226 }% /.store in cs

```

**Handler definition: `/.store as code`**

```

3227 %% /.store as code handlers
3228 \pgfkeys{%
3229   /handlers/.store as code/.code={%
3230     \pgfkeysedef\pgfkeyscurrentpath{%
3231       \noexpand\pgfkeyslet{\pgfkeyscurrentpath}\noexpand\pgfkeyscurrentvalue}%
3232     \pgfkeyslet\pgfkeyscurrentpath\@empty
3233     \pgfkeyslet{\pgfkeyscurrentpath/.@def}\@empty
3234     \@tfor\x:=#1\do{%
3235       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3236         \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded={%
3237           \noexpand\pgfkeysvalueof@unexpanded{\pgfkeyscurrentpath}%
3238           \noexpand\unexpanded{##1}}}%
3239       \pgfkeyslet{\pgfkeyscurrentpath\x/.@def}\@empty
3240     }},%
3241   /handlers/.store as code/.default=*,%
3242 }% /.store as code

```

**Handler definition: `/.estore as code`**

```

3243 \pgfkeys{%
3244   /handlers/.estore as code/.code={%
3245     \pgfkeysedef\pgfkeyscurrentpath{%
3246       \noexpand\pgfkeysEsetvalue{\pgfkeyscurrentpath}{##1}}%
3247     \pgfkeyslet\pgfkeyscurrentpath\@empty
3248     \@tfor\x:=#1\do{%
3249       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3250         \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded={%
3251           \noexpand\pgfkeysvalueof@unexpanded{\pgfkeyscurrentpath}%
3252           \noexpand\unexpanded{##1}}}%
3253       }},%
3254   /handlers/.estore as code/.default=*,%
3255 }% /.estore as code

```

**Handler definition: `/.store as code in cs=<cs-name>`**

```

3256 \pgfkeys{%
3257   /handlers/.store as code in cs/.code={%
3258     \pgfkeysdef\pgfkeyscurrentpath{%
3259       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3260       \else\csdef{#1}{##1}\fi}%
3261     \@tfor\x:=*\do{%
3262       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3263         \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded={%
3264           \noexpand\ifcsname#1\endcsname
3265           \noexpand\expandafter\noexpand\expandonce
3266           \noexpand\csname#1\endcsname
3267           \noexpand\fi
3268           \noexpand\unexpanded{##1}}}%
3269       \pgfkeyslet{\pgfkeyscurrentpath\x/.@def}\@empty
3270     }},%
3271   /handlers/.store as code in cs/.value required,%
3272 }% /.store as code in cs
3273 \pgfkeys{%
3274   /handlers/.estore as code in cs/.code={%

```



```

3275 \pgfkeysdef\pgfkeyscurrentpath{%
3276 \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3277 \else\csedef{##1}{##1}\fi}%
3278 \@tfor\x:=*+\do{%
3279 \pgfkeysedef\pgfkeyscurrentpath\x}{%
3280 \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded=%
3281 \noexpand\ifcsname#1\endcsname
3282 \noexpand\expandafter\noexpand\expandonce
3283 \noexpand\csname#1\endcsname
3284 \noexpand\fi
3285 \noexpand\unexpanded{##1}}}%
3286 }},% default if \pgfkeysnovalue which expands to \@empty
3287 /handlers/.estore as code in cs/.value required,%
3288 }% /.estore as code in cs

```

#### Handler definition: `/.store as color`

```

3289 \protected\def\itf@pgfk@color#1#2\@nil{%
3290 \ifx\@let@token\color
3291 \def\pgfkeyscurrentvalue{#2}%
3292 \else\ifx\@let@token\normalcolor
3293 \def\pgfkeyscurrentvalue{default}%
3294 \else\ifx\@let@token\pgfkeysnovalue
3295 \def\pgfkeyscurrentvalue{default}%
3296 \fi\fi\fi
3297 }% \itf@pgfk@color
3298 \pgfkeys{%
3299 /handlers/.store as color/.code=%
3300 \pgfkeysedef\pgfkeyscurrentpath{%
3301 \futurelet\noexpand\@let@token\itf@pgfk@color
3302 ##1\noexpand\pgfkeysnovalue\noexpand\@nil
3303 \noexpand\pgfkeyslet{\pgfkeyscurrentpath}\noexpand\pgfkeyscurrentvalue}%
3304 }% /.store as color

```

#### Handler definition: `/.store as color in cs=<cs-name>`

```

3305 \pgfkeys{%
3306 /handlers/.store as color in cs/.code=%
3307 \pgfkeysedef\pgfkeyscurrentpath{%
3308 \futurelet\noexpand\@let@token\itf@pgfk@color
3309 ##1\noexpand\pgfkeysnovalue\noexpand\@nil
3310 \cslet{##1}\noexpand\pgfkeyscurrentvalue}%
3311 }% /.store as color in cs

```

#### Handler definition: `/.store as color command`

```

3312 \protected\def\itf@pgfk@colorcmd#1\@nil{%
3313 \ifcat @\noexpand\@let@token
3314 \def\pgfkeyscurrentvalue{\color{#1}}%
3315 \else\ifcat 0\noexpand\@let@token
3316 \def\pgfkeyscurrentvalue{\color{#1}}%
3317 \else\ifx\@let@token\@nil
3318 \let\pgfkeyscurrentvalue\normalcolor
3319 \fi\fi\fi
3320 }% \itf@pgfk@colorcmd
3321 \pgfkeys{%
3322 /handlers/.store as color command/.code=%
3323 \pgfkeysedef\pgfkeyscurrentpath{%
3324 \futurelet\noexpand\@let@token\itf@pgfk@colorcmd
3325 ##1\noexpand\@nil
3326 \noexpand\pgfkeyslet{\pgfkeyscurrentpath}\noexpand\pgfkeyscurrentvalue}%
3327 \pgfkeyssetvalue{\pgfkeyscurrentpath/.def}\normalcolor
3328 }% /.store as color command

```

**Handler definition: `/.store as color command in cs=<cs-name>`**

```

3329 \pgfkeys{%
3330   /handlers/.store as color command in cs/.code=%
3331     \pgfkeysdef\pgfkeyscurrentpath{%
3332       \futurelet\noexpand\@let@token\itf@pgfk@colorcmd
3333         ##1\noexpand\@nil
3334       \cslet{##1}\noexpand\pgfkeyscurrentvalue}%
3335     \pgfkeyssetvalue{\pgfkeyscurrentpath/.@def}\normalcolor
3336 }% /.store as color command in cs

```

**Handler definition `/.store as number`**

```

3337 \pgfkeys{%
3338   /handlers/.store as number/.code={%
3339     \pgfkeysdef\pgfkeyscurrentpath{%
3340       \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath}{\numexpr##1\relax}}%
3341     \pgfkeyslet\pgfkeyscurrentpath\z@
3342     \pgfkeyslet{\pgfkeyscurrentpath/.@def}\z@
3343     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3344     \@tfor\x:=##1\do{%
3345       \pgfkeysdef{\pgfkeyscurrentpath\x}{%
3346         \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded=%
3347           \noexpand\pgfkeysvalueof@unexpanded{\pgfkeyscurrentpath}%
3348           \x
3349           \numexpr\unexpanded{##1}\relax}}%
3350       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x\@ne\else\z@\fi}%
3351       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x\@ne\else\z@\fi}%
3352     }},%
3353   /handlers/.store as number/.default=+-*,%
3354 }% /.store as number

```

**`/.store as number in cs` Handler definition: `/.store as number in cs`**

```

3355 \pgfkeys{%
3356   /handlers/.store as number in cs/.code={%
3357     \pgfkeysdef\pgfkeyscurrentpath{%
3358       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3359       \else\csdef{##1}{\numexpr##1\relax}\fi}%
3360     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3361     \@tfor\x:=+-*\do{%
3362       \pgfkeysdef{\pgfkeyscurrentpath\x}{%
3363         \letcs\noexpand\pgfkeys@temp{%
3364           \noexpand\ifcsname#1\endcsname
3365             #1\noexpand\else\if*\x \@ne\else \z@\fi\noexpand\fi}%
3366         \edef\noexpand\pgfkeys@temp{%
3367           \noexpand\pgfkeysalso{\pgfkeyscurrentpath={%
3368             \noexpand\expandonce\noexpand\pgfkeys@temp
3369             \x
3370             \numexpr\noexpand\unexpanded{##1}\relax}}%
3371           }\noexpand\pgfkeys@temp}%
3372       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x\@ne\else\z@\fi}%
3373       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x\@ne\else\z@\fi}%
3374     }},%
3375   /handlers/.store as number in cs/.value required,%
3376 }% /.store as number in cs

```

**Handler definition: `/.estore as number`**

```

3377 \pgfkeys{%
3378   /handlers/.estore as number/.code={%
3379     \pgfkeysedef\pgfkeyscurrentpath{%
3380       \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath}{%
3381         \noexpand\number\numexpr##1\relax}}%
3382     \pgfkeyslet\pgfkeyscurrentpath\z@
3383     \pgfkeyslet{\pgfkeyscurrentpath/.@def}\z@
3384     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3385     \@tfor\x:=#1\do{%
3386       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3387         \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3388           \noexpand\pgfkeysvalueof{\pgfkeyscurrentpath}%
3389           \x
3390           \numexpr##1\relax}}%
3391     }},%
3392   /handlers/.estore as number/.default=+-*,%
3393 }% /.estore as number

```

**Handler definition: `/.estore as number in cs`**

```

3394 \pgfkeys{%
3395   /handlers/.estore as number in cs/.code={%
3396     \pgfkeysdef\pgfkeyscurrentpath{%
3397       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3398       \else\csedef{#1}{\number\numexpr##1\relax}\fi}%
3399     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3400     \@tfor\x:=+-*\do{%
3401       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3402         \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3403           \noexpand\csname\noexpand\ifcsname#1\endcsname
3404             #1\noexpand\else\if*\x @ne\else z@\fi\noexpand\fi\endcsname
3405           \x
3406           \numexpr##1\relax}}%
3407       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else\z@\fi}%
3408       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else\z@\fi}%
3409     }},%
3410   /handlers/.estore as number in cs/.value required,%
3411 }% /.estore as number in cs

```

**Handler definition: `/.store in counter cs`** `/.store in count cs` is exactly the same.

```

3412 \pgfkeys{%
3413   /handlers/.store in counter cs/.code={%
3414     \pgfkeysdef\pgfkeyscurrentpath{%
3415       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3416       \else\csname#1\endcsname\numexpr##1\relax\fi}%
3417     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3418     \@tfor\x:=+-*\do{%
3419       \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3420         \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3421           \noexpand\csname\noexpand\ifcsname#1\endcsname
3422             #1\noexpand\else\if*\x @ne\else z@\fi\noexpand\fi\endcsname
3423           \x
3424           \numexpr##1\relax}}%
3425       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else\z@\fi}%
3426       \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else\z@\fi}%
3427     }},%
3428   /handlers/.store in counter cs/.value required,%
3429 }% /.store in counter cs
3430 \pgfkeys{%
3431   /handlers/.store in count cs/.code={%
3432     \pgfkeysdef\pgfkeyscurrentpath{%

```

```

3433     \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3434     \else\csname#1\endcsname\numexpr##1\relax\fi}%
3435     \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3436     \@tfor\x:=+-*\do{%
3437         \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3438             \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3439                 \noexpand\csname\noexpand\ifcsname#1\endcsname
3440                 #1\noexpand\else\if*\x @ne\else z@\fi\noexpand\fi\endcsname
3441                 \x
3442                 \numexpr##1\relax}}}%
3443     \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else z@\fi}%
3444     \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else z@\fi}%
3445     }},%
3446     /handlers/.store in count cs/.value required,%
3447 }% /.store in count cs

```

### Handlers definition: `/.store as glue`

```

3448 \pgfkeys{%
3449     /handlers/.store as glue/.code={%
3450         \pgfkeysedef\pgfkeyscurrentpath{%
3451             \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath}{\glueexpr##1\relax}}}%
3452         \pgfkeyslet\pgfkeyscurrentpath\z@skip
3453         \pgfkeyslet{\pgfkeyscurrentpath/.@def}\z@skip
3454         \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@skip
3455         \@tfor\x:=#1\do{%
3456             \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3457                 \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded=%
3458                     \noexpand\pgfkeysvalueof@unexpanded{\pgfkeyscurrentpath}%
3459                     \x
3460                     \if*\x\noexpand\itf@units@scaleNoCalc##1!
3461                     \else\glueexpr\noexpand\unexpanded{##1}\relax\fi}}}%
3462             \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else z@skip\fi}%
3463             \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else z@skip\fi}%
3464             }},%
3465     /handlers/.store as glue/.default=+-*,%
3466 }% /.store as glue

```

### Handlers definition: `/.store as glue in cs=<cs-name>`

```

3467 \pgfkeys{%
3468     /handlers/.store as glue in cs/.code={%
3469         \pgfkeysdef\pgfkeyscurrentpath{%
3470             \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3471             \else\csdef{#1}{\glueexpr##1\relax}\fi}%
3472         \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@skip
3473         \@tfor\x:=+-*\do{%
3474             \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3475                 \letcs\noexpand\pgfkeys@temp{%
3476                     \noexpand\ifcsname#1\endcsname
3477                     #1\noexpand\else z@skip\noexpand\fi}%
3478                 \edef\noexpand\pgfkeys@temp{%
3479                     \noexpand\noexpand\noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3480                         \noexpand\expandonce\noexpand\pgfkeys@temp
3481                         \x
3482                         \if*\x\noexpand\itf@units@scaleNoCalc##1!
3483                         \else\glueexpr\noexpand\unexpanded{##1}\relax\fi}}}%
3484                 }\noexpand\pgfkeys@temp}%
3485             \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else z@skip\fi}%
3486             \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else z@skip\fi}%
3487             }},%
3488     /handlers/.store as glue in cs/.value required,%
3489 }% /.store as glue in cs

```

**Handlers definition: `/.estore as glue`**

```

3490 \pgfkeys{%
3491   /handlers/.estore as glue/.code={%
3492     \pgfkeysdef\pgfkeyscurrentpath{%
3493       \if@setlength\itf@sk{##1}%
3494       \noexpand\pgfkeysEsetvalue\pgfkeyscurrentpath{%
3495         \noexpand\the\itf@sk}%
3496       \pgfkeyslet\pgfkeyscurrentpath\z@skip
3497       \pgfkeyslet\pgfkeyscurrentpath/.@def\z@skip
3498       \pgfkeyslet\pgfkeyscurrentpath/.@blank\z@skip
3499       \@tfor\x:=#1\do{%
3500         \pgfkeysdef\pgfkeyscurrentpath\x{%
3501           \noexpand\pgfkeysalso\pgfkeyscurrentpath=%
3502           \noexpand\pgfkeysvalueof\pgfkeyscurrentpath\x
3503           \if*\x \noexpand\itf@units@scale##1!
3504           \else\glueexpr##1\relax\fi}%
3505       \pgfkeysEsetvalue\pgfkeyscurrentpath\x/.@def\{if*\x\@ne\else\z@skip\fi}%
3506       \pgfkeysEsetvalue\pgfkeyscurrentpath\x/.@blank\{if*\x\@ne\else\z@skip\fi}%
3507     }},%
3508   /handlers/.estore as glue/.default=+--*,%
3509 }% /.estore as glue

```

**Handlers definition: `/.estore as glue in cs=<cs-name>`**

```

3510 \pgfkeys{%
3511   /handlers/.estore as glue in cs/.code={%
3512     \pgfkeysdef\pgfkeyscurrentpath{%
3513       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3514       \else\if@setlength\itf@sk{##1}%
3515         \csdef{##1}\the\itf@sk\fi}%
3516     \pgfkeyslet\pgfkeyscurrentpath/.@blank\z@skip
3517     \@tfor\x:=+--*\do{%
3518       \pgfkeysdef\pgfkeyscurrentpath\x{%
3519         \noexpand\pgfkeysalso\pgfkeyscurrentpath=%
3520         \noexpand\csname\noexpand\ifcsname#1\endcsname
3521         #1\noexpand\else \z@skip\noexpand\fi\endcsname
3522         \x
3523         \if*\x\noexpand\itf@units@scale##1!
3524         \else\glueexpr##1\relax\fi}%
3525     \pgfkeysEsetvalue\pgfkeyscurrentpath\x/.@def\{if*\x\@ne\else\z@skip\fi}%
3526     \pgfkeysEsetvalue\pgfkeyscurrentpath\x/.@blank\{if*\x\@ne\else\z@skip\fi}%
3527   }},%
3528   /handlers/.etore as glue in cs/.value required,%
3529 }% /.estore as glue in cs

```

**Handlers definition: `/.store in skip cs`** This is a variant of `/.estore as glue in cs` when the control sequence in a `\skip` (*ie.* a length). The skip is given by its name, not as a control sequence.

```

3530 \pgfkeys{%
3531   /handlers/.store in skip cs/.code={%
3532     \pgfkeysdef\pgfkeyscurrentpath{%
3533       \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3534       \else\expandafter\itf@setlength\csname#1\endcsname{##1}\fi}%
3535     \pgfkeyslet\pgfkeyscurrentpath/.@blank\z@skip
3536     \@tfor\x:=+--*\do{%
3537       \pgfkeysdef\pgfkeyscurrentpath\x{%
3538         \noexpand\pgfkeysalso\pgfkeyscurrentpath=%
3539         \csname#1\endcsname % should have been defined as a skip (not expandable)
3540         \x
3541         \if*\x\noexpand\itf@units@scale##1!
3542         \else\glueexpr##1\relax\fi}%
3543     \pgfkeysEsetvalue\pgfkeyscurrentpath\x/.@def\{if*\x\@ne\else\z@skip\fi}%

```



```

3544 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*x\@ne\else\z@skip\fi}%
3545 }},%
3546 /handlers/.store in skip cs/.value required,%
3547 }% /.store in skip cs

```

#### Handlers definition: `/.store as dimen`

```

3548 \pgfkeys{%
3549 /handlers/.store as dimen/.code={%
3550 \pgfkeysedef\pgfkeyscurrentpath{%
3551 \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath}{\dimexpr##1\relax}}%
3552 \pgfkeyslet\pgfkeyscurrentpath\z@
3553 \pgfkeyslet{\pgfkeyscurrentpath/.@def}\z@
3554 \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3555 \@tfor\x:=#1\do{%
3556 \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3557 \noexpand\pgfkeysalso{\pgfkeyscurrentpath/.expanded={%
3558 \noexpand\pgfkeysvalueof@unexpanded{\pgfkeyscurrentpath}%
3559 \x
3560 \if*x\ \noexpand\itf@units@scaleNoCalc##1!
3561 \else\dimexpr\noexpand\unexpanded{##1}\relax\fi}}%
3562 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*x\@ne\else\z@\fi}%
3563 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*x\@ne\else\z@\fi}%
3564 }},%
3565 /handlers/.store as dimen/.default=+-*,%
3566 }% /.store as dimen

```

#### Handlers definition: `/.store as dimen in cs=<cs-name>`

```

3567 \pgfkeys{%
3568 /handlers/.store as dimen in cs/.code={%
3569 \pgfkeysdef\pgfkeyscurrentpath{%
3570 \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3571 \else\csdef{#1}{\dimexpr##1\relax}\fi}%
3572 \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3573 \@tfor\x:=+-*\do{%
3574 \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3575 \letcs\noexpand\pgfkeys@temp{%
3576 \noexpand\ifcsname#1\endcsname
3577 #1\noexpand\else \z@\noexpand\fi}%
3578 \edef\noexpand\pgfkeys@temp{%
3579 \noexpand\noexpand\noexpand\pgfkeysalso{\pgfkeyscurrentpath={%
3580 \noexpand\expandonce\noexpand\pgfkeys@temp
3581 \x
3582 \if*\x\noexpand\itf@units@scaleNoCalc##1!
3583 \else\dimexpr\noexpand\unexpanded{##1}\relax\fi}}%
3584 }\noexpand\pgfkeys@temp}%
3585 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*x\@ne\else\z@\fi}%
3586 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*x\@ne\else\z@\fi}%
3587 }},%
3588 /handlers/.store as dimen in cs/.value required,%
3589 }% /.store as dimen in cs {csname}{+-*}

```

#### Handlers definition: `/.estore as dimen`

```

3590 \pgfkeys{%
3591 /handlers/.estore as dimen/.code={%
3592 \pgfkeysedef\pgfkeyscurrentpath{%
3593 \itf@setlength\itf@sk{##1}%
3594 \noexpand\pgfkeysEsetvalue{\pgfkeyscurrentpath}{%
3595 \noexpand\the\dimexpr\itf@sk}}%
3596 \pgfkeyslet\pgfkeyscurrentpath\z@

```



```

3597 \pgfkeyslet{\pgfkeyscurrentpath/.@def}\z@
3598 \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3599 \@tfor\x:=#1\do{%
3600 \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3601 \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3602 \noexpand\pgfkeysvalueof{\pgfkeyscurrentpath}\x
3603 \if*\x \noexpand\itf@units@scale##1!
3604 \else \dimexpr##1\relax\fi}}%
3605 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else\z@\fi}%
3606 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else\z@\fi}%
3607 }},%
3608 /handlers/.estore as dimen/.default=+-%,
3609}% /.estore as dimen

```

**Handlers definition:** `/.estore as dimen in cs=<cs-name>`

```

3610 \pgfkeys{%
3611 /handlers/.estore as dimen in cs/.code={%
3612 \pgfkeysdef\pgfkeyscurrentpath{%
3613 \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3614 \else \itf@setlength\itf@sk{##1}%
3615 \csedef{#1}{\the\dimexpr\itf@sk}\fi}%
3616 \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3617 \@tfor\x:=+-%\do{%
3618 \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3619 \noexpand\ifcsname#1\endcsname
3620 \noexpand\@defaultunits \itf@sk
3621 \noexpand\csname#1\endcsname pt\relax\noexpand\@nnil
3622 \noexpand\else \itf@sk \z@ \noexpand\fi
3623 \if*\x
3624 \itf@setlength\itf@sk {\itf@sk*\noexpand\itf@units@scale##1!}%
3625 \else
3626 \noexpand\@defaultunits\@tempdima ##1pt \relax\noexpand\@nnil
3627 \advance\itf@sk\x \@tempdima
3628 \fi
3629 \noexpand\pgfkeysalso{\pgfkeyscurrentpath=\itf@sk}}%
3630 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else\z@\fi}%
3631 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else\z@\fi}%
3632 }},%
3633 /handlers/.etore as dimen in cs/.value required,%
3634}% /.estore as dimen in cs

```

**Handlers definition:** `/.store in dimen cs` This is a variant of `/.store as dimen in cs` when the control sequence in a `\dimen`. The `dimen` is given by its name, not as a control sequence.

```

3635 \pgfkeys{%
3636 /handlers/.store in dimen cs/.code={%
3637 \pgfkeysdef\pgfkeyscurrentpath{%
3638 \ifx\pgfkeyscurrentvalue\pgfkeysnovalue@text
3639 \else\expandafter\itf@setlength\csname#1\endcsname{##1}\fi}%
3640 \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\z@
3641 \@tfor\x:=+-%\do{%
3642 \pgfkeysedef{\pgfkeyscurrentpath\x}{%
3643 \if*\x \else
3644 \noexpand\@defaultunits\itf@sk ##1pt \relax\noexpand\@nnil
3645 \fi
3646 \noexpand\pgfkeysalso{\pgfkeyscurrentpath=%
3647 \csname#1\endcsname % has been defined as a dimen (not expandable)
3648 \x
3649 \if*\x \noexpand\itf@units@scale##1!
3650 \else\itf@sk\fi}}%
3651 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@def}{\if*\x@ne\else\z@\fi}%
3652 \pgfkeysEsetvalue{\pgfkeyscurrentpath\x/.@blank}{\if*\x@ne\else\z@\fi}%

```

```

3653   }},%
3654   /handlers/.store in dimen cs/.value required,%
3655 }% /.store in dimen cs

```

### Handlers definition: `/.is multiple choice`

```

3656 \pgfkeys{%
3657   /handlers/.is multiple choice/.code=%
3658   \pgfkeys{\pgfkeyscurrentpath/.cd,%
3659     .unknown/.style={%
3660       /errors/unknown choice value=\pgfkeyscurrentkey\pgfkeyscurrentvalue},%
3661     .code=\expandafter\pgfkeys\expandafter{\pgfkeyscurrentkey/.cd,###1}%
3662   },%
3663   /handlers/.is multiple choice/.value forbidden,%
3664 }% /.is multiple choice

```

### Handlers definition: `/.is enum`

```

3665 \pgfkeys{%
3666   /handlers/.is enum/.code={%
3667     \itf@cnt\z@
3668     \@for\x:=\pgfkeyscurrentvalue\do{%
3669       \pgfkeysedef{\pgfkeyscurrentpath/\x}{%
3670         \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath}{\x}%
3671         \noexpand\pgfkeyssetvalue{\pgfkeyscurrentpath/.number}{\the\itf@cnt}}%
3672       \ifnum\itf@cnt=\z@
3673         \pgfkeyslet{\pgfkeyscurrentpath/.@def}\x
3674         \pgfkeyslet{\pgfkeyscurrentpath/.@blank}\x
3675       \fi
3676       \advance\itf@cnt\@ne
3677     }%
3678     \pgfkeysalso{\pgfkeyscurrentpath/.is choice}},%
3679   /handlers/.is enum/.value required,%
3680 }% /.is enum

3681 \pgfkeys>

```

## 21.21 Interface **etoolbox** - etoolbox-like commands

```

3682 (*etoolbox)
3683 \ProvidesPackage{interfaces-etoolbox}
3684   [2011/01/17 v2.8 more etoolbox-like commands (FC)]
3685 \RequirePackage{interfaces-base}
3686 \begingroup\catcode'\&=3
3687   \long\gdef\etb@doitem#1&\do{#1}}
3688 \endgroup

\preappto
\epreappto
\gpreappto
\xpreappto
3689 \providerobustcmd\preappto[3]{%
3690   \edef#1{\unexpanded{#2}\ifdefined#1\expandonce#1\fi\unexpanded{#3}}%
3691 }% \preappto
3692 \providerobustcmd\epreappto[3]{%
3693   \edef#1{#2\ifdefined#1\expandonce#1\fi#3}%
3694 }% \epreappto
3695 \providerobustcmd*\gpreappto{\global\preappto}
3696 \providerobustcmd*\xpreappto{\global\epreappto}

\cspreappto
\csepreappto
\csgpreappto
\csxpreappto
3697 \providerobustcmd*\cspreappto[1]{%
3698   \csname itf@\ifcsname#1\endcsname
3699     preappto\else defpreapp\fi\expandafter\endcsname
3700   \csname#1\endcsname

```

```

3701}% \cspreappto
3702\long\def\itf@preappto#1#2#3{\edef#1{#2\expandonce#1#3}}
3703\long\def\itf@defpreapp#1#2#3{\edef#1{#2#3}}
3704\providerobustcmd*\csepreappto[1]{%
3705    \csname itf@\ifcsname#1\endcsname
3706        preappto\else defpreapp\fi\expandafter\endcsname
3707        \csname#1\endcsname
3708}% \csepreappto
3709\providerobustcmd*\csgpreappto{\global\cspreappto}
3710\providerobustcmd*\csxpreappto{\global\csepreappto}

\removefrom
\eremovefrom
\gremovefrom
\xremovefrom
3711\providerobustcmd\removefrom[2]{\in@false
3712    \long\def\itf@tp##1\itf@tp{%
3713        \in@true
3714        \edef#1{\unexpanded{##1}}%
3715    }\expandafter\itf@removefrom\expandafter{#1}{#2}%
3716}% \removefrom
3717\providerobustcmd\eremovefrom[2]{\begingroup
3718    \edef\x{\endgroup\removefrom\noexpand#1{#2}%
3719    }\x
3720}% \eremovefrom
3721\providerobustcmd\gremovefrom[2]{%
3722    \removefrom{#1}{#2}%
3723    \global\let#1=#1%
3724}% \gremovefrom
3725\providerobustcmd\xremovefrom[2]{%
3726    \eremovefrom{#1}{#2}%
3727    \global\let#1=#1%
3728}% \xremovefrom

\itf@removefrom
3729\long\def\itf@removefrom#1#2{% removes #2 (code) from #1 (hook)
3730    \def\in@##1#2##2\in@{\itf@tp##1#2\in@@}%
3731    \def\in@@##1\in@@##2\in@@{%
3732        \ifx\in@##2\else##1\fi
3733    }\expandafter\in@@\in@@#1\itf@tp\in@@#2\in@\in@@
3734}% \itf@removefrom

\removefromstart
\eremovefromstart
\gremovefromstart
\xremovefromstart
3735\newrobustcmd\removefromstart[2]{\in@false
3736    \long\def\itf@tp##1\itf@tp{%
3737        \in@true
3738        \edef#1{\unexpanded{##1}}%
3739    }\expandafter\itf@removefromstart\expandafter{#1}{#2}%
3740}% \removefromstart
3741\providerobustcmd\eremovefromstart[2]{\begingroup
3742    \edef\x{\endgroup\removefromstart\noexpand#1{#2}%
3743    }\x
3744}% \eremovefromstart
3745\providerobustcmd\gremovefromstart[2]{%
3746    \removefromstart{#1}{#2}%
3747    \global\let#1=#1%
3748}% \gremovefromstart
3749\providerobustcmd\xremovefromstart[2]{%
3750    \eremovefromstart{#1}{#2}%
3751    \global\let#1=#1%
3752}% \xremovefromstart

\itf@removefromstart
3753\long\def\itf@removefromstart#1#2{% removes #2 (code) from #1 (hook)
3754    \long\def\in@##1#2##2\in@{\##1\in@\itf@tp##2\in@@}%
3755    \long\def\in@@##1\in@@##2\in@@{%

```

```
3756      \ifx\in@##1\fi
3757      }\expandafter\in@@\in@#1\itf@tp\in@@#2\in@
3758}% \itf@removefromstart

3759</etoolbox>
```

## 22 History

### [2011/01/17 v2.8]

- New: `\papergraduate` in `interfaces-TikZ`.

### [2010/12/27 v2.6]

- `\tocsetup`:  
A few new aliases for keys.  
Key `columns/sep` didn't work. Fixed.
- Generated file `interfaces-hypbmsec.code.tex` is empty since version **v2.5**.
- Fixed a bug in `\usetikz{all}`: `pgfmath` should not be loaded twice because of `\pgfmathdeclarefunction...`  
+ `pgfmodulesorting.code.tex` removed: bug in the code...
- `interfaces-TikZ`: keys `shorten>`, `shorten<`, and `shorten<>`.
- Optimisation.

### [2010/12/07 v2.5]

- `\sectionformat` now works with the `explicit` option of package `titlesec`. (in `interfaces-titlesec`)
- Compatibility with `calc` package as been implemented for `pgfkeys` handlers:

```
/.estore as dimen          /.estore as dimen in cs      /.store in dimen cs
/.estore as glue           /.estore as glue in cs       /.store in skip cs
```

As a result, it is now possible to write:

```
\sectionformat\section{labelsep=\widthof{ some text }}
\tocsetup{ section/pagenumbers/width=\widthof{ 00.00\enspace } }
```

For scaling operations, `interfaces` keeps the shrink and stretch components of glues, while `calc` discard them.

- `\listofsetup` now works properly (`interfaces-tocloft`).
- Some `+` and `*` keys added to `interfaces-fancyhdr`.
- Fix a bug of `titlesec` when inside `.dtx` files: `\input{ttlkeys.def}` shall be done with `%` as a comment character (`\BeforeFile...\AfterFile` does the trick).

### [2010/11/26 v2.4]

- `interfaces-fancyhdr`: complete key set for header, footer and offset settings  
Now keys like `foot/inner` or `head/outer/offset` are available (ouf!).
- `interfaces-hypbmsec` has been completely rewritten and is now independant of `titlesec` and `interfaces-titlesec`.  
`\lastsectiontitle` *etc.* are defined by the mean of `\GetTitleString` (from H.O. eponym package).  
`interfaces-hypbmsec` now provides `\lastsectionanchor` when used with `hyperref`.
- `interfaces-marks` revisited: expandable macros `\thefirstmarks`, `\thebotmarks` and `\thetopmarks` are now expandable in exactly one step of expansion.  
`\marksthe` and `\marksthecs` does not use `\unexpanded` (better for the `.log` file to see the marks).  
Optimization for `\getthemarks` with incidence on `\ifmarksequal`.
- `\repeatcell`: modification of the code. `&` alignment tab character is not activated and the “dirty trick” (according to D. Knuth) `\iffalse{\fi \ifnum0=‘}\fi` is used instead.
- `\htruncadjust` produced an error when used with empty text arguments – fixed.
- Modification in `\bottomtitles`: `\bottomtitlespace` should be stored as a `dimen`, not a `skip`.
- `\removefromstart` is now a `\long` macro.

**[2010/11/21 v2.3]**

- `interfaces-fancyhdr` : new keys and new aliases for header, footer and offset settings.

**[2010/11/16 v2.2]**

- Fix a bug in `interfaces-tocloft` (key `section/dotsep`).

**[2010/11/15 v2.1]**

- Improved default and blank values for bookmark levels, based on `\ttl@{section-name}`
- Correction of a bug in `\setlist`: missed a comma
- Correction of a bug in `interfaces-fancyhdr` (fixed in `/.fancy@hf` handler).

**[2010/10/31 v2.0]**

- Compatibility of `interfaces-pgfkeys` with pgf version 2.1
- Modification of the key `depth` for `\tocsetup` to be able to change the t.o.c. depth anywhere inside the document (just like bookmarks depths).
- handler `/.defcounter` has been replaced by more powerful `/.store in counter cs`

**[2010/10/27 v1.2]**

- `interfaces-hypbmsec` needed some corrections.
- The offset keys for `fancyhdr` didn't work. Fixed.
- Correction of conversion `pt` to `mu` (catcodes...)
- Added microtype to the documentation...

**[2010/10/20 v1.0]**

- First version.

## Appendix: README (for CTAN)

The `interfaces` package provides a small number of macros to modify the settings of a large number of parameters provided by Most Frequently Used Package (MFUP) for typesetting beautiful document with  $\LaTeX$ .

`interfaces` is organised as different modules which are loaded after the master package is loaded. Each module can be loaded separately.

`\sectionformat`: interface for package `titlesec` to modifies the titles produced by the sectionning commands (and their bookmarks).

`\pagesetup`: interface for package `fancyhdr` to modify the current page style or create new page styles.

`\tocsetup`: interface for package `tocloft` to fine tune the aspect of the table of contents, list of figures / of tables. `\tocsetup` also applies to `\shorttableofcontents` provided by the `shorttoc` package.

`\repeatcell`: to create 'dynamic' tabulars, possibly with formula computation (`\numexpr`, `\pgfmathparse` or `\FPeval` formulas can be plugged in the tabular or array).

`\rowfont`: to modify the font and/or the alignment of each cell in a tabular/array row.

+ some macros to make easier the use of  $\varepsilon$ - $\TeX$  `\marks` registers (useful with `\sectionformat` and `\pagesetup`).

`interfaces` is mainly based on `scrfile.sty` (provided in the Koma-Script bundle, but Koma-Script classes are not required), on `pgfkeys` and `etoolbox`.

`interfaces` defines some `pgfkeys` handlers designed specially to make key-value interface for other packages. Using those handlers allows to make an interface in a few minutes...



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Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

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